MILLENNIUM
EMS Solutions Ltd.

6111 91 Street
Edmonton, AB T6E 6V6
tel: 780.496.9048
fax: 780.496.9049

Suite 325, 1925 18 Avenue NE
Calgary, AB T2E 7T8
tel: 403.592.6180
fax: 403.283.2647

#106, 10920 84 Avenue
Grande Prairie, AB T8V 6H2
tel: 780.357.5500
fax: 780.357.5501

toll free: 888.722.2563
www.mems.ca

Grassy Mountain Coal Project
Environmental Impact Assessment
Human Health and Wildlife Screening Risk Assessment

Prepared for:
Benga Mining Limited

Prepared by:
Millennium EMS Solutions Ltd.
Suite 325, 1925 18 Avenue NE
Calgary, Alberta
T2E 7T8

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1.0 INTRODUCTION

The Human Health Risk Assessment (HHRA) describes the nature and significance of potential health risks to the local human population, associated with exposure to chemicals that could be released to the environment from the proposed Grassy Mountain Coal Project (the Project). The HHRA also assessed the potential health risks associated with existing conditions, prior to development of the project, as well as future conditions related to the Project in combination with other planned developments in the region. This section provides a description of the methods used in the HHRA as well as the findings of the assessment.

A screening wildlife risk assessment was also conducted, using the same models and air concentrations as the HHRA and is provided as an appendix to this report (Appendix H Screening Wildlife Risk Assessment).

2.0 SCOPE

2.1 Terms of Reference

The scope of the HHRA was consistent with the final Terms of Reference (TOR) for the Project issued by the Alberta Energy Regulator (AER, 2015) and the *Guidelines for the Preparation of an Environmental Impact Statement* issued by the Canadian Environmental Assessment Agency (CEAA 2015). The TOR and CEAA Guidelines are presented in Appendix 1 and 2). Appendix 1, Section 6.1 of the TOR lists the public health-related requirements; those relevant to the human health and addressed by the HHRA are as follows:

- Describe aspects of the Project that may have implications for public health or the delivery of regional health services. Determine quantitatively whether there may be implications for public health arising from the Project.
- Document any health concerns raised by stakeholders during consultation on the Project.
- Document any health concerns identified by First Nation communities or groups resulting from impacts of existing development and of the Project, specifically on their traditional lifestyle. Include an Aboriginal receptor type in the assessment.

The CEAA Guidelines (Appendix 2) relevant to human health are to include consideration of the following for Aboriginal groups and other persons in the study area:

- location of and proximity of any permanent, seasonal, or temporary residences or camps; and
- effects on the health and socio-economic conditions, including the functioning and health of the socio-economic environment, encompassing a broad range of matters that affect

communities in the study area in a way that recognises interrelationships, system functions and vulnerabilities.

2.2 Assessment Focus Based on Public and Aboriginal Consultation

Benga has conducted consultations with the surrounding community including residents of communities in the region, other organizations representing local interests and concerns (Section G and Appendix 7c), and with associated Aboriginal Groups. The Treaty 7 First Nations consulted for the Project included the Piikani Nation, Tsuut'ina Nation, Siksika Nation, and the Kainai Nation (Section H and Appendix 7c).

During interviews and workshops conducted for the socio-economic study, concerns were raised about air and water quality and the potential impact the Project may have on the health of people living downwind and downstream (Piikani Nation 2015a, 2015b) (Section H, Table H.3.8-1 and Appendix 7c). Similar observations were made about the ecological connections between wildlife and plants species and human health (Piikani 2015b). According to the Kainai TK/TU Report, several Elders recommended an emergency preparedness plan in the event of leaks, spills, or other disasters to address concerns about effects on water quality and species dependent on clean water sources (Section H, Table H.3.8-1 and Appendix 7c).

Below are excerpts from discussions during the interviews and workshops as provided by the TK/TU assessment (Section H and Appendix 7c):

- *Piikani Elders raised concerns about physical health, especially related to dust and fires since the prevailing winds are from the west through Crowsnest Pass (blowing toward Brocket). They also identified occupational risk of mining as an issue. In particular, Elders have been experiencing lung problems recently with many resulting health issues. They are already experiencing this from other projects, including Turner Valley and the gas wells, related to the westerly wind from the mountains to the plains* (Piikani Nation 2015a).

- *…the main concern is water quality because the water from the mine flows into the Old Man River and there are endangered fish species in Blairmore and Gold Creeks (i.e., cutthroat trout).* (Piikani Nation 2015a).

- *That has a chain effect: if you alter their migration and then alter their food source, then with the mining activities, their health might be affected. In the long run, people will use these animals and then their heath will be affected. The hooved animals. There needs to be regulations for clean water too* (Piikani Nation 2015b).

During consultation with the Treaty 7 First Nations (Section H, H.4.3.2, H.5.3.2, H.6.3.2, H.7.3.2, H.8.2.2, H.9.4.1, H10.2.2, H.11.2.2, H.12.2.2, H.13.2.2, and Appendix 7c) plant and animal species around Grassy Mountain which have historical medicinal, spiritual, and country food purposes were identified. The plant species identified included: lodgepole pine, sweet pine, birch, aspen, cottonwood, wild licorice, horsetail, juniper, bearberry, tree lichen, yarrow, rose hip, raspberries, thimbleberries, teaberry, bear root, hawthorn berry, scouring rush, Saskatoon berry, dogberry, mountain sage, sweetgrass, mountain holly fern, cranberry, and mushrooms. Animal species identified around Grassy Mountain included: trout, moose, elk, deer, cougar, wolf, badger, porcupine rabbit, buffalo, otter, squirrel, grizzly bear, lynx, woodpecker, grouse, wild turkey, crows, and golden eagle.

3.0 SUMMARY OF EXISTING CONDITIONS

3.1 Current Health Status in the Region

The Project is situated within the Alberta Health Services, South Zone. In 2006, Alberta Health and Wellness published the *Report on the Health of Albertans* (AHW, 2006), which examined the relative health status of people living in various areas of the province based on 2003 data. The report compared the health of all Albertans in terms of a number of health determinants, including: self-perceived health status; tobacco use; cancer screening; body weight; nutrition; disability and functional limitations; alcohol and drug use; and physical activity. The study also examined mental health and non-communicable diseases. The available statistical data did not disseminate the data specific to smaller populations within the area (*e.g.* specific towns or Aboriginal communities). Similar but more recent data (from 2011-2012) are presented by Statistics Canada (2013); however, due to the reorganization of Alberta's health regions, the data are not directly comparable. Through the reorganization, the former Chinook and Palliser regions have been combined and re-named as the South Zone; consequently, the Project is now defined by the South Zone regional data, as it is situated within the former Chinook region.

A number of factors, or health determinants, influence an individual's overall health, including environmental quality, lifestyle choices, socio-economic factors and genetics. The health determinants reported by Alberta Health and Wellness and Statistics Canada are reflective of a number of these factors and provide a general picture of population health. The health determinants considered relevant to this HHRA that are descriptive of the current health status of persons in the South Zone are summarized briefly in the following paragraphs.

Self-Perceived Health Status

Approximately 60% of the population in the Chinook region reported their health as very good or excellent, compared to approximately 64% of Albertans, in 2003. Similar values were reported for the South Zone (59.0%) and Alberta (62.1%) in 2011-2012.

Body Weight

Similar percentages of the population were considered overweight and obese in the Chinook region and in Alberta in 2003. In 2011-2012, similar percentages of the population were considered overweight in the South Zone compared to the Alberta population; however, a significantly higher percentage was classified as obese in the South Zone (23.5%) compared to the Alberta population (18.9%).

Lifestyle Factors

The incidence of smoking was lower in the Chinook region (approximately 20%) compared to the Alberta population (approximately 23%) in 2003. Tobacco use in 2011-2012 was reported to be 26.6% in the South Zone and 21.6% in Alberta as a whole. The incidence of heavy drinking (five or more drinks on one occasion, twelve or more times per year) was similar in the Chinook (2003) and South (2011-2012) regions compared to Alberta overall. The prevalence of treated substance abuse in the Chinook region was significantly higher than the provincial average (1.1 compared to 0.7 per 100 in 2003).

Fewer individuals in the Chinook region (32%) consumed more than five servings of fruits and vegetables daily compared to the overall province (36%) in 2003, with similar results between the South Zone (35.8%) and the overall province (39.6%) in 2011-2012. The percentage of individuals describing themselves as physically active or moderately active was similar in the South region compared to the province as a whole in both 2003 and 2011-2012.

Socio-Economics

The level of unemployment and percentage of people considered to be of low income was similar in the South Zone compared to that of the province as a whole in 2011-2012.

Non-Communicable Diseases

In 2011-2012, the incidences of colorectal cancer and breast cancer were slightly higher in the South Zone compared to the province, but the incidences of lung cancer and prostate cancer were lower in

the South Zone than the across the province. The overall cancer rate (all cancers) was lower in the South Zone (377.5 per 100,000 population) compared to the province (394.8 per 100,000 population).

Of the major respiratory illnesses, the incidences of asthma, chronic bronchitis and chronic obstructive pulmonary disease (COPD) were lower in the Chinook region in 2003 compared to Alberta overall. Asthma and COPD were less slightly more prevalent in the South Zone than across Alberta in 2011-2012.

Of the cardiovascular diseases, the prevalence of ischaemic heart disease and hypertension was lower in the Chinook region compared to Alberta in 2003; however, the prevalence of cerebrovascular disease was higher in the Chinook region in 2003.

Rates of diabetes were higher in the Chinook region than in Alberta as a whole in 2003, but were slightly lower in the South Zone than the province in 2011-2012. Rates of arthritis were elevated in the Chinook region in 2003 and in the South Zone in 2011-2012, compared to provincial rates.

Mental health disorders were higher than the provincial average in the Chinook region; however, anxiety and depression were less prevalent in the Chinook region in 2003 compared to the province. In 2011-2012, the hospitalization rate and patient days for mental illnesses were higher in the South Zone compared to Alberta.

4.0 ASSESSMENT APPROACH

4.1 Valued Component

Human health was identified as the Value Component (VC) for the HHRA. The measurable parameters used to assess the potential impact on this VC are the results of the detailed quantitative health risk assessment conducted in this HHRA.

4.2 Assessment Cases

In accordance with the AEP guidance (ESRD 2013a), the HHRA considered the following assessment cases:

Baseline Case: The Baseline Case includes potential health risks associated with emissions from existing and approved developments in the region, as well as other non-industrial sources.

Application Case: The Application Case includes potential health risks associated with existing and approved developments in combination with emissions from the Project (*i.e.*, Baseline Case plus Project).

Planned Development Case (PDC): The PDC considers potential health risks associated with the combined emissions from existing and approved developments, the Project and planned future developments in the region, based on projects announced up to February 2016 (*i.e.,* Application Case plus future projects).

However, as the Air Quality Assessment did not identify any planned projects in the area, a PDC Case was not required for the current assessment. In order to correctly assess the potential risk associated with carcinogenic chemicals, air concentrations for Project only emissions were also predicted (Consultant Report #1a, Air Quality Assessment). Thus, the HHRA included assessment of a Baseline Case, Application Case and Project only emissions.

4.3 Temporal Considerations

The anticipated operational life of the Project is 24 years. The timeframe over which potential health risks were evaluated ranged from short term or acute exposures, to long term or chronic exposures. Acute exposures are considered to extend over time periods ranging from hours to days, whereas chronic exposures encompass time periods of months to years, sometimes covering the entire lifetime of an individual. Even though the life of the Project is shorter than the lifetime of a typical individual, chronic exposures in this assessment were conservatively assumed to occur over a period of 80 years, the assumed human lifetime duration recommended by Health Canada (2010a).

4.4 Spatial Considerations

The Project is located in southwest Alberta near the Crowsnest Pass. The spatial area considered by the HHRA was based on the potential extent of air quality effects arising from the Project, as determined by the emissions source characteristics and air quality processes, together with the locations of nearby communities and other human activities. As such, the spatial boundaries of the HHRA are the Local Study Area (LSA) and Regional Study Area (RSA) as defined in the Air Quality Assessment (Consultant Report #1a).

The LSA is a 10 km by 15 km area centred on the facility. It was selected to include key local receptors but also to exclude most regional emissions sources in order to differentiate Project impacts from the effects of regional projects.

The RSA is a 30 km by 35 km area, centred near the northern boundary of the LSA. The RSA was selected to include the communities of Maycroft, Blairmore, Frank, Bellevue, and Hillcrest as well as any other emissions in the area. The LSA and RSA are shown on Figure A.1 in Appendix A.

4.5 Evaluation of Significance

The Project related valued component (VC) for HHRA was identified as health. Evaluating the potential effects of the Project for the VC requires the clear identification of management objectives. For HHRA, the results of the detailed quantitative risk assessment, which quantified the potential exposure and risk of adverse health effects associated with the Project activities, were used to determine significant impact.

The potential impact and evaluation of significance was conducted using methods described in Section D, with some HHRA specific modifications.

- **Magnitude:** Predicted health risks were calculated as hazard quotients (HQs) or incremental lifetime cancer risk (ILCR) quotients based on a comparison of predicted exposures to safe toxicological reference values (TRV). Magnitude ratings were classified as "nil", "low", "moderate", or "high" based on the quantitative health risk results. A magnitude rating of "nil" was assigned when the predicted HQ/ILCR quotient is substantially less than 1.0; "low" when predicted HQ/ILCR quotient greater than 1.0 and less than 5.0; "moderate" when predicted risks were greater than 5.0 and less than 10; and" high" when the predicted risks were greater than 10. When the predicted health risk results were below the TRVs (a magnitude rating of "nil") the potential impact of the Project on the VC was automatically defined as "not significant" and further assessment of the remaining attributes was not required. Health risks with a magnitude ranking of "low", "moderate", or "high" were assessed for all the attributes described below.
- **Geographic Extent:** If the expected measurable changes are limited to the area immediately surrounding the Project within the LSA, the geographic extent was interpreted as being "local". If the expected measurable changes extend beyond the immediate project area, and are within the RSA, they were considered "regional". If the expected changes extend beyond the RSA they may be interpreted as being "provincial".
- **Duration:** The expected measurable change was characterized depending on when, during the life of the mine, Project emissions were predicted to occur. This attribute was defined as "short" when emissions occurred within the development phase only; "long" when emission occurred during the operation of the facility; "extended" when emissions continued immediately after closure; and, "residual" when emissions occurred after facility closure.
- **Frequency:** The HHRA assessed potential exposure for acute ("periodic") and chronic ("continuous") durations. While emissions will occur for the full duration of the Project, changes in air quality will have temporal variability due to the natural fluctuations in

meteorology (wind speed, wind direction, temperature), and short and long-term variability in emissions based on operational patterns. The conditions resulting in the highest predicted air concentrations only occur under a limited set of conditions that only persist for short durations. Within the multimedia assessment, deposition to soil and surface water is a chronic ("continuous") duration.

- **Reversibility:** The predicted health risks are associated with the Project air emissions, therefore contribution to ambient concentration and direct deposition to receptors ceases when Project emissions cease. In the case of exposure to carcinogens, it is conservatively assumed that the predicted health risks would be irreversible. For non-carcinogens the reversibility of health effects depends on the critical toxic effect. For example, irritation would be considered a reversible effect, while developmental impacts would be considered irreversible.
- **Probability of Occurrence:** The conservative nature of the assumptions used in the risk assessment regarding human exposure patterns and toxicity are intended to provide a worst-case scenario that is not necessarily representative of actual human activity patterns or susceptibility to the project emissions. Most emissions occur continuously, but the combination of maximum project emissions and meteorological conditions conducive to worst case predicted concentrations may not occur. The indicator "probability of occurrence" integrates all these issues and qualitatively determines the extent to which predicted adverse health effects may occur where "low" is unlikely, "medium" is possible or probable, and "high" is certain.
- **Confidence:** A confidence ranking of "low", "medium" or "high" was determined based on a review of the representativeness of predicted air concentrations, receptor characterisation and exposure parameters, and the toxicological data.
- **Significance:** An integrated assessment of the impact for each health risk parameter based on individual descriptors, summarizing the significance of Project impacts. "Not Significant" is defined as effects predicted to be within the range of natural variability and below guidelines or threshold levels. "Significant" is defined as an adverse health effect associated with exposure to Project emissions.

5.0 ASSESSMENT METHODS

The HHRA was conducted using standard methods endorsed by regulatory agencies; specifically, the risk assessment followed the Alberta Health and Wellness (2011) *Guidance on Human Health Risk*

Assessment for Environmental Impact Assessment in Alberta. Additional guidance published by Health Canada (2010a,b) and United States Environmental Protection Agency (US EPA, 2005) was also consulted. The risk assessment used reasonable worst-case assumptions to ensure that risk estimates would be conservative.

The risk assessment included four main steps:

- Problem formulation: where chemicals of potential concern (COPCs), potential receptors and operative exposure pathways are identified. Determination of which COPCs could accumulate in other media (soil, water, food) was also conducted at this stage.
- Exposure assessment: including evaluation of concentrations of volatile COPCs in air to which receptors could be exposed, and an estimation of exposure through secondary exposure *via* other media.
- Toxicity assessment: where potential adverse effects of COPCs are identified and relationships between exposure and potential toxic effects established.
- Risk characterization: where the results of the exposure and toxicity assessments are used to determine the potential for adverse effects.

5.1 Problem Formulation

The problem formulation is the initial phase of a human health risk assessment. It is used to determine which chemicals, receptors, exposure scenarios and exposure pathways are considered in the risk assessment.

5.1.1 Chemical Inventory

Project Emissions to Air

Contaminants of potential concern (COPCs) were identified through an inventory of expected Project air emissions, as described in the Air Quality Assessment (Consultant Report #1a). The Project was assumed to have no direct effect on water quality (Consultant Report #3 – Hydrogeology, Consultant Report #4 – Surface Water Quality); therefore, emission into air were the only Project related chemical source which required detailed exposure risk assessment in the HHRA.

The COPCs identified for the project included:

- criteria air contaminants (CACs);
- metals;
- polycyclic aromatic hydrocarbons (PAHs); and
- volatile organic compounds (VOCs).

The HHRA evaluated the potential health risks for all of the identified COPCs for which adequate toxicological data was available. A list of the chemicals included in the HHRA is presented in Table 5.1.1-1.

Table 5.1.1-1 Chemicals of Potential Concern (COPCs)

Chemical Group	Chemicals
Criteria Air Contaminants	Carbon Monoxide (CO) Nitrogen Dioxide (NO_2) Sulphur Dioxide (SO_2) Particulate Matter <2.5 µm ($PM_{2.5}$) and <10 µm (PM_{10}) Total Suspended Particulates (TSP)
Metals	Aluminum Antimony Arsenic Barium Beryllium Cadmium Chromium II, III Chromium VI Cobalt Copper Lead Manganese Mercury Molybdenum Nickel Selenium Thallium Uranium Vanadium Zinc
Polycyclic Aromatic Hydrocarbons (PAH)	Acenaphthene Acenaphthylene Anthracene Benz[a]anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene

Table 5.1.1-1 Chemicals of Potential Concern (COPCs)	
Chemical Group	**Chemicals**
	Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Phenanthrene Pyrene
Volatile Organic Compounds (VOCs)	Acetaldehyde Acrolein Benzene Formaldehyde Propylene Toluene Xylenes

Assessment of acute and chronic inhalation was completed for all COPCs. A multimedia exposure assessment, which included exposure through secondary oral and dermal contact pathways, was only completed for a subset of the identified COPCs. The screening process for the multimedia assessment was based on guidance from US EPA (2003) and California EPA (1994) using physical/chemical properties of the COPCs. Following this guidance, only those COPCs with low volatility indicating potential to be present in media other than air and those COPC which may bioaccumulate in plant or animal tissue over time were included.

Those chemicals that met one of the following criteria were selected as COPC for the multimedia assessment:

- Molecular weight >200 g/mol;
- Henry's Law constant $<1.0 \times 10^{-5}$ atm-m^3/mol;
- Vapour pressure $<1.0 \times 10^{-3}$ mm Hg; and
- Log octanol-water partition coefficient (log K_{ow}) >3.5 (indicating a potential to bioaccumulate).

Metal compounds were automatically all included as they were assumed to persist in the environment. The results of the multimedia COPC screening are summarized in Table 5.1.1-2.

Table 5.1.1-2 Physical-Chemical Properties of COPCs

COPC	Molecular Weight	Vapour Pressure	log K_{ow}	Henry's Law Constant
	g/mol	mm Hg	unitless	atm·m³/mol
PAHs				
Acenaphthene	1.54E+02	2.20E-03	**3.92E+00**	1.80E-04
Acenaphthylene	1.52E+02	6.70E-03	**4.00E+00**	1.10E-04
Anthracene	1.78E+02	**6.50E-06**	**4.54E+00**	5.60E-05
Benz[a]anthracene	**2.28E+02**	**2.10E-07**	**5.91E+00**	**1.20E-05**
Benzo(a)pyrene	**2.52E+02**	**5.50E-09**	**6.13E+00**	**4.60E-07**
Benzo(b)fluoranthene	**2.52E+02**	**5.00E-07**	**5.80E+00**	**6.60E-07**
Benzo(g,h,i)perylene	**2.76E+02**	**1.00E-10**	**6.50E+00**	**3.30E-07**
Benzo(k)fluoranthene	**2.52E+02**	**9.70E-10**	**6.00E+00**	**5.80E-07**
Chrysene	**2.28E+02**	**6.20E-09**	**5.60E+00**	**5.20E-06**
Dibenzo(a,h)anthracene	**2.78E+02**	**9.60E-10**	**6.75E+00**	**1.40E-07**
Fluoranthene	**2.02E+02**	**9.20E-06**	**5.22E+00**	**8.90E-06**
Fluorene	1.66E+02	**6.00E-04**	**4.18E+00**	9.60E-05
Indeno(1,2,3-cd)pyrene	**2.76E+02**	**1.30E-10**	**7.53E+00**	**3.50E-07**
Naphthalene	1.28E+02	8.50E-02	3.37E+00	4.40E-04
Phenanthrene	1.78E+02	**1.20E-04**	**4.57E+00**	4.20E-05
Pyrene	**2.02E+02**	**4.50E-06**	**5.18E+00**	1.20E-05
VOCs				
Acetaldehyde	4.41E+01	9.00E+02	4.50E-01	6.70E-05
Acrolein	5.61E+01	2.70E+02	1.00E-01	1.20E-04
Formaldehyde	3.00E+01	3.90E+03	3.50E-01	**3.40E-07**
Benzene	7.81E+01	9.48E+01	-	5.40E-03
Propylene	4.21E+01	7.5E+03	2.2E+02	9.6E-04
Toluene	9.21E+01	2.84E+01	-	6.64E-03
Xylenes	1.10E+02	7.99E+00	-	5.18E-03

* –Values from Health Canada (2010b) and US EPA HHRAP Companion Database

BOLD – parameter assessed using the multimedia model

5.1.2 End Pit Lake

The end of mine plan includes creation of one end pit lake located at the north east portion of the mine plan (Figure X). The water quality predicted to occur within the end pit lake is discussed in the Water Quality assessment (CR#5,). The HHRA assumed that there were will be no changes in surface water quality for the reclaimed landscape as a result of the end pit lake.

5.1.3 Identification and Characterization of Receptors

Several groups were identified that could potentially be impacted by the Project. Local residents, communities, and any people spending time near the Project could be exposed to the COPCs. For the current HHRA, a select number and type of potential human receptors and receptors locations were identified to best represent persons potentially exposed to the predicted Project emissions.

5.1.3.1 Human Receptor Locations and Groups

Within a typical HHRA, potential human receptors can be divided into general groups:

- Aboriginal residents;
- agricultural residents;
- other area residents;
- workers; and
- visitors to the area.

With the exception of workers, these receptor groups could include any age; consistent with Health Canada (2010a), characteristics are defined separately for infant, toddler, child, teen, and adult receptors.

The current HHRA considered the entire LSA and RSA, and assessed the maximum chemical concentrations predicted by the air quality assessment for specific locations within the LSA and RSA. The RSA and LSA boundaries were the same as those defined for the Air Quality assessment (Appendix A, Figure A.1,). To ensure that the locations of any sensitive receptors or where people would likely spend the most time were captured, specific locations within the LSA and RSA were identified for evaluation in the HHRA. These included the potential for local residential communities, Aboriginal residential areas, Aboriginal land use areas (such as hunting and plant gathering) and recreational areas.

The human receptor locations were identified from the Benga community liaison, the Traditional Knowledge/Traditional Land Use, Land and Resource Use and Socio-Economic disciplines based on the results of each disciplines' community consultation programs. Each discipline was requested to

identify, from the information available to them, all locations where there is a residence, seasonal cabin, recreational area (*e.g.*, camp ground), or significant hunting or fishing areas located within the RSA boundary and LSA boundaries.

Through discussions with the Benga community liaison, all known communities, rural residences and seasonal cabins, and recreation areas within the municipal districts of Pincher Creek, Crowsnest Pass and Ranchland's were identified and over 500 potential HHRA receptor locations were identified (Figure A.2). As a result of this large number, the receptor locations selected for the HHRA were narrowed down by requesting additional information from Benga who in turn went back to the municipalities and local knowledge so that the best representation of each of the five general receptor groups could be captured for the assessment.

During the Project construction and operation phases, access to the area within the mine permit boundary will be prohibited to the public (Section C; C.6.14). The general public will not be able to access the mine permit boundary area. Access on mine related roads and trails within the mine permit boundary will not be allowed for hunting, fishing or food gathering. However, as there are currently a number of privately owned cabins located on the Eastern edge of the Mine Permit Boundary, four of the HHRA receptor locations were selected to represent potential exposure in that area (Residential locations #10, 11, 12, and 13).

Through ground-truthing field work and discussions with the Treaty 7 First Nations (Section H and Appendix 7c), seven main areas were identified as hunting and plant gathering areas (Figure A.3). For the purposes of the HHRA, the centre of each area was identified as a potential Aboriginal HHRA receptor location. As the area within the Mine permit boundary will be inaccessible during construction and operation of the mine, no hunting and gathering areas were assessed within the permit boundary. Only one area was identified as outside of the mine permit boundary (on the Western edge); this was selected to represent an Aboriginal hunting and food collection area for the HHRA (location R9, Figure A.4). Although location R9 was identified as a potential area for collection of country foods, it was conservatively assumed to be a hypothetical Aboriginal residential location.

From the information collected, 13 HHRA receptors were selected (Table 5.1.3-1, Figure A-4). In addition, both the LSA-MPOI and RSA-MPOI were also included in the HHRA as hypothetical worst-case receptor locations, as they represent locations of the highest predicted air concentrations and thus, the highest potential risk of adverse health effects. Thus, a total of 15 HHRA receptor locations were assessed. The following receptor types were assessed in the HHRA:

- Residential receptor – assumed at all HHRA locations except for R9 (Aboriginal) R1(camp ground);
- Aboriginal receptor – conservatively assumed at all receptor locations; and

- Recreational receptor – assumed at R1.

Other than proposed Project related operations, no other industrial activities requiring work camps were identified within the RSA; therefore, a worker receptor type was not required in the HHRA. The HHRA did not assess potential health impact for future workers at the Project, as it was assumed all occupation health and safety regulatory requirements would be followed to protect these receptors.

Table 5.1.3-1 Receptor Locations

Receptor Name	Location Number	UTM-E [m]	UTM-N [m]
Lost Lemon Campground	R1	683,303	5,498,852
Trapper's Cabin #1	R2	685,018	5,514,269
Residential #1	R3	678,712	5,501,481
Residential #2	R4	693,350	5,519,213
Residential #3	R5	693,409	5,515,330
Coleman	R6	680,262	5,501,388
Frank	R7	687,770	5,497,670
Blairmore North	R8	684,940	5,498,786
Aboriginal (traditional land use) [a]	R9	683,782	5,504,555
Residential #4	R10	687,336	5,507,081
Trapper's Cabin #2	R11	687,682	5,510,209
Residential #5	R12	688,191	5,503,649
Residential #6	R13	687,984	5,505,267
Blairmore Centre	R14	684,745	5,498,200
RSA-MPOI[b]	RSA-MPOI	-	-
FL-MPOI[c]	FL-MPOI	-	-

[a] Aboriginal = Treaty 7 First Nations

[b] Regional study area- maximum point of impingement (MPOI)

[c] Fenceline-MPOI

5.1.3.2 Receptor Characteristics

Inhalation exposures are evaluated using predicted air concentrations and no other characteristics of receptors are required. For multimedia exposures, however, the amount of exposure is dependent on

characteristics such as diet and the intake rates of exposure media. Receptor characteristics were based on recommendations from Health Canada (2010a,b); dietary composition was based on data on Aboriginal food consumption patterns (Health Canada 2010a,b, Wein *et al.*, 1990). Local consultation conducted by the Traditional Knowledge discipline was used along with surveys to identify vegetation and wildlife common to the area. The following plant and animal species have historically been collected within the RSA by Treaty 7 First Nations communities for consumption as country foods (Section H and Appendix 7c):

- plant: wild licorice, bear root, Labrador tea, indian potato, tamarack, tree lichen, red water grass, yellow aven, bearberry, horsetail, juniper, tree lichen/moss, yarrow, rose hip, raspberries, blueberries, thimbleberries, mushrooms; and
- animal: trout, moose, buffalo, deer, elk, sheep, rabbit squirrel, wild turkey.

Receptor characteristics selected to best represent each receptor are summarized in Table 5.1.3-2.

Table 5.1.3-2 Human Receptor Characteristics[1]

Parameter	Infant	Toddler	Child	Teen	Adult	Worker
Age	0 - 6 mo.	7 mo. - 4 y	5 - 11 y	12 - 19 y	≥ 20 y	≥ 20 y
Body weight (kg)	8.2	16.5	32.9	59.7	70.7	70.7
Soil ingestion rate (g/d)	0.02	0.08	0.02	0.02	0.02	0.1
Water ingestion rate (L/d)	0.3	0.6	0.8	1	1.5	1.5
Air inhalation rate (m3/d)	2.2	8.3	14.5	15.6	16.6	33.6
Ingestion of Plants						
Plant ingestion rate (g/d)	0	67	98	120	137	0
Root vegetable ingestion rate (g/d)	0	105	161	227	188	0
Berry ingestion rate (g/d)	0	5	11	19	23	0
Labrador tea ingestion rate (g/d)	0	1	1	3	3	0
Cattail ingestion rate (g/d)	0	1	1	3	3	0
Ingestion of Wild Game and Fish[2]						
Moose ingestion rate (g/d)	0	22.95	32.4	47.25	59.4	0
Grouse ingestion rate (g/d)	0	5.95	8.4	12.25	15.4	0
Hare ingestion rate (g/d)	0	11.9	16.8	24.5	30.8	0

Table 5.1.3-2 Human Receptor Characteristics[1]						
Caribou ingestion rate (g/d)	0	22.1	31.2	45.5	57.2	0
Deer ingestion rate (g/d)	0	22.1	31.2	45.5	57.2	0
Fish ingestion rate (g/d)	0	95	170	200	220	0
Dermal Exposures						
Surface area – hands (cm^2)	320	430	590	800	890	890
Soil loading to hands (g/cm^2-event)	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04
Surface area – other (cm^2)	1,460	2,580	4,550	7,200	8,220	2,500
Soil loading to other surfaces (g/cm^2-event)	1.00E-05	1.00E-05	1.00E-05	1.00E-05	1.00E-05	1.00E-05
Ingestion of Breast Milk by Infants						
Breast milk ingestion rate (g/d)	664	0	0	0	0	0

1 values from Health Canada (2010a) unless otherwise stated
2 for Aboriginal receptors; overall wild game ingestion rate based on Health Canada (2010b), proportion by wild game species estimated for region based on Wein *et al.*, 1990

5.1.4 Exposure Pathway Identification

In order for the human receptors to be exposed to emissions from the project, they must come into contact with COPCs. Direct inhalation of air was assumed to be the primary exposure pathway; however, several secondary pathways were also identified for the multimedia assessment:

- COPCs in air can be deposited onto soil in the surrounding area. Receptors may then be exposed by direct contact with soil, inadvertent ingestion of soil, and inhalation of dust.
- COPCs could accumulate in local vegetation, through direct deposition from air or uptake from affected soils. Receptors may then be exposed by ingestion of local vegetation.
- COPCs in soil, plants, and water can be ingested by local wildlife. Receptors may then be exposed by ingestion of local wild game.
- The Project is not expected to have any direct effect on water quality or aquatic health (Consultant Report #3 – Hydrogeology, Consultant Report #4 – Surface Water Quality and Consultant Report #5 – Fisheries). However, as COPCs in air can be deposited onto surface water, exposure through ingestion of surface water, contact with surface water while swimming, and ingestion of fish were considered in order to conservatively estimate total potential exposure.

A summary of the applicable exposure pathways for each receptor group is presented in Table 5.1.4-1.

Table 5.1.4-1 Multimedia Exposure Pathways	
Exposure Pathway	**Receptor Groups**
Direct Contact with COPCs in Soil	Aboriginal Other Area Residents
Ingestion of Local Vegetation	Aboriginal Agricultural
Ingestion of Wildlife	Aboriginal
Contact with Surface Water and Fish Ingestion	Aboriginal

5.1.5 Conceptual Site Model

A conceptual site model (CSM) is provided in Appendix A (Figure A.5). This CSM illustrates an overview of the results of the problem formulation.

5.2 Exposure Assessment

The exposure assessment involved the estimation of the amount of each COPC that receptors may be exposed to, based on reasonable worst-case assumptions.

5.2.1 Inhalation

Inhalation exposure is evaluated using the results of air dispersion modelling conducted as part of the Air Quality assessment. Maximum predicted short-term and annual average concentrations were used, except for SO_2 and NO_2 where 9th highest concentrations were evaluated and $PM_{2.5}$ for which 99th percentile concentrations were evaluated, consistent with regulatory practices (ESRD, 2013b). Concentrations were predicted both over a grid covering the LSA and RSA and at specific receptor locations as described above.

Concentrations were evaluated separately for the Project, Baseline, and Application cases. Concentrations included both emissions associated with the project and the emissions from other sources within the RSA. Details of the air dispersion modelling are provided in the Air Quality Assessment.

For purposes of estimating exposure, it was assumed that humans would be continuously exposed for the averaging periods being evaluated.

5.2.2 Multimedia Exposure

The multimedia exposure assessment evaluated secondary exposure through oral and dermal routes. The processes involved are only relevant for chemicals that can potentially accumulate in media other than air; many of the COPC associated with Project emissions are too volatile to be present in soil, water or food.

As discussed in Section 5.1.1 above, the multimedia COPC screening was based on molecular weight, Henry's law constant, vapour pressure and log K_{ow}. The results of the screening are summarized in Table 5.2.2-1.

Table 5.2.2-1 Chemicals of Potential Concern (COPCs)

Chemical Group	Chemicals
Metals	Aluminum Antimony Arsenic Barium Beryllium Cadmium Chromium (II, III and VI) Cobalt Copper Lead Manganese Mercury Molybdenum Nickel Selenium Thallium Uranium Vanadium Zinc
Polycyclic Aromatic Hydrocarbons (PAH)	Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene

Table 5.2.2-1 Chemicals of Potential Concern (COPCs)	
Chemical Group	**Chemicals**
	Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Phenanthrene Pyrene
Volatile Organic Compounds (VOCs)	Formaldehyde

The multimedia assessment included consideration of background/ambient concentrations of COPCs in the Baseline and Application cases, combined with predictive modelling based on Project air emissions.

The multimedia modelling equations published by US EPA (2005) were used to predict the concentrations of COPCs present in soil, surface water, plants, and wild game. Deterministic calculations were used based on predicted air concentration and deposition rates, published physical-chemical properties of the COPCs, expected physical conditions within the study area, and physical characteristics of human receptors. Reasonable worst-case assumptions were used in the calculations. Complete details on the model inputs, equations, and a sample calculation are provided in Appendix E (Multimedia Model Equations and Sample Calculations). Results of the multi-media model predict total exposure doses as mg/kg body weight/day for each receptor age group and location, each of which were carried forward into the risk characterization (Appendix F Detailed Multimedia Model Results).

An HHRA baseline sampling program was conducted July 22-31, 2014 and September 5-9, 2014. The HHRA baseline sampling program included the collection and chemical analysis of vegetation and soil samples. Within the program, efforts were made to collect berries and leaves typically consumed through local harvesting; the results were dependant on the time of year samples were collected and the availability of specific species in the areas sampled. Complete results from the soil and vegetation sampling program are provided in Appendix G (Baseline Sampling Program). A total of 21 soil samples and 25 vegetation samples were collected from the soils and vegetation LSAs (Appendix G, Figure G-1), respectively, and were analyzed for metals and PAHs. Where there was a sufficient number of samples, the 95th percentile background soil concentrations were applied to the baseline

and application scenarios (AHW 2011). These concentrations were included in exposure calculations for the HHRA. Where media concentrations were measured as below detection limit, the input value used for the exposure modelling was the highest of either half the detection limit, or the concentration predicted *via* deposition and uptake in the multi-media model.

5.3 Toxicity Assessment

The toxicity assessment involves establishing the relationship between the amount of a chemical to which a person is exposed over a specified duration, and the potential for adverse health effects. The exposure limit, or the amount of chemical identified to be a safe exposure concentration is the toxicity reference value (TRV). Within the toxicity assessment step of the HHRA, TRVs are identified for all COPCs and exposure pathways.

Chemicals are typically divided into two categories for the purposes of human health risk assessment: threshold and non-threshold chemicals. Threshold chemicals, which are generally non-carcinogens, are chemicals for which it is believed a certain minimum dose (the "threshold") must be exceeded before adverse effects are expected to occur. The inhalation toxicity of threshold chemicals is evaluated using a tolerable concentration (TC), also often referred to as a reference concentration (RfC). The TC represents an average concentration to which a person could be exposed over the time period of interest without any expectation of adverse health effects after accounting for uncertainties in the understanding of the chemical's toxicity and variability in the population. For oral toxicity, the tolerable daily intake (TDI), also referred to as the reference dose (RfD), represents an average level of exposure at which no adverse effects are expected. Threshold effects can be evaluated for acute exposures (*e.g.,* 10 minute, 1 hour or 24 hour average concentrations) or chronic durations (years to lifetime exposure).

Non-threshold chemicals, which are generally genotoxic and mutagenic carcinogens, are not believed to have a threshold below which no effects would occur. Instead, toxicity is expressed based on the risk of developing cancer for a particular level of exposure. Non-threshold effects are evaluated over a lifetime since the risk of developing cancer is generally assumed to be related to the lifetime cumulative exposure. A slope factor (SF) represents the relationship between an oral exposure dose and the risk of developing cancer, while a unit risk (UR) represents the relationship between an inhalation exposure concentration and the risk of developing cancer. The toxicity can also be expressed as a risk-specific dose (RSD) and risk-specific concentration (RSC), which are the lifetime average dose and concentration associated with a 1 in 100,000 lifetime cancer risk. Regulators, including AEP and Health Canada, consider a 1 in 100,000 incremental cancer risk (an increase in cancer risk of 1 in 100,000 above background) to be essentially negligible.

For both threshold and non-threshold effects, toxicity exposure limits are expressed herein as Toxicity Reference Values (TRVs) (TC or RSC for inhalation; RfC or RSD for oral exposure). Detailed toxicological profiles with the rational for the selection of all TRVs are provided for the COPCs in Appendix B (Toxicological Evaluations). A summary of the TRV used in the HHRA for all routes of exposure are provided in Tables 5.3.1-1 to 5.3.1-3.

5.3.1 Chemical Screening

All chemicals potentially emitted from the project were identified as potential COPCs. Some of these chemicals were grouped prior to conducting the toxicity assessment. Where insufficient toxicity data were identified for particular chemicals, they were grouped with other similar chemicals and assigned surrogates believed to conservatively represent the group. Those COPC assessed using surrogates are identified in Tables 5.3.1-1 through 5.3.1-3.

The TRVs were identified for both acute and chronic inhalation exposures. For those chemicals evaluated under the multimedia assessment, chronic oral TRVs were also identified. The TRVs were obtained from recognized regulatory agencies, including:

- Alberta Environment and Parks (AEP);
- Health Canada;
- United States Environmental Protection Agency (US EPA);
- World Health Organization (WHO);
- Agency for Toxic Substances and Disease Registry (ATSDR);
- California Office of Environmental and Human Health Assessment (OEHHA);
- Texas Commission on Environmental Quality (TCEQ);
- Netherlands National Institute for Public Health and the Environment (RIVM); and
- Other agencies where appropriate for specific chemicals.

The basis for each available TRV was evaluated to select the most appropriate value, giving consideration to consistency with Alberta approaches, scientific defensibility, incorporation of the most current information, and conservatism.

Selected TRVs are summarized in Table 5.3.1-1, Table 5.3.1-2, and Table 5.3.1-3. The detailed toxicity assessments for all COPCs are provided in Appendix B.

Table 5.3.1-1 Toxicity Reference Values (TRVs) – Acute Inhalation

	Chemical	Averaging Time	Exposure Limit (µg/m³)	Agency	Toxicity Endpoint
CAC	CO	1 hour 8 hour	15,000 6,000	Alberta Alberta	hypoxia hypoxia
	NO_2	1 hour	188	US EPA	respiratory irritation
	SO_2	10 min 1 hour 24 hour	500 450 20	WHO Alberta WHO	respiratory irritation
	$PM_{2.5}$	24 hour	27	CCME	population mortality and morbidity
	PM_{10}	24 hour	50	WHO	population mortality and morbidity
PAH	Acenaphthene	-	2,000	ACGIH	eye irritation (surrogate: aromatic C9-C16 group)
	Acenaphthylene	-	2,000	ACGIH	eye irritation (surrogate: aromatic C9-C16 group)
	Anthracene	-	2,000	ACGIH	eye irritation (surrogate: aromatic C9-C16 group)
	Benzo(a)anthracene	-	*not available*	-	-
	Benzo(a)pyrene	-	*not available*	-	-
	Benzo(b)fluoranthene	-	*not available*	-	-
	Benzo(g,h,i)perylene	-	*not available*	-	-
	Benzo(k)fluoranthene	-	*not available*	-	-
	Chrysene	-	*not available*	-	-
	Dibenzo(a,h)anthracene	-	*not available*	-	-
	Fluoranthene	-	2,000	ACGIH	eye irritation (surrogate: aromatic C9-C16 group)
	Fluorene	-	2,000	ACGIH	eye irritation (surrogate: aromatic C9-C16 group)
	Indeno(1,2,3-cd)pyrene	-	*not available*		

Table 5.3.1-1 Toxicity Reference Values (TRVs) – Acute Inhalation

	Chemical	Averaging Time	Exposure Limit (µg/m³)	Agency	Toxicity Endpoint
	Naphthalene	1 hour	2,000	ACGIH	eye irritation
	Phenanthrene		2,000	ACGIH	eye irritation (surrogate: aromatic C9-C16 group)
	Pyrene		2,000	ACGIH	eye irritation (surrogate: aromatic C9-C16 group)
VOCs	Acetaldehyde	1 hour	470	OEHHA	eye, nasal and respiratory irritation
	Acrolein	1 hour	2.5	OEHHA	eye, nasal and respiratory irritation
	Benzene	1 hour	580	TCEQ	immunological
	Propylene	-	*not available*	-	-
	Formaldehyde	1 hour	50	ATSDR	eye and nasal irritation
	Toluene	1 hour	15,000	TCEQ	eye and nasal irritation, neurological effects
	Xylenes	1 hour	7,400	TCEQ	eye and respiratory irritation, neurological effects
Metals	Aluminium	1 hour	20	TCEQ	-
	Antimony	1 hour	5	TCEQ	-
	Arsenic	1 hour	0.2	OEHHA	developmental
	Cadmium	24 hour	0.03	ATSRD	nasal and respiratory
	Chromium III	1 hour	12	TCEQ	respiratory
	Copper	1 hour	100	OEHHA	respiratory
	Mercury	1 hour	0.6	OEHHA	nervous system
	Nickel	1 hour	0.2	OEHHA	immune
	Vanadium	1 hour	30	OEHHA	respiratory

Table 5.3.1-2 Toxicity Reference Values (TRVs) – Chronic Inhalation

	Chemical	Exposure Limit (µg/m³)	Agency	Toxicity Endpoint
CAC	CO	not available		
	NO_2	40	WHO	respiratory illness
	SO_2	*defer to acute*		
	$PM_{2.5}$	8.8	CCME	population mortality and morbidity
	PM_{19}	20	WHO	population mortality and morbidity
PAH	Acenaphthene	50	MA DEP	kidney and liver (surrogate: aromatic C9-C16 group)
	Acenaphthene	50	MA DEP	kidney and liver (surrogate: aromatic C9-C16 group)
	Acenaphthylene	50	MA DEP	kidney and liver (surrogate: aromatic C9-C16 group)
	Anthracene	50	MA DEP	kidney and liver (surrogate: aromatic C9-C16 group)
	Benzo(a)anthracene	BaP group	Health Canada	lung tumors
	Benzo(a)pyrene	0.009	OEHHA	lung tumors
	Benzo(b)fluoranthene	BaP group	Health Canada	lung tumors
	Benzo(g,h,i)perylene	BaP group	Health Canada	lung tumors
	Benzo(k)fluoranthene	BaP group	Health Canada	lung tumors
	Chrysene	BaP group	Health Canada	lung tumors
	Dibenzo(a,h)anthracene	BaP group	Health Canada	lung tumors
	Fluoranthene	BaP group 50	Health Canada MA DEP	lung tumors kidney and liver (surrogate: aromatic C9-C16 group)
	Fluorene	50	MA DEP	kidney and liver (surrogate: aromatic C9-C16 group)
	Indeno(1,2,3-cd)pyrene	BaP group	Health Canada	lung tumors
	Naphthalene	3 0.3	US EPA OEHHA	nasal irritation nasal tumours

Table 5.3.1-2 Toxicity Reference Values (TRVs) – Chronic Inhalation

	Chemical	Exposure Limit (µg/m³)	Agency	Toxicity Endpoint
	Phenanthrene	BaP group 50	Health Canada MA DEP	lung tumors kidney and liver (surrogate: aromatic C9-C16 group)
	Pyrene	50	MA DEP	kidney and liver (surrogate: aromatic C9-C16 group)
VOCs	Acetaldehyde	3.7 9	OEHHA US EPA	nasal tumours nasal irritation
	Acrolein	0.35	OEHHA	nasal and respiratory irritation
	Benzene	1.3 9.8	US EPA ATSDR	leukemia immunological and hematological
	Formaldehyde	2 9	OEHHA/HC OEHHA	nasal tumors eye, nasal, respiratory irritation
	Propylene	3000	OEHHA	metaplasia, hyperplasia and Inflammation
	Toluene	5,000	US EPA	neurological
	Xylenes	200	ATSDR	eye and nasal irritation, neurological effects
Metals	Aluminium	5	US EPA	Neurological
	Antimony	0.2	US EPA	respiratory effects
	Arsenic	0.0016	Health Canada	Lung cancer
	Barium	1.0	RIVM	cardiovascular
	Beryllium	0.02 0.004	US EPA	sensitization
	Cadmium	0.001	Health Canada	lungs
	Chromium III	0.14	TCEQ	respiratory
	Chromium VI	0.00013	Health Canada	respiratory
	Cobalt	0.006	US EPA	respiratory
	Copper	1	RIVM	respiratory and immunological
	Lead	0.15	US EPA	-

Table 5.3.1-2 Toxicity Reference Values (TRVs) – Chronic Inhalation

	Chemical	Exposure Limit (µg/m³)	Agency	Toxicity Endpoint
	Manganese	0.09	OEHHA	nervous system
	Mercury	0.03	OEHHA	nervous system
	Molybdenum	12	RIVM	body weight
	Nickel	0.0035	Health Canada	lung, lung cancer
	Selenium	20	OEHHA	selenosis
	Uranium	0.04	ATSDR	-
	Vanadium	0.1	ATSDR	respiratory

Table 5.3.1-3 Toxicity Reference Values (TRVs) - Chronic Oral Exposure Limits

	Chemical	Exposure Limit (mg/kg bw/d)	Agency	Toxicity Endpoint
PAHs and VOCs	Acenaphthene	0.060	US EPA	liver
	Acenaphthylene	0.060	US EPA	liver
	Anthracene	0.3	US EPA	NOAEL
	Benzo(a)anthracene	BaP equivalent	-	gastrointestinal tumours
	Benzo(a)pyrene	1.4	US EPA	gastrointestinal tumours
	Benzo(b)fluoranthene	BaP equivalent	-	gastrointestinal tumours
	Benzo(g,h,i)perylene	BaP equivalent	-	gastrointestinal tumours
	Benzo(k)fluoranthene	BaP equivalent	-	gastrointestinal tumours
	Chrysene	BaP equivalent	-	gastrointestinal tumours

Table 5.3.1-3 Toxicity Reference Values (TRVs) - Chronic Oral Exposure Limits

	Chemical	Exposure Limit (mg/kg bw/d)	Agency	Toxicity Endpoint
	Dibenzo(a,h)anthracene	BaP equivalent	-	gastrointestinal tumours
	Fluoranthene	BaP equivalent	-	gastrointestinal tumours
	Fluorene	0.040	US EPA	kidney, liver, spleen
	Indeno(1,2,3-cd)pyrene	BaP equivalent	-	gastrointestinal tumours
	Phenanthrene	BaP equivalent	-	gastrointestinal tumours
	Pyrene	0.030	US EPA	kidney
	Formaldehyde	0.150	Health Canada	kidney and GI
Metals	Aluminium	0.143	WHO	-
	Antimony	0.0002	Health Canada	Serum glucose and haematuria
	Arsenic	0.0000056	Health Canada	cancer (bladder, lung, liver)
	Barium	0.2	US EPA	kidney
	Beryllium	0.002	US EPA	gastrointestinal
	Cadmium	0.0005	US EPA	kidney
	Chromium III	1.5	US EPA	-
	Chromium VI	0.0009	ATSDR	gastrointestinal
	Cobalt	0.0014	RIVM	cardiovascular
	Copper	0.091 (0 - 4 yrs) 0.111 (5 - 11 yrs) 0.126 (12 - 19 yrs) 0.141 (20+ yrs)	Health Canada	liver and gastrointestinal
	Manganese	0.047	US EPA	nervous system

Table 5.3.1-3 Toxicity Reference Values (TRVs) - Chronic Oral Exposure Limits				
	Chemical	**Exposure Limit (mg/kg bw/d)**	**Agency**	**Toxicity Endpoint**
	Mercury	0.0003	US EPA	kidney
	Molybdenum	0.005	US EPA	uric acid levels
	Nickel	0.011	OEHHA	perinatal mortality
	Selenium	0.005	US EPA	selenosis
	Thallium	0.00001	US EPA	hair follicle atrophy
	Uranium	0.0006	Health Canada	kidney
	Vanadium	0.002	RIVM	developmental
	Zinc	0.3	US EPA	ESOD activity

5.3.2 Mixtures

Receptors are potentially exposed to mixtures of chemicals, and in these mixtures there is the potential for chemical interactions to affect toxicity. There are various forms of interaction that are possible. Consistent with Health Canada (2010a) recommendations, where chemicals have similar effects on the same target organs, they were assumed to have additive toxicity (*i.e.*, the toxic effects are combined).

As part of the toxicity evaluations, chemicals were assigned to toxicity groups based on critical effects and target organs. These groups are summarized in Table 5.3.2-1. All COPCs within a toxicity group were assumed to have additive toxicity.

Table 5.3.2-1 Toxicity Endpoint Groups		
Exposure Pathway and Duration	**Toxicity Endpoint**	**COPC**
Acute Inhalation	Eye Irritant	Acetaldehyde, Acrolein, Formaldehyde, Naphthalene, Toluene, Xylenes
	Nasal Irritant	Acetaldehyde, Acrolein, Formaldehyde, Toluene
	Respiratory Irritant	Acetaldehyde, Acrolein, Propylene

Table 5.3.2-1 Toxicity Endpoint Groups

Exposure Pathway and Duration	Toxicity Endpoint	COPC
		Naphthalene, NO_2, SO_2, Xylenes, Cadmium, Chromium, Copper, Nickel, Vanadium, Zinc
	Neurological	Mercury, Toluene, Xylenes
Chronic Inhalation	Eye Irritant	Formaldehyde, Xylenes
	Respiratory	Chromium, Cobalt, Copper, Formaldehyde, Vanadium
	Nasal Irritant	Acrolein, Formaldehyde, Naphthalene, Propylene, Xylenes
	Neurological	Aluminium, Lead, Manganese, Mercury, Selenium, Toluene, Xylenes
	Lung Tumours	Benzo[a]pyrene group, Arsenic, Cadmium, Chromium
Chronic Oral	Gastrointestinal	Beryllium, Chromium, Formaldehyde
	Liver	Aluminium, Antimony, Copper, Selenium
	Kidney	Barium, Cadmium, Formaldehyde, Fluoranthene, Fluorene, Mercury, Pyrene, Toluene, Uranium
	Reproductive	Aluminium, Lead, Naphthalene, Nickel, Vanadium, Xylenes

5.4 Risk Characterization

Risk characterization is the stage where the results of the exposure and toxicity assessments are combined to evaluate potential risks to human receptors.

Risks are characterized using hazard quotients (HQ) for non-carcinogenic COPCs. An HQ is simply the ratio of the predicted exposure to the appropriate exposure limit (TC/RfC or TDI/RfD). An HQ less than 1.0 indicates that predicted exposures are less than the TC or TDI and adverse effects are not predicted for any receptors. For non-threshold chemicals, the potential risk of adverse health effects was estimated assuming an incremental lifetime cancer risk (ILCR) per 100,000 population is "essentially negligible" (AHW, 2011; Health Canada 2010a,b). For the current assessment, an ILCR quotient was calculated as the ratio of the predicted exposure to the appropriate exposure limit (RSC or RSD) for a composite human receptor representing all life stages. An ILCR quotient less than 1 indicates that the predicted incremental lifetime cancer risk is less than the "essentially negligible" target of 1 in 100,000.

Due to the number of conservative assumptions purposefully built into the HHRA, an HQ or ILCR quotient greater than 1 does not automatically indicate a potential risk of adverse health effects. Instead, it is an indication that additional, in-depth assessment is required for the individual risk result. The additional assessment includes a review of the conservative assumptions made in the toxicity and exposure assessment steps of the HHRA in order to determine whether the result represents a potential risk of adverse health effects, or is a result of the conservative assumptions made during the HHRA calculations.

6.0 RESULTS AND DISCUSSION

The HHRA assessed potential health risks at 16 receptor locations, including the maximum point of impingement in the Regional Study Area (RSA-MPOI). Predicted hazard and risk quotients are presented herein for the RSA-MPOI as this represents the highest levels of predicted human exposure. Results for the remaining receptor locations were all lower than the RSA-MPOI and are included for reference in Appendix C (Acute Inhalation Results), Appendix D (Chronic Inhalation Results), and Appendix F (Detailed Multimedia Model Results).

6.1 Acute Inhalation

The HQs for acute inhalation are presented for the RSA-MPOI locations in Table 6.1-1. The RSA-MPOI results are representative of the worst-case acute exposure scenarios exposure; therefore, results from all other HHRA locations are lower. The complete list of risk quotients for all receptor locations assessed in the HHRA are provided in Appendix C (Acute Inhalation Results). These results are independent of the receptor group since they are evaluated based on concentrations only and the toxicity limits are the same for all age groups and receptor types.

Table 6.1-1 Predicted Hazard Quotients for the Acute Inhalation Assessment

Parameter	Averaging Time (h)	RSA-MPOI		
		Project	Baseline	Application
Criteria Air Contaminants				
Carbon Monoxide	1	9.4E-01	2.4E-02	9.6E-01
	8	4.2E-01	5.2E-02	4.7E-01
Nitrogen Dioxide	1	***3.6E+00***	1.9E-01	***3.6E+00***
Sulphur Dioxide	10 min	9.7E-02	2.7E-02	1.1E-01
	1	1.6E-01	5.8E-03	1.7E-01
	24	1.7E-01	1.1E-01	2.8E-01
$PM_{2.5}$	24	***1.6E+00***	2.6E-01	***1.9E+00***

Table 6.1-1 Predicted Hazard Quotients for the Acute Inhalation Assessment

Parameter	Averaging Time (h)	RSA-MPOI		
		Project	Baseline	Application
PM_{10}	24	***5.9E+00***	4.2E-01	***6.3E+00***
Non-Criteria Air Contaminants				
Aluminium	1	3.4E-04	3.7E-04	3.7E-04
Antimony	1	6.4E-04	1.2E-04	6.4E-04
Arsenic	1	2.2E-01	1.2E-01	2.2E-01
Cadmium	1	6.2E-04	1.4E-04	6.2E-04
Chromium	1	1.7E-03	4.6E-04	1.7E-03
Copper	1	8.6E-04	2.0E-04	8.6E-04
Mercury	1	7.9E-04	1.4E-04	7.9E-04
Nickel	1	4.2E-01	7.5E-02	4.2E-01
Selenium	1	2.1E-04	3.7E-05	2.1E-04
Vanadium	1	2.7E-03	6.9E-04	2.7E-03
Benzene	1	4.5E-04	4.9E-04	4.9E-04
Toluene	1	6.3E-06	6.9E-06	6.9E-06
Xylenes	1	8.8E-06	9.6E-06	9.6E-06
Acetaldehyde	1	1.8E-05	2.0E-05	2.0E-05
Acrolein	1	1.1E-03	1.2E-03	1.2E-03
Formaldehyde	1	5.3E-04	5.8E-04	5.8E-04
Acenaphthene	1	7.9E-06	8.6E-06	8.6E-06
Acenaphthylene	1	1.6E-05	1.7E-05	1.7E-05
Anthracene	1	2.1E-06	2.3E-06	2.3E-06
Fluoranthene	1	6.8E-06	7.4E-06	7.4E-06
Fluorene	1	2.2E-05	2.4E-05	2.4E-05
Naphthalene	1	2.2E-05	2.4E-05	2.4E-05
Phenanthrene	1	6.9E-05	7.5E-05	7.5E-05
Pyrene	1	6.3E-06	6.8E-06	6.8E-06

The results of the acute inhalation at the RSA-MPOI locations were below 1.0 for the majority of the COPC assessed, indicating that the predicted exposures for those COPCs were therefore lower than

the safe TRVs and not indicative of potential adverse health effects. Results at all other human receptor locations were less than RSA-MPOI results (Appendix C).

As shown in the Table 6.1-1, risk results for three COPC were greater than 1.0 at the RSA-MPOI location: the 1-hour average NO_2 concentrations; 24-hour $PM_{2.5}$; and, PM_{10} concentrations. Evaluation of these results indicated that the Project emissions were the primary drivers for the predicted risk results. The RSA-MPOI for these COPC is predicted to occur on the eastern edge of the Project pit boundary, within the Project footprint (Consultants Report #1a, Figures 5.2-2, 5.4-2, and 5.5-2).

An assessment was conducted for those COPC with HQs greater than 1.0 at the RSA-MPOI; the HQs for NO_2, $PM_{2.5}$, and PM_{10} for the remaining human receptor locations are shown below in Tables 6.1-2 through 6.1-4.

Table 6.1-2 Predicted NO_2-1 hour Hazard Quotients at all Assessed Receptor Locations

Receptor	Project	Baseline	Application
RSA-MPOI	***3.6E+00***	1.9E-01	***3.6E+00***
FL-MPOI	***1.7E+00***	3.6E-01	***1.7E+00***
R1	3.5E-01	4.9E-01	4.9E-01
R2	4.5E-01	1.9E-01	4.7E-01
R3	3.2E-01	5.1E-01	5.1E-01
R4	2.4E-01	1.8E-01	3.8E-01
R5	3.0E-01	1.8E-01	4.5E-01
R6	3.2E-01	5.4E-01	5.4E-01
R7	3.0E-01	5.0E-01	5.0E-01
R8	3.4E-01	6.9E-01	6.9E-01
R9	5.2E-01	2.6E-01	5.4E-01
R10	6.3E-01	2.0E-01	6.5E-01
R11	5.7E-01	1.9E-01	5.8E-01
R12	4.5E-01	2.2E-01	4.6E-01
R13	5.4E-01	2.0E-01	5.6E-01
R14	3.1E-01	5.2E-01	5.2E-01

Table 6.1-3 Predicted $PM_{2.5}$-24 hour Hazard Quotients at all Assessed Receptor Locations			
Receptor	**Project**	**Baseline**	**Application**
RSA-MPOI	***1.6E+00***	2.6E-01	***1.9E+00***
FL-MPOI	4.7E-01	3.0E-01	7.3E-01
R1	2.4E-02	4.9E-01	4.9E-01
R2	2.6E-02	2.5E-01	2.8E-01
R3	2.6E-02	4.0E-01	4.0E-01
R4	1.1E-02	2.5E-01	2.6E-01
R5	1.4E-02	2.5E-01	2.7E-01
R6	2.9E-02	6.8E-01	6.9E-01
R7	2.1E-02	4.5E-01	4.6E-01
R8	2.5E-02	8.0E-01	8.1E-01
R9	9.3E-02	2.7E-01	3.5E-01
R10	2.1E-01	2.6E-01	4.7E-01
R11	1.0E-01	2.6E-01	3.6E-01
R12	5.7E-02	2.6E-01	3.1E-01
R13	5.6E-02	2.6E-01	3.1E-01
R14	2.1E-02	7.8E-01	7.8E-01

Table 6.1-4 Predicted PM_{10}-24 hour Hazard Quotients at all Assessed Receptor Locations			
Receptor	**Project**	**Baseline**	**Application**
RSA-MPOI	***5.9E+00***	4.2E-01	***6.3E+00***
FL-MPOI	***1.7E+00***	4.8E-01	***2.1E+00***
R1	4.7E-02	7.6E-01	7.7E-01
R2	5.9E-02	4.2E-01	4.8E-01
R3	4.9E-02	6.1E-01	6.2E-01
R4	2.3E-02	4.2E-01	4.4E-01
R5	3.8E-02	4.2E-01	4.6E-01

Table 6.1-4 Predicted PM_{10}-24 hour Hazard Quotients at all Assessed Receptor Locations			
R6	4.2E-02	***1.1E+00***	***1.1E+00***
R7	3.4E-02	7.4E-01	7.4E-01
R8	6.6E-02	***1.3E+00***	***1.3E+00***
R9	2.5E-01	4.4E-01	6.7E-01
R10	6.8E-01	4.3E-01	***1.1E+00***
R11	3.1E-01	4.2E-01	7.4E-01
R12	1.2E-01	4.3E-01	5.4E-01
R13	1.7E-01	4.3E-01	5.9E-01
R14	3.6E-02	***1.2E+00***	***1.2E+00***

For NO_2 (Table 6.1-2), only the RSA-MPOI and FL-MPOI receptor locations had predicted HQs greater than 1.0. Both of these locations are within the Mine Permit Boundary which will not be accessible for the general public during construction and operation activities. There were no HQs in excess of 1.0 predicted for NO_2 or the respiratory irritation toxicity endpoint group for all other locations assessed.

For $PM_{2.5}$ the HQ was only greater than 1.0 at the RSA-MPOI (Table 6.1-3). The acute $PM_{2.5}$ RSA-MPOI is located on the eastern edge of the proposed pit boundary (within the Project footprint) (Consultants Report #1a, Figure 5.4-2).

PM_{10} was the only COPC with HQ results greater than 1.0 outside of the Mine Permit Boundary (Table 6.1-4). For PM_{10}, HQs were predicted greater than 1.0 at the RSA-MPOI, the FL-MPOI, R10 (cabin located within the Mine Permit Boundary), R6 (Coleman), and R8 and R14 (Blairmore). At the locations within the Mine Permit Boundary (The RSA-MPOI, FL-MPOI, and R10) Project emissions were predicted to contribute the majority of the HQ results.

At R10, PM_{10} exceedances were only marginally above 1.0 and were similar to those predicted for a person living in Blairmore and Coleman. However, as Project emissions contributed the majority of the predicted exposures additional assessment of the results was conducted. A time series assessment was completed by the Air Quality team using five years of atmospheric data from 2002 through 2006. A time series assessment provides the predicted 24 hour maximum concentrations of PM_{10} for everyday of the five years modelled in the air dispersion assessment. The data were evaluated to determine the frequency of predicted exceedances over the five years. When the daily predicted maximum concentrations of PM_{10} at R10 were compared to the TRV, it was determined that a total of

four exceedances over five years were predicted for the Application case (Appendix C, Table C4); one in 2004, two in 2005 and one in 2006, resulting in an average of 0.8 days a year. Thus, indicating that there is a potential risk of exposures exceeding the safe TRV at the R10 on average only 0.8 days per year over the life of the Project.

Since access to the R10 location will be restricted during mine operation, public exposure is not expected. In addition, it should be noted that the TRV for PM_{10} (Appendix B, Section 30.0) is based on $PM_{2.5}$ toxicity that assumes a $PM_{2.5}$:PM_{10} ratio of 0.5, with a recommendation to adjusting the PM ratio to reflect local conditions when data is available (WHO, 2005). The applied PM ratio of 0.5 is conservative when compared to the current Project, which had a predicted average $PM_{2.5}$:PM_{10} ratio of 0.25 with a maximum value of 0.37 for the Application case acute inhalation calculations. Due to the marginal nature of the HQ exceedances for PM_{10}, the lack of HQ exceedances for $PM_{2.5}$, and the conservative assumption built into the TRV, acute exposure to PM_{10} is not considered to pose a risk of adverse human health effects at R10.

The predicted PM_{10} concentrations at the receptor locations outside of the Mine Permit Boundary (Coleman [R6] and Blairmore North [R8, R14]) and were determined to be primarily due to existing baseline conditions, with predicted maximum concentrations from project emissions being less than 10% of baseline values at Coleman (6.1% at R6) and Blairmore (7.6% at R8 and 4.5% at R14). In addition, as discussed above for R10, due to the marginal nature of the HQ exceedances for PM_{10}, the lack of HQ exceedances for $PM_{2.5}$, and the conservative assumption built into the TRV, acute exposure to PM_{10} is not considered to pose a risk of adverse human health effects at R8 or R14.

The PM_{10} time series data (Appendix C, Table C4) was evaluated to determine the seasonal contribution of the Project emissions to the Application case emissions receptors R6, R8, and R14. Seasons were defined using the northern meteorological divisions as follows:

- Spring – March through May;
- Summer – June through August;
- Fall – September through November; and
- Winter – December through January.

Project contributions to Application Case emissions are summarized below for all days where exceedances of acute air quality targets are predicted (Table 6.1-5). Project contribution was generally consistent seasonally, and was minimal compared to overall emissions.

Table 6.1-5 Project Contribution to Air Quality Exceedances			
Location	**Number of Predicted Exceedances (2002-2006)**	**Average Project Contribution (%)[1]**	**Maximum Project Contribution (%)[1]**
R6-Spring	1	0.3	0.3
R6-Summer	3	0.0	0.0
R6-Fall	8	0.6	2.5
R6-Winter	0	0.0	0.0
R8-Spring	18	4.0	7.1
R8-Summer	26	4.7	8.1
R8-Fall	29	4.3	6.8
R8-Winter	0	-	-
R14-Spring	14	1.3	4.4
R14-Summer	27	0.9	2.4
R14-Fall	24	1.1	4.1
R14-Winter	0	-	-

[1] calculated as percentage of Application Case emissions for guideline exceedances only

6.1.1 Multiple COPC Assessment

Table 6.1-6 presents acute HQs for toxicity groups (eye irritation, nasal irritation, respiratory irritation, neurological and reproductive/developmental) at the RSA-MPOI. HQs greater than 1.0 due to additive toxicity were predicted for the respiratory irritation endpoint only; however, this was almost entirely related to NO_2 exposure, which as discussed above does not occur outside the Mine Project Boundary. The HQ results for all other locations for the acute inhalation toxicity groups were below 1.0 (Table 6.1-6).

Table 6.1-6 Predicted Additive HQs by Toxicity Groups – Acute Inhalation			
Toxicity Endpoint	**RSA-MPOI**		
	Project	**Baseline**	**Application**
Eye Irritation	1.6E-03	1.8E-03	1.8E-03
Nasal Irritation	1.6E-03	1.8E-03	1.8E-03
Respiratory Irritation	***4.1E+00***	4.9E-01	***4.2E+00***

Table 6.1-6 Predicted Additive HQs by Toxicity Groups – Acute Inhalation			
Neurological	8.0E-04	1.6E-04	8.0E-04

6.1.2 Acute Inhalation Summary

The results of the acute inhalation assessment demonstrate that the Project emissions do not pose a risk of adverse health effects at the receptor locations assessed outside the Mine Project Boundary for all COPC assessed.

Within the Mine Permit Boundary, the results of the acute inhalation risk assessment indicate that predicted exposure to the maximum predicted air concentrations are below the TRV for all COPC with the exception of NO_2, $PM_{2.5}$ and PM_{10} at the RSA-MPOI and PM10 at R10. As presented in the Air Quality Assessment (Consultant Report #1), the locations of the MPOI receptors are close to key Project activities at the edge of the pit boundary within the Project footprint and the R10 location is within the Mine Permit Boundary; both are areas which will be restricted to the general public during construction and operation.

Additional assessment of the R10 results indicate that although exceedances are predicted to occur, they are only marginally over the TRV and occur at the most, 2 days per year (an average of 0.8 times per year). Based on the conservative assumptions built into the air dispersion modelling (Consultant Report #1, Section 2.5.3 and 2.5.5) and the exposure and hazard assessment steps, as well as the restricted access to this location during mine operation, there is a low risk of potential adverse health effects occurring at this location.

Outside of the Mine Permit Boundary, HQs greater than 1.0 were predicted for PM_{10} at Coleman (R6) and Blairmore North (R8) locations. Review of the PM_{10} results at these locations demonstrated that the exceedances were are primarily due to baseline conditions and are thus attributed to other emission sources in the area (*e.g.*, residential, automobile traffic and rail activities) and not contributions from the Project.

Potential risk of acute effects on humans from the Project are predicted only at the RSA-MPOI locations which are within the Mine Permit Boundary and thus not expected to be accessible to the general population.

6.2 Chronic Inhalation

Risk quotients for chronic inhalation are based on long-term exposures. Both carcinogenic and non-carcinogenic effects have been evaluated. Conservative risk quotients based on the assumption that humans would spend extended periods of time (one lifetime; assumed to be 80 years) at the locations with the maximum concentrations (MPOI) are presented in Table 6.2-1. Table 6.2-2 presents the RSA-MPOI chronic inhalation results for toxicity groups (eye irritation, respiratory, nasal irritation, neurological, lung tumours). The complete risk results for all receptor locations and all COPCs are lower than the MPOI results and are provided in Appendix D (Chronic Inhalation Results).

As this is an assessment of the chronic inhalation pathway, the predicted exposures and risk quotients are not affected by the age specific characteristics of the receptor, only by location. For non-threshold (carcinogenic) substances, the target is for the contribution from the Project itself to result in a cancer risk less than 1 in 100,000 (*i.e.*, the "Project only" ILCR quotient should be less than 1.0).

Table 6.2-1 Predicted Hazard Quotients (HQs) and Incremental Lifetime Cancer Risk (ILCR) Quotients for the Chronic Inhalation Assessment at the RSA-MPOI

Parameter	Project	Baseline	Application
Criteria Air Contaminants HQs			
Sulphur Dioxide	1.5E-02	4.5E-02	8.8E-02
Nitrogen Dioxide	8.6E-01	4.1E-01	***1.2E+00***
$PM_{2.5}$[1]	8.6E-01	4.6E-01	***1.3E+00***
PM_{10}[1]	***2.7E+00***	6.5E-01	***3.3E+00***
Non-Criteria Air Contaminants HQs – Threshold (Non-Carcinogenic) Substances			
Aluminium	5.2E-05	1.9E-04	1.9E-04
Antimony	6.0E-04	1.9E-04	6.0E-04
Barium	3.3E-02	1.1E-02	3.3E-02
Beryllium	3.2E-02	1.0E-02	3.2E-02
Cadmium	1.7E-01	8.8E-02	1.7E-01
Cobalt	1.5E-01	4.7E-02	1.5E-01
Copper	3.4E-03	1.7E-03	3.4E-03

Table 6.2-1 Predicted Hazard Quotients (HQs) and Incremental Lifetime Cancer Risk (ILCR) Quotients for the Chronic Inhalation Assessment at the RSA-MPOI			
Lead	9.9E-03	5.0E-03	9.9E-03
Manganese	5.2E-04	1.9E-03	1.9E-03
Mercury	5.9E-04	1.9E-04	5.9E-04
Molybdenum	1.7E-05	5.3E-06	1.7E-05
Nickel	8.9E-01	2.8E-01	8.9E-01
Selenium	7.7E-06	2.4E-06	7.7E-06
Uranium	6.3E-03	2.0E-03	6.3E-03
Vanadium	3.2E-02	1.9E-02	3.2E-02
Benzene	7.8E-03	2.9E-02	2.9E-02
Toluene	7.4E-07	2.7E-06	2.7E-06
Xylenes	1.3E-05	4.6E-05	4.6E-05
Acetaldehyde	8.9E-05	3.3E-04	3.3E-04
Acrolein	3.0E-04	1.1E-03	1.1E-03
Formaldehyde	5.4E-04	2.0E-03	2.0E-03
Propylene	1.2E-05	4.5E-05	4.5E-05
Acenaphthene	3.1E-07	1.1E-06	1.1E-06
Acenaphthylene	6.1E-07	2.2E-06	2.2E-06
Anthracene	8.1E-08	2.9E-07	3.0E-07
Fluorene	8.4E-07	3.1E-06	3.1E-06
Naphthalene	5.7E-04	2.1E-03	2.1E-03
Pyrene	2.4E-07	8.9E-07	8.9E-07
Non-Criteria Air Contaminants ILCR Quotients - Non-Threshold (Carcinogenic) Substances			
Arsenic	6.4E-01	-	-
Chromium	9.2E-01	-	-
Benzo(a)pyrene	3.7E-04	-	-
Fluoranthene	2.6E-07	-	-
Naphthalene	5.7E-03	-	-

Table 6.2-1 Predicted Hazard Quotients (HQs) and Incremental Lifetime Cancer Risk (ILCR) Quotients for the Chronic Inhalation Assessment at the RSA-MPOI			
Phenanthrene	2.7E-06	-	-

1 – Based on 98th percentile value

Table 6.2-2 Predicted Additive HQs and ILCR Quotients by Toxicity Groups – Chronic Inhalation - at the RSA-MPOI			
Toxicity Endpoint	**Project**	**Baseline**	**Application**
Chronic Inhalation			
Eye Irritation (HQs)	1.4E-03	5.2E-03	5.2E-03
Respiratory (HQs)	1.9E-01	7.0E-02	1.9E-01
Nasal Irrigation (HQs)	1.1E-02	7.4E-03	1.3E-02
Neurological (HQs)	1.1E-02	7.4E-03	1.3E-02
Cancer Risk from PAHs (ILCR Quotients)	2.1E-03	-	-

As shown in Table 6.2-1 HQs and ILCR quotients are less than 1.0 for the majority of COPC with the exception of NO_2, $PM_{2.5}$, and PM_{10} which were slightly greater than 1.0 with a maximum project HQ of 2.7. The results for all other locations were less than the RSA-MPOI (Appendix D). No HQs or ILCR quotients greater than 1.0 due to additive toxicity were predicted (Table 6.2-2).

An additional evaluation of all predicted HQs greater than 1.0 was conducted. The HQs for NO_2, $PM_{2.5}$, and PM_{10} for the remaining receptor locations are shown below in Table 6.2-3, Table 6.2-4, and Table 6.2-5.

Table 6.2-3 Predicted NO_2-Annual Hazard Quotients at all Receptor Locations			
Receptor	**Project**	**Baseline**	**Application**
RSA-MPOI	8.6E-01	4.1E-01	***1.2E+00***
FL-MPOI	3.0E-01	5.0E-01	6.9E-01

Table 6.2-3 Predicted NO_2-Annual Hazard Quotients at all Receptor Locations			
R1	9.2E-03	6.2E-01	6.3E-01
R2	1.5E-02	4.1E-01	4.3E-01
R3	7.4E-03	6.2E-01	6.3E-01
R4	4.4E-03	4.1E-01	4.1E-01
R5	7.4E-03	4.1E-01	4.2E-01
R6	7.1E-03	8.9E-01	8.9E-01
R7	6.6E-03	7.2E-01	7.2E-01
R8	3.9E-02	***1.1E+00***	***1.1E+00***
R8	1.1E-01	4.4E-01	5.3E-01
R10	3.3E-01	4.2E-01	7.1E-01
R11	6.9E-02	4.1E-01	4.7E-01
R12	9.8E-02	4.2E-01	5.2E-01
R13	8.5E-02	4.2E-01	5.0E-01
R14	7.8E-03	8.8E-01	8.8E-01

Table 6.2-4 Predicted $PM_{2.5}$-Annual Hazard Quotients at all Assessed Receptor Locations

Receptor	Project	Baseline	Application
RSA-MPOI	8.6E-01	4.6E-01	***1.3E+00***
FL-MPOI	1.1E-01	4.9E-01	5.7E-01
R1	2.9E-03	6.0E-01	6.0E-01
R2	7.0E-03	4.6E-01	4.6E-01
R3	2.9E-03	5.4E-01	5.4E-01
R4	2.1E-03	4.5E-01	4.6E-01
R5	3.2E-03	4.6E-01	4.6E-01
R6	3.0E-03	8.5E-01	8.5E-01
R7	2.6E-03	6.2E-01	6.2E-01
R8	7.9E-03	9.3E-01	9.4E-01
R9	2.8E-02	4.7E-01	4.9E-01
R10	1.4E-01	4.6E-01	5.9E-01
R11	3.1E-02	4.6E-01	4.9E-01
R12	2.0E-02	4.6E-01	4.8E-01
R13	2.4E-02	4.6E-01	4.8E-01
R14	2.5E-03	9.4E-01	9.4E-01

Table 6.2-5 Predicted PM_{10}-Annual Hazard Quotients at all Receptor Locations			
Receptor	**Project**	**Baseline**	**Application**
RSA-MPOI	***2.7E+00***	6.5E-01	***3.3E+00***
FL-MPOI	3.2E-01	6.8E-01	9.8E-01
R1	8.9E-03	8.0E-01	8.1E-01
R2	1.3E-02	6.5E-01	6.6E-01
R3	6.4E-03	7.3E-01	7.3E-01
R4	3.4E-03	6.5E-01	6.5E-01
R5	5.7E-03	6.5E-01	6.6E-01
R6	6.5E-03	***1.1E+00***	***1.1E+00***
R7	6.1E-03	8.2E-01	8.3E-01
R8	4.4E-02	***1.2E+00***	***1.2E+00***
R9	7.4E-02	6.6E-01	7.3E-01
R10	3.7E-01	6.5E-01	***1.0E+00***
R11	7.0E-02	6.5E-01	7.2E-01
R12	5.2E-02	6.6E-01	7.1E-01
R13	5.7E-02	6.5E-01	7.1E-01
R14	7.0E-03	***1.2E+00***	***1.2E+00***

For NO_2 (Table 6.2-3), only the RSA-MPOI and Blairmore locations had predicted HQs greater than 1.0. Results of the RSA-MPOI location indicates that Project emissions contribute substantially to the Application Case HQ results. As with the acute assessment, the RSA-MPOI location is located on the edge of the pit boundary, within the Project footprint and is therefore considered to be inaccessible to the general public during Project construction and operation (Consultant Report #1a, Figure 5.2-4 and 5.4-4). In addition, it is overly conservative to assume that chronic exposure may occur at the RSA-MPOI. The HQ result predicted at the Blairmore North location (R8) was determined to be due to existing baseline conditions, with predicted concentrations from project emissions (1.58 $\mu g/m^3$) being less than 5% of baseline values (42.6 $\mu g/m^3$). This result was only slightly higher than 1.0 and is not indicative of a potential risk of adverse human health risks.

For $PM_{2.5}$ the HQ was slightly greater than 1.0 at the RSA-MPOI only; all other locations were less than 1.0 (Table 6.2-4). The $PM_{2.5}$ location is within also within the Project footprint and assumed to be not accessible by the general public (Consultant Report #1a, Figure 5.4-4).

For PM_{10} the HQ was greater than 1.0 at the RSA-MPOI, R6 (Coleman), R8 (Blairmore North), R14 (Blairmore Centre) and equal to 1.0 at R10. The RSA-MPOI and R10 locations are within the Mine Permit Boundary where access will be restricted. The predicted PM_{10} concentrations at the receptor locations outside of the Project footprint were determined to be due to existing baseline conditions, with predicted concentrations from project emissions being less than 10% of baseline values at Coleman (1.5% at R6) and Blairmore (8.5% at R8 and 1.3% at R14). Due to the marginal nature of the HQ exceedances for PM_{10}, the lack of HQ exceedances for $PM_{2.5}$, and the conservative assumption built into the TRV, chronic exposure to PM_{10} is not considered to pose a risk of adverse human health effects at R8 or R14.

The predicted HQ for PM_{10} at R10 was equal to the target of 1.0 and generally consistent with the predicted HQs for the nearby towns of Blairmore and Coleman. The predicted HQs are also based on a very conservative estimate of PM_{10} toxicity (as discussed in Section 6.1.2) with predicted HQs for $PM_{2.5}$, generally a more reliable measure of PM toxicity, being below 1.0. The predicted HQ for R10 also assumes a person living at the location, but access will be restricted and therefore this location will not be occupied.

6.2.1 Chronic Inhalation Summary

For the majority of the COPCs assessed, the results of the chronic inhalation risk assessment indicate that predicted exposure to the maximum predicted air concentrations at multiple locations were all below their respective TRVs and therefore do not pose a risk of adverse human health effects. Although some small exceedance were predicted for a few CACs at the RSA-MPOI, due to their location close to proposed mining activities it is overly conservative to assume that a person will be living at that location for long periods of time.

At the RSA-MPOI, the HQs for NO_2, $PM_{2.5}$ and PM_{10} the HQs were greater than their respective TRVs at the RSA-MPOI. As presented in the Air Quality Assessment (Consultant Report #1), the locations of the MPOIs are close to key Project activities on the edge of the pit boundary within the Project footprint. Finally, access to areas within the Mine Permit Boundary will be restricted to the general public during Project construction and operation and therefore, Project emissions were not predicted to pose a risk of adverse health effects.

Exceedances predicted at R6, R8 and R14 were small, and attributed to background sources in the area (*e.g.*, residential, automobile traffic and rail activities) and not contributions from the Project.

6.3 Chronic Multimedia Exposure

Long-term (chronic) risks from the multimedia exposure assessment were evaluated for COPCs emitted to air which could potentially accumulate in the environment, as described above (Section 5.1.1). This assessment focuses on secondary exposure to these COPCs through oral and dermal exposure pathways.

Hazard and cumulative ILCR quotients were calculated assuming Aboriginal receptor characteristics, since they represent the most sensitive receptor group based on their assumed lifetime exposure in the LSA and RSA, and their assumed higher ingestion rate of country foods (wildlife and local vegetation) than other receptor groups. It was assumed the HQs and cumulative ILCR quotients for other receptors at the same locations would be lower. It was conservatively assumed that the Aboriginal receptor lived at, and harvested food from all the HHRA receptor locations including the RSA MPOI locations (Figure 21-A.4).

As for the chronic inhalation assessment above, risks for non-threshold substances were assessed based on the incremental contribution of the project. Thus, the potential cumulative ILCR quotients were assessed based on exposure to Project emissions only.

Predicted HQs (threshold compounds) for the most sensitive receptor age group (toddler) and ILCR quotients (carcinogens) for a composite lifetime receptor are summarized in Table 6.3-1 for the location with the highest predicted exposures (RSA-MPOI). Risk quotients for toxicity groups are summarized in Table 6.3-2. Risk quotients for all age groups, COPCs and all the other receptor locations are provided in Appendix F (Detailed Multimedia Model Results).

The multimedia HQs and ILCR quotients for the worst-case receptor (RSA-MPOI) were less than 1.0 for all COPCs except for arsenic at the RSA-MPOI where the ILCR Quotient for the composite lifetime receptor was equal to 1.0. These results indicate that predicted lifetime exposures equivalent to the TRV; however, they are not considered indicative of potential risk of adverse health effects due to the conservative assumptions applied in the assessment of exposure to carcinogens and for this specific receptor location. These conservative assumptions applied in the HHRA are described in detail in Section 5.2 and Appendix E. Specifically to the interpretation of the arsenic results, the conservative assumption included: a person living at the RSA-MPOI for a life time (80 years) despite access to this location being restricted; and an acceptable risk of 1 in 100,000. It should also be noted that typical background exposures to arsenic, primarily from food and water (CCME, 1999), are over an order of magnitude higher than those predicted from the project. The results for arsenic for all other receptor locations were less than 1.0 (Table 6.2-5; Appendix F)

Table 6.3-1 Predicted Hazard Quotients and ILCR Quotients for the Multimedia Assessment

Parameter	RSA-MPOI		
	Project	Baseline	Application
Threshold (Non-Carcinogenic) Substances HQs – Toddler Receptor			
Acenaphthene	5.9E-08	6.6E-08	8.3E-08
Acenaphthylene	9.4E-08	1.7E-07	1.8E-07
Anthracene	2.1E-08	3.7E-08	3.7E-08
Fluorene	9.6E-07	2.1E-06	2.1E-06
Pyrene	9.1E-07	2.5E-06	2.5E-06
Formaldehyde	1.3E-07	2.2E-07	2.2E-07
Aluminium	8.7E-8	5.4E-3	5.4E-03
Antimony	5.6E-03	1.3E-03	5.6E-03
Barium	7.3E-01	1.7E-01	7.3E-01
Beryllium	3.3E-03	7.8E-04	3.4E-03
Cadmium	1.0E-01	2.4E-02	1.4E-01
Cobalt	1.1E-02	7.0E-03	1.6E-02
Copper	3.7E-03	1.5E-03	2.9E-03
Lead	3.2E-02	7.7E-03	3.2E-02
Manganese	3.9E-07	5.9E-02	5.9E-02
Mercury	5.7E-03	3.0E-03	7.4E-03
Molybdenum	5.4E-04	1.6E-04	5.8E-04
Nickel	1.9E-02	4.7E-03	1.9E-02
Selenium	3.2E-03	7.9E-04	3.2E-03
Thallium	5.0E-01	1.1E-01	5.0E-01
Uranium	9.1E-03	2.1E-03	9.1E-03
Vanadium	6.6E-02	8.7E-02	1.4E-01
Zinc	7.9E-02	1.9E-02	8.0E-02

Table 6.3-1 Predicted Hazard Quotients and ILCR Quotients for the Multimedia Assessment			
Parameter	**RSA-MPOI**		
	Project	**Baseline**	**Application**
Non-Threshold (Carcinogenic) Substances – ILCR Quotients – Composite Receptor			
Benz(a)anthracene	3.8E-05	-	-
Benzo(a)pyrene	8.3E-03	-	-
Benzo(b)fluoranthene	4.1E-03	-	-
Benzo(g,h,i)perylene	3.3E-04	-	-
Benzo(k)fluoranthene	8.5E-04	-	-
Chrysene	2.8E-04	-	-
Dibenzo(a,h)anthracene	3.1E-02	-	-
Fluoranthene	2.1E-04	-	-
Indeno(1,2,3-cd)pyrene	3.5E-04	-	-
Phenanthrene	8.9E-05	-	-
Arsenic	***1.0E+00***	-	**-**
Chromium	1.2E-02	-	-

Table 6.3-2 Predicted Additive Hazard Quotients and ILCR Quotients by Toxicity Groups – Chronic Multimedia			
Toxicity Endpoint	**RSA-MPOI**		
	Project	**Baseline**	**Application**
Gastrointestinal (HQs)	2.4E-02	1.0E-02	2.8E-02
Liver (HQs)	6.1E-03	7.7E-03	1.2E-02
Kidney (HQs)	8.4E-01	2.0E-01	7.5E-01
Reproductive (HQs)	1.2E-01	1.0E-01	2.0E-01
Cumulative Incremental Cancer Risk from PAHs (ILCR Quotients)	4.6E-02	1.3E-01	1.3E-01

An additional evaluation of arsenic risk quotients for composite lifetime receptors was conducted and is shown below in Table 6.3-3.

Table 6.2-5 Predicted Arsenic Chronic Multimedia Risk Quotients

Receptor	Cumulative
	Project
RSA-MPOI	**1.0E+00**
FL-MPOI	1.4E-01
R1	6.1E-03
R2	7.8E-03
R3	6.5E-03
R4	4.2E-03
R5	6.4E-03
R6	6.7E-03
R7	4.3E-03
R8	3.5E-03
R9	4.0E-02
R10	3.5E-01
R11	6.8E-02
R12	4.9E-02
R13	1.3E-01
R14	1.6E-03

For arsenic the risk quotient was equal to 1.0 for a composite lifetime receptor at the RSA-MPOI only; all other locations were less than 1.0 (Table 6.2-5). The RSA-MPOI is within the Mine Permit Boundary and assumed to be not accessible by the general public, and predicted risks to worker receptors were well below target thresholds (Appendix F, Table F.3).

6.4 Significant Impact Ranking

When the predicted health risk results were below 1.0 (a magnitude rating of "nil"), the potential impact of the Project on the VC was automatically defined as "not significant" and further assessment

of the remaining attributes was not required. Health risks with a magnitude ranking of "low", "moderate", or "high" were assessed for all the attributes described in Table 6.4-1.

The results of the HHRA indicated that emission predicted to occur due to Project activities were not significant with respect to potential risk of adverse human health effects.

Table 6.4-1 Summary of Impact Significance on Human Health

Measurable Parameter	Nature of Potential Impact or Effect	Type of Effect	Extent[a]	Duration [b]	Frequency[c]	Reversibility [d]	Magnitude [e]	Project Contribution [f]	Confidence Rating[g]	Probability of Occurrence [h]	Significance [j]
1. NO_2 HQ											
At the MPOI only	Potential human health effects (respiratory)	Acute	Local	Long	Periodic	Reversible in short term	Low	Negative	High	Low	Not Significant
3. $PM_{2.5}$ HQ											
MPOI only	Potential human health effects (premature mortality)	Acute	Local	Short	Periodic	Reversible in short term	Low	Negative	High	Low	Not Significant
		Chronic	Local	Long	Continuous	Irreversible	Low	Negative	High	Low	Not Significant
5. PM_{10} HQ											
MPOI only	Potential human health effects (population mortality and morbidity)	Acute	Local	Short	Periodic	Reversible in short term	Moderate	Negative	High	Low	Not Significant
		Chronic	Local	Short	Continuous	Irreversible	Low	Negative	High	Low	Not Significant
At R10 (cabin)	Potential human health effects (population mortality and morbidity)	Acute	Local	Short	Periodic	Reversible in short term	Low	Negative	High	Low	Not Significant
	Potential human health effects	Chronic	Local	Short	Continuous	Irreversible	Low	Negative	High	Low	Not Significant

Table 6.4-1 Summary of Impact Significance on Human Health

Measurable Parameter	Nature of Potential Impact or Effect	Type of Effect	Extent[a]	Duration [b]	Frequency[c]	Reversibility [d]	Magnitude [e]	Project Contribution [f]	Confidence Rating[g]	Probability of Occurrence [h]	Significance [j]
	(population mortality and morbidity)										
At Coleman (R6)	Potential human health effects (population mortality and morbidity)	Chronic	Local	Long	Continuous	Irreversible	Low	Negative	High	Moderate	Not Significant
At Blairmore (R8 and R14)	Potential human health effects (population mortality and morbidity)	Chronic	Local	Long	Continuous	Irreversible	Low	Negative	High	Moderate	Not Significant

(a) Local, Regional, Provincial, National, Global

(b) Short, Long, Extended, Residual

(c) Continuous, Isolated, Periodic, Occasional

(d) Reversible in short term, Reversible in long term, Irreversible

(e) Nil, Low, Moderate, High

(f) Neutral, Positive, Negative

(g) Low, Moderate, High

(h) Low, Medium, High

(I) Not Significant, significant

6.5 Mitigation and Monitoring

The results of the HHRA suggest that short-term predicted risks to human health will be limited to the RSA-MPOI within the project footprint, or locations with elevated baseline concentrations with minimal contribution from project emissions.

Assuming public access within the Mine Permit Boundary is restricted and the mitigation measures assumed by the other disciplines are implemented (Section A.11.1.1, A.11.2.1, A.11.3.1, A.11.4.1, A.11.5.1, A.11.6.1, A.11.7.1, A.11.8.1, A.11.9.1, A.11.10.1, and A.11.11.1), there is no need for further mitigation of emissions based on the results of the HHRA. Due to the potential for limited acute exposure risk within the Project footprint, a monitoring program (as described in Consultant Report #1a, Section 6.5) is recommended in order to validate the air model predictions.

6.6 Assessment of Uncertainty

Risk assessments are subject to a number of uncertainties. Typically, these uncertainties are addressed by the use of conservative assumptions to ensure that predictions are protective of human health. Specific sources of uncertainty for the present assessment include:

- Concentrations of chemicals in ambient air can be highly variable. To address this, worst-case concentrations were used to assess human health risks. Risk quotients were calculated based on the MPOI, while exposure is more likely to occur at specific receptor locations, resulting in a likely over-prediction of risks.
- The existing sources within the study area (Section E.1.2) likely contributes to baseline exposures of COPCs but there is uncertainty in the magnitude of this contribution; therefore, rather than assessing the incremental contribution of the Project to risks for non-threshold substances, the combined baseline and Project exposures were assessed against incremental exposure limits.
- Aboriginal populations may harvest country foods (local vegetation and wildlife) from locations other than where they live. Most Aboriginal groups live on reserve and in urban centers outside of the Crowsnest Pass (Appendix 7c); however, for the HHRA this receptor type was assumed to live at all the HHRA receptor locations, resulting in a highly conservative estimate of chronic exposure.
- Toxic interactions between chemicals are generally poorly known. This was addressed by assuming additive interactions between chemicals producing similar effects on the same organs.
- Organic chemicals may be metabolized by plants and animals; however, the extent of metabolization is often uncertain. As a result, metabolization was not generally accounted for, resulting in likely over-prediction of COPC concentrations in plants and animals.

- Additional conservative assumptions were made in order to avoid under predicting potential exposure and risk to human receptors, including:
  - assuming COPC concentrations would persist for 80 years;
  - chronic exposure was assumed to occur 7 days per week, 365 days per year at all receptor locations;
  - no transformation processes for metals or organic COPCs in soil were assumed;
  - COPCs were all assumed to be fully bioavailable in food;
  - all food eaten by receptors was assumed to be derived from the study area, with wild game spending their entire lifespan within the study area; and
  - dermal exposure was assumed to occur year-round.

Overall, the risk assessment is believed to provide a conservative estimate of potential human health risks, and likely over-predicts risks for many scenarios.

7.0 SUMMARY AND CONCLUSIONS

The emissions from the Project are not predicted to pose a risk of adverse health effects at the receptor locations accessible to the general public. While risk quotients greater than 1.0 were predicted, they were identified to occur within the Mine Permit Boundary, an area assumed to be inaccessible by the public during construction and operation of the mine, or were due to existing baseline emissions with minimal contribution from the Project. Due to the conservative assumptions applied in the air dispersion modelling and HHRA, the risk results outside the RSA-MPOI were not considered great enough to be indicative of a risk of potential adverse health effects.

Air quality monitoring (as described in Consultant Report #1a, Section 6.6) should be undertaken to validate the predicted air concentrations and confirm the conclusion that Project emissions do not pose any risk of adverse health risks.

7.1 Acute Inhalation

Acute inhalation risks were evaluated by comparing maximum predicted annual average concentrations in air to toxicity limits. The majority of the HQ results for the acute inhalation assessment were below 1.0 at all the receptor locations assessed. The results of the acute inhalation assessment demonstrate that the Project emissions do not pose a risk of adverse health effects at the receptor locations assessed outside the Mine Project Boundary for all COPC assessed.

Within the Mine Permit Boundary, the results of the acute inhalation risk assessment indicate that predicted exposure to the maximum predicted air concentrations are below the TRV for all COPC with the exception of NO_2, $PM_{2.5}$ and PM_{10} at the RSA-MPOI and PM_{10} at R10. As presented in the Air

Quality Assessment (Consultant Report #1a), the locations of the MPOI receptors are close to key Project activities at the edge of the pit boundary within the Project footprint and the R10 location is within the Mine Permit Boundary, both are areas which will be restricted to the general public during construction and operation.

Additional assessment of the R10 results indicate that although exceedances are predicted to occur, they are only marginally over the TRV and occur at the most, 2 days per year (an average of 0.8 times per year). Based on the conservative assumptions built into the air dispersion modelling (Consultant Report #1a, Section 2.5.3 and 2.5.5) and the exposure and hazard assessment steps, as well as the restricted access to this location, there is a low risk of potential adverse health effects occurring at this location.

Outside of the Mine Permit Boundary, HQs greater than 1.0 were predicted for PM_{10} at Coleman (R6) and Blairmore North (R8) locations. Review of the PM_{10} results at these locations demonstrated that the exceedances were are primarily due to baseline conditions and are thus attributed to other emission sources in the area (*e.g.*, residential, automobile traffic and rail activities) and not contributions from the Project.

Potential risk of acute effects on humans from the Project are predicted only at the RSA-MPOI locations which are within the Mine Permit Boundary and thus not expected to be accessible to the general population.

7.2 Chronic Inhalation

Chronic inhalation risks were evaluated by comparing maximum predicted annual average concentrations in air to toxicity limits. For the majority of the COPCs assessed, the results of the chronic inhalation risk assessment indicate that predicted exposure to the maximum predicted air concentrations at multiple locations were all below their respective TRVs and therefore do not pose a risk of adverse human health effects. Although some small exceedance were predicted for a few CACs at the RSA-MPOI, due to their location close to proposed mining activities it is overly conservative to assume that a person will be living at that location for long periods of time.

At the RSA-MPOI, the HQs for NO_2, $PM_{2.5}$ and PM_{10} the HQs were greater than their respective TRVs at the RSA-MPOI. As presented in the Air Quality Assessment (Consultant Report #1a, Figures 5.1-1 through 5.6-2), the locations of the MPOIs are close to key Project activities on the edge of the pit boundary within the Project footprint. It was assumed that access to areas within the Mine Permit Boundary will be restricted to the general public during Project construction and operation and therefore, Project emissions were not predicted to pose a risk of adverse health effects.

Exceedances predicted at R6, R8 and R14 were small, and attributed to background sources in the area (*e.g.*, residential, automobile traffic and rail activities) and not contributions from the Project.

7.3 Chronic Multimedia Exposure

Chronic risks from secondary exposure through oral and dermal pathways were evaluated using maximum predicted annual average concentrations in air and a multimedia exposure model. The multimedia HQs and ILCR quotients were less than 1.0 for all COPCs except for arsenic at the RSA-MPOI which was equal to 1.0. The arsenic HQ of 1.0 is not considered indicative of potential risk of adverse health effects due to its occurrence only at the RSA-MPOI and the conservative assumptions applied in the assessment of exposure to carcinogens.

8.0 WILDLIFE RISK ASSESSMENT

A screening level wildlife risk assessment (WRA) was also conducted, using the same models and air concentrations as the human health risk assessment. The results of the screening-level WRA indicates that there is no potential risk of adverse effects associated with Project emissions on the health of wildlife in the study areas. The maximum predicted air concentrations associated with Project emissions do not exceed either the acute or chronic toxicity reference values protective of wildlife, with the exception of $PM_{2.5}$ in the mammalian acute assessment which was only slightly greater than 1.0. Similarly, maximum predicted long-term soil and surface water concentrations did not exceed the soil quality and surface water quality guidelines respectively. Because of the highly conservative assumptions that were used during the wildlife risk assessment, the prediction confidence was considered high. Details of the wildlife risk assessment methods and results are provided in Appendix H (Screening Wildlife Risk Assessment).

9.0 REFERENCES

AER (Alberta Energy Regulator) 2015. Terms of Reference for Environmental Impact Assessment Report. Benga Mining Limited. Grassy Mountain Coal Project (about 7 km form Blairmore, Alberta). March 19, 2015.

AHW (Alberta Health and Wellness). 2006. *Report on the Health of Albertans*. Edmonton.

AHW(Alberta Health and Wellness). 2011. *Guidance on Health Risk Assessment for Environmental Impact Assessment in Alberta*. Edmonton.

CEAA (Canadian Environmental Assessment Agency). 2015. Guidelines For The Preparation Of An Environmental Impact Statement pursuant to the *Canadian Environmental Assessment Act, 2012*. Grassy Mountain Coal Project. Benga Mining Limited (Benga Resources Limited).

California Environmental Protection (Cal/EPA). 1994. *Preliminary Endangerment Assessment Guidance Manual*. January

CCME (Canadian Council of Ministers of the Environment). 2008. C*anada-Wide Standard for Petroleum Hydrocarbons in Soil (PHC CWS): Scientific Rationale*. Supporting Technical Document. Winnipeg.

CCME. 1999. Canadian Soil Quality Guidelines: Arsenic (Environmental and Human Health Effects). Scientific Supporting Document. Prepared by National Guidelines and Standards Office, Environment Canada.

ESRD (Alberta Sustainable Environment and Resource Development). 2013a. Environment Assessment Program. Guide to Preparing Impact Assessment Reports in Alberta. Updated March 2013.

ESRD (Alberta Sustainable Environment and Resource Development). 2013b. Using Ambient Air Quality Objectives in Industrial Dispersion Modelling and Industrial Site Monitoring. Revised October 2013.

Health Canada. 2010a. *Federal Contaminated Sites Risk Assessment in Canada Part I: Guidance on Preliminary Quantitative Human Health Risk Assessment (PQRA)*. Version 2.0. Contaminated Sites Division. Ottawa. Revised 2012.

Health Canada. 2010b. *Federal Contaminated Sites Risk Assessment in Canada Part V: Guidance on Detailed Quantitative Human Health Risk Assessment of Chemicals (DQRA$_{CHEM}$)*. Contaminated Sites Division. Ottawa.

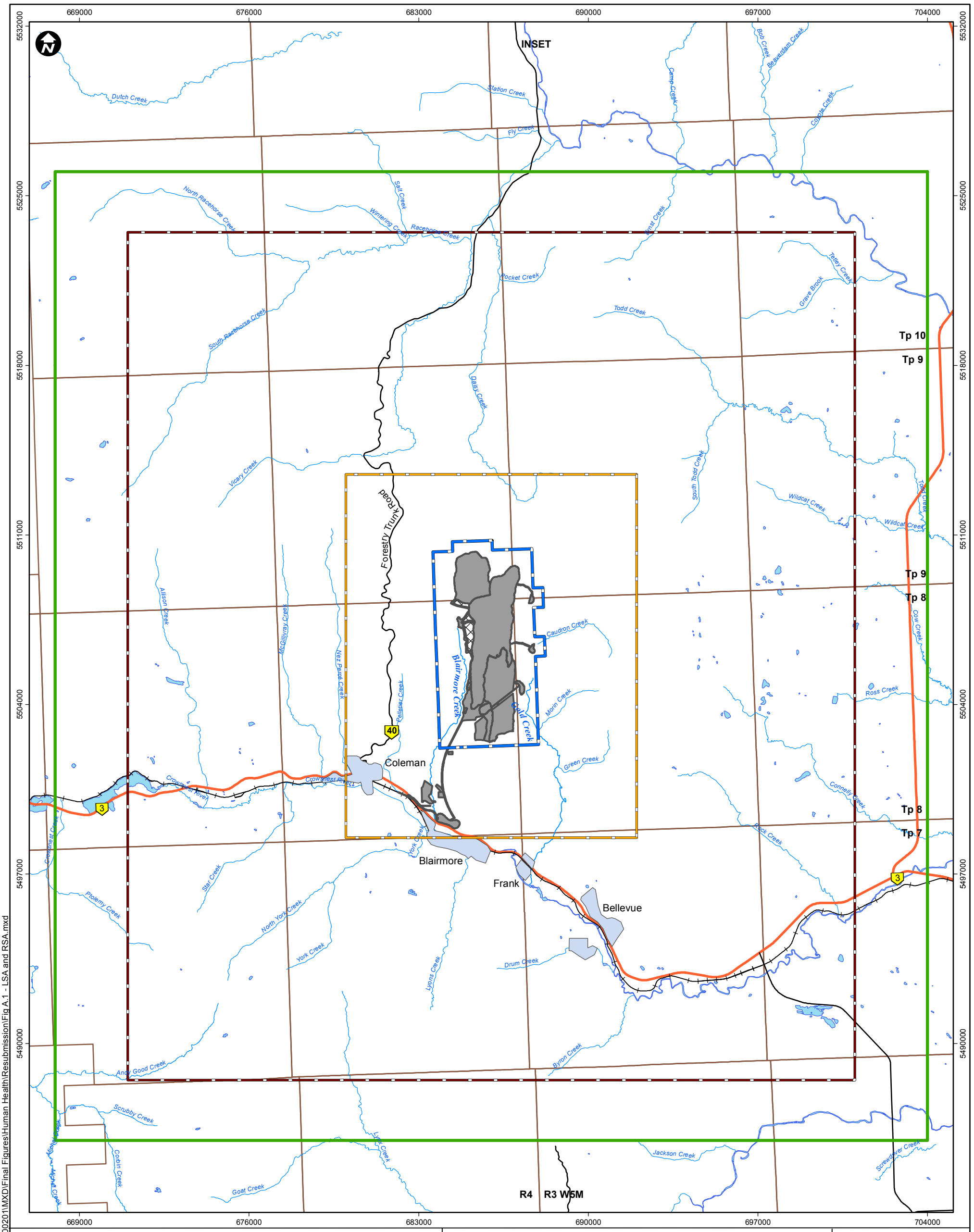
Piikani Nation. 2015a. “They worked hard for what they had and were proud of it": Report on Piikani Health and Socio-economic Conditions. Prepared by Kai Scott for Riversdale Resources, Ltd.

Piikani Nation. 2015b. *Piikani Traditional Knowledge and Land Use in the Matoyihko Yiistak Area.* Prepared by Kai Scott and Natasha Thorpe for Riversdale Resources, Ltd. Vancouver, BC. July 2015.

US EPA (United States Environmental Protection Agency). 2005. *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Sites*. Office of Solid Waste and Emergency Response. EPA530-R-05-006.

Wein, E., J.H. Sabry and F.T Evers. 1990. Food consumption patterns and use of country foods by Native Canadians near Wood Buffalo National Park, Canada. *Arctic* 44(3): 196-205.

APPENDIX A: FIGURES



LEGEND

- Proposed Mine Permit Boundary
- Project Footprint
- Undisturbed Area
- Air Quality Local Study Area
- Air Quality Regional Study Area
- Model Domain

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

MILLENNIUM EMS Solutions Ltd.

TITLE

AIR QUALITY & HUMAN HEALTH RISK ASSESSMENT - LOCAL STUDY AREA AND REGIONAL STUDY AREA

NOTES

AltaLIS, 2016; NRCAN, 2015; Riversdale, 2016
Datum/Projection: UTM NAD 83 Zone 11

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DRAWN BY:	JDC/SL
CHECKED BY:	DT
DATE:	JUNE 29, 2016

0 2.5 5 10
Kilometres

FIGURE

A.1

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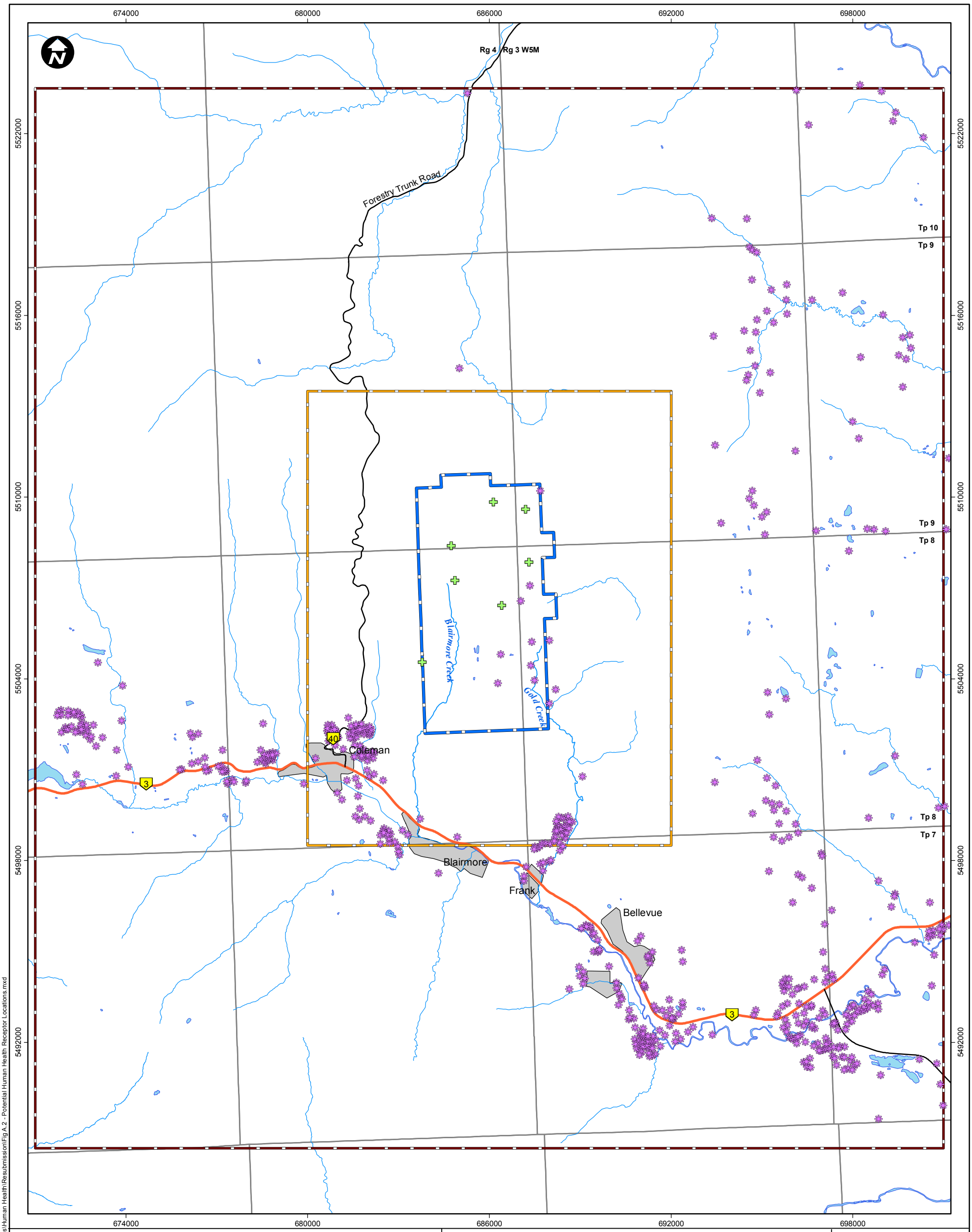

LEGEND

- First Nations Receptors
- Potential Receptors
- Primary Highway
- Secondary Highway
- Existing Railway
- Proposed Mine Permit Boundary
- Air Quality Local Study Area
- Air Quality Regional Study Area

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

MILLENNIUM EMS Solutions Ltd.

TITLE

POTENTIAL HUMAN HEALTH RECEPTOR LOCATIONS

NOTES

AltaLIS, 2016; NRCAN, 2015; Riversdale, 2016
Datum/Projection: UTM NAD 83 Zone 11

PROJECT:	14-00201-01
DRAWN BY:	JDC/SL
CHECKED BY:	DT
DATE:	JUNE 28, 2016

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Kilometres

FIGURE

A.2

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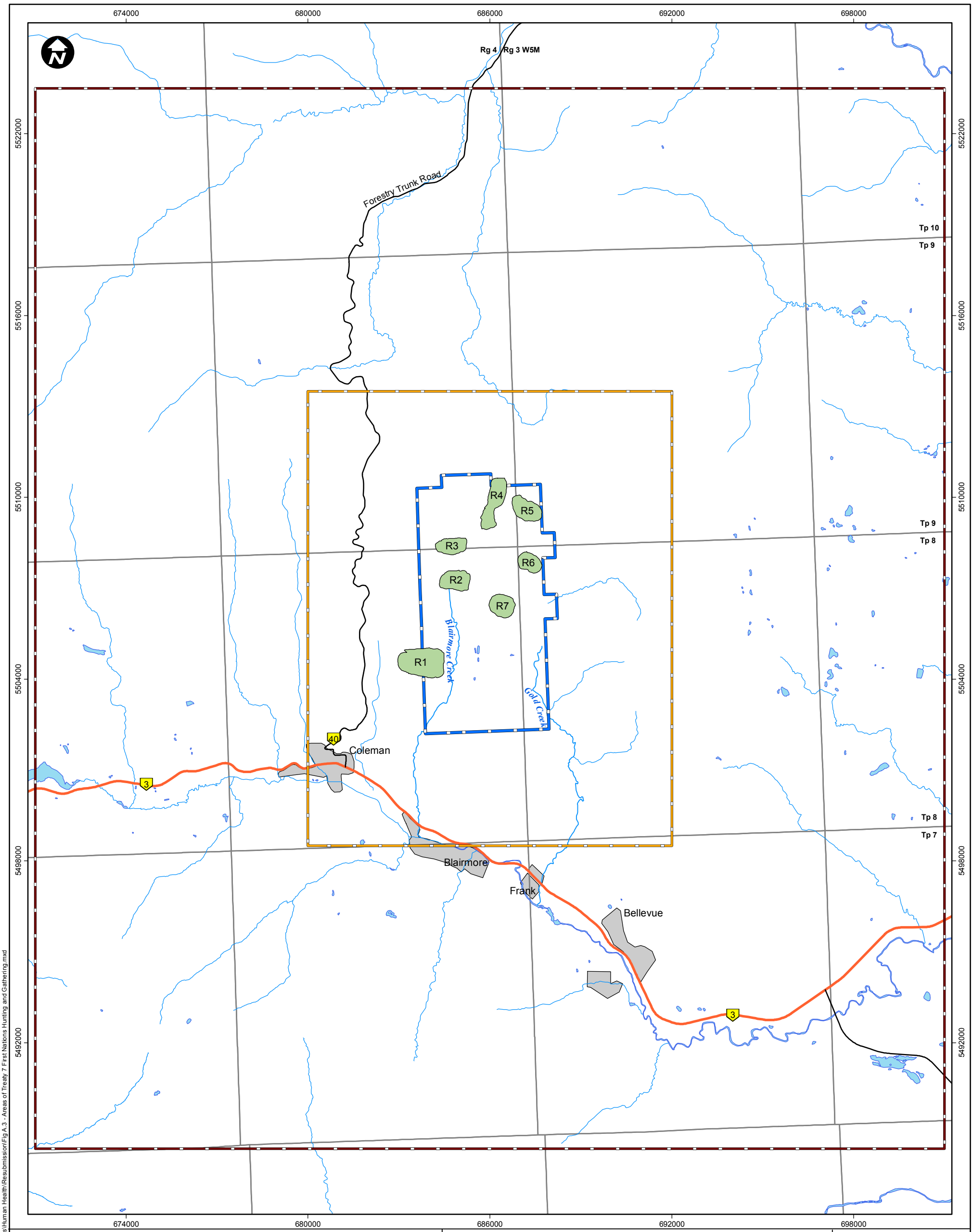

LEGEND

- Primary Highway
- Secondary Highway
- Existing Railway
- First Nations Receptor
- Proposed Mine Permit Boundary
- Air Quality Local Study Area
- Air Quality Regional Study Area

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

MILLENNIUM EMS Solutions Ltd.

TITLE

AREAS OF TREATY 7 FIRST NATIONS HUNTING AND GATHERING IN THE LOCAL STUDY AREA

NOTES

AltaLIS, 2016; NRCAN, 2015; Riversdale, 2016
Datum/Projection: UTM NAD 83 Zone 11

PROJECT:	14-00201-01
DRAWN BY:	JDC/SL
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DATE:	JUNE 29, 2016

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Kilometres

FIGURE

A.3

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201\MXD\Final Figures\Human Health\Resubmission\Fig A.3 - Areas of Treaty 7 First Nations Hunting and Gathering.mxd

669000 676000 683000 690000 697000 704000

5532000 5525000 5518000 5511000 5504000 5497000 5490000

INSET

Dutch Creek
Station Creek
Fly Creek
Camp Creek
Bob Creek
Beaverdam Creek
Coyote Creek
North Racehorse Creek
Salt Creek
Wintering Creek
Racehorse Creek
Ernst Creek
Rocket Creek
Telkwa Creek
Grave Brook
Todd Creek
South Racehorse Creek
Daisy Creek
South Todd Creek
Wildcat Creek
Vicary Creek
Forestry Trunk Road
Allison Creek
McGillivray Creek
Nez Perce Creek
Pellatier Creek
Caudron Creek
Morin Creek
Ross Creek
Cow Creek
Gold Creek
Green Creek
Connelly Creek
Rock Creek
Crowsnest River
Crowsnest Creek
Ptolemy Creek
Lyons Creek
Drum Creek
Byron Creek
Scrubby Creek
Corbin Creek
Goat Creek
Jack Creek
Jackson Creek
Screwdriver Creek

R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14

Coleman
Blairmore
Frank
Bellevue

Tp 10
Tp 9
Tp 8
Tp 7

3 40

Label	Special Receptor Name
R1	Lost Lemon Campground
R2	Trapper's Cabin #1
R3	Residential #1
R4	Residential #2
R5	Residential #3
R6	Coleman
R7	Frank
R8	Blairmore
R9	Aboriginal (traditional land use)
R10	Residential #4
R11	Trapper's Cabin #2
R12	Residential #5
R13	Residential #6
R14	Blairmore Center

R4 R3 W5M

LEGEND

- ▲ Special Receptor
- Proposed Mine Permit Boundary
- Project Footprint
- Undisturbed Area
- Air Quality Local Study Area
- Air Quality Regional Study Area
- Model Domain

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

MILLENNIUM EMS Solutions Ltd.

TITLE

ASSESSED HEALTH RECEPTOR LOCATIONS

NOTES

AltaLIS, 2016; NRCAN, 2015; Riversdale, 2016
Datum/Projection: UTM NAD 83 Zone 11

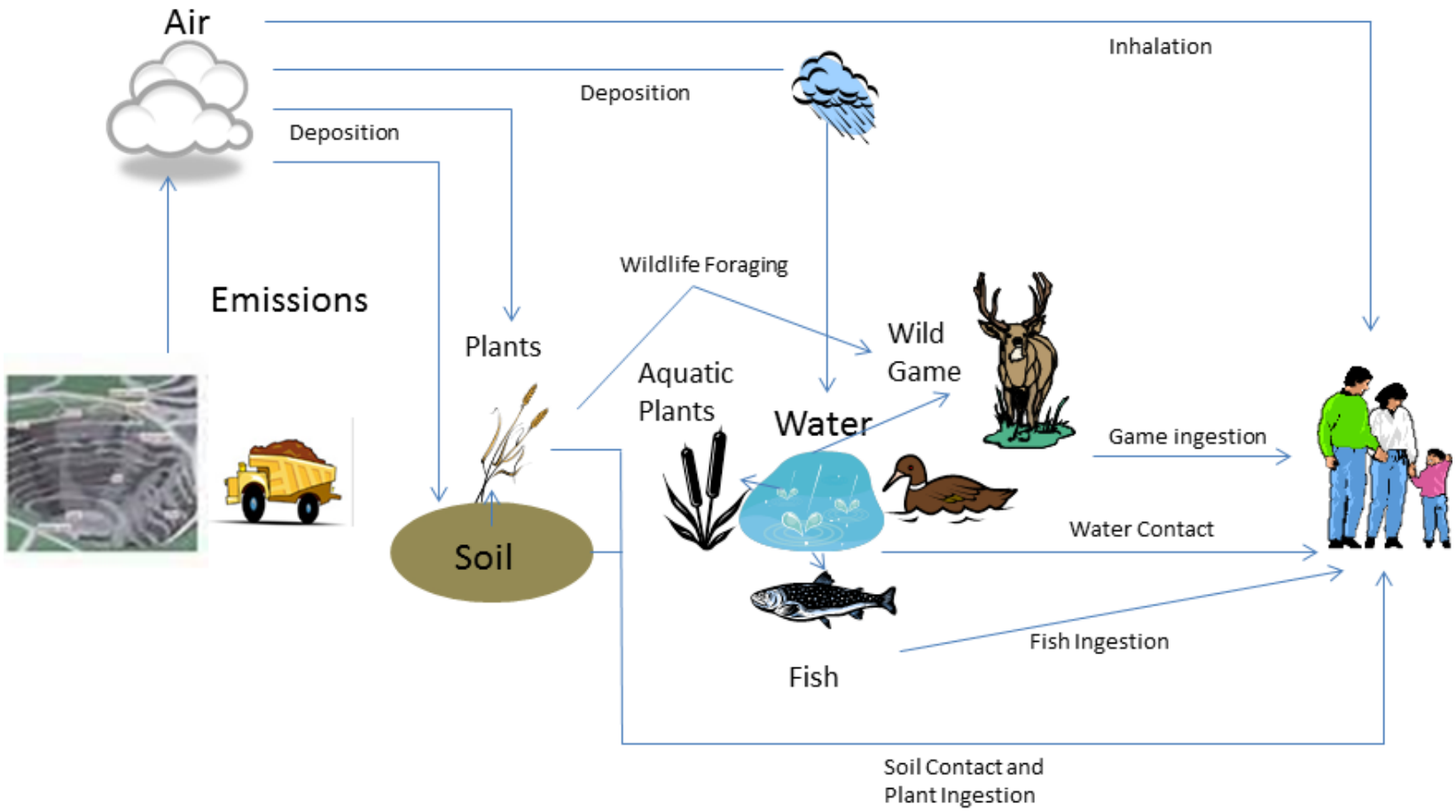
PROJECT: 14-00201-01
DRAWN BY: JDC/SL
CHECKED BY: DT
DATE: JUNE 29, 2016

0 2.5 5 10
Kilometres

FIGURE

A.4

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201\MXD\Final Figures\Human Health\Resubmission\Fig A.4 - Assessed Health Receptor Locations.mxd



PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

MILLENNIUM EMS Solutions Ltd.

TITLE

MULTI-MEDIA CONCEPTUAL SITE MODEL

PROJECT: 14-00201-01

DRAWN BY: JDC

CHECKED BY: DS

DATE: AUGUST 27, 2015

NOTES

MEMS, 2015

NOT TO SCALE

FIGURE

A.5

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201\MXD\Final Figures\Human Health\Resubmission\Fig A.5 - Conceptual Site Model.mxd

APPENDIX B: TOXICOLOGICAL EVALUATIONS

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1.0 ACENAPHTHENE

1.1 Inhalation Exposure Limits

1.1.1 Acute Inhalation Exposure Limits

Table B.1-1 Acute Inhalation Exposure Limits for Acenaphthene

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	ESL	-
Exposure Limit Value (µg/m³)	-	-	-	1	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	ESRD 2013	ATSDR 2013	OEHHA 2013	TCEQ 2013	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

An interim acute ESL of 1 µg/m³ was recommended for acenaphthene as a fraction of exhaust PM_{10} by TCEQ (2013); however, no supporting documentation was provided for this exposure limit. No short-term occupational exposure limits have been developed for acenaphthene (OSHA 2013).

Acenaphthene is a C12 aromatic hydrocarbon. In the absence of an acute inhalation exposure limit specific to acenaphthene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this chemical. Details on the acute inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

1.1.2 Chronic Inhalation

Table B.1-2 Chronic Inhalation Exposure Limits for Acenaphthene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	-	ESL	-	-
Exposure Limit Value (µg/m³)	-	-	-	-	-	0.1	-	-

Table B.1-2 Chronic Inhalation Exposure Limits for Acenaphthene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Critical Organ or Effect	-	-	-	-	-	-	-	-
Species	-	-	-	-	-	-	-	-
Study		-	-	-	-	-	-	
Source	ESRD 2013	ATSDR 2013	Health Canada 2010	OEHHA 2013	RIVM 2009	TCEQ 2013	US EPA 1994	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

An interim chronic ESL of 0.1 µg/m^3 was recommended for acenaphthene as a fraction of exhaust PM_{10} by TCEQ (2013); however, no supporting documentation was provided for this exposure limit. The US EPA (1994) and ATSDR (1995) determined there were insufficient data for the purpose of deriving a chronic inhalation exposure concentration for acenaphthene.

In the absence of a chronic inhalation exposure limit specific to acenaphthene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this C12 aromatic hydrocarbon. Details on the chronic inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

1.2 Oral Exposure Limits

1.2.1 Chronic Oral Exposure Limit

Table B.1-3 Chronic Oral Exposure Limits for Acenaphthene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA
Exposure Limit Type	MRL (adjusted)	-	-	CR	**RfD**
Exposure Limit Value (mg/kg bw/day)	0.06	-	-	0.5	**0.06**
Critical Organ or Effect	Liver	-	-	Cancer potency relative to B[a]P	**Liver**
Species	Mice	-	-	Rat	**Mice**

Table B.1-3 Chronic Oral Exposure Limits for Acenaphthene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA
Study	US EPA 1989	-	-	Kroese et al 1999	**US EPA 1989**
Source	ATSDR 1995	Health Canada 2010	OEHHA 2013	RIVM 2001	**US EPA 1994**

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (1999a) identified an intermediate oral MRL of 0.6 mg/kg body weight/day for acenaphthene based on a NOAEL of 175 mg/kg body weight/day for liver toxicity in mice following 90 days gavage exposure to acenaphthene (US EPA 1989; ATSDR 1995). Adjusting the ATSDR intermediate MRL by an additional uncertainty factor of 10 for subchronic to chronic extrapolation would result in a chronic exposure limit of 0.06 mg/kg body weight/day. The US EPA (1994) identified the same NOAEL for acenaphthene and established a chronic oral RfD of 0.06 mg/kg body weight/day after applying a 3,000-fold uncertainty factor (US EPA 1994).

The RIVM (2001) recommend a CR of 0.5 mg/kg body weight/day for acenaphthene based on a relative carcinogenic potency to benzo[a]pyrene of 0.01 and an excess lifetime cancer risk of 1 in 10,000. Health Canada (2010) does not list a potency equivalency factor (PEF) to benzo[a]pyrene (B[a]P)for acenaphthene; therefore, the RIVM exposure limit based on cancer potency relative to B[a]P was not considered.

The RfD of 0.06 mg/kg body weight/day (US EPA 1994) was selected to evaluate risks associated with chronic oral exposure to acenaphthene. Acenaphthene was included in the chemical group for liver effects following oral exposures.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services, Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

ATSDR 1995. Toxicological Profile for Polycyclic Aromatic Hydrocarbons. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. August 1995. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#H. Accessed October 2013.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA), Version 2.0. Contaminated Sites Division. Safe Environments Programme.

Kroese ED, Muller JJA, Mohn GR, Dortant PM, and Wester PW. 1999. Tumorigenic effects in Wistar rats orally administered benzo[a]pyrene for two years (gavage studies). Implications for human cancer risks associated with oral exposure to polycyclic aromatic hydrocarbons. National Institute of Public Health and the Environment, RIVM draft report no. 658603010, July 1999. Cited In: RIVM 2001.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

OSHA (Occupational Safety and Health Administration) 2013. Chemical Sampling Information: Acenaphthene. Available at: https://www.osha.gov/dts/chemicalsampling/data/CH_216280.html. Accessed October 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed October 2013.

US EPA (Environmental Protection Agency). 1994. IRIS (Integrated Risk Information System) Summary for Acenaphthene (CASRN 83-34-9). Reference Concentration for Chronic Inhalation Exposure (RfC). Reference Dose for Chronic Oral Exposure (RfD). Available at: www.epa.gov/iris. Accessed October 2013.

U.S. EPA. 1989. Mouse oral subchronic study with acenaphthene. Study conducted by Hazelton Laboratories, Inc., for the Office of Solid Waste, Washington, DC. Cited In: US EPA 1994.

WHO (World Health Organization) 2000, Air quality guidelines for Europe, 2nd ed. Copenhagen, WHO Regional Office for Europe, 2000 (WHO Regional Publications, European Series, No. 91).

2.0 ACENAPHTHYLENE

2.1 Inhalation Exposure Limits

2.1.1 Acute Inhalation Exposure Limits

Table B.2-1 Acute Inhalation Exposure Limits for Acenaphthylene

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	ESL	-
Exposure Limit Value ($\mu g/m^3$)	-	-	-	1	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	ESRD 2013	ATSDR 2013	OEHHA 2013	TCEQ 2013	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA

An interim acute ESL of 1 $\mu g/m^3$ was recommended by TCEQ (2013) for acenaphthylene, based on acenaphthene which is evaluated by TCEQ as PM_{10} (TCEQ 2013). No supporting documentation was provided for this exposure limit. No short-term occupational exposure limits have been developed for acenaphthylene (OSHA 2013).

Acenaphthylene is a C12 aromatic hydrocarbon. In the absence of an acute inhalation exposure limit specific to acenaphthylene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this chemical. Details on the acute inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

2.1.2 Chronic Inhalation

Table B.2-2 Chronic Inhalation Exposure Limits for Acenaphthylene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	-	ESL	-	-
Exposure Limit Value (µg/m³)	-	-	-	-	-	0.1	-	-
Critical Organ or Effect	-	-	-	-	-	-	-	-
Species	-	-	-	-	-	-	-	-
Study		-	-	-	-	-	-	
Source	ESRD 2013	ATSDR 2013	Health Canada 2010	OEHHA 2013	RIVM 2009	TCEQ 2013	US EPA 1991	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA

An interim chronic ESL of 0.1 µg/m³ was recommended for acenaphthylene (TCEQ 2013), based on acenaphthene which is evaluated by TCEQ as PM_{10} (TCEQ 2013). No supporting documentation was provided for this exposure limit. The US EPA (1991) and ATSDR (1995) determined there were insufficient data for the purpose of deriving a chronic inhalation exposure concentration for acenaphthylene.

In the absence of a chronic inhalation exposure limit specific to acenaphthylene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this C12 aromatic hydrocarbon. Details on the chronic inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

2.2 Oral Exposure Limits

2.2.1 Chronic Oral Exposure Limit

Table B.2-3 Chronic Oral Exposure Limits for Acenaphthylene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA
Exposure Limit Type	-	-	-	CR	-
Exposure Limit Value (mg/kg bw/day)	-	-	-	0.05	-
Critical Organ or Effect	-	-	-	Cancer potency relative to B[a]P	-
Species	-	-	-	Rat	-
Study	-	-	-	Kroese et al 1999	-
Source	ATSDR 1995	Health Canada 2010	OEHHA 2013	RIVM 2001	US EPA 1991

- not available

Bold – Exposure Limit selected for HHRA

The ATSDR (1995) and US EPA (1991) determined there were insufficient data for the purpose of deriving an oral exposure limit for acenaphthylene.

The RIVM (2001) recommend an excess carcinogenic risk (CR) of 0.05 mg/kg body weight/day for acenaphthylene based on a relative carcinogenic potency to benzo[a]pyrene of 0.01 and an excess lifetime cancer risk of 1 in 10,000. Health Canada (2010) does not list a potency equivalency factor (PEF) to benzo[a]pyrene (B[a]P) for acenaphthylene and, therefore, the RIVM exposure limit based on potency relative to B[a]P was not considered.

Acenaphthylene is structurally very similar to acenaphthene. For the purpose of this assessment, the oral RfD identified for acenaphthene was selected to evaluate risks associated with chronic oral exposure to acenaphthylene (US EPA 1994). Details on this oral exposure limit are provided in the toxicity profile for acenaphthene. Acenaphthylene was included in the chemical group for liver effects following oral exposures.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

ATSDR 1995. Toxicological Profile for Polycyclic Aromatic Hydrocarbons. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. August 1995. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#H. Accessed October 2013.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA), Version 2.0. Contaminated Sites Division. Safe Environments Programme.

Kroese ED, Muller JJA, Mohn GR, Dortant PM, and Wester PW. 1999. Tumorigenic effects in Wistar rats orally administered benzo[a]pyrene for two years (gavage studies). Implications for human cancer risks associated with oral exposure to polycyclic aromatic hydrocarbons. National Institute of Public Health and the Environment, RIVM draft report no. 658603010, July 1999. Cited In: RIVM 2001.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

OSHA (Occupational Safety and Health Administration) 2013. Chemical Sampling Information: Acenaphthylene. Available at: https://www.osha.gov/dts/chemicalsampling/data/CH_216285.html. Accessed October 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html.Accessed October 2013.

US EPA (Environmental Protection Agency). 1994. IRIS (Integrated Risk Information System) Summary for Acenaphthene (CASRN 83-32-9). Reference Concentration for Chronic Inhalation Exposure (RfC). Reference Dose for Chronic Oral Exposure (RfD). Available at: www.epa.gov/iris. Accessed October 2013.

WHO (World Health Organization) 2000, Air quality guidelines for Europe, 2nd ed. Copenhagen, WHO Regional Office for Europe, 2000 (WHO Regional Publications, European Series, No. 91).

3.0 ACETALDEHYDE

3.1 Inhalation Exposure Limits

3.1.1 Acute Inhalation

Table B.3-1 Acute Inhalation Exposure Limits for Acetaldehyde

AGENCY	ESRD	ATSDR	OEHHA	TCEQ
Exposure Limit Type	1-hour AAQO	-	1-hour REL 8-hour REL	1-hour ESL
Exposure Limit Value (µg/m³)	90	-	**470** 300	15
Critical Organ or Effect	Odour	-	Eye and respiratory irritation Nasal irritation	Odour
Species	Human	-	Human Rat	-
Study	Adopted TCEQ ESL	-	Prieto *et al.* 2000 Appelman *et al.* 1982; 1986	-
Source	ESRD 2013	ATSDR 2013	OEHHA 2013; 2008	TCEQ 2013

- not available

Bold – Exposure Limit selected for HHRA.

An AAQO of 90 µg/m³ is recommended by Alberta (ESRD 2013) for 1-hour exposures to acetaldehyde. This limit was adopted from an odour ESL recommended by the TCEQ and was last reviewed in 1999.

The TCEQ (2013) currently recommends an acute (1-hour) ESL of 15 µg/m³ for acetaldehyde based on an odour endpoint; no supporting documentation was provided (TCEQ 2013).

The OEHHA (2013) recommend a 1-hour REL of 470 µg/m³ for acetaldehyde. This REL was derived from responses observed in a study of controlled, short-term (2-5 minutes) exposures of asthmatic individuals to acetaldehyde (Prieto *et al.* 2000). A LOAEL of 142 mg/m³ for bronchoconstriction was identified from this study. The OEHHA (2008) applied a 300-fold uncertainty factor to this LOAEL account for use of a LOAEL (10), variability in human response (3) and potential asthma exacerbation in children (10). This REL was determined by the OEHHA (2008) to also be protective of potential eye

irritation associated with acute exposure to acetaldehyde, following review of another controlled exposure study in humans (Silverman *et al.* 1946).

An 8-hour REL of 300 µg/m³ is also recommended for acetaldehyde by the OEHHA (2013). This REL was derived from inhalation studies in rats intermittently exposed (6 hours/day, 5 days/week) to acetaldehyde over a 4 week period (Appelman *et al.* 1982; 1986). A NOAEL of 270 mg/m³ for degeneration of olfactory epithelium was identified from the Appelman *et al.* (1982; 1986) studies. The OEHHA (2008) determined a BMC_{05} of 178 mg/m³ using benchmark modelling. The BMC_{05} was converted to a human equivalent concentration of 242 mg/m³ using pharmacokinetic modelling and adjusted for continuous exposure, resulting in a BMC_{05}(HEC) of 86.5 mg/m³. A cumulative uncertainty factor of 300 was applied to the BMC_{05}(HEC) to account for subchronic exposure (3), extrapolation from an animal study (3), variability in human response (3) and potential asthma exacerbation in children (10).

The OEHHA REL of 470 µg/m³ was considered the most appropriate health-based guideline for the assessment of acute exposure to acetaldehyde as it was based on human responses and considered sensitive individuals. Acetaldehyde was included in the chemical groups for eye irritation, nasal irritation and respiratory irritation following acute inhalation exposures.

3.1.2 Chronic Inhalation

Table B.3-2 Chronic Inhalation Exposure Limits for Acetaldehyde

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	TC TC_{05}	REL RsC	-	ESL	RfC RsC	-
Exposure Limit Value (µg/m³)	-	-	390 17	140 **3.7**	-	45	**9** 5	-
Critical Organ or Effect	-	-	Nasal lesions Nasal tumours	Nasal lesions Nasal tumours	-	-	Nasal lesions Nasal tumours	-
Species	-	-	Rat	Rat	-	-	Rat	-
Study	-	-	Appelman *et al.* 1982; 1986 Woutersen *et al.* 1986	Appelman *et al.* 1982; 1986 Woutersen *et al.* 1986	-	-	Appelman *et al.* 1982; 1986 Woutersen and Appleman 1984	-

Table B.3-2 Chronic Inhalation Exposure Limits for Acetaldehyde

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Source	ESRD 2013	ATSDR 2013	Health Canada 2000	OEHHA 2013; 2011; 2008	RIVM 2001	TCEQ 2013	US EPA 1991	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

IARC (2013) has classified acetaldehyde as possibly carcinogenic to humans (Group 2B). Health Canada (2000), the OEHHA (2011) and US EPA (1991) have established chronic inhalation guidelines based on evidence in rats of an association between chronic inhalation exposure to acetaldehyde and nasal tumours (Woutersen *et al*. 1986; Woutersen and Appleman, 1984). These agencies also established guidelines based on nasal lesions in rats (Appelman *et al.* 1982; 1986) following acetaldehyde inhalation. The TCEQ (2013) recommends a chronic ESL of 45 for acetaldehyde; however, no supporting documentation was provided for this exposure limit.

The OEHHA (2011) recommend a unit risk factor of 0.0000027 per µg/m^3 for acetaldehyde. This risk factor was calculated from the incidence of nasal tumors in rats following exposure to acetaldehyde for 6 hours/day, 5 days/week and up to 28 months (Woutersen *et al.* 1986). The unit risk factor translates to an RsC of 3.7 µg/m^3, assuming an acceptable incremental cancer risk of 1 in 100,000.

Health Canada (2000) determined a TC_{05} of 86 mg/m^3 based on the incidence of tumours in the nasal cavity of rats chronically exposed to acetaldehyde (Woutersen *et al.*, 1986). The TC_{05} was derived using a multistage model with adjustment for intermittent to continuous exposure (Health Canada, 2000). The TC_{05} is associated with a 5% (1 in 20) increase in tumour incidence over background. Dividing the TC_{05} by a factor of 5,000 results in an RsC of 17 µg/m^3 for a 1 in 100,000 incremental cancer risk level.

The US EPA (1991) recommends a unit risk factor of 0.0000022 per µg/m^3 for acetaldehyde. This risk factor was calculated from the incidence of nasal tumors in rats following exposure to acetaldehyde for 6 hours/day, 5 days/week for 27 months (Woutersen and Appleman 1984). The unit risk factor translates to an RsC of 5 µg/m^3 assuming a 1 in 100,000 incremental cancer risk.

The OEHHA (2013) recommends an REL of 140 µg/m^3 for noncarcinogenic effects of acetaldehyde following chronic exposure. This REL was derived from the same rat inhalation studies (Appelman *et al.* 1982; 1986) previously described for the 8-hour OEHHA REL. The BMC_{05} (HEC) of 242 mg/m^3 was adjusted for chronic exposure, resulting in a POD of 43.2 mg/m^3. A cumulative uncertainty factor of

300 was again applied to account for subchronic exposure (3), extrapolation from an animal study (3), variability in human response (3) and potential asthma exacerbation in children (10) (OEHHA 2008).

Health Canada (2000) developed a TC of 390 μg/m^3 for the noncarcinogenic effects of acetaldehyde following chronic exposure. This guideline was also based on the Appelman *et al.* (1982; 1986) inhalation studies reporting nasal lesions in rats intermittently exposed (6 hours/day, 5 days/week) to acetaldehyde over a 4 week period.

A BMC_{05} of 218 mg/m^3 was calculated for non-neoplastic lesions in the rat nasal olfactory epithelium (Health Canada 2000). The BMC_{05} was adjusted for continuous exposure (24 hours/day, 7 days/week) and an uncertainty factor of 100 applied to account for extrapolation from an animal study (10) and variability in human response (10).

The US EPA (1991) recommends an RfC of 9 μg/m^3 for acetaldehyde based on noncarcinogenic effects following chronic exposure. A NOAEL of 273 mg/m^3 for degeneration of olfactory epithelium was identified from the Appelman *et al.* (1982; 1986) studies. The US EPA calculated a NOAEL(HEC) of 8.7 mg/m^3 after adjusting the NOAEL for continuous exposure. The US EPA (1991) applied a 1,000-fold uncertainty factor to the NOAEL (HEC) to account for use of a subchronic study (10), extrapolation from an animal study and incompleteness of the database (10) and variability in human response (10).

The noncarcinogenic REL defined by OEHHA was applied in the current risk assessment. It was selected over the lower US EPA (1991) value as it is a more current assessment of the same studies. The lowest air concentration recommended by the OEHHA (3.7 μg/m^3) was selected for the assessment of carcinogenic effects following chronic inhalation exposure to acetaldehyde. Acetaldehyde was included in the chemical group for nasal tumours following chronic inhalation exposures.

Acetaldehyde was included in the chemical group for nasal irritation following chronic inhalation exposures.

3.2 Oral Exposure Limits

No chronic oral exposure limit was required for acetaldehyde as this chemical was not identified for inclusion in the multiple pathway exposure assessment.

References

Appelman LM, Woutersen RA and Feron VJ. 1982. Inhalation toxicity of acetaldehyde in rats. I. Acute and subacute studies. Toxicology 23(4): 293-307. Cited In: OEHHA 2008.

Appelman LM, Woutersen RA, Feron VJ, Hooftman RN and Notten WR. 1986. Effect of variable versus fixed exposure levels on the toxicity of acetaldehyde in rats. J Appl Toxicol 6(5): 331-336. Cited In: OEHHA 2008.

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed November 2013.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed November 2013.

Health Canada. 2000. Priority Substances List Assessment Report. Acetaldehyde. ISBN 0-662-28654-5 Cat. no. En40-215/50E. Environment Canada, Health Canada, Canadian Environmental Protection Act, 1999 Available at: http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/contaminants/psl2-lsp2/acetaldehyde/acetaldehyde_fin-eng.pdf. Accessed November 2013.

IARC (International Agency for Research on Cancer). 2013. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Updated July 16, 2013. Available at: http://monographs.iarc.fr/ENG/Classification/index.php. Accessed November 2013.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of October 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed November 2013.

OEHHA 2011. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. Appendix B. Chemical-specific summaries of the information used to derive unit risk and cancer potency values. Updated 2011. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/2009/AppendixB.pdf. Accessed November 2013.

OEHHA 2008. Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. December 2008 (updated October 2013). Appendix D.1 Individual Acute, 8-hour, and Chronic Reference Exposure Level Summaries. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD1_final.pdf#page=5 Accessed November 2013.

Prieto L, Sanchez-Toril F, Brotons B, Soriano S, Casan R and Belenguer JL (2000). Airway responsiveness to acetaldehyde in patients with asthma: Relationship to methacholine responsiveness and peak expiratory flow variation. Clin Exp Allergy 30(1): 71-78. Cited In: OEHHA 2008.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

Silverman L, Schultes HF and First MW (1946). Further studies on sensory response to certain industrial solvent vapors. J Ind Hyg Toxicol 28: 262-266. Cited In: OEHHA 2008.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html Accessed October 2013.

US EPA (Environmental Protection Agency) 1991. IRIS (Integrated Risk Information System Summary) for Acetaldehyde (CASRN 75-07-0). Reference Concentration for Chronic Inhalation Exposure (RfC). Carcinogenicity Assessment for Lifetime Exposure. Available at: www.epa.gov/iris. Accessed November 2013.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255.

Woutersen, R.A. and L.M. Appelman. 1984. Lifespan inhalation carcinogenicity study of acetaldehyde in rats. III. Recovery after 52 weeks of exposure. Report No. V84.288/190172. CIVO-Institutes TNO, The Netherlands.Woutersen, R., L. Cited In: US EPA 1991.

4.0 ACROLEIN

4.1 Inhalation Exposure Limits

4.1.1 Acute Inhalation

Table B.4-1 Acute Inhalation Exposure Limits for Acrolein

AGENCY	ESRD	ATSDR	OEHHA	TCEQ
Exposure Limit Type	1-hour AAQO	1-hour MRL	**1-hour REL**	1-hour ReV
Exposure Limit Value ($\mu g/m^3$)	4.5	7	**2.5**	11
Critical Organ or Effect	Eye, nasal, respiratory irritation	Eye, nasal, respiratory irritation	**Eye, nasal, respiratory irritation**	Eye, nasal, respiratory irritation
Species	Human	Human	**Human**	Human
Study	Adopted from Ontario (2009) based on Darley *et al.* 1960	Weber-Tschopp *et al.* 1977	**Darley *et al.* 1960**	Weber-Tschopp *et al.* 1977
Source	ESRD 2013	ATSDR 2013; 2007	**OEHHA 2013; 2008**	TCEQ 2014

- not available

Bold – Exposure Limit selected for HHRA.

The ESRD (2013), ATSDR (2013), OEHHA (2013) and TCEQ (2013) all recommend 1-hour exposure limits for acrolein based on eye, nasal and respiratory irritation reported in controlled human exposure studies (Weber-Tschopp *et al.* 1977; Darley *et al.* 1960).

The ESRD (2013) 1-hour guideline of 4.5 $\mu g/m^3$ was adopted from the Ontario MOE (2009) which identified a LOAEL of 137 $\mu g/m^3$ for eye, mucous membrane and respiratory irritation in human volunteers following short-term (5-minutes) exposure to up to 3,000 $\mu g/m^3$ acrolein (Darley *et al.* 1960). An uncertainty factor of 30 was applied to the LOAEL to account for use of a LOAEL (3) and variation in human response (10) (Ontario MOE 2009).

The ATSDR (2013) recommend a 1-hour MRL of 7 $\mu g/m^3$ for acrolein. The MRL was based on a LOAEL of 0.3 ppm (700 mg/m^3) for decreased respiratory rate as well as nose and throat irritation in human volunteers exposed to 0.3 ppm acrolein for 60 minutes (Weber-Tschopp *et al.* 1977). An

uncertainty factor of 100 was applied to the LOAEL to account for use of a LOAEL (10) and variation in human response (10) (ATSDR 2007).

The OEHHA (2013) recommend a 1-hour REL of 2.5 µg/m^3 for acrolein. Similar to the MOE (2009), the OEHHA (2008) identified a LOAEL of 140 µg/m^3 for eye irritation in volunteers following short-term (5-minutes) exposure to acrolein (Darley et al. 1960). An uncertainty factor of 60 was applied to account for use of a LOAEL (6) and variation in human response (10).

An acute ReV of 11 µg/m^3 is recommended for acrolein by the TCEQ (2014). Similar to the ATSDR (2007), the TCEQ (2014) identified a LOAEL of 0.3 ppm (700 mg/m^3) for eye, nose, throat irritation and decreased respiratory rate in human volunteers exposed for 60 minutes to acrolein (Weber-Tschopp *et al.* 1977). An uncertainty factor of 63 was applied to the LOAEL to account for use of a LOAEL (6.3) and variation in human response (10) (TCEQ 2010).

The lowest 1-hour exposure limit of 2.5 µg/m^3 (OEHHA, 2008) was selected for the assessment of acute exposure to acrolein. Acrolein was included in the chemical groups for eye irritation, nasal irritation and respiratory irritation following acute inhalation exposures.

4.1.2 Chronic Inhalation

Table B.4-2 Chronic Inhalation Exposure Limits for Acrolein

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	TC	**REL**	-	ReV	RfC	-
Exposure Limit Value (µg/m^3)	-	-	0.4	**0.35**	-	2.7	0.02	-
Critical Organ or Effect	-	-	Nasal lesions	**Nasal lesions**	-	Nasal lesions	Nasal lesions	-
Species	-	-	Rat	**Rat**	-	Rat	Rat	-
Study	-	-	Cassee *et al.* 1996	**Dorman *et al.* 2008**	-	Dorman *et al.* 2008	Feron *et al.* 1978	-
Source	ESRD 2013	ATSDR 2013	Health Canada 2000	**OEHHA 2013; 2008**	RIVM 2001	TCEQ 2014	US EPA 2003	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

Health Canada (2000) recommends a TC of 0.4 µg/m^3 for acrolein. A BMC_{05} of 0.14 mg/m^3 was calculated for a 5% increase in the incidence of nasal lesions in rats following inhalation (nose-only) exposure to acrolein for 6 hours/day over a 3 day period (Cassee *et al.* 1996). The BMC_{05} was adjusted for continuous exposure and an uncertainty factor of 100 applied to account for use of an animal study (10) and variability in human response (10). No uncertainty factor was applied for less than chronic exposure. Health Canada (2000) noted the degenerative changes observed by Cassee *et al.* (1996) following short-term exposures were consistent with observations in longer-term bioassays in rats (Feron *et al.* 1978) and hamsters (Feron and Kruysse, 1977).

The OEHHA (2013) recommend a chronic REL of 0.35 µg/m^3 for acrolein. The REL was based on a NOAEL of 0.2 ppm for lesions in the respiratory epithelium of rats exposed to acrolein 6 hours/day, 5 days/week for 13 weeks (Dorman *et al.* 2008). The OEHHA (2008) calculated a NOAEL(HEC) of 0.03 ppm (70 mg/m^3) after adjusting the NOAEL for continuous exposure. An uncertainty factor of 200 was applied to account for extrapolation from an animal study (3), use of a subchronic study (3), variability in human response (10) and use of a dosimetric adjustment factor for formaldehyde, an analogue chemical, to determine the human exposure concentration for acrolein (2).

The TCEQ (2014) recommend a ReV of 2.7 µg/m^3 for chronic exposure to acrolein. This guideline was based on a NOAEL of 0.2 ppm for hyperplasia of the respiratory epithelium of rats exposed to acrolein 6 hours/day, 5 days/week for 13 weeks (Dorman *et al.* 2008). The study investigated duration and concentration effects for several exposure groups and evaluated the histopathology and recovery of the respiratory tract post-exposure. The TCEQ (2014) calculated a $NOAEL_{HEC}$ of 0.03571 ppm (80 µg/m^3). The NOAEL was not adjusted for continuous exposure based on close agreement of both NOAELs and LOAELs from acute and subchronic animal and human studies, studies indicating concentration was generally more important in producing adverse effects than duration of exposure and chronic studies with structurally similar acrylate esters that induce similar responses show little progression in lesions (TECQ 2014). An uncertainty factor of 30 was applied to the $NOAEL_{HEC}$ to account for interspecies (3) and intraspecies (10) variability.

The US EPA (1991) recommends a RfC of 0.02 µg/m^3 for acrolein based on a LOAEL of 0.9 mg/m^3 for nasal lesions in rats exposed to acrolein for 5 days/week over 13 days (Feron *et al.* 1978). The US EPA calculated a LOAEL(HEC) of 0.02 mg/m^3 after adjusting for continuous exposure and applied a 1,000 fold uncertainty factor to account for use of a minimal LOAEL (3), use of a subchronic study (10), extrapolation from an animal study (3) and variability in human response (10). The US EPA selected the Feron *et al.* (1978) study over the more recent study by Cassee *et al.* (1996) based on the reporting of results for a higher number of test animals (including both sexes of rats, hamsters and rabbits), a longer exposure duration, and better characterization of multiple endpoints and the dose-response by Feron *et al.* (1978).

The OEHHA and TCEQ both identified guidelines for acrolein based on the most recent study for nasal irritation in rats (Dorman *et al.* 2008). The lowest of these guidelines (0.35 µg/m^3) was selected for the current assessment of chronic inhalation exposure to acrolein. Acrolein was included in the chemical group for nasal irritation following chronic inhalation exposures.

4.2 Oral Exposure Limits

No chronic oral exposure limit was required for acrolein as this chemical was not identified for inclusion in the multiple pathway exposure assessment.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed November 2013.

ATSDR 2007. Toxicological Profile for Acrolein. August 2007. US Department of Health and Human Services, Public Health Service. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp. Accessed November 2013.

Darley E, Middleton J and Garber M (1960). Plant damage and eye irritation from ozone-hydrocarbon reactions. Agricul Food Chem 8(6): 483-484. Cited In: OEHHA 2008.

Dorman, D.C., M.F. Struve, B.A. Wong, M.W. Marshall, E.A. Gross, and G.A. Willson. 2008. Respiratory tract responses in male rats following subchronic acrolein inhalation. Inhal Toxicol 20(3): 205-16. Cited In: TCEQ 2010.

Feron V.J., A. Kruysse, H.P. Til, and H.R. Immel. 1978. Repeated exposure to acrolein vapor: Subacute studies in hamsters, rats and rabbits. Toxicology 9(1-2):47-57. Cited In: Health Canada.

Feron, V.J. and A. Kruysse. 1977. Effects of exposure to acrolein vapor in hamsters simultaneously treated with benzo(a)pyrene or diethylnitrosamine. J Toxicol Environ Health 3:379-394. Cited In: Health Canada 2000.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed November 2013.

Health Canada. 2000. Priority Substances List Assessment Report. Acrolein. ISBN 0-662-28575-1 Cat. no. En40-215/48E. Environment Canada, Health Canada, Canadian Environmental Protection

Act, 1999 Available at: http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/contaminants/psl2-lsp2/acrolein/acrolein-eng.pdf Accessed November 2013.

IARC (International Agency for Research on Cancer). 2013. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Updated July 16, 2013. Available at: http://monographs.iarc.fr/ENG/Classification/index.php. Accessed November 2013.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of October 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed November 2013.

OEHHA. 2008. Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. December 2008 (updated October 2013). Appendix D.1 Individual Acute, 8-hour, and Chronic Reference Exposure Level Summaries. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD1_final.pdf#page=46 Accessed November 2013.

Ontario MOE (Ministry of the Environment). 2009. Ontario Air Standards for Acrolein. Standrads Development Branch. Decision Document for the Developmenet of Air Standards for Acrolein. Available at: http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2009/010-6241%20Decision%20Document.pdf Accessed November 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2014. Acrolein CAS Registry Number: 107-02-8. Prepared by Allison Jenkins, M.P.H. Toxicology Division. Available at: http://www.tceq.com/assets/public/implementation/tox/dsd/final/mar2014/acrolein_107-02-8_revised.pdf Accessed May 2015.

US EPA (Environmental Protection Agency). 2000. IRIS (Integrated Risk Information System) Summary for Benzene (CASRN 71-43-2). Quantitative Estimate of Carcinogenic Risk from Inhalation Exposure. Available at: www.epa.gov/iris. Accessed November 2013.

Weber-Tschopp A, Fischer T, Gierer R, *et al.* 1977. [Experimental irritating effects of acrolein on man.] Int Arch Occup Environ Health 40:117-130. (German) Cited In: ATSDR 2007.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255.

5.0 ALUMINUM

5.1 Inhalation Exposure Limits

5.1.1 Acute Inhalation

Table B.5-1 Acute Inhalation Exposure Limits for Aluminum

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	ESL	-
Exposure Limit Value (µg/m³)	-	-	-	**20 (aluminum chloride, aluminum alkyls & soluble salts)** 50 (other forms of aluminum)	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	-	-	-	TECQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

Few agencies have assessed the inhalation toxicity of aluminum, and neither ESRD nor WHO have published air quality guidelines.

TECQ (2014) published interim short-term ESLs of 20 µg/m³ for both aluminum chloride and aluminum alkyls and soluble salts, as well as interim short-term ESLs of 50 µg/m³ for several other forms of aluminum including aluminum oxide (abrasive), aluminum phosphate, aluminum silicate, aluminum sulfate, and aluminum metal. All of these ESLs apply to aluminum in PM_{10}. The basis was indicated as being human health, but detailed justification is not available.

OMOE (2012) has specified ½ hour guidelines of 100 µg/m³ for aluminum distearate, aluminum oxide, aluminum stearate and aluminum tristearate, as well as 24-hour guidelines of 120 µg/m³ for aluminum oxide and 2,180 µg/m³ for the other aluminum species. The basis for these guidelines is not provided.

Due to the lack of defensible acute inhalation exposure limits, aluminum was not assessed on an acute basis.

5.1.2 Chronic Inhalation

Table B.5-2 Chronic Inhalation Exposure Limits for Aluminum

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	-	ESL	**p-RfC**	-
Exposure Limit Value ($\mu g/m^3$)	-	-	-	-	-	2 (aluminum chloride, aluminum alkyls & soluble salts) 5 (other forms of aluminum)	**5**	-
Critical Organ or Effect	-	-	-	-	-	-	**Neurotoxicity**	-
Species	-	-	-	-	-	-	**Human**	-
Study	-	-	-	-	-	-	**Hosovski *et al.* 1990**	-
Source	-	-	-	-	-	TECQ 2014	**US EPA 2006**	-

- not available

Bold – Exposure Limit selected for HHRA.

IARC (2014) has not assessed the carcinogenicity of aluminum; while occupational exposures during aluminum production have been deemed carcinogenic to humans, this was not linked to aluminum itself.

TECQ (2014) published interim long-term ESLs of 2 $\mu g/m^3$ for both aluminum chloride and aluminum alkyls and soluble salts, as well as interim long-term ESLs of 5 $\mu g/m^3$ for several other forms of aluminum including aluminum oxide (abrasive), aluminum phosphate, aluminum silicate, aluminum sulfate, and aluminum metal. All of these ESLs apply to aluminum in PM_{10}. The basis was indicated as being human health, but detailed justification is not available.

US EPA (2006) established a provisional RfC of 0.005 mg/m^3 (5 $\mu g/m^3$) based on an occupational study (Hosovski *et al.* 1990) where workers were exposed to estimated time-weighted average

concentrations of 4.6 – 11.5 mg/m^3 aluminum for an average of 12 years and found to have signs of impaired coordination. The lowest concentration was corrected for continuous exposure, and an uncertainty factor of 300 (10 for intrahuman variability, 10 for use of a LOAEL, 3 for database deficiencies) was applied.

The US EPA (2006) p-RfC is considered the most defensible value.

5.2 Oral Exposure Limits

5.2.1 Chronic Oral

Table B.5-3 Chronic Oral Exposure Limits for Aluminum

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	MRL	-	-	-	p-RfD	-
Exposure Limit Value (mg/kg bw/day)	1	-	-	-	1	**0.143**
Critical Organ or Effect	Decreased grip strength and thermal sensitivity	-	-	-	Neurotoxicity (developmental)	-
Species	Mouse	-	-	-	Mouse	-
Study	Golub *et al.* 2000	-	-	-	Golub *et al.* 1995; Donald *et al.* 1989	-
Source	ATSDR 2008	-	-	-	US EPA 2006	-

- not available

Bold – Exposure Limit selected for HHRA.

ATSDR (2008) developed a chronic MRL for aluminum of 1 mg/kg bw/d. This MRL was based on a mouse dietary study (Golub *et al.* 2000) where 7 or 1,000 µg Al (as aluminum lactate) per g diet was fed from conception through 24 months of age. The critical effect was determined to be decreased forelimb and hindlimb grip strength and temperature sensitivity in both male and female mice in the high dose group. The LOAEL was determined to be 100 mg Al/kg-bw/d. Uncertainty factors of 3 for use of a minimal LOAEL, 10 for extrapolation from animals to humans, and 10 for human variability; a modifying factor of 0.3 was also applied to account for possible differences in bioavailability between aluminum lactate in diet and aluminum in drinking water or a typical US diet.

US EPA (2006) derived a provisional RfD of 1 mg/kg-bw/d (1,000 µg/kg bw/d) based on mouse feeding studies where neurotoxicity was observed in offspring of exposed mice (Donald *et al.* 1989; Golub *et al.* 1995). A LOAEL of 100 mg/kg-bw/d was adjusted by an uncertainty factor of 100 (3 for use of a minimal LOAEL, 10 for interspecies extrapolation, and 3 for intrahuman variability where the critical effect occurs in a sensitive sub-group). The confidence in the principal studies and the provisional RfD was considered to be low.

The Joint FAO/WHO Expert Committee on Food Additives (JECFA) (WHO 2007) recommended a provisional tolerable weekly intake of 1 mg/kg body weight for aluminum and its salts. They determined that the available studies were not adequate for defining dose-response relationships. A range of LOELs of 50 to 75 mg/kg-bw/d was identified in several different animal dietary studies; an uncertainty factor of 100 (for inter- and intra-species differences) was applied to the lower end of this range along with an uncertainty factor of 3 to reflect deficiencies in the database offset by a probably lower bioavailability of aluminum compounds in food compared to the reviewed dietary studies. JECFA noted that this PTWI is likely exceeded to a large extent by some population groups. An equivalent daily dose would be 0.143 mg/kg bw/d.

The WHO (2007) PTWI is based on a thorough review, includes appropriate justification and is more conservative than the US EPA and ATSDR values, and is applied herein.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services, Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed May 2014.

Donald, J.M., Golub, M.S., Gershwin, M.E. and Keen, C.L. 1989. Neurobehavioral effects in offspring of mice given excess aluminum in diet during gestation and lactation. Neurotoxicol. Teratol. 11:345-351.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed May 2014.

Golub, M.S., Germann, S.L., Han, B. 2000. Lifelong feeding of a high aluminum diet to mice. Toxicology 150: 107-117.

Golub, M.S., Han, B., Keen, C.L., Gershwin, M.E. and Tarara, R.P. 1995. Behavioral performance of Swiss-Webster mice exposed to excess dietary aluminum during development or during development and as adults. Toxicol Appl Pharmacol 133:64-72.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

Hosovski, E., Mastelica, Z., Suderic, D. and Radulovic, D. 1990. Mental abilities of workers exposed to aluminum. Med. Lav. 81(2):119-123.

IARC (International Agency for Research on Cancer). 2014. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Updated March 31, 2014. Available at: http://monographs.iarc.fr/ENG/Classification/index.php. Accessed May 2014.

OMOE (Ontario Ministry of the Environment). 2012. Summary of Standards and Guidelines to Support Ontario Regulation 419/05 – Air Pollution – Local Air Quality (including Schedule 6 of O. Reg. 419/05 on Upper Risk Thresholds). Standards Development Branch. Available at: http://www.ontario.ca/environment-and-energy/summary-standards-and-guidelines-sorted-contaminent-name. Accessed May 2014.

US EPA (United States Environmental Protection Agency). 2006. Provisional Peer Reviewed Toxicity Values for Aluminum (CASRN 7429-90-5). Superfund Health Risk Technical Support Center, National Center for Environmental Assessment, Office of Research and Development.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255

WHO. 2007. Evaluation of Certain Food Additives and Contaminants. Sixty-seventh report of the Joint FAO/WHO Expert Committee on Food Additives. WHO Technical Report Series 940. Available at http://whqlibdoc.who.int/trs/WHO_TRS_940_eng.pdf. Accessed May 2014.

6.0 ANTHRACENE

6.1 Inhalation Exposure Limits

6.1.1 Acute Inhalation Exposure Limits

Table B.6-1 Acute Inhalation Exposure Limits for Anthracene

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	ESL	-
Exposure Limit Value ($\mu g/m^3$)	-	-	-	0.5	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	ESRD 2013	ATSDR 2013	OEHHA 2013	TCEQ 2013	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA

An interim acute ESL of 0.5 $\mu g/m^3$ was recommended for anthracene as a fraction of exhaust PM_{10} by TCEQ (2013); however, no supporting documentation was provided for this exposure limit. No short-term occupational exposure limits have been developed for anthracene (OSHA 2013).

Anthracene is a C14 aromatic hydrocarbon. In the absence of an acute inhalation exposure limit specific to anthracene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this chemical. Details on the acute inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

6.1.2 Chronic Inhalation

Table B.6-2 Chronic Inhalation Exposure Limits for Anthracene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	-	ESL	-	-
Exposure Limit Value ($\mu g/m^3$)	-	-	-	-	-	0.05	-	-

Table B.6-2 Chronic Inhalation Exposure Limits for Anthracene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Critical Organ or Effect	-	-	-	-	-	-	-	-
Species	-	-	-	-	-	-	-	-
Study		-	-	-	-	-	-	
Source	ESRD 2013	ATSDR 2013	Health Canada 2010	OEHHA 2013	RIVM 2009	TCEQ 2013	US EPA 1994	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA

An interim chronic ESL of 0.05 µg/m^3 was recommended for anthracene as a fraction of exhaust PM_{10} by TCEQ (2013); however, no supporting documentation was provided for this exposure limit. The US EPA (1994) and ATSDR (1995) determined there were insufficient data for the purpose of deriving a chronic inhalation exposure concentration for anthracene.

In the absence of a chronic inhalation exposure limit specific to anthracene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this C14 aromatic hydrocarbon. Details on the chronic inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

6.2 Oral Exposure Limits

6.2.1 Chronic Oral Exposure Limit

Table B.6-3 Chronic Oral Exposure Limits for Anthracene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA
Exposure Limit Type	MRL (adjusted)	-	-	TDI	**RfD**
Exposure Limit Value (mg/kg bw/day)	1	-	-	0.04	**0.3**
Critical Organ or Effect	NOAEL	-	-	Body weight	**NOAEL**
Species	Mice	-	-	Rat	**Mice**

Table B.6-3 Chronic Oral Exposure Limits for Anthracene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA
Study	US EPA 1989	-	-	Various; TPHCWG 1997	**US EPA 1989**
Source	ATSDR 1995	Health Canada 2010	OEHHA 2013	RIVM 2001	**US EPA 1994**

- not available

Bold – Exposure Limit selected for HHRA

The ATSDR (2013) identified an intermediate oral MRL of 10 mg/kg body weight/day based on no treatment related effects in mice following subchronic exposure to anthracene at doses up to 1,000 mg/kg body weight/day (US EPA 1989; ATSDR 1995). Adjusting the ATSDR intermediate MRL by an additional uncertainty factor of 10 for subchronic to chronic extrapolation would result in a chronic exposure limit of 1 mg/kg body weight/day (1,000 µg/kg body weight/day). The US EPA (1994) identified the same NOAEL for anthracene (*i.e.*, 1,000 mg/kg body weight/day) and established a chronic oral RfD of 0.3 mg/kg body weight/day after applying a 3,000-fold uncertainty factor. The additional 3-fold uncertainty was applied to account for a lack of reproductive/developmental data and lack of data in another species (US EPA 1994).

The RIVM (2001) have developed a tolerable daily intake of 0.04 mg/kg body weight/day for non-carcinogenic aromatic compounds with equivalent carbon number >9 to 16, including anthracene. This TDI was adopted from TPHCWG (1997) which identified a range of reported oral RfD values for decreased bodyweight (from 30 to 300 µg/kg body weight/day) in rats following exposure to 8 aromatic compounds within this range; 4 of the 8 RfD values being 40 µg/kg body weight/day.

The US EPA (1989) NOAEL was specific to anthracene and identified for guideline development by both the US EPA and ATSDR. Therefore, an RfD of 0.3 mg/kg body weight/day, the lowest guideline from this study, was selected to evaluate risks associated with chronic oral exposure to anthracene.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

ATSDR 1995. Toxicological Profile for Polycyclic Aromatic Hydrocarbons. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry.

August 1995. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#H. Accessed October 2013.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

OSHA (Occupational Safety and Health Administration) 2013. Chemical Sampling Information: Anthracene. Available at: https://www.osha.gov/dts/chemicalsampling/data/CH_219000.html. Accessed October 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed October 2013.

TPHCWG (Total Petroleum Hydrocabron Working Group) 1997. Total Petroleum Hydrocarbon Criteria Working Group Series, Vol. 4: Development of Fraction Specific Reference Doses (RfDs) and Reference Specific Concentrations (RfCs) for Total Petroleum Hydrocarbons (TPH). Amherst Scientific Publishers. Amherst, Massachusetts. Available at: http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=5265DE434DA12266C926B29274CD10F7?doi=10.1.1.197.7992&rep=rep1&type=pdf. Accessed October 2013.

US EPA (Environmental Protection Agency). 1994. IRIS (Integrated Risk Information System) Summary for Anthracene (CASRN 120-12-7). Reference Concentration for Chronic Inhalation Exposure (RfC). Reference Dose for Chronic Oral Exposure (RfD). Available at: www.epa.gov/iris. Accessed October 2013.

U.S. EPA. 1989. Subchronic toxicity in mice with anthracene. Final Report. Hazelton Laboratories America, Inc. Prepared for the Office of Solid Waste, Washington, DC. Cited In: US EPA 1994.

WHO (World Health Organization) 2000, Air quality guidelines for Europe, 2nd ed. Copenhagen, WHO Regional Office for Europe, 2000 (WHO Regional Publications, European Series, No. 91).

7.0 ANTIMONY

7.1 Inhalation Exposure Limits

7.1.1 Acute Inhalation

Table B.7-1 Acute Inhalation Exposure Limits for Antimony

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	ESL	-
Exposure Limit Value (µg/m^3)	-	-	-	5	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	-	-	-	TCEQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

Very few acute exposure limits are available for antimony. TCEQ (2014) specified an interim short-term ESL of 5 µg/m^3 (in PM_{10}) for antimony. While it is identified as being health-based, the basis is not provided.

OMOE (2012) has specified a ½ hour standard for antimony of 75 µg/m^3 and a 24-hour standard of 25 µg/m^3; these values are identified as being health-based but the detailed basis is not provided.

Due to the lack of defensible acute inhalation exposure limits, antimony was not assessed on an acute basis.

7.1.2 Chronic Inhalation

Table B.7-2 Chronic Inhalation Exposure Limits for Antimony

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	-	ESL	**RfC (SBO3)**	-
Exposure Limit Value (µg/m³)	-	-	-	-	-	0.5	**0.2**	-
Critical Organ or Effect	-	-	-	-	-	-	**Respiratory**	-
Species	-	-	-	-	-	-	**Rat**	-
Study	-	-	-	-	-	-	**Newton *et al.* 1994**	-
Source	-	-	-	-	-	TCEQ (2014)	**US EPA 1995**	-

- not available

Bold – Exposure Limit selected for HHRA.

TCEQ (2014) specified an interim short-term ESL of 0.5 µg/m³ (in PM10) for antimony. While it is identified as being health-based, the basis is not provided.

US EPA (1991) did not publish inhalation toxicity limits for antimony, but references historical studies suggesting an inhalation NOEL for myocardial damage of approximately 0.5 mg/m³ in historical occupational studies. US EPA (1995) did establish an RfC for antimony trioxide of 0.0002 mg/m³ based on respiratory effects in rats observed by Newton *et al.* (1994) in a 1-year inhalation study. A benchmark concentration (BMC10) of 0.87 mg/m³, or 0.074 mg/m³ as a human-equivalent concentration, was calculated. An uncertainty factor of 10 for sensitive humans was applied, along with a factor of 3 for interspecies extrapolation, 3 for less-than lifetime exposure and 3 for database inadequacies (lack of reproductive and developmental studies).

ATSDR (1992) evaluated the toxicity of antimony but concluded that data were inadequate to derive MRLs.

IARC (2014) classified antimony trioxide as possibly carcinogenic to humans (Group 2B) based on inadequate evidence in humans but evidence of carcinogenicity in animal inhalation studies. They

determined that antimony trisulfide was not classifiable as to its carcinogenicity to humans. Elemental antimony was not assessed.

The US EPA RfC is specific to antimony trioxide; in the absence of information on the specific form of antimony it is applied for screening purposes.

7.2 Oral Exposure Limits

7.2.1 Chronic Oral

Table B.7-3 Chronic Oral Exposure Limits for Antimony

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	**TDI**	-	TDI	Oral Rfd	TDI
Exposure Limit Value (mg/kg bw/day)	-	**0.0002**	-	0.006	0.0004	0.006
Critical Organ or Effect	-	**Serum glucose and haematuria**	-	Decreased body weight and reduced food/water intake	Survival, glucose levels and cholesterol levels	Decreased body weight and reduced food/water intake
Species	-	**Rat**	-	Rat	Rat	Rat
Study	-	**Poon *et al.* 1998**	-	Poon *et al.* 1998; Lynch *et al.* 1999	Schroeder *et al* 1970	Poon *et al.* 1998; Lynch *et al.* 1999
Source	-	**Health Canada 1997**	-	RIVM 2009	US EPA 1991	WHO 2003

- not available

Bold – Exposure Limit selected for HHRA.

Health Canada (1997) established a TDI of 0.0002 mg/kg-bw/d (0.2 µg/kg-bw/d) based on a 13-week rat water ingestion study (Poon *et al.* 1998), where a NOAEL of 0.5 mg/L in drinking water, equivalent to 0.06 mg/kg-bw/d was established. An uncertainty factor of 300 (10 for intraspecies variation, 10 for interspecies variation and 3 for use of a short-term study) was applied.

WHO (2003) used the same Poon *et al.* (1998) study as Health Canada; however, they incorporated a review by Lynch *et al.* (1999) that concluded the critical effects suggested by Poon *et al.* (1998) were

expected to be reversible/adaptive and not consistent with other studies, and that therefore a NOAEL of 6.0 mg/kg-bw/d should be applied based on decreased body weight gain, food intake and water intake. An uncertainty factor of 1,000 (10 for intraspecies variation, 10 for interspecies variation and 10 for a subchronic study) was then applied to calculate a TDI of 0.006 mg/kg-bw/d. RIVM (2006) used the same study and rationale to derive an identical TDI.

US EPA (1991) published an oral RfD of 0.0004 mg/kg-bw/d (0.4 µg/kg-bw/d) based on a rat study (Schroeder *et al* 1970) where rates were exposed to 5 ppm potassium antimony tartrate in water. The experimental group had on average shorter lifespans, decreased blood glucose levels (males only) and altered cholesterol levels compared to controls. The estimated exposure dose (0.35 mg/kg-bw/d) was adjusted by an uncertainty factor of 1,000 (10 for interspecies conversion, 10 for sensitive individuals, and 10 for use of a LOAEL). A notation on the website indicates that a 2002 literature review identified one or more significant new studies.

The Health Canada, WHO and RIVM values are all based on the same critical study and differ based on the interpretation of the critical effect. The Health Canada evaluation relies on the interpretation of the study authors, and is also the most conservative value, and is therefore applied.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services, Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed May 2014.

ATSDR. 1992. Toxicological Profile for Antimony and Compounds. US Public Health Service. Available at: http://www.atsdr.cdc.gov/toxprofiles/tp23.pdf. Accessed May 2014.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed May 2014.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

Health Canada. 1997. Guidelines for Canadian Drinking Water Quality: Supporting Documents. Antimony. Federal-Provincial-Territorial Committee on Drinking Water.

IARC (International Agency for Research on Cancer). 2014. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Updated March 31, 2014. Available at: http://monographs.iarc.fr/ENG/Classification/index.php. Accessed May 2014.

Lynch, BS, Capen, CC, Nestman, ER, Venstra, G and Deyo, JA. 1999. Review of subchronic/chronic toxicity of antimony potassium tartrate. Reg Toxicol Pharmacol 30:9-17.

OEHHA (Office of Environmental Health Hazard Assessment) 2014. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of January 2014. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed May 2014.

OMOE (Ontario Ministry of the Environment). 2012. Summary of Standards and Guidelines to Support Ontario Regulation 419/05 – Air Pollution – Local Air Quality (including Schedule 6 of O. Reg. 419/05 on Upper Risk Thresholds). Standards Development Branch. Available at: http://www.ontario.ca/environment-and-energy/summary-standards-and-guidelines-sorted-contaminent-name. Accessed May 2014.

Newton, P.E., Bolte, H.F. and Daly, I.W. 1994. Subchronic and chronic inhalation toxicity of antimony trioxide in the rat. Fund and Appl Tox 22: 561-576.

Poon, R., Chu, I., Lecavalier, P. Valli, V.E., Foster, W., Gupta, S. and Thomas, B. 1998. Effects of antimony on rats following 90-day exposure via drinking water. Food Chem. Toxicol. 36: 21-35.

RIVM (Netherlands National Institute for Public Health and the Environment). 2009. Re-evaluation of some human toxicological Maximum Permissible Risk levels earlier evaluated in the period 1991-2001. Report 711701092/2009.

Schroeder, H.A., Mitchner, M. and Nasor, A.P. 1970. Zirconium, niobium, antimony, vanadium and lead in rats: Life term studies. J Nutr. 100(1): 59-68.

TCEQ (Texas Commission on Environmental Quality). 2014. Effects Screening Levels List. Updated March 17, 2014. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed February 2015.

US EPA (United States Environmental Protection Agency). 1991. Integrated Risk Information System (IRIS): Antimony (CASRN 7440-36-0). Available at: http://www.epa.gov/iris/subst/0006.htm. Accessed May 2014.

US EPA (United States Environmental Protection Agency). 1991. Integrated Risk Information System (IRIS): Antimony trioxide (CASRN 1309-64-4). Available at: http://www.epa.gov/iris/subst/0676.htm. Accessed May 2014.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255

WHO. 2003. Antimony in Drinking water. Background document for the development of WHO Guidelines for Drinking-water Quality. WHO/SDE/WSH/03.04/74.

8.0 ARSENIC

8.1 Inhalation Exposure Limits

8.1.1 Acute Inhalation

Table B.8-1 Acute Inhalation Exposure Limits for Arsenic

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	1 hr AAQO	-	REL	ReV ESL	-
Exposure Limit Value (µg/m³)	0.1	-	**0.2 (acute)** 0.015 (8-hour)	9.9 3	-
Critical Organ or Effect	Respiratory effects	-	Developmental	Rales; decreased body weight (maternal)	-
Species	-	-	Mouse (acute); human (8-hour)	Rat	-
Study	-	-	-	Holson *et al* 1999	-
Source	ESRD 2013	-	OEHHA 2014	TCEQ 2012	-

- not available

Bold – Exposure Limit selected for HHRA.

ESRD (2013) has published a 1-hour ambient air quality objective of 0.1 µg/m³ for arsenic. The supporting documentation indicates that it is based on respiratory effects, which are noted as occurring in animal studies at concentrations as low as 123 µg/m³; the specific derivation is not detailed.

OEHHA (2014) published an acute REL of 0.2 µg/m³ based on decreased foetal weight in mice, and an 8-hour REL of 0.015 µg/m³ based on decreased intellectual function in 10 year old children. While the supporting documentation includes a toxicological review, the specifics of the REL derivation are not provided.

TCEQ (2012) developed an acute ReV of 9.9 µg/m³ and acute ESL of 3 µg/m³ based on maternal toxicity in rats. Rales (crackling sounds) and decreased body weight were observed in female rats

exposed through mating and gestation (Holson *et al* 1999). A NOAEL of 3 mg/m^3 arsenic trioxide was determined; after adjusting for the exposure regime and human equivalence the point of departure was 3,891 µg/m^3. Uncertainty factors of 3 for interspecies extrapolation, 10 for intraspecies variability and 10 for database uncertainties were applied resulting in an arsenic trioxide ReV of 13 µg/m^3, or 9.9 µg/m^3 expressed as arsenic. An additional factor of 3 is applied for the ESL to account for cumulative and aggregate risk.

8.1.2 Chronic Inhalation

Table B.8-2 Chronic Inhalation Exposure Limits for Arsenic

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	AAQO (annual)	-	**RSC**	-	-	ESL	-	-
Exposure Limit Value (µg/m^3)	0.01	-	**0.0016**	-	-	0.067	-	0.0066
Critical Organ or Effect	Cancer	-	**Cancer**	-	-	Respiratory and lung cancer	-	Cancer
Species	Humans	-	**Humans**	-	-	Humans	-	Human
Study	-	-	**Higgins *et al* 1986**	-	-	-	-	-
Source	ESRD 2013	-	**Health Canada 2010**	-	-	TCEQ 2012	-	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

IARC (2014) has classified arsenic as Group 1 (carcinogenic to humans) based on sufficient evidence in humans.

ESRD (2013) has published an annual ambient air quality objective of 0.01 µg/m^3 for arsenic. The supporting documentation indicates that it is based on carcinogenicity, which is noted as occurring in animal studies at concentrations as low as 70 µg/m^3; the specific derivation is not detailed.

Health Canada (2010) established an inhalation slope factor of 27 (mg/kg-bw/d)$^{-1}$ and inhalation unit risk of 6.4 (mg/m^3)$^{-1}$. These values were calculated from a TC_{05} of 7.83 µg/m^3 based on lung cancer

observed in an occupational epidemiology study (Higgins *et al.* 1986). An equivalent RSC for a 1 in 100,000 cancer risk would be 0.0016 µg/m^3.

TCEQ (2012) published an ESL of 0.067 µg/m^3 based on combined data from multiple epidemiological occupational studies. The combined URF for lung cancer was determined to be 1.5x10^{-4} per µg/m^3, resulting in an air concentration for a 1 in 100,000 cancer risk for 0.067 µg/m^3.

WHO (2000) determined that an air concentration of approximately 0.0066 µg/m^3 corresponds to an excess lifetime cancer risk of 1 in 100,000, based on human epidemiological studies in Sweden and the United States and assuming a linear dose-response relationship.

8.2 Oral Exposure Limits

8.2.1 Chronic Oral

Table B.8-3 Chronic Oral Exposure Limits for Arsenic

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	MRL	**Oral RsD**	-	-	-	-
Exposure Limit Value (mg/kg bw/day)	0.0003	**0.0000056**	-	-	-	-
Critical Organ or Effect	Dermal lesions	**Cancer (bladder, lung, liver)**	-	-	-	-
Species	Human	**Human**	-	-	-	-
Study	Tseng *et al.* 1968; Tseng 1977	**Morales et al 2000, Chen *et al.* 1985, Wu *et al.* 1989**	-	-	-	-
Source	ATSDR 2007	**Health Canada 2010**	-	-	-	-

- not available

Bold – Exposure Limit selected for HHRA.

ATSDR (2007) published an oral MRL of 0.0003 mg/kg-bw/d (0.3 µg/kg-bw/d) based on an epidemiological study in Taiwan (Tseng *et al.* 1968; Tseng 1977). A clear dose-response relationship

was observed between arsenic exposure from well water and Blackfoot disease, hyperkeratosis and hyperpigmentation. A NOAEL of 0.0008 mg/kg-bw/d and less-serious LOAEL of 0.014 mg/kg-bw/d were established. An uncertainty factor of 3 for human variability was applied; a factor of 10 was not considered warranted due to the size of the population studied.

Health Canada (2010) published a slope factor of 1.80 $(mg/kg\text{-}bw/d)^{-1}$, which is equivalent to a risk-specific dose (for a 1 in 100,000 risk) of 0.0000056 mg/kg-bw/d. The slope factor was based on an ecological study in southwestern Taiwan reported by Wu *et al.* (1989) and Chen *et al.* (1992) among others, and an analysis of the data by Morales *et al.* (2000), with bladder, liver and lung cancer observed in populations exposed to arsenic in drinking water. The upper 95% values from the study were used to derive the slope factor.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services, Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed May 2014.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives: Arsenic. Reviewed 2013. Available at: http://esrd.alberta.ca/air/objectives-directives-policies-and-standards/documents/6651.pdf. Accessed May 2014.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

Chen, C.J., Chuang, Y.C., Lin, T.M. and Wu, H.Y. 1985. Malignant neoplasms among residents of a blackfoot disease-endemic area in Taiwan: high arsenic artesian well water and cancers. Cancer Res. 45: 5895.

Higgins, ITT, Oh, MS, Kryston, KL, Burchfiel, CM and Wilkinson, NM. 1986, unpublished. Arsenic exposure and respiratory cancer in a cohort of 8044 Anaconda smelter workers. A 43 year follow-up study. Prepared for the Chemical Manufacturers' Association and the Smelters Environmental Research Association. Cited in Health Canada 2010.

IARC (International Agency for Research on Cancer). 2014. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Updated March 31, 2014. Available at: http://monographs.iarc.fr/ENG/Classification/index.php. Accessed May 2014.

Morales, KH, Ryan, L, Kuo, TL, Wu, MM and Chen, CJ. 2000. Risk of internal cancers from arsenic in drinking water. Environ Health Perspect 108: 655-661.

OEHHA (Office of Environmental Health Hazard Assessment) 2014. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of January 2014. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed May 2014.

TCEQ (Texas Commission on Environmental Quality). 2014. Effects Screening Levels List. Updated March 17, 2014. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed May 2014.

TCEQ. 2012. Arsenic and Inorganic Arsenic Compounds. Development Support Document. Final July 31, 2012. Available at http://www.tceq.com/assets/public/implementation/tox/dsd/final/july12/arsenic.pdf. Accessed May 2014.

Tseng, W. 1977. Effects and dose-response relationships of skin cancer and blackfoot disease with arsenic. Environ Health Perspect 19:109-119.

Tseng, W.P., Chu, H.M., How, SW., *et al.* 1968. Prevalence of skin cancer in an endemic area of chronic arsenicism in Taiwan. J Natl Cancer Inst 40: 453-463.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255

Wu, M-M., Kuo, T-L., Hwang, Y-H and Chen, C-J. 1989. Dose-response relation between arsenic concentration in well water and mortality from cancers and cardiovascular diseases. Am J Epidemiol 130:1123.

9.0 BARIUM

9.1 Inhalation Exposure Limits

9.1.1 Acute Inhalation

Table B.9-1 Acute Inhalation Exposure Limits for Barium

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	-	-
Exposure Limit Value ($\mu g/m^3$)	-	-	-	-	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	-	-	-	-	-

- not available

Bold – Exposure Limit selected for HHRA.

Due to the lack of defensible acute inhalation exposure limits, barium was not assessed on an acute basis.

9.1.2 Chronic Inhalation

Table B.9-2 Chronic Inhalation Exposure Limits for Barium

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	**TCA**	-	-	-

Table B.9-2 Chronic Inhalation Exposure Limits for Barium

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Value (µg/m³)	-	-	-		**1.0**	-	-	-
Critical Organ or Effect	-	-	-	-	**Cardiovascular**	-	-	-
Species	-	-	-	-	**male rats**	-	-	-
Study	-	-	-	-	**European Commission, ESIS, IUCLID dataset**	-	-	-
Source	-	-	-	-	**RIVM**	-	-	-

- not available

Bold – Exposure Limit selected for HHRA.

The RIVM (2001) derived a tolerable concentration in air of 1 µg/m³ based on cardiovascular effects on male rats exposed to insoluble barium carbonate dust for 4 hours/day, 6 days/week for a total of 4 months (IPCS, 1990). The NOAEL of 1.15 mg/m³ for insoluble barium carbonate was extrapolated to 0.16 mg/m³ for continuous exposure (4 hours/day 6 days/week, for 4 months), equivalent to a NOAEL of 0.11 mg/m³ for soluble barium. An uncertainty factor of 100 was applied to the NOAEL for soluble barium to account for interspecies (10) and intraspecies (10) variability, resulting in a TCA of 1 µg barium/m³.

9.2 Oral Exposure Limits

9.2.1 Chronic Oral

Table B.9-3 Chronic Oral Exposure Limits for Barium

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	MRL	TDI RfD	-	TDI	**RfD**	RfD
Exposure Limit Value (mg/kg	0.2	0.016 0.2	-	0.02	**0.2**	0.016

Table B.9-3 Chronic Oral Exposure Limits for Barium

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
bw/day)						
Critical Organ or Effect	Kidneys	Kidneys	-	Cardiovascular	**Kidneys**	Kidneys
Species	Mice	Mice	-	Humans	**Mice**	Mice
Study	NTP, 1994	Brenniman and Levy, 1985; NTP 1994	-	Vermeire *et al.*, 1991	**NTP, 1994**	Brenniman and Levy, 1985
Source	ATSDR 2007	Health Canada 2010	-	RIVM 2001	**US EPA 2005**	WHO 2004

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR chronic MRL of 0.2 mg/kg-bw/d was derived based on nephropathy in male mice. The $BMDL_{05}$ of 61.13 mg/kg-bw/d for male mice (NTP, 1994) was selected for deriving the chronic-duration oral MRL. Data from the male mice were used because they identified a lower BMDL than the female data. Uncertainty factors of 10 for interspecies variation, 10 for intraspecies variation and 3 for lack of an adequate developmental toxicity study were applied (ATSDR 2007).

Health Canada (2010) has adapted the US EPA RfD of 0.2 mg/kg bw/day based on study conducted by NTP in which nephropathy was observed in mice (NTP, 1994). Within their *Canadian Drinking Water Quality Guidelines*, Health Canada (2014) describes a maximum acceptable concentration (MAC) of 1 mg/L. The MAC was calculated based on the NOAEL of 7.3 mg/L from an epidemiological study where adverse effects on blood pressure and increases in the prevalence of cardiovascular disease were not observed in a population ingesting water containing a mean concentration of 7.3 mg/L barium (Brenniman and Levy, 1985). An uncertainty factor of 10 was applied to the NOAEL to account for intraspecies variability, resulting in a MAC of 0.73 mg/L (Health Canada, 1990). The TDI of 16 µg/kg bw/d was derived by assuming an adult water ingestion rate of 1.5 L/d and an adult body weight of 70.7 kg. The WHO (2004) value of 16 µg/kg bw/d for barium was derived from the same study as Health Canada's value, using the same approach.

The RIVM uses a TDI of 0.02 mg/kg bw/d for soluble barium based on a NOAEL of 0.2 mg/kg bw/d in drinking water and an uncertainty factor of 10 (RIVM 2001). An oral TDI was derived on the basis of a NOAEL in a study with human volunteers who were exposed to barium in a drinking water study with 0.2 mg/kg bw/day as the lowest dose. Although no clear no effect level was found in this study,

a TDI of 0.02 mg/kg bw/day was derived using the lowest does of barium in the study and an uncertainty factor of 10.

The US EPA revised the RfD value for barium in 2005 due to selection of a new principal study (NTP 1994), selection of a new critical effect, the use of benchmark dose modeling to determine the point of departure and a new evaluation of both the literature and application of uncertainty factors. Renal effects were concluded to likely be the most sensitive endpoints of barium toxicity. Mild to severe cases of nephropathy were observed in 19/60 male and 37/60 female mice in the high dose group (NTP, 1994). An RfD of 0.2 mg/kg-day was derived using the benchmark dose for renal lesions in male mice as the critical effect. A 10% Benchmark Response (BMR) is traditionally used as the point of comparison across studies with quantal data; however, for this assessment it was determined that a lower BMR could be used because the critical effect was considered to be substantially adverse and distinctly chemical-related and because the data range included a response lower than 10%. The BMD for a 5% extra risk of chemical-related nephropathy (BMD_{05}) was 84 mg/kg-day for male mice, and the lower 95% confidence limit (*i.e.*, $BMDL_{05}$) was 63 mg/kg-day. An uncertainty factor of 300 was applied to the $BMDL_{05}$ to account for interspecies variability (10), intraspecies variability (10) and deficiencies in the database (3). The US EPA selected the study by NTP (1994) over the epidemiological study by Brenniman and Levy (1985) due to insufficient dose-response data to establish an association between repeated human exposure to barium in drinking water and hypertension. The US EPA selected nephropathy in male mice as the critical effect because it provided the best available evidence of a dose-response relationship (US EPA, 2005).

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2007. Toxicological Profile for Barium and Barium Compounds. August 2007. US Department of Health and Human Services, Public Health Service, Alanta, GA. Available at: http://www.atsdr.cdc.gov/toxprofiles/tp24.pdf. Accessed January 2015.

Brenniman, G.R. and Levy, P.S. 1985. Epidemiological study in Illinois drinking water supplies. In: Advances in modern environmental toxicology. Vol. IX. Princeton Publishing Co., Princeton, NJ. p. 231.

Health Canada. 1990. Barium. Accessed at: http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/barium-baryum/index-eng.php#fnb29. Accessed January 2015.

Health Canada. 2010. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical-Specific Factors, Version 2.0. Minister of Health, Ottawa, Ontario.

Health Canada. 2014. Guidelines for Canadian Drinking Water Quality. Accessed at: http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/index-eng.php. Accessed February 2015.

National Toxicology Program (NTP). 1994. Toxicology and Carcinogenesis Studies of Barium Chloride Dihydrate (CAS No. 10326-27-9) in F344/N Rats and B6C3F1 Mice. US Department of Health and Human Service, National Institutes of Health Technical Report Series No. 432. Accessed at: http://ntp.niehs.nih.gov/ntp/htdocs/lt_rpts/tr432.pdf

RIVM. 2001. Re-evaluation of Human-Toxicological Maximum Permissible Risk Levels. RIVM Report 711701 025. Accessed at: http://rivm.openrepository.com/rivm/bitstream/10029/9662/1/711701025.pdf. Accessed January 2015.

US EPA. 2005. Toxicological Review of Barium Comounds (CAS No. 7440-39-3) In Support of the Integrated Risk Information System (IRIS). Accessed at: http://www.epa.gov/iris/toxreviews/0010tr.pdf. Accessed February 2015.

Vermeire TG, Apeldoorn ME van, Fouw JC de and Janssen PJCM. 1991. Voorstel voor de human-toxicologische onderbouwing van C-toetsingswaarden. National Institute of Public Health and the Environment, RIVM-report no. 725201005, February 1991 Bilthoven, The Netherlands.

World Health Organization. 2004. Barium in Drinking-water. Background document for development of WHO Guidelines for Drinking-water Quality. WHO/SDE/WSH/03.04/76.

10.0 BENZENE

10.1 Inhalation Exposure Limits

10.1.1 Acute Inhalation

Table B.10-1 Acute Inhalation Exposure Limits for Benzene

AGENCY	ESRD	ATSDR	OEHHA	TCEQ
Exposure Limit Type	1-hour AAQO	24-hour MRL	6-hour REL	**1-hour ReV**
Exposure Limit Value (µg/m³)	30	30	1,300	**580**
Critical Organ or Effect	Haematological	Haematological/ Immunological	Reproductive/developmental toxicity	**Haematological/ Immunological**
Species	-	Mice	Rats	**Mice**
Study	-	Rozen *et al* 1984	Coate *et al* 1984	**Rozen *et al* 1984**
Source	ESRD 2013	ATSDR 2013; 2007	OEHHA 1999a; 2013a	**TCEQ 2007**

- not available

Bold – Exposure Limit selected for HHRA.

A 1-hour AAQO of 30 µg/m³ is recommended by Alberta (ESRD 2013) for 1-hour exposures to benzene based on haematological effects. The ESRD states this limit was adopted from Texas; no specific study was identified for the derivation of this exposure limit (AENV 2006).

The ATSDR recommend an acute (24-hour) MRL of 30 µg/m³ for benzene (ATSDR 2013). This MRL is based on an observed decrease in mitogen-induced lymphocyte proliferation following the exposure of mice to benzene vapours for 6 hours per day over a 6-day period (Rozen *et al.* 1984). The study LOAEL of 10.2 ppm (33 mg/m³) was adjusted from intermittent to 24-hour exposure and converted to an human equivalent concentration (HEC) of 2.55 ppm (8 mg/m³). The 24-hour HEC was divided by a 300-fold uncertainty factor to account for use of a LOAEL (10), extrapolation from animals (3) to humans and human variability (10) (ATSDR 2007).

The OEHHA (2013a) recommend a REL of 1,300 for acute (6-hour) exposure to benzene. This REL was derived from a study of developmental toxicity in rats conducted by Coate *et al.* (1984). The study addressed the most sensitive noncancer endpoint associated with benzene inhalation which was lowered fetal body weights in offspring following dam exposure for 6 hours/day on gestational days 6 to 15 (OEHHA 1999a). It is noted the reference exposure levels for benzene are currently

under review and a 1-hour REL of 27 µg/m³, based on haematological effects in mice (Keller and Snyder *et al.* 1988), is being proposed (OEHHA 2013b).

The TCEQ (2007) developed a 1-hour ReV of 580 µg/m³ for benzene using the same LOAEL identified by Rozen *et al*. (1984), which was supported by two additional studies reporting hematotoxic effects in mice (Dempster and Snyder 1991; Corti and Snyder, 1996). The TCEQ (2007) converted the LOAEL of 10.2 ppm (33 mg/m³) to a 1-hour HEC of 18.5 ppm (59 mg/m³) which was then divided by a 100-fold uncertainty factor to account for use of a LOAEL (3), extrapolation from animals to humans (3) and human variability (10).

The TCEQ 1-hour ReV of 580 µg/m³ was selected for the current assessment of acute exposure to benzene as the effect of benzene on lymphocyte response in mice was supported by several studies and the 1-hour exposure duration selected by the TCEQ was considered the most appropriate for the response observed.

10.1.2 Chronic Inhalation

Table B.10-2 Chronic Inhalation Exposure Limits for Benzene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	Annual AAQO	MRL	TC_{05}	REL RsC	CR (adjusted)	ReV $ESL_{linear(c)}$	**RfC** **RsC**	RsC
Exposure Limit Value (µg/m³)	3	9.8	3	60 0.3	2	280 4.5	**30** **1.3 to 4.5**	1.7
Critical Organ or Effect	Leukemia	Haematological Immunological	Leukemia	Haematological Leukemia	Leukemia	Haematological Leukemia	**Haematological Leukemia**	Leukemia
Species	Human	Human	Human	Human	Human	Human	**Human**	Human
Study	Adopted from Health Canada	Lan *et al.* 2004	Rinsky *et al.* 1987	Tsai *et al* 1983 Rinsky *et al.* 1981	Adopted from WHO 2000	Rothman *et al.* 1996 Rinsky *et al.* 1981; 1987	**Rothman *et al.* 1996** **Rinsky *et al.* 1981; 1987**	Multiple
Source	AENV 2010	ATSDR 2013; 2007	Health Canada 2010	OEHHA 1999b; 2011; 2013a	RIVM 2001	TCEQ 2007	**US EPA 2003; 2000**	WHO 2000

- not available
Bold – Exposure Limit selected for HHRA.

IARC (2013) has classified benzene as carcinogenic to humans (Group 1). With the exception of ATSDR, all the regulatory agencies reviewed have established chronic inhalation guidelines based on epidemiological evidence of an association between chronic occupational exposure to benzene and leukemia mortality rates. The ATSDR, OEHHA, TCEQ and US EPA have also established chronic inhalation guidelines based on haematological/immunological effects (*i.e.*, lymphocyte response).

The ATSDR (2013) recommend a chronic MRL of 9.8 µg/m^3 for benzene. The MRL was derived from a study of workers in Chinese shoe manufacturing industries (Lan *et al*. 2004) which reported an exposure-response relationship between benzene exposure levels (measured by individual vapour monitors) and decreased lymphocyte count in workers exposed an average of 6.1 years (ATSDR 2007).

Health Canada (2010) derived a TC05 of 15 mg/m^3 for benzene based on the incidence of mortality from leukemia in a cohort of rubber hydrochloride (pliofilm workers) (Rinsky *et al.* 1987). The exposure concentration associated with a 5% increase in mortality from acute myelogenous leukemia (TC05) was derived using cancer potencies based on exposure estimates of Crump and Allen (1984) as described in Health Canada (1993). The TC05 translates to an exposure limit of 3 µg/m^3 for a 1 in 100,000 incremental increase in mortality from acute myelogenous leukemia. The ESRD adopted the benzene guideline from Health Canada for their annual AAQO (AENV 2010).

A REL of 60 µg/m^3 was derived by OEHHA (2013a) for chronic exposure to benzene. This REL was based on haematological effects following occupational exposure of a cohort of 454 male petroleum refinery workers exposed to benzene (personal monitors) over an average for 7.4 years (Tsai *et al.* 1983). It is noted the reference exposure levels for benzene are currently under review and a chronic REL of 7 µg/m^3, based on haematological effects in Chinese shoe worker (Lan *et al*. 2004), is being proposed (OEHHA 2013b).

The OEHHA (2011) also recommend a unit risk factor of 0.000029 per µg/m^3 for benzene based on mortality from leukemia in pliofilm workers as reported by Rinsky *et al.* (1981) using a weighted cumulative exposure/relative risk procedure by CDHS (1984). This unit risk factor translates to a RsC of 0.3 µg/m^3 for a 1 in 100,000 incremental increase in mortality from leukemia.

The WHO (2001) recommend an air quality of guideline of 1.7 µg/m^3 for an excess lifetime cancer (leukemia) risk of 1 in 100,000 following chronic exposure to benzene. This guideline was derived from a range of studies reporting risk estimates for mortality from leukemia in the pliofilm cohort of workers (Crump and Allen, 1984; Rinsky *et al.* 1987; Paustenbach *et al.* 1992).

The RIVM (2001) has established a CR of 20 µg/m^3 for benzene assuming an excess cancer risk of 1 in 10,000. This was divided by 10-fold to determine an air concentration of 2 µg/m^3 for an excess cancer

(leukemia) risk of 1 in 100,000 for comparison with other agencies. The RIVM (2001) adopted the lower limit of the EU (1999) cancer risk estimates for chronic exposure to benzene, which is equivalent to the unit risk recommended by the WHO (2000).

An ReV of 280 µg/m^3 is recommended for benzene by the TECQ (2007). This guideline is based on hematotoxic effects (reduced lymphocyte count) in Chinese workers occupationally exposed to benzene for an average of 6.3 years (Rothman *et al*. 1996). The critical effect of decreased lymphocyte count is supported by the results of Lan *et al*. (2004) for workers in Chinese shoe manufacturing industries exposed to benzene for an average of 6.1 years (TCEQ 2007). The TCEQ (2007) derived a benchmark concentration (BMC) of 8.4 mg/m^3 (adjusted for continuous exposure) from the Rothman et al (1996) study to which an uncertainty factor of 30 was applied to account for human variability (10) and a lack of data for reproductive/developmental effects (3).

The TCEQ (2007) also recommend an exposure limit of 4.5 µg/m^3 for an excess lifetime cancer risk of 1 in 100,000 following chronic exposure to benzene. This air concentration was derived using the cancer potency estimates of Crump and Allen (1994) for acute myelogenous leukemia in the pliofilm cohort described by Rinsky *et al.* (1981; 1987).

The US EPA (2003) recommends an RfC of 30 µg/m^3 for benzene. This RfC was based on the effect of reduced absolute lymphocyte count in Chinese workers reported in the Rothman *et al*. (1996) study. A BMC of 8.2 mg/m^3 was calculated and adjusted by an uncertainty factor of 300 to account for human variability (10), extrapolating from a LOAEL to a NOAEL (3), extrapolating from subchronic to chronic exposure (3) and database uncertainties (3) (US EPA 2002).

The US EPA (2000) also recommends unit risk factors for benzene based on the incidence of acute myelogenous leukemia reported in workers exposed to benzene. Air concentrations recommended for benzene at a 1 in 100,000 cancer risk level range from 1.3 to 4.5 µg/m^3 and were determined from the pliofilm cohort described by Rinsky *et al.* (1981; 1987) using risk calculations recommended by Paustenbach *et al.* (1993); Crump and Allen (1984); Crump (1994) and U.S. EPA (1998).

The lowest air concentration recommended by the ATSDR (2007) for haematological/immunological effects (9.8 µg/m^3) was selected for the assessment of non-carcinogenic effects following chronic inhalation exposure to benzene.

The range of air concentrations identified by the US EPA (2003) for a 1 in 100,000 cancer risk level is supported by similar exposure limits derived by Health Canada, RIVM, TCEQ and WHO for the same response (*i.e.*, leukemia). The lowest air concentration recommended by the US EPA (1.3 µg/m^3) was selected for the assessment of carcinogenic effects following chronic inhalation exposure to

benzene. Benzene was included in the chemical group for leukemia following chronic inhalation exposures.

10.2 Oral Exposure Limits

No chronic oral exposure limit was required for benzene as this chemical was not identified for inclusion in the multiple pathway exposure assessment.

References

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed November 2013.

AENV (Alberta Environment) 2006. Assessment report on Benzene For Developing Ambient Air Quality Objectives. Available at: http://esrd.alberta.ca/air/objectives-directives-policies-and-standards/documents/AssessmentReport-Benzene-Feb2006.pdf Accessed May 2015.

AENV (Alberta Environment). 2010. Alberta Tier 1 Soil and Groundwater RemediationGuidelines. December 2010. Available at: http://environment.gov.ab.ca/info/library/7751.pdf. Accessed November 2013.

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed November 2013.

ATSDR 2007. Toxicological Profile for Benzene. August 2007. US Department of Health and Human Services, Public Health Service. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp. Accessed November 2013.

CDHS (California Department of Health Services) 1984. Report to the Scientific Review Panel on Benzene. Part B. Health Effects of Benzene. Epidemiological Studies Section, Berkeley, CA. Cited In: OEHHA 2009.

Coate WB, Hoberman AM, Durloo RS. Inhalation teratology study of benzene in rats. In: MacFarland HN, editor. Advances in modern environmental toxicology, Vol VI. Applied toxicology of petroleum hydrocarbons. Princeton (NJ): Princeton Scientific Publishers, Inc; 1984. p. 187-198. Cited in OEHHA 1999.

Corti M, Snyder CA. 1996. Influences of gender, development, pregnancy and ethanol consumption on the hematotoxicity of inhaled 10 ppm benzene. Arch Toxicol 70:209-217. Cited In: TCEQ 2007.

Crump, K.S. and B.C. Allen, 1984. Quantitative Estimates of Risk of Leukemia from Occupational Exposure to Benzene, prepared for the Occupational Safety and Health Administration. Cited in Health Canada 1993.

Crump, KS. 1994. Risk of benzene-induced leukemia: a sensitivity analysis of the Pliofilm cohort with additional follow-up and new exposure estimates. J Toxicol Environ Health 42:219-242. Cited In: US EPA 2000.

Dempster AM, Snyder CA. 1991. Kinetics of granulocytic and erythroid progenitor cells are affected differently by short-term, low level benzene exposure. Arch Toxicol 65(7):556-561. Cited In: TCEQ 2007.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

Health Canada 1993. Priority Substances List Assessment Report: Benzene. ISBN: 0-662-20434-4. Cat. No.: En40-215/11-E. Environment Canada, Health Canada, Canadian Environmental Protection Act, 1999. Available at: http://www.hc-sc.gc.ca/ewh-semt/pubs/contaminants/psl1-lsp1/benzene/index-eng.php. Accessed November 2013.

EU (European Union) 1999. Benzene: Risk Assessment, Chapter 2. Commission of European Communities, Council Directive on Ambient Air Quality Assessment and Manage-ment, Working group on Benzene; January 1999. Cited In: RIVM 2001.

IARC (International Agency for Research on Cancer). 2013. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Updated July 16, 2013. Available at: http://monographs.iarc.fr/ENG/Classification/index.php. Accessed November 2013.

Keller KA and Snyder CA (1988). Mice exposed in utero to 20 ppm benzene exhibit altered numbers of recognizable hematopoietic cells up to seven weeks after exposure. Fundam Appl Toxicol 10(2): 224-32. Cited In: OEHHA 2013b.

Lan Q, Zhang L, Li G, *et al.* 2004. Hematotoxicity in workers exposed to low levels of benzene. Science 306:1774-1776. Cited In: ASTDR 2007.

OEHHA (Office of Environmental Health Hazard Assessment) 2013a. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of October 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air

Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed November 2013.

OEHHA 2013b. Benzene Reference Exposure Levels. Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Appendix D1, Scientific Review Panel Draft. California Protection Agency. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://oehha.ca.gov/air/chronic_rels/pdf/100413BenzeneREL_SRP.pdf. Accessed November 2013.

OEHHA 2011. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. Appendix B. Chemical-specific summaries of the information used to derive unit risk and cancer potency values. Updated 2011. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology.Available at: http://www.oehha.ca.gov/air/hot_spots/tsd052909.html Accessed November 2013.

OEHHA 1999a. Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Appendix D.2 Acute RELs and toxicity summaries using the previous version of the Hot Spots Risk Assessment guidelines. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology.Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD2_final.pdf#page=18 Accessed November 2013.

OEHHA 1999b. Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Appendix D.3 Chronic RELs and toxicity summaries using the previous version of the Hot Spots Risk Assessment guidelines. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology.Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD3_final.pdf#page=24 Accessed November 2013.

Paustenbach, D.J. *et al.* 1992. Reevaluation of benzene exposure for the pliofilm (rubberworker) cohort (1936–1976). Journal of toxicology and environmental health, 36: 177–231. Cited In: WHO 2000.

Paustenbach, D; Bass, R; Price, P. 1993. Benzene toxicity and risk assessment, 1972-1992: implications for future regulation. Environ Health Perspect 101 (Suppl 6):177-200. Cited in US EPA 2000.

Rinsky RA, Young RJ and Smith AB. 1981. Leukemia in benzene workers. Am J Ind Med 2:217-245. Cited In: ATSDR 2007.

Rinsky, R.A., A.B. Smith, R. Hornung, T.G. Filloon, R.J. Young, A.H. Okun, and P.J. Landrigan. 1987. Benzene and Leukemia - An Epidemiologic Risk Assessment. N. Eng. J. Med., 316: 1044-1050. Cited In: Health Canada 1993.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

Rothman N, Li Gl, Dosemeci M, *et al.* 1996. Hematotoxicity among Chinese workers heavily exposed to benzene. Am J Med 29(3):236-246. Cited In: TCEQ 2007.

Rozen MG, Snyder CA, Albert RE. 1984. Depression in B- and T-lymphocyte mitogen-induced blastogenesis in mice exposed to low concentrations of benzene. Toxicol Lett 20:343-349. Cited In: ATSDR 2007.

TCEQ (Texas Commission on Environmental Quality). 2007. Final Development Support Document: Benzene. Prepared by Joseph T. Haney. Toxicology Section. October 2007. Available at: http://www.tceq.texas.gov/assets/public/implementation/tox/dsd/final/benzene_71-43-2_final_10-15-07.pdf. Accessed November 2013.

Tsai SP, Wen CP, Weiss NS, Wong O, McClellan WA, and Gibson RL. 1983. Retrospective mortality and medical surveillance studies of workers in benzene areas of refineries. J. Occup. Med. 25(9):685-692. Cited In: OEHHA 1999b.

US EPA (Environmental Protection Agency). 1998. Carcinogenic effects of benzene: an update. Prepared by the National Center for Environmental Health, Office of Research and Development. Washington, DC. EPA/600/P-97/001F. Cited In: US EPA 2000.

US EPA. 2000. IRIS (Integrated Risk Information System). Summary for Benzene (CASRN 71-43-2). Quantitative Estimate of Carcinogenic Risk from Inhalation Exposure. Available at: www.epa.gov/iris. Accessed November 2013.

US EPA. 2003. IRIS Summary for Benzene (CASRN 71-43-2). Reference Concentration for Chronic Inhalation Exposure (RfC). Available at: www.epa.gov/iris. Accessed November 2013.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255

11.0 BENZO[A]PYRENE AND BENZO[A]PYRENE EQUIVALENTS

IARC (2013) has classified benzo[a]pyrene (B[a]P) as carcinogenic to humans (Group 1). Studies on the carcinogenic potential of B[a]P and mixtures of polycyclic aromatic hydrocarbons (PAHs) following chronic inhalation or oral exposures are outlined in ATSDR (1995); Health Canada (2010); RIVM (2001); and US EPA (1994).

Relative potency factors may be used for a group of chemicals where a common mode of action has been identified for the same toxic endpoint, as in the case of carcinogenic PAHs (US EPA 2005; Health Canada 2012). The dose-response data for the carcinogenic effects of B[a]P are well studied and B[a]P has been selected as an index chemical for several other carcinogenic PAHs with a common mode of action. The potency equivalency factors (PEFs) recommended by Health Canada (2012) were selected for the current assessment of carcinogenic PAHs sharing a common mode of action with B[a]P. Table 1 provides a summary of the carcinogenic PAHs assessed and their relative potency to B[a]P. The emissions of these PAHs were adjusted by the PEF to allow for the assessment of the carcinogenicity of this group of chemicals as B[a]P.

Table B.11-1 Potency Equivalence Factors[1] (PEFs) for Carcinogenic PAHs

Polycyclic Aromatic Hydrocarbon	Potency Equivalence Factors[1]
7,12-Dimethylbenz(a)anthracene ($C_{20}H_{16}$)	10
Benz(a)anthracene ($C_{18}H_{12}$)	0.1
Benzo(a)pyrene ($C_{20}H_{12}$)	1
Benzo(b)fluoranthene ($C_{24}H_{14}$)	0.1
Benzo(g,h,i)perylene ($C_{22}H_{12}$)	0.01
Benzo(k)fluoranthene ($C_{24}H_{14}$)	0.1
Chrysene ($C_{18}H_{12}$)	0.01
Dibenz(a,h)anthracene ($C_{22}H_{14}$)	1
Fluoranthene ($C_{16}H_{10}$)	0.001
Indeno(1,2,3-cd)pyrene ($C_{22}H_{12}$)	0.1
Phenanthrene ($C_{14}H_{10}$)	0.001

[1]Relative to B[a]P (Health Canada 2012)

11.1 Inhalation Exposure Limits

11.1.1 Acute Inhalation Exposure Limits

Table B.11-2 Acute Inhalation Exposure Limits for Benzo[a]pyrene

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	ESL	-
Exposure Limit Value (µg/m³)	-	-	-	0.03	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	ESRD 2013	ATSDR 2013; 1995	OEHHA 2013	TCEQ 2013	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA

An acute ESL of 0.03 µg/m³ is recommended for B[a]P as a fraction of exhaust PM_{10} by the TCEQ (2013), however, no supporting documentation was provided for this exposure limit. No short-term occupational exposure limits have been developed for B[a]P (OSHA 2013).

As a C20 aromatic hydrocarbon B[a]P has extremely low volatility and inhalation of the chemical in isolation from particulate matter is unlikely. Controlled inhalation and intratracheal instillation studies in animals have demonstrated the carcinogenicity of B[a]P over long-term (chronic) exposure periods as described below. However, the effects of acute inhalation exposure to B[a]P have not been characterized and no acute exposure limits with supporting documentation were identified.

11.1.2 Chronic Inhalation

Table B.11-3 Chronic Inhalation Exposure Limits for Benzo[a]pyrene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	AAQO	-	**TC**	RsC	-	-	-	RsC
Exposure Limit Value (µg/m³)	0.0003	-	**0.32**	0.009	-	-	-	0.00012

Table B.11-3 Chronic Inhalation Exposure Limits for Benzo[a]pyrene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Critical Organ or Effect	-	-	**Respiratory tract tumours**	Respiratory tract tumours	-	-	-	Respiratory cancer
Species	-	-	**Hamster**	Hamster	-	-	-	Human
Study	-	-	**Thyssen *et al.*, 1981**	Thyssen *et al.*, 1981	-	-	-	Redmond, 1976; US EPA 1984
Source	ESRD 2013	ATSDR 2013	**Health Canada 2010**	OEHHA 2011	RIVM 2001	TCEQ 2013	US EPA 1994	WHO 1987; 2000

- not available

Bold – Exposure Limit selected for HHRA

The AERSD (2013) recommend a chronic inhalation AAQO of 0.0003 µg/m^3 for B[a]P; however, no supporting documentation for the basis of this objective was provided. Health Canada (2010) and the OEHHA (2011) have developed exposure limits based on a study reporting respiratory tract tumours in hamsters chronically exposed by inhalation (nose-only) to B[a]P (Thyssen *et al.* 1981).

Health Canada (2010) developed a unit risk factor of 0.031 per µg/m^3 for B[a]P using multi-stage modeling of the tumor incidence in the respiratory tract of hamsters reported in Thyssen *et al.* (1981). This translates to a TC of 0.32 µg/m^3 based on a 1 in 100,000 excess lifetime cancer risk.

A unit risk factor of 0.0011 per µg/m^3 was derived for B[a]P by the OEHHA (2011) using multi-stage modeling and the Thyssen *et al.* (1981) study on hamsters. The OEHHA (2011) converted the study inhalation unit risk factor to an oral risk factor (0.43 per mg/kg body weight/day) and applied an interspecies surface area correction factor to determine a human equivalent potency factor for the inhalation pathway. An RsC of 0.009 µg/m^3 is calculated for 1x10^{-5} excess lifetime cancer risk.

The US EPA (1994) does not currently recommend an inhalation unit risk estimate for B[a]P; however, the potential inhalation toxicity of B[a]P is currently under review by the US EPA with a draft human health assessment released August 2013 for independent peer review and public comment (US EPA 2013).

The WHO (1987; 2000) developed a unit risk factor of 0.0087 per µg/m^3 for B[a]P using a linearized multistage model and epidemiological data for mortality due to lung cancer in workers exposed to mixtures of PAH in coke-oven emissions (Redmond 1976; US EPA 1984). Using this unit risk factor for B[a]P, an air concentration of 0.00012 µg/m^3 would be associated with a 1 in 100,000 increased risk

of mortality as a result of lung cancer. The WHO (1987; 2000) guideline assumed B[a]P represented an index of PAH mixtures from coke oven emissions and similar combustion processes. This guideline was not selected to represent B[a]P for the current assessment as it was developed for a mixture of chemicals and would not be appropriate for use with the PEF approach. In addition, the WHO unit risk factor was based on mortality from, rather than incidence of, lung cancer.

Both Health Canada (2010) and the OEHHA (2011) selected the Thyssen *et al.* (1981) study for the development a unit risk factors for B[a]P. The lower guideline of 0.009 μg/m^3 (OEHHA 2011) was selected for the current assessment of chronic inhalation exposure to B[a]P and B[a]P equivalents.

11.2 Oral Exposure Limits

11.2.1 Chronic Oral

Table B.11-4 Chronic Oral Exposure Limits for Benzo[a]pyrene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA
Exposure Limit Type	-	RsD	RsD	CR	**RsD**
Exposure Limit Value (mg/kg bw/day)	-	0.0000043	0.00000083	0.00005	**0.0000014**
Critical Organ or Effect	-	Gastric tumors	Gastric tumors	Multiple	**Forestomach; multiple**
Species	-	Mouse	Mouse	Rat	**Mouse, rat**
Study	-	Neal and Rigdon, 1967	Neal and Rigdon, 1967	Kroese *et al.*, 1999	**Neal and Rigdon, 1967; Brune *et al.*, 1981**
Source	ATSDR 2013	Health Canada 2010	OEHHA 2011	RIVM, 2001	**US EPA 1994**

- not available

Bold – Exposure Limit selected for HHRA

Health Canada (2010) derived an oral slope factor of 2.3 per mg/kg body weight/day from the Neal and Rigdon (1967) study reporting the incidence of gastric tumors in mice following up to 110 days exposure to B[a]P in the diet. This slope factor translates to an RsD of 0.0000043 mg/kg bodyweight/day, assuming an acceptable lifetime cancer risk of 1 in 100,000.

The OEHHA (2011) identified an oral slope factor of 12 per mg/kg body weight/day using the same study by Neal and Ringdon (1967), resulting in an RsD of 0.00083 for a 1 in 100,000 lifetime cancer risk.

The RIVM (2001) recommend a CR value of 0.5 assuming a lifetime cancer risk of 1 in 10,000, or 0.05 for a lifetime cancer risk of 1 in 100,000. This CR was based the results of a study conducted by RIVM (Kroese *et al.*, 1999) that reported the incidence of tumours in a variety of organs and tissues (predominately liver and forestomach) in rats following gavage exposure to B[a]P for 2 years.

The US EPA (1994) calculated slope factors from two different studies on the effects of oral exposure to B[a]P in mice (Neal and Rigdon, 1967) and rats (Brune *et al.*, 1981) which shared similarities in approach as well as results. The geometric mean of four of these slope factors was used to determine a single unit risk factor of 7.3 per mg/kg bodyweight/day. This translates to an RsD of 0.0000014 mg/kg bodyweight/day for an acceptable lifetime cancer risk of 1 in 100,000. It is noted that the oral toxicity of B[a]P is currently under review by the US EPA with a draft human health assessment released August 2013 for independent peer review and public comment (US EPA 2013).

The US EPA (1994) RsD of 0.0000014 mg/kg bodyweight/day considered the results from more than one study and rodent species and was therefore selected for the current assessment of carcinogenic effects following chronic oral exposure to B[a]P and B[a]P equivalents.

The potential non-carcinogenic effects associated with chronic oral exposure to B[a]P and B[a]P equivalents were also considered in the current assessment. Chronic oral exposure limits based on non-carcinogenic effects were identified for fluoranthene and phenanthrene. Details regarding these exposure limits are provided in the toxicity profiles for fluoranthene and phenanthrene.

The remaining B[a]P equivalents (7,12-dimethylbenz(a)anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene and indeno(1,2,3-cd)pyrene) range in size from C_{18}-C_{24}. In the absence of individual exposure limits for these PAH, the oral exposure limit developed for the non-carcinogenic effects of aromatic C17-C34 hydrocarbons was assigned to these chemicals. Details regarding the chronic oral exposure limit for the aromatic C17-C34 hydrocarbon group are provided in the Petroleum Hydrocarbons toxicity profile.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

ATSDR 1995. Toxicological Profile for Polycyclic Aromatic Hydrocarbons. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. August 1995. Available at: http://www.atsdr.cdc.gov/toxprofiles/tp69.pdf. Accessed October 2013.

Brune, H., R.P. Deutsch-Wenzel, M. Habs, S. Ivankovic and D. Schmahl. 1981. Investigation of the tumorigenic response to benzo[a]pyrene in aqueous caffeine solution applied orally to Sprague-Dawley rats. J. Cancer Res. Clin. Oncol. 102(2): 153-157. Cited In: US EPA 1994.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

Health Canada. 2012. Federal Contaminated Site Risk Assessment in Canada. Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA) Version 2.0. Contaminated Sites Division. Safe Environments Programme. Cat.: H128-1/11-632E-PDF, ISBN: 978-1-100-17671-0. September 2010. Revised 2012.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

IARC (International Agency for Research on Cancer). 2013. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Updated July 16, 2013. Available at: http://monographs.iarc.fr/ENG/Classification/index.php. Accessed October 2013.

Kroese ED, Muller JJA, Mohn GR, Dortant PM, and Wester PW. 1999. Tumorigenic effects in Wistar rats orally administered benzo[a]pyrene for two years (gavage studies). Implications for human cancer risks associated with oral exposure to polycyclic aromatic hydrocarbons. National Institute of Public Health and the Environment, RIVM draft report no. 658603010, July 1999. Cited In: RIVM 2001.

Neal, J. and R.H. Rigdon. 1967. Gastric tumours in mice fed benzo(a)pyrene: a quantitative study. Texas Reports on Biology and Medicine 25:553-557. Cited In: US EPA 1994.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

OEHHA 2011. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. Appendix B. Chemical-specific summaries of the information used to derive unit risk and

cancer potency values. Updated 2011. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/2009/AppendixB.pdf Accessed October 2013.

OSHA (Occupational Safety and Health Administration) 2013. Chemical Sampling Information: Benzo(a)pyrene. Available at: https://www.osha.gov/dts/chemicalsampling/data/CH_220327.html. Accessed October 2013.

Redmond, C.K. 1976. Epidemiological studies of cancer mortality in coke plant workers. In: Seventh Conference on Environmental Toxicology 1976. Washington, DC, US Environmental Protecion Agency, 1976, pp 93-107 (AMRL-TR-76-125, Paper no. 3). Cited In: WHO 1987.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed October 2013.

Thyssen, J., J. Althoff, G. Kimmerle and U. Mohr. 1981. Inhalation studies with benzo[a]pyrene in Syrian golden hamsters. J. Natl. Cancer Inst. 66: 575-577. Cited In: US EPA 1994.

U.S. EPA (Environmental Protection Agency) 2013. IRIS (Integrated Risk Information System) Toxicological Review of Benzo[a]pyrene (Public Comment External Review Draft). Available at: http://cfpub.epa.gov/ncea/iris_drafts/recordisplay.cfm?deid=66193. Last Updated on Thursday, October 24th 2013. Accessed November 2013.

U.S. EPA 2005. Guidelines for Carcinogen Risk Assessment. Risk Assessment Forum U.S. Environmental Protection Agency, Washington, DC. March 2005. EPA/630/P-03/001F. Available at: http://www.epa.gov/raf/publications/pdfs/CANCER_GUIDELINES_FINAL_3-25-05.PDF. Accessed October 2013.

U.S. EPA. 1994. IRIS Summary for Benzo[a]pyrene (BaP)(CASRN 50-32-8). Carcinogenicity Assessment for Lifetime Exposure . Quantitative Estimate of Carcinogenic Risk from Oral Exposure. Available at: www.epa.gov/iris. Accessed October 2013.

U.S. EPA 1984. Carcinogenic assessment of coke oven emissions. Washington, DC. United States Environmental Protection Agency. February 1984. Final Report No. EPA-600/6-82-003F. Cited In: WHO 1987.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255

WHO 1987. Air Quality Guidelines for Europe. WHO Regional Publications, European Series No. 23. Copenhagen, WHO Regional Office for Europe, 1987, pp. 105–117.

12.0 BERYLLIUM

12.1 Inhalation Exposure Limits

12.1.1 Acute Inhalation

Table B.12-1 Acute Inhalation Exposure Limits for Beryllium

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	-	-
Exposure Limit Value (µg/m^3)	-	-	-	-	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	-	-	-	-	-

- not available

Bold – Exposure Limit selected for HHRA.

Due to the lack of defensible acute inhalation exposure limits, beryllium was not assessed on an acute basis.

12.1.2 Chronic Inhalation

Table B.12-2 Chronic Inhalation Exposure Limits for Beryllium

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	RfD RsC		-	**RfC** **RsC**	-

Table B.12-2 Chronic Inhalation Exposure Limits for Beryllium

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Value (µg/m³)	-	-	-	0.002 0.004		-	**0.02** **0.004**	-
Critical Organ or Effect	-	-	-	Beryllium sensitization and chronic beryllium disease		-	**Beryllium sensitization and chronic beryllium disease**	-
Species	-	-	-	Human		-	**Human**	-
Study	-	-	-	Kreiss *et al.* 1996; Wagoner *et al.* 1980		-	**Kreiss *et al.* 1996;** **Wagoner *et al.* 1980**	-
Source	-	-	-	OEHHA		-	**US EPA**	-

- not available

Bold – Exposure Limit selected for HHRA.

The US EPA (2012) has derived an inhalation RsC of 0.004 µg/m³ based on lung cancer in male workers following occupational exposure (Wagoner *et al.* 1980). The cohort study evaluated adult males who worked at a beryllium extraction, processing and fabrication facility between 1942 and 1967 for incidence of lung cancer. A statistically significant increase in the incidences of deaths attributable to malignant tumors of the trachea, bronchus, and lung were observed in the study population. Estimated lower and upper bounds of exposure (100 and 1,000 µg/m³) to beryllium oxide from an epidemiology study were used to estimate the lifetime cancer risk. The exposure concentrations were adjusted for duration of daily (8/24 hours) and annual (240/365 days) exposure and by a ratio of years of exposure to years at risk. The inhalation unit risk of 2.4×10^{-3} per µg/m³ equates to an RsC of 0.004 µg/m³ associated with a risk level of 1 in 100,000.

The US EPA derived a chronic inhalation RfC of 0.02 µg/m³ for beryllium (US EPA 1998). The RfC is based on two human studies of chronic beryllium disease in workers at a facility manufacturing beryllia ceramics (Kreiss *et al.* 1996) and in residents living near a beryllium manufacturing facility (Eisenbud *et al.* 1949). The Kreiss *et al.* (1996) study identified a LOAEL of 0.55 µg/m³ for beryllium sensitization and subclinical chronic beryllium disease, and the Eisenbud *et al.* (1949) study identified a NOAEL of 0.01–0.1 µg/m³ for chronic beryllium disease. The LOAEL identified in the Kreiss *et al.* (1996) study was used for the derivation of the RfC since the Eisenbud study used relatively

insensitive screening methods. The LOAEL was time adjusted to 0.2 μg/m³ and divided by a total uncertainty factor of 10 to account for use of a LOAEL (3) and database limitations (3).

The OEHHA derived a chronic inhalation reference concentration that is 10 times lower than the US EPA value. OEHHA used the same study as the US EPA (Kreiss *et al.* 1996); however, they applied an additional uncertainty factor of 10 to account for the lack of a credible study on which to base a cancer potency (OEHHA 2009).

The OEHHA (2009) also reports a chronic inhalation unit risk estimate of $2.4x10^{-3}$ per μg/m³ (equivalent to an RsC of 0.004 μg/m³) based on the same Wagoner *et al.* (1980) study as the US EPA RsC. The OEHHA determined that the range of median exposures in the study were 100 to 1,000 μg/m³, and these exposures were adjusted for continuous exposure (8/24 hours, 240/365 days) and for the fraction of the workers life stages spent in the plant. Adjustments were made to the data set for smoking deaths. Eight different approaches were used to fit the incidence data, and the median unit risk value was determined to be $2.4x10^{-3}$ per μg/m³.

12.2 Oral Exposure Limits

12.2.1 Chronic Oral

Table B.12-3 Chronic Oral Exposure Limits for Beryllium

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	MRL	-	RfD	-	**RfD**	-
Exposure Limit Value (mg/kg bw/day)	0.002	-	0.002	-	**0.002**	-
Critical Organ or Effect	Small intestine lesions	-	Small intestine lesions	-	**Small intestine lesions**	-
Species	Dogs	-	Dogs	-	**Dogs**	-
Study	Morgareidge *et al.*, 1976	-	Morgareidge *et al.*, 1976	-	**Morgareidge *et al.*, 1976**	-
Source	ATSDR, 2002	-	OEHHA, 2001	-	**US EPA 1998**	-

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR derived a chronic-duration oral MRL of 0.002 mg beryllium/kg/day (ATSDR 2002). This MRL is based on a benchmark dose (defined as the 95% lower confidence limit of the dose corresponding to a 10% increase in the incidence of small intestine lesions in dogs compared to controls) of 0.56 mg beryllium/kg/day. The benchmark dose was divided by an uncertainty factor of 300 (10 for extrapolation from animals to humans and 10 for intrahuman variability) and a modifying factor of 3 (to account for the lack of a study that supports the gastrointestinal effects found in the Morgareidge *et al.* (1976) dog study and the uncertainty as to whether the benchmark dose level is the NOAEL).

A chronic oral reference dose (RfD) of 0.002 mg beryllium/kg/day has been derived by the US EPA (IRIS 1998). The RfD is based on a benchmark dose of 0.46 mg beryllium/kg/day for small intestine lesions in dogs exposed to beryllium sulfate in the diet for 33 to 172 weeks (Morgareidge *et al.* 1976). This benchmark concentration was divided by an uncertainty factor of 300 to account for extrapolation from animals to humans (10), human variability (10), and database gaps (3), particularly adequate reproductive and developmental toxicity studies and studies examining immunological end points. The chronic-duration oral MRL and the RfD were both derived using a benchmark analysis and the same incidence data set. The difference in the benchmark doses is due to the differences in the mathematical model fit to the incidence data (ATSDR used a probit model with a chi-square goodness-offit statistic p-value of 0.9999 and EPA used a weibull model with a chi-square goodness of fit statistic p-value of 0.96) and the higher number of significant figures that EPA used to express beryllium doses.

OEHHA has adapted the US EPA RfD of 0.002 mg beryllium/kg/day. The RfD is limited to soluble beryllium salts (OEHHA 2001).

References

Agency for Toxic Substances Disease Registry (ATSDR). 2002. Toxicological Profile for Beryllium. Accessed at: http://www.atsdr.cdc.gov/toxprofiles/tp4.pdf. Accessed January 2015.

Eisenbud M, Wanta C, Dustan LT, *et al.* 1949. Non-occupational berylliosis. J Ind Hyg Toxicol 31:282-294.

Kreiss K, Mroz MM, Newman LS, *et al.* 1996. Machining risk of beryllium disease and sensitization with median exposures below μg/m3. Am J Ind Med 30(1):16-25.

Morgareidge K, Cox GE, Gallo MA. 1976. Chronic feeding studies with beryllium in dogs. Food and Drug Research Laboratories, Inc. Submitted to the Aluminum Company of America. Alcan Research and Development, Ltd., Kawecki-Berylco Industries, Inc., and Brush-Wellman, Inc.

OEHHA. 2001 Chronic Toxicity Summary Beryllium and Beryllium Compounds. Accessed at: http://www.oehha.org/air/chronic_rels/pdf/berylliumandcomp.pdf. Accessed January 2015.

OEHHA. 2009. Revised California Human Health Screening Levels for Beryllium. Accessed at: http://oehha.ca.gov/risk/pdf/Beryllium091709.pdf. Accessed January 2015.

US EPA. 1998. Beryllium and Compounds (CASRN 7440-41-7). Accessed at: http://www.epa.gov/iris/subst/0012.htm#quainhal. Accessed February 2015

Wagoner, J.K., Infante, P.H., Bayliss, D.L. 1980. Beryllium: an etiologic agent in the induction of lung cancer, non-neoplastic respiratory disease, and heart disease among industrially exposed workers. Environ Res 21:15-34.

13.0 CADMIUM

13.1 Inhalation Exposure Limits

13.1.1 Acute Inhalation

Table B.13-1 Acute Inhalation Exposure Limits for Cadmium

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	24 hour standard	**24 hour MRL**	-	1 hour ESL	-
Exposure Limit Value (µg/m³)	-	0.025	**0.03**	-	0.1	-
Critical Organ or Effect	-	Kidney	**Nasal and Respiratory**	-	-	-
Species	-	Human	**Rats**	-	-	-
Study	-	Thun *et al.* 1991	**NTP 1995**	-	-	-
Source	-	OMOE 2012	**ATSDR 2012**	-	TCEQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (2012) has derived an acute inhalation MRL of 0.03 µg/m³. In the key study (NTP 1995), groups of five male and female F344 rats were exposed to cadmium oxide for 6.2 hours/day, 5 days/week for 2 weeks. The LOAEL of 0.088 mg/m³ was selected for the derivation of the MRL. This value was converted to account for discontinuous exposure (multiplied by 6.2 hours/24 hours and 5 days /7 days) to obtain a duration adjusted LOAEL of 0.016 mg/m³. The LOAEL was converted to a human equivalent concentration of 0.01 mg/m³. A total uncertainty factor of 300 was applied to account for intraspecies variability (10), the use of a LOAEL instead of a NOAEL (10), and for interspecies differences (3) (ATSDR 2012). The acute inhalation MRL of 0.03 µg/m³ based on nasal and respiratory effects was selected for use in the acute assessment as a 24-hour limit.

The OMOE (2012, 2007) has derived a 24-hour standard of 0.025 µg/m³ for cadmium based on kidney effects and carcinogenicity. This standard was derived from the annual guideline of 0.005 µg/m³

developed by the European Commission which considered the non-carcinogenic effects on the kidney to be the critical indicator of inhalation exposure (OMOE 2007). The standard was calculated based on the Thun *et al.* (1991) study which provides pooled data from seven epidemiological studies examining cumulative or multi-year cadmium exposure (OMOE 2007). This exposure limit was not selected as the use of chronic data to derive an acute exposure limit is considered overly conservative.

The TCEQ (2014) reports an interim, short term (1 hour) ESL for cadmium and compounds of 0.1 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

13.1.2 Chronic Inhalation

Table B.13-2 Chronic Inhalation Exposure Limits for Cadmium

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	MRL	**RsC**	REL RsC	-	ESL	RsC	AQG
Exposure Limit Value (µg/m³)	-	0.01	**0.001**	0.02 0.002	-	0.01	0.006	0.005
Critical Organ or Effect	-	Kidney	**Lung**	Kidney and Respiratory	-	-	Respiratory	Cd body burden
Species	-	Human	**Rats**	Human	-	-	Human	Human
Study	-	Jarup and Elinder 1994	**Multiple**	Lauwerys *et al.* 1974; Thun *et al.* 1985	-	-	Thun *et al.* 1985	Buchet *et al.* 1990
Source	-	ATSDR 2012	**Health Canada 2010**	OEHHA 2000, 2009	-	TCEQ 2014	US EPA 2012	WHO 2011

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (2012) has derived a chronic inhalation MRL of 0.01 µg/m³ based on a meta-analysis of available environmental exposure studies. An internal dose (urinary cadmium expressed as µg/g creatinine) corresponding to a 10% excess risk of low molecular weight proteinuria (urinary cadmium dose, UCD10) was estimated based on the studies. The metaanalysis also included dose-response

data from three occupational exposure studies (Chen *et al.* 2006a, 2006b; Jarup and Elinder 1994; Roels *et al.* 1993). Because the dose-response analysis using the European environmental exposure studies (Jarup and Elinder 1994) provided the lowest UCD_{10}, it was selected for derivation of the chronic duration inhalation MRL. The 95% lower confidence limit of the UCD10 ($UCDL_{10}$) of 0.5 µg/g creatinine was used as the point of departure for the MRL. Based on the assumption that inhalation and oral exposures would result in the same urinary cadmium concentrations, it was determined that an inhalation exposure of 0.1 µg/m³ and a dietary intake of 0.3 µg/kg bw/day would together result in a urinary creatinine level of 0.5 µg/g. A cumulative uncertainty factor of 9 was applied to account for human variability (3) and the lack of adequate human data (3). The ATSDR did not the assess potential carcinogenic effects associated with chronic cadmium inhalation.

Health Canada (2010) has selected an RsC of 0.001 µg/m³. A TC_{05} (the concentration or dose that induces a 5% increase in the incidence of or mortality due to relevant tumours) of 2.9 µg/m³ was calculated by fitting the multistage model to the lung tumour incidences observed in rats (Government of Canada 1994). This value was amortized to be constant over the lifetime of the rat, adjusted for the longer than standard lifetime duration of the experiment and converted to an equivalent concentration in humans, resulting in a TC_{05} of 5.1 µg/m³ (Government of Canada 1994). The RsC of 0.001 µg/m³ represents the daily dose via inhalation that assumes an acceptable cancer risk of 1 in 100,000.

The OEHHA (2000) have developed a chronic REL of 0.02 µg/m³ based on an occupational exposure study (Lauwerys *et al.* 1974). No kidney or respiratory effects were observed for an average occupational exposure of 1.4 µg/m³ over an average of 4.1 years. This NOAEL was adjusted to a $NOAEL_{ADJ}$ of 0.5 µg/m³ for intermittent exposure (0.5 x 10/20 m³/day x 5/7 days). A cumulative uncertainty factor of 30 was applied for intraspecies variation (10) and subchronic exposure (3).

The TCEQ (2014) reports an interim, long term ESL for cadmium and compounds of 0.01 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

The OEHHA (2009) has derived an inhalation unit risk of $4.2x10^{-3}$ per µg/m³ (equivalent to an RsC of 0.002 µg/m³ assuming an acceptable cancer risk of 1 in 100,00) based on the same key study as the US EPA (Thun *et al.* 1985). The epidemiological cohort study was based on occupational exposure to cadmium. Median exposure estimates on a 24-hour basis were adjusted for intermittent exposure (8/24 hours × 1/365 days/year × 240/365). A Poisson regression model was applied to the lung cancer mortality data from Thun *et al.* (1985). The background cancer risk in 5-year age intervals and the potential for death attributable to lung cancer per µg/m³ of cadmium were then calculated for the general population. An excess cancer risk for the exposed population of $2x10^{-3}$ to $1.2x10^{-2}$ per µg/m³ was found. A 95% upper confidence limit on the maximum likelihood estimate was calculated, and

adjustments were made for 'healthy worker effect' to derive the unit risk estimate. The value is based on the same study used by the US EPA (2012); however, a different modelling approach was used and the value is more conservative than that derived by the US EPA.

The US EPA (2012) has developed an RsC of 0.006 µg/m³ from an inhalation unit risk of 0.0018 per µg/m³. The inhalation unit risk is based on lung, trachea and bronchus cancer deaths in occupationally exposed workers (Thun *et al.* 1985). In addition, the US EPA also calculated an inhalation unit risk for cadmium based on a study by Takenaka *et al.* (1983) conducted on rats, which was one of the key studies reviewed in the Health Canada assessment. The US EPA (1992) calculated a more conservative RsC of 0.092 per µg/m³ from the Takenaka study; however, they concluded that use of available human data (Thun *et al.* 1985) was more reliable due to species variations in response and the type of exposure (cadmium salt versus cadmium fume and cadmium oxide).

It is noteworthy that other regulatory agencies concluded a reliable unit risk could not be derived from the 1985 study by Thun *et al.* due to confounding factors such as arsenic exposure and cigarette smoking (ATSDR 2012). Similarly, the WHO (2000) stated that evidence from recent studies suggest the unit risk from the Thun *et al.* study might be substantially overestimated owing to confounding by concomitant exposure to arsenic.

The WHO developed an air quality guideline of 0.005 µg/m³. This guideline was developed to prevent further increases of cadmium through dietary intake of plants grown in parts of Europe contaminated by past emissions of cadmium. The cadmium body burden of the general population in these parts of Europe could not be further increased without endangering renal function (WHO, 2011).

13.2 Oral Exposure Limits

13.2.1 Chronic Oral

Table B.13-3 Chronic Oral Exposure Limits for Cadmium

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	MRL	TDI	REL	TDI	**RfD**	TDI
Exposure Limit Value (mg/kg bw/day)	0.0001	0.0010	0.0005	0.0005	**0.0010 (food)** **0.0005 (water)**	0.0010

Table B.13-3 Chronic Oral Exposure Limits for Cadmium

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Critical Organ or Effect	Kidney	Kidney	Kidney	Kidney	**Kidney**	Kidney
Species	Human	Human	Human and animal	Human	**Human and animal**	Human
Study	Multiple	JECFA 1989, 1993	Multiple	Multiple	**Multiple**	JECFA 1989, 1993
Source	ATSDR 2012	Health Canada 2010	OEHHA 2009	RIVM 2001	**US EPA 2012**	WHO 2011

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR derived a chronic-duration oral MRL of 0.0001 mg/kg/day for renal damage based on a meta-analysis of several studies (ATSDR 2012). A cadmium intake that would result in the $UCDL_{10}$ (0.5 µg/g creatinine) at age 55 was estimated using pharmacokinetic models. The more conservative resulting value of 0.00033 mg/kg/day for females was divided by an uncertainty factor of 3 for intraspecies variability.

Health Canada (2010) has established a provisional TDI of 0.0010 mg/kg bw/d for cadmium. The TDI was adopted from the WHO (2004) drinking water background document, which provides a provisional tolerable weekly intake of 0.007 mg/kg bw/d.

The OEHHA (2009) established a chronic oral REL of 0.0005 mg/kg bw/d based on the US EPA RfD.

RIVM (2001) established TDI of 0.0005 mg/kg bw/d based on the critical effect of renal tubular dysfunction. The RIVM derived this TDI based on studies that indicated the lowest level of cadmium in kidney cortex at which renal effects can be detected in approximately 4% of the population is 50 mg/kg. This corresponds to a daily intake of 1 µg/kg bw/d, assuming 40 to 50 years of intake of 50 µg of cadmium per day. An uncertainty factor of 2 was applied based on adverse effect level, resulting in an oral RfD of 0.0005 mg/kg bw/d. This value is comparable to the lower US EPA RfD, but less information is provided as to its basis.

The US EPA (2012, 1994) has developed an RfD for food consumption of 0.001 mg/kg bw/d and an RfD for water consumption of 0.0005 mg/kg bw/d based on significant proteinuria in human studies involving chronic exposures. A concentration of 200 µg cadmium/g wet human renal cortex was

identified as the highest renal level not associated with significant proteinuria. A toxicokinetic model was used to calculate a NOAEL *via* food intake of 0.01 mg/kg bw/d associated with this cadmium tissue concentration, assuming that 0.01% of the cadmium burden is eliminated per day and 2.5% of cadmium in food is absorbed (US EPA 1994). A NOAEL of 0.005 mg/kg bw/d was calculated for exposures via drinking water, assuming that 0.01% of the cadmium burden is eliminated per day and 5% of cadmium in water is absorbed (US EPA 1994). An uncertainty factor of 10 was applied to both NOAELs to account for intraspecies variability. The no effect concentration was based on multiple human and animal studies. These data also allowed for the calculation of pharmacokinetic parameters of cadmium absorption, distribution, metabolism and elimination. The available data resulted in a high degree of confidence in the database and a high degree of confidence in the RfD (US EPA 1994).

The WHO (2011) adopted a TDI derived from a provisional tolerable weekly intake reported by the WHO JECFA (1989, 1993) of 0.007 mg/kg bw/week (equivalent to a TDI of 0.001 mg/kg bw/day). This is based on a back-calculation of concentrations of cadmium in the renal cortex that are considered to be associated with minimal potential for adverse effects in the general population. Additional detail regarding the derivation of this value (*i.e.*, uncertainty factors) was not provided.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2012. Toxicological Profile for Cadmium. U.S. Department of Health and Human Services Public Health Service, Agency for Toxic Substances and Disease Registry. Accessed at: http://www.atsdr.cdc.gov/toxprofiles/tp5.pdf. Accessed January 2015.

ATSDR (Agency for Toxic Substances and Disease Registry). 2012. Minimal Risk Levels (MRLs) for Hazardous Substances. US Department of Health and Human Services, Public Health Service. Atlanta, GA. Accessed at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed January 2015.

Chen L, Jin T, Huang B, *et al.* 2006a. Plasma metallothionein antibody and cadmium-induced renal dysfunction in an occupation population in China. Toxicol Sci 91(1): 104-112.

Chen L, Jin T, Huang B, *et al.* 2006b. Critical exposure level of cadmium for elevated urinary metallothionein: An occupational population study in China. Toxicol Appl Pharmacol 215(1): 93-99.

Government of Canada. 1994 Canadian Environmental Protection Act. Priority Substances List Assessment Report. Cadmium and its Compounds. ISBN 0-662-22046-3.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0.

Contaminated Sites Division. Safe Environments Programme. September 2010. Accessed at http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/contaminants/psl1-lsp1/cadmium_comp/cadmium_comp-eng.pdf. Accessed January 2015.

Järup L, Elinder CG. 1994. Dose-response relations between urinary cadmium and tubular proteinuria in cadmium-exposed workers. Am J Ind Med 26(6):759-769.

JECFA (1989) Toxicological evaluation of certain food additives and contaminants. Geneva, World Health Organization, Joint FAO/WHO Expert Committee on Food Additives; Cambridge, Cambridge University Press, pp. 163–219 (WHO Food Additives Series No. 24).

JECFA (1993) Evaluation of certain food additives and contaminants: forty-first report of the Joint FAO/WHO Expert Committee on Food Additives. Geneva, World Health Organization, Joint FAO/WHO Expert Committee on Food Additives (WHO Technical Report Series No. 837).

Lauwerys R.R., Buchet, J.P., Roels, H.A., Brouwers, J. and Stanescu, D. 1974. Epidemiological survey of workers exposed to cadmium. Arch Environ Health 28:145-148. Cited in: OEHHA 2000.

NTP. 1995. NTP technical report on toxicity studies of cadmium oxide (CAS No. 1306-19-0) administered by inhalation to F344/N rats and B6C3F mice. Research Triangle Park, NC: National Toxicology Program. Toxicity report series number 39.

OEHHA (California Office of Environmental Health Hazard Assessment). 2000. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment. Determination of Noncancer Chronic Reference Exposure Levels. Cadmium and Cadmium Compounds page 59. Accessed at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD3_final.pdf. Accessed January 2015.

OEHHA (California Office of Environmental Health Hazard Assessment). 2009. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology Branch. May 2009. Accessed at: http://oehha.ca.gov/air/hot_spots/2009/TSDCancerPotency.pdf. Accessed January 2015.

OMOE (Ontario Ministry of the Environment). 2007. Ontario Air Standards for Cadmium and Cadmium Compounds. Standards Development Branch, Ontario Ministry of the Environment.

OMOE (Ontario Ministry of the Environment). 2012. Summary of Standards and Guidelines to Support Ontario Regulation 419/05 - Air Pollution – Local Air Quality (including Schedule 6 of O. Reg. 419/05 on Upper Risk Thresholds) (sorted by Chemical Name). Standards Development Branch, Ontario Ministry of the Environment. PIBS # 6569e01. April 2012.

RIVM. 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. Accessed at: 2001.http://rivm.openrepository.com/rivm/bitstream/10029/9662/1/711701025.pdf. Accessed January 2015.

Roels H, Bernard AM, Cardenas A, *et al.* 1993. Markers of early renal changes induced by industrial pollutants. III. Application to workers exposed to cadmium. Brit J Ind Med 50:37-48.

Takenaka, S, Oldiges, H., Konig, H., Hochrainer, D. and Oberdoerster, G. 1983. Carcinogenicity of cadmium chloride aerosols in Wistar rats. J. Nat. Cancer Inst. 70: 367-373. Cited in: Government of Canada 1994.

Thun, M.J., Elinder, C.G. and Friberg, L. 1991. Scientific basis for an occupational standard for cadmium. American Journal of Industrial Medicine 20: 629-942. Cited in: OMOE 2007.

Thun, M.J., Schnorr, T.M., Smith, A.B. and Halperin, W.E. 1985. Mortality among a cohort of US cadmium production workers: An update. J. Nat. Cancer Inst. 74(2): 325-333. Cited in: US EPA 2012.

US EPA (United States Environmental Protection Agency). 2012. Integrated Risk Information System (IRIS) database on-line search. A-Z List of Substances. Accessed at: http://cfpub.epa.gov/ncea/iris/index.cfm?fuseaction=iris.showSubstanceList&list_type=alpha&view. Accessed February 2015.

US EPA (United States Environmental Protection Agency). 1992. IRIS Summary of Cadmium (7440-43- 9). Carcinogenicity Assessment for Lifetime Exposure (RsC). Available at: http://www.epa.gov/ncea/iris/subst/0141.htm#carc US EPA (United States Environmental Protection Agency). 1994. IRIS Summary of Cadmium (7440-43- 9). Reference Dose for Chronic Oral Exposure (RfD). Accessed at: http://www.epa.gov/ncea/iris/subst/0141.htm#reforal. Accessed February 2015.

US EPA (United States Environmental Protection Agency). 1994. IRIS Summary of Cadmium (7440-43-9). Reference Dose for Chronic Oral Exposure (RfD). Accessed at: http://www.epa.gov/ncea/iris/subst/0141.htm#reforal. Accessed February 2015.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. Accessed at: http://www.euro.who.int/__data/assets/pdf_file/0005/74732/E71922.pdf. Accessed February 2015.

WHO (World Health Organization). 2004. Cadmium in Drinking Water. Background Document for Development of WHO Guidelines for Drinking Water Quality. Accessed at:

http://www.who.int/water_sanitation_health/dwq/chemicals/cadmium.pdf. Accessed February 2015.

WHO (World Health Organization). 2011. Cadmium in Drinking Water. Background Document for Development of WHO Guidelines for Drinking Water Quality. Accessed at: http://www.who.int/water_sanitation_health/dwq/chemicals/cadmium.pdf. Accessed February 2015.

14.0 CARBON MONOXIDE

14.1 Inhalation Exposure Limits

14.1.1 Acute Inhalation

Table B.14-1 Acute Inhalation Exposure Limits for Carbon Monoxide

AGENCY	ESRD	ATSDR	HEALTH CANDA	OEHHA	TCEQ	US EPA	WHO
Exposure Limit Type	1-hour 8-hour AAQO	-	1-hour 8-hour NAAQO	1-hour REL	-	1-hour 8-hour NAAQS	1-hour 8-hour
Exposure Limit Value (µg/m³)	**15,000 6,000**	-	**15,000 6,000**	23,000	-	40,000 10,000	30,000 10,000
Critical Organ or Effect	COHb blood level <1%	-	COHb blood level	COHb blood level, cardiovascular system	-	COHb blood level	COHb blood level
Species	Human	-	Human	Human	-	Human	
Study	Adopted NAAQO	-	Various epidemiological studies; PBPK modelling Coburn et al., 1965	Aronow, 1981	-	Various epidemiological studies; PBPK modelling Coburn *et al.*, 1965	Various epidemiological studies; PBPK modelling Coburn *et al.*, 1965
Source	ESRD 2013	ATSDR 2013	Health Canada 1994; 2006	OEHHA 2013; 1999	TCEQ 2013	US EPA 2010; 2012	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA

Health Canada (1994; 2006) developed a 1-hour NAAQO of 15,000 µg/m³ and an 8-hour NAQQO of 6,000 µg/m³ for carbon monoxide in ambient air. These objectives were the based on the maintenance of carboxyhemoglobin (COHb) levels in the blood below 1% or the upper end of the range of COHb resulting from endogenous production in humans. The 1-hour and 8-hour averaged air concentrations of carbon monoxide that correspond to <1% COHb were determined using the PBPK model of Coburn, Forster, and Kane (CFK) (Cobrun *et al.* 1965). The NAAQOs established by Health Canada (1994; 2006) have been adopted by Alberta (ESRD 2013) as AAQOs for carbon monoxide.

The US EPA (2010; 2012) have developed 1-hour and 8-hour NAAQS for carbon monoxide of 40,000 μg/m³ and 10,000 μg/m³, respectively, to protect against COHb concentrations in the range at which adverse health effects could occur (>2%) based on the health outcomes reported in numerous epidemiological studies. The US EPA (2010) also utilized the CFK PBPK model (Cobrun *et al.* 1965) to determine these air quality standards.

The OEHHA (2013) derived a 1-hour REL of 23,000 μg/m³ for exposure to carbon dioxide. This exposure limit was set to achieve approximately 1% COHb, based on a LOAEL of 2% COHb reported by Aronow (1981) for the aggravation of angina in an epidemiological study (OEHHA 1999).

The WHO (2000) recommended 1-hour and 8-hour guidelines of 30,000 and 10,000 μg/m³, respectively, for exposure to carbon monoxide. These guidelines were based on the maintenance of COHb levels below 2.5% and were considered protective of non-smoking population groups with coronary artery disease against acute ischemic heart attacks and fetuses of nonsmoking pregnant women against hypoxic effects (WHO, 2000).

The ATSDR (2013) has not developed minimal risk levels for adverse effects associated with acute carbon monoxide exposures. The following rationale was provided by the ATSDR (2012) for not developing acute MRLs at this time:

- Endogenous carbon monoxide production (production of CO within the body from endogenous precursors and as a result of oxidative metabolism of exogenous precursors) is physiologically regulated and plays a role in regulating various physiological processes, including those that may underlie the adverse effects observed in the available human clinical, epidemiological or animal studies (*e.g.*, brain and muscle oxygen storage and utilization).
- An exposure threshold, if one exists, would be at or near the endogenous production rate and therefore, any external CO exposure would have the potential for exceeding the threshold and producing potentially adverse effects.
- The available experimental studies that identify the lowest LOAELs do not identify NOAELs and should uncertainty factors be applied to the identified LOAELs the resultant MRLs would be within the range of ambient CO concentrations in the United States and would result in internal doses that would be similar to endogenous CO production.
- Considering the variation in heme production at different altitudes and the modes of action of carbon monoxide that involve competition with oxygen for heme binding sites, MRLs relevant to exposures at sea level would not necessarily apply at higher altitudes with lower oxygen partial pressures.

The NAAQO and AAAQO of 15,000 µg/m^3 (1-hour) and 6,000 µg/m^3 (8-hour), the lowest exposure limits identified for carbon monoxide, were selected for the assessment of the acute inhalation effects of carbon monoxide.

14.1.2 Chronic Inhalation

Table B.14-2 Chronic Inhalation Exposure Limits for Carbon Monoxide

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	-	-	-	-
Exposure Limit Value (µg/m^3)	-	-	-	-	-	-	-	-
Critical Organ or Effect	-	-	-	-	-	-	-	-
Species	-	-	-	-	-	-	-	-
Study	-	-	-	-	-	-	-	-
Source	ESRD 2013	ATSDR 2012	Health Canada 1994; 2006	OEHHA 2013; 1999	RIVM, 2001	TCEQ 2013	US EPA 2010; 2012	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA

Chronic exposure limits have not been established for carbon monoxide by any of the regulatory agencies and therefore chronic exposure to carbon monoxide was not considered in the current assessment.

One study in rats reported cardiomegaly (enlarged heart) as a result of chronic carbon monoxide exposure (Sørhaug *et al.* 2006). This study suggests prolonged exposure to CO may produce effects on the heart that are not evident in acute exposure studies (ATSDR 2012). However, the majority of studies of adverse effects in humans, largely the result of tissue hypoxia, emphasize steady-state COHb% values following exposures of acute duration. The formation of COHb following exposure to a fixed concentration of CO was reported to reach steady state after 6-8 hours of exposure (WHO 2000).

14.2 Oral Exposure Limits

No chronic oral exposure limit was required for carbon monoxide as this chemical was not identified for inclusion in the multiple pathway exposure assessment.

References

Aronow WS. Aggravation of angina pectoris by two percent carboxyhemoglobin. Am Heart J 1981;101:154-157. Cited In: OEHHA 1999a.

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

ATSDR. 2012. Toxicological Profile for Carbon Monoxide. June 2012. US Department of Health and Human Services, Public Health Service. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp. Accessed October 2013.

Coburn RF, Forster RE, Kane PB. 1965. Considerations of the physiological variables that determine the blood carboxyhemoglobin concentration in man. J Clin Invest 44(11):1899-1910. Cited In: ATSDR 2012.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

Health Canada. 2006. Environmental and Workplace Health: Regulations Related to Health and Air Quality. National Ambient Air Quality Objectives (NAAQOs). Date Modified 2006-005-16. Available at: http://www.hc-sc.gc.ca/ewh-semt/air/out-ext/reg-eng.php#a3. Accessed October 2013.

Health Canada. 1994. National Ambient Air Quality Objectives for Carbon Monoxide. Desirable, Acceptable and Tolerable Levels. Prepared by the CEPA/FPAC (Canadian Environmental Protection Act/Federal-Provincial Advisory Committee) Working Group on Air Quality Objectives and Guidelines. Available at: http://www.hc-sc.gc.ca/ewh-semt/pubs/air/naaqo-onqaa/carbon-monoxyde-carbone/index-eng.php. Accessed October 2013.

OEHHA (Office of Environmental Health Hazard Assessment). 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

OEHHA. 1999. Technical Support Document for Noncancer RELs. Appendix D.2. Acute RELs and toxicity summaries using the previous version of the Hot Spots Risk Assessment Guidelines. Acute Toxicity Summary: Carbon Monoxide. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD2_final.pdf#page=41. Accessed October 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

Sørhaug S, Steinshamn S, Nilsen OG, et al. 2006. Chronic inhalation of carbon monoxide: Effects on the respiratory and cardiovascular system at doses corresponding to tobacco smoking. Toxicology 228(2-3):280-290. Cited In: ATSDR 2012.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html Accessed October 2013.

US EPA (United States Environmental Protection Agency). 2010. Integrated Science Assessment for Carbon Monoxide. National Center for Environmental Assessment. EPA/600/R-09/019F. Available at: http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=218686. Accessed October 2013.

US EPA. 2012. National Ambient Air Quality Standards (NAAQS). Washington, DC: U.S. Environmental Protection Agency, Office of Air and Radiation. http://www.epa.gov/air/criteria.html. December 14, 2012. Accessed October 2013.

15.0 CHROMIUM III

15.1 Inhalation Exposure Limits

15.1.1 Acute Inhalation

Table B.15-1 Acute Inhalation Exposure Limits for Chromium III

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	1 hour AAQO	24 hour guideline	-	-	**1 hour ReV**	-
Exposure Limit Value (µg/m³)	1	1.5	-	-	**12**	-
Critical Organ or Effect	-	-	-	-	**Respiratory**	-
Species	-	-	-	-	**Hamsters, Rats**	-
Study	-	-	-	-	**Henderson *et al.* 1979**	-
Source	ESRD 2013	OMOE 2012	-	-	**TCEQ 2009**	-

- not available

Bold – Exposure Limit selected for HHRA.

The TCEQ (2009) derived an acute (1 hour) ReV of 12 µg/m³ for all chromium compounds (except chromium VI) based on a study in hamsters by Henderson *et al.* (1979). Syrian hamsters were exposed to chromium chloride for 30 minutes. Animals were sacrificed at different time points following exposure. A NOAEL of 77 mg/m³ (25 mg/m³ chromium III) was identified and adjusted for the duration of exposure (30/60 minutes) and for human equivalence *via* the US EPA Regional Deposited Dose Ratio (RDDR) approach. The resulting $NOAEL_{HEC}$ of 10.82 mg/m³ was divided by a cumulative uncertainty factor of 300 for interspecies variability (3), intraspecies variability (10), and database uncertainties (10). The result was a 1-hour ReV of 36 µg/m³ for chromium chloride and a 1-hour ReV of 12 µg/m³ for chromium III based on respiratory effects.

The OMOE (2012) has developed a 24-hour guideline of 1.5 µg/m³ for the metallic, di- and trivalent forms of chromium based on the potential for adverse health effects. Rationale for the guideline is not provided and, therefore, the OMOE's 24-hour guideline was not used in the acute effects assessment.

ESRD (2013) adopted a 1-hour AAQO of 1 µg/m³ from the TCEQ. Since no further details were provided and the TCEQ no longer uses this limit for chromium, it was not used in the acute assessment.

15.1.2 Chronic Inhalation

Table B.15-2 Chronic Inhalation Exposure Limits for Chromium III

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	RsC	-	TCA	**ReV**	-	-
Exposure Limit Value (µg/m³)	-	-	0.0009	-	60	**0.8 (chromium sulphate) 0.14 (chromium III)**	-	-
Critical Organ or Effect	-	-	Respiratory	-	Respiratory	**Respiratory**	-	-
Species	-	-	Human	-	Human	**Rats**	-	-
Study	-	-	Mancuso 1975	-	ATSDR 1998	**Derelanko *et al.* 1999**	-	-
Source	-	-	Health Canada 2010	-	RIVM 2001	**TCEQ 2009**	-	-

- not available

Bold – Exposure Limit selected for HHRA.

Chromium (VI) Compounds are OSHA regulated chemicals and are classified as human carcinogens (Group 1) by IARC and as known human carcinogens (Group K) by NTP (OSU 2010). Chromium, metal and inorganic compounds as chromium, insoluble chromium VI compounds and water soluble chromium VI compounds are classified as known human carcinogens (Group K) by NTP and confirmed human carcinogens (Group A1) by ACGIH (OSU 2010).

Health Canada (2010) uses an inhalation unit risk of 11 per mg/m³ for total chromium, equivalent to an RsC of 0.0009 µg/m³. This value was derived from a TC_{05} of 4.6 µg/m³ based on a 5% increase in lung cancer in a human occupational study (Mancuso 1975). The study is based on workers in a chromate production plant who were exposed to total chromium, soluble (principally hexavalent) or insoluble (principally trivalent) chromium. The specific form of chromium responsible for the lung

cancer was not known and, therefore, this value was not used in the assessment of trivalent chromium.

The TCEQ (2009) has derived a chronic ReV of 0.8 µg/m³ for basic chromium sulphate or 0.14 µg/m³ for chromium III. The primary study was by Derelanko *et al*. (1999) on rats exposed by inhalation to chromic oxide particulate or basic chromium sulphate for 6 hours/day, 5 days/week for 13 weeks. Some animals from each group were permitted to recover for 13 weeks post-exposure. To ensure that any observed effects were attributable to chromium III compounds, the test materials were tested and verified to be free of hexavalent chromium (TCEQ 2009). The lowest exposure level (17 mg/m³) was identified as the LOAEL for basic chromium sulphate (TCEQ 2009). The study NOAEL for chromic oxide was determined to be 4.4 mg/m³ (equivalent to 3 mg/m³ chromium III). Benchmark dose modelling for the incidence of lung and trachea weight changes (in the presence of histological abnormalities) based on the chromium sulphate data set, resulted in a $BMCL_{10}$ of 3.4 mg/m³ for basic chromium sulphate and was used as the point of departure for the chronic ReV. The $BMCL_{10}$ was adjusted for continuous exposure (6/24 hours × 5/7 days). RDDR dosimetry modelling was completed, and a human equivalent $BMCL_{10(HEC)}$ of 0.8 mg/m³ was calculated from the adjusted $BMCL_{10}$ ($BMCL_{10(ADJ)}$ × RDDR of 1.31). A cumulative uncertainty factor of 1,000 was applied for interspecies variability (3), intraspecies variability (10), database uncertainties (3) and the use of subchronic data (10). A similar calculation was conducted by the TCEQ using the study LOAEL (17 mg/m³ chromium sulphate) for comparison purposes and the $BMCL_{10}$-based value was determined to be more robust since it incorporated the dose-response relationship. The result of the TCEQ analysis is a chronic ReV of 0.8 µg/m³ for chromium sulphate and 0.14 µg/m³ for chromium III.

The RIVM (2001) has established a TCA of 0.06 mg/m³ for metallic and insoluble chromium (III) compounds based on a NOAEC of 0.6 mg/m³. An uncertainty factor of 10 was applied to the NOAEC for intraspecies variability. A TCA was not derived for soluble chromium due to lack of appropriate data. As RIVM based its TCA of 60 µg/m³ on an ATSDR (1998) MRL that has since been updated, the RIVM value was not included in the chronic inhalation assessment.

15.2 Oral Exposure Limits

15.2.1 Chronic Oral

Table B.15-3 Chronic Oral Exposure Limits for Chromium III

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	TDI	-	TDI	**RfD**	-

Table B.15-3 Chronic Oral Exposure Limits for Chromium III

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Value (mg/kg bw/day)	-	0.001	-	0.005	**1.5**	-
Critical Organ or Effect	-	Liver	-	-	**-**	-
Species	-	-	-	Rats	**Rats**	-
Study	-	-	-	Vermeire *et al.* 1991	**Ivankovic and Preussman 1975**	-
Source	-	Health Canada 2010	-	RIVM 2001	**US EPA 1998**	-

- not available

Bold – Exposure Limit selected for HHRA.

Chromium (VI) Compounds are OSHA regulated chemicals and are classified as human carcinogens (Group 1) by IARC, as known human carcinogens (Group K) by NTP (OSU 2010). Chromium, metal and inorganic compounds as chromium, insoluble chromium VI compounds and water soluble chromium VI compounds are classified as known human carcinogens (Group K) by NTP and confirmed human carcinogens (Group A1) by ACGIH (OSU 2010). Cr (III) was treated as a non-carcinogen by ingestion for this risk assessment.

The US EPA (1998) has derived an oral RfD of 1.5 mg/kg bw/d for chromium (III) insoluble salts based on a chronic rat feeding study (Ivankovic and Preussman 1975). No significant changes were reported at any dose level. The highest dose group (receiving 5% Cr2O3 in the diet for 600 feedings) was considered to be a NOAEL. The NOAEL was adjusted to a dose of 1,468 mg/kg bw/d based on the amount of ingested Cr (III) and feeding schedule. A cumulative uncertainty factor of 1,000 was applied to the $NOAEL_{ADJ}$ for interspecies variability (10), intraspecies variability (10) and database deficiencies (10). The resulting oral RfD of 1.5 mg/kg bw/d was used in the chronic multiple pathway assessment; however, the toxicological endpoint of this value was not available.

Health Canada (2010) uses a TDI of 0.001 mg/kg bw/d for total chromium. Health Canada notes that Cr (III) is an essential element and the TDI for total chromium is based on Cr (VI) toxicity. This TDI is associated with the drinking water guideline for chromium (Health Canada 1986); however, limited rationale is provided for the derivation of this guideline in the supporting documentation. The

species, dosing regime, duration of study and uncertainty factors were not known. This value was not used since it was based on Cr (VI) toxicity.

The RIVM (2001) derived a TDI of 0.005 mg/kg bw/d for soluble chromium (trivalent) compounds and metallic chromium. The TDI was derived from a NOAEL of 2.5 mg/kg bw/d in a rat study (Vermeire *et al.* 1991). A cumulative uncertainty factor of 500 was applied to the NOAEL to account for interspecies variability (10), intraspecies variability (10) and time of exposure (5). The RIVM did not provide the details of the study used to derive the oral exposure limit (*i.e.*, duration of exposure, effects observed). This oral limit was not used in the assessment.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 1998. Draft toxicological profile for chromium (update). Agency for Toxic Substances and Disease Registry, US Public Health Service, USA.

Derelanko, M.J., Rinehart, W.E., Hilaski, R.J., *et al.* 1999. Thirteen-week subchronic rat inhalation toxicity study with a recovery phase of trivalent chromium compounds, chromic oxide, and basic chromium sulphate. Toxicol Sci 52:278-288. Cited in: TCEQ 2009.

ESRD (Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued February 2013. Accessed at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed March 2015.

Health Canada. 1986. Technical Supporting Document - Chromium. Water Quality and Science Bureau.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme. September 2010.

Ivankovic, S; Preussman, R. (1975) Absence of toxic and carcinogenic effects after administrations of high doses of chronic oxide pigment in subacute and long term feeding experiments in rats. Food Cosmet Toxicol 13:347-351.

OMOE (Ontario Ministry of the Environment). 2012. Summary of Standards and Guidelines to Support Ontario Regulation 419/05 - Air Pollution – Local Air Quality (including Schedule 6 of O. Reg. 419/05 on Upper Risk Thresholds) (sorted by Chemical Name). Standards Development Branch, Ontario Ministry of the Environment. PIBS # 6569e01. Accessed at: https://dr6j45jk9xcmk.cloudfront.net/documents/1426/3-7-5-chemical-abstracts-service-en.pdf. Accessed March 2015.

OSU (Ohio State University). 2010. Chemical Hygiene Plan Table 9 Carcinogens Table: OSHA, IARC, NTP, ACGIH. Office of Environmental Health and Safety. Accessed at: http://oh.muq.ac.ir/uploads/125_193_54_liste%20mavade%20saratanza.pdf. Accessed March 2015.

RIVM (National Institute of Public Health and the Environment). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. Accessed at: http://rivm.openrepository.com/rivm/bitstream/10029/9662/1/711701025.pdf. Accessed March 2015.

TCEQ (Texas Commission on Environmental Quality). 2009. Chromium. All Compounds Except Hexavalent Chromium. CAS Registry Numbers: Trivalent Chromium (16065-83-1) Elemental Chromium (7440-47-3). Development Support Document. Final, October 2009. Accessed at: http://www.tceq.state.tx.us/assets/public/implementation/tox/dsd/final/october09/chromium3_1606 5-83-1.pdf. Accessed March 2015.

US EPA (United States Environmental Protection Agency). 1998. Toxicological Review of Trivalent Chromium (CAS No. 16065-83-1).August 1998. Accessed at: http://www.epa.gov/ncea/iris/toxreviews/0028tr.pdf. Accessed March 2015.

Vermeire, T.G., Apeldoorn, M.E. van, Fouw, J.C. de, Janssen, PJCM. 1991. Voorstel voor de humantoxicologische onderbouwing van C-toetsingswaarden. National Institute of Public Health and the Environment, RIVM-report no. 725201005, February 1991; Bilthoven, The Netherlands.

16.0 CHROMIUM VI

16.1 Inhalation Exposure Limits

16.1.1 Acute Inhalation

Table B.16-1 Acute Inhalation Exposure Limits for Chromium VI

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	1 hour AAQO	24 hour guideline	-	-	1 hour ESL	-
Exposure Limit Value (µg/m³)	1	0.07	-	-	0.1	-
Critical Organ or Effect	-	-	-	-	-	-
Species	-	-	-	-	-	-
Study	-	-	-	-	-	-
Source	ESRD 2013	OMOE 2012	-	-	TCEQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

The TCEQ (2014) reports a short term (1 hour) ESL for chromium (VI) compounds of 0.1 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit which is currently under review; therefore, it was not selected.

The OMOE (2012) has developed a 24-hour guideline of 0.07 µg/m³ for chromium compounds (hexavalent forms) based on the potential for adverse health effects. Rationale for the guideline is not provided and, therefore, the OMOE's 24-hour guideline was not used in the acute effects assessment.

ESRD (2013) adopted a 1-hour AAQO of 1 µg/m³ from the TCEQ. Since no further details were provided and the TCEQ no longer uses this limit for chromium, it was not used in the acute assessment.

Due to the lack of defensible acute inhalation exposure limits, lead was not assessed on an acute basis.

16.1.2 Chronic Inhalation

Table B.16-2 Chronic Inhalation Exposure Limits for Chromium VI

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	**RsC**	RsC REL	CR	ESL	RsC RfC	RsC
Exposure Limit Value ($\mu g/m^3$)	-	-	**0.00013**	0.00007 (RsC) 0.2 (REL)	0.0025	0.01	0.0008 (RsC) 0.1 (RfC)	0.00025
Critical Organ or Effect	-	-	**Respiratory**	Respiratory	-	-	Lung Cancer, Lung and Spleen Weight	-
Species	-	-	**Human**	Human (RsC) Rats (REL)	-	-	Humans, Rats	-
Study	-	-	**Mancuso 1975**	Mancuso 1975, Glaser *et al.* 1990	-	-	Glaser et al. 1990, Mancuso *et al.* 1975	-
Source	-	-	**Health Canada 2010**	OEHHA 2001, 2009	RIVM 2001	TCEQ 2014	US EPA 1998	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA

Chromium (VI) Compounds are OSHA regulated chemicals and are classified as human carcinogens (Group 1) by IARC and as known human carcinogens (Group K) by NTP (OSU 2010). Chromium, metal and inorganic compounds as chromium, insoluble chromium VI compounds and water soluble chromium VI compounds are classified as known human carcinogens (Group K) by NTP and confirmed human carcinogens (Group A1) by ACGIH (OSU 2010).

The TCEQ (2014) reports a long term ESL for chromium (VI) compounds of 0.01 μg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit which is currently under review; therefore, it was not selected.

Health Canada (2010) uses an inhalation unit risk of 76 per mg/m³ for total chromium, equivalent to an RsC of 0.00013 μg/m³. This value was derived from a TC_{05} of 0.66 μg/m³ based on a 5% increase in lung cancer in a human occupational study (Mancuso 1975). The study is based on workers in a chromate production plant who were exposed to total chromium, soluble (principally hexavalent) or insoluble (principally trivalent) chromium. Although the specific form of chromium responsible for the lung cancer was not known, this value was used in the assessment of hexavalent chromium since it represents the most conservative estimate.

The OEHHA (2001) derived a chronic REL of 0.2 μg/m³ for soluble hexavalent chromium compounds (other than chromic trioxide) from a study where male Wistar rats were exposed to hexavalent chromium in the form of sodium dichromate particulate aerosol for 22 hours/day, 7 days/week for 30 or 90 days (Glaser *et al.* 1990). Benchmark dose modelling was completed for the incidence of bronchoalveolar hyperplasia, as indicated by biomarkers of inflammation including increased total protein, lactate dehydrogenase and albumin concentrations in bronchoalveolar lavage. A BMC_{05} of 12.5 μg/m³ was calculated, adjusted for continuous exposure and converted to a human equivalent concentration of 24.47 μg/m³. A cumulative uncertainty factor of 100 was applied to account for the use of subchronic data (3), interspecies differences (3), and intrahuman variability (10) to derive the REL of 0.2 μg/m³. This value was not used due to the availability of defensible values based upon longer-term studies.

The OEHHA (2009) derived an inhalation unit risk of 1.5×10^{-1} per μg/m³, which equates to an RsC of 0.00007 μg/m³ for a 1 in 100, 000 cancer risk. This value is based on an occupational exposure study by Mancuso (1975). The RsC was derived using a multistage linearized procedure and was based on the 95% upper confidence limit for the relative risk. Due to limited information on how the inhalation URE was developed, this value was not selected for use in the assessment.

The US EPA (1998) derived a chronic RfC of 0.1 μg/m³ based on a study with male Wistar rats by Glaser *et al*. (1990). Benchmark dose modelling was completed by Malsch *et al.* (1994) for lung and spleen weight, lactate dehydrogenase and protein and albumin concentrations in bronchioalveolar fluid. A $BMCL_{10}$ of 0.016 mg/m³ was derived from the data, and was further adjusted for continuous exposure and human equivalency to 0.034 mg/m³. A cumulative uncertainty factor of 300 was applied to account for pharmacodynamics differences (3), less than lifetime exposure (10) and intraspecies variability (10).

The US EPA (1998) RsC was derived from an occupational study (Mancuso *et al.* 1975) in which the incidence of lung cancer was examined in 332 workers employed in a chromate plant from 1931 to 1951. Analysis of the data was completed using a multistage model to calculate an RsC of 0.0008 µg/m³. This value was not used since the Health Canada value which was derived from the same data set is more conservative.

The RIVM (2001) report an inhalation cancer risk of 0.0025 µg/m³. However since study design, exposure or methodology were not described, it was not used in the assessment.

The WHO (2000) derived a unit risk estimate of 4×10^{-2} for hexavalent chromium based on an air concentration of 1 µg/m³, which is the geometric mean from a number of studies. The RsC for hexavalent chromium associated with 1 in 100,000 excess lifetime cancer risk equates to 2.5×10^{-4} µg/m³. This value was not selected due to the limited amount of supporting information.

16.2 Oral Exposure Limits

16.2.1 Chronic Oral

Table B.16-3 Chronic Oral Exposure Limits for Chromium VI

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	**MRL**		RsD REL	pTDI	RfD	
Exposure Limit Value (mg/kg bw/day)	**0.0009**		0.00002 (RsD) 0.020 (REL)	0.005	0.003	
Critical Organ or Effect	**Gastrointestinal**		Stomach Tumors, Reduction in Water Consumption	Reduction in Water Consumption	Reduction in Water Consumption	
Species	**Rats and Mice**		Mice	Rats	Rats	
Study	**NTP 2008**		Borneff et al. 1968, MacKenzie 1958	MacKenzie 1958	MacKenzie 1958	
Source	**ATSDR 2008**		OEHHA 2009, 2008	RIVM 2001	US EPA 1998	

- not available

Bold – Exposure Limit selected for HHRA.

Chromium (VI) Compounds are OSHA regulated chemicals and are classified as human carcinogens (Group 1) by IARC, as known human carcinogens (Group K) by NTP (OSU 2010). Chromium, metal and inorganic compounds as chromium, insoluble chromium VI compounds and water soluble chromium VI compounds are classified as known human carcinogens (Group K) by NTP and confirmed human carcinogens (Group A1) by ACGIH (OSU 2010). Cr (III) was treated as a non-carcinogen by ingestion for this risk assessment.

The ATSDR (2012) derived a chronic oral MRL of 0.0009 mg/kg bw/d based on a study by the NTP (2008) in which rats and mice were exposed to sodium dichromate dihydrate for a duration of two years. Benchmark dose modelling was completed for all endpoints using the dose-response data. A BMCL10 of 0.09 mg/kg bw/d for diffuse epithelial hyperplasia of the duodenum was selected as the point of departure for the MRL. A cumulative uncertainty factor of 100 was applied to the MRL for interspecies (10) and intraspecies variability (10). This chronic MRL of 0.001 mg/kg bw/d based on gastrointestinal effects was selected for use in the assessment.

The US EPA (1998) derived a chronic oral exposure limit of 0.003 mg/kg bw/d based on a NOAEL of 25 mg/L from a drinking water study on rats (MacKenzie *et al.* 1958). No significant adverse effects were seen in appearance, weight gain, food consumption and blood or tissue pathology. Rats receiving 25 ppm of chromium showed an approximate 20% reduction in water consumption. The NOAEL was adjusted to a dose of 2.5 mg/kg bw/d based on the body weight of the rat and average daily drinking water consumption. A cumulative uncertainty factor of 900 was applied to the adjusted NOAEL to account for interspecies variability (10), intraspecies variability (10), less-than-lifetime exposure duration (3) and to account for concerns raised by another study in which gastrointestinal effects were observed at 20 mg/L (3). This value was not used due to the availability of more conservative values.

The OEHHA (2009) derived an oral slope factor of 4.2×10^{-1} per mg/kg bw/d, equivalent to an RsD of 0.00002 mg/kg bw/d, based on a study by Borneff *et al.* (1968). The study involved three generations of mice that were fed potassium chromate. This value was not selected for use in the assessment since it involved the administration of only one dose level and is based on the incidence of benign and malignant stomach tumours combined.

The OEHHA (2008) also derived a chronic oral REL of 0.020 mg/kg bw/d based on the same study as the US EPA value. Due to the availability of more conservative values with adequate documentation, this value was not used in the assessment.

The RIVM (2001) derived a provisional TDI of 0.005 mg/kg bw/d based on the same study as the US EPA. However, they applied a cumulative uncertainty factor of 500 for interspecies differences (10),

intraspecies variability (10) and the use of subchronic data (5). Due to the availability of more conservative values, this TDI was not used.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2012. Toxicological Profile for Chromium. Accessed at: http://www.atsdr.cdc.gov/toxprofiles/tp7.pdf. Accessed April 2015.

ESRD (Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued February 2013. Accessed at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed April 2015.

Borneff, I., Engelhardt, K., Griem, W., Kunte, H. and Reichert, J. 1968. Carcinogenic substances in water and soil. XXII. Mouse drinking study with 3,4-benzpyrene and potassium chromate. Arch. Hyg. 152:45-53. (German). Cited in: OEHHA 2009.

Glaser, U., Hochrainer, D. and Steinhoff, D. 1990. Investigation of irritating properties of inhaled Cr(VI) with possible influence on its carcinogenic action. In: Environmental Hygiene II. Seemayer NO, Hadnagy W. eds. Berlin/New York: Springer Verlag. Cited in: OEHHA 2001.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme. September 2010.

MacKenzie, RD; Byerrum, RU; Decker, CF, *et al.* (1958) Chronic toxicity studies. II. Hexavalent and trivalent chromium administered in drinking water to rats. Am Med Assoc Arch Ind Health 18:232-234.

Mancuso, T.F. 1975. Consideration of chromium as an industrial carcinogen. International Conference on Heavy Metals in the Environment, Toronto, Ontario, Canada. October 27-31. p. 343-356. Cited in: US EPA 1998

Malsch, PA; Proctor, DM; Finley, BL. (1994) Estimation of a chromium inhalation reference concentration using the benchmark dose method: a case study. Regul Toxicol Pharmacol 20:58-82.

NTP (National Toxicology Program). 2008. NTP Technical Report on the Toxicology and Carcinogenesis Studies of Sodium Dichromate Dihydrate (CAS NO 7789-12-0) in F344/N rats and B6C3F1 mice (drinking water studies). Washington DC: National Toxicology Program. NTP TR 546.

OEHHA (California Office of Environmental Health Hazard Assessment). 2001. Determination of Chronic Noncancer Reference Exposure Levels. Chronic Toxicity Summary Chromium,

Hexavalent (Soluble Compounds). December 2001. Accessed at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD3_final.pdf#page=138. Accessed April 2015.

OEHHA (California Office of Environmental Health Hazard Assessment). 2008. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment. Sacramento, CA. Accessed at: http://www.oehha.ca.gov/air/allrels.html. Accessed April 2015.

OEHHA (California Office of Environmental Health Hazard Assessment). 2009. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology Branch. May 2009. Accessed at: http://www.oehha.ca.gov/air/hot_spots. Accessed April 2015.

OMOE (Ontario Ministry of the Environment). 2012. Summary of Standards and Guidelines to Support Ontario Regulation 419/05 - Air Pollution – Local Air Quality (including Schedule 6 of O. Reg. 419/05 on Upper Risk Thresholds) (sorted by Chemical Name). Standards Development Branch, Ontario Ministry of the Environment. PIBS # 6569e01. Accessed at: https://dr6j45jk9xcmk.cloudfront.net/documents/1426/3-7-5-chemical-abstracts-service-en.pdf. Accessed April 2015.

OSU (Ohio State University). 2010. Chemical Hygiene Plan Table 9 Carcinogens Table: OSHA, IARC, NTP, ACGIH. Office of Environmental Health and Safety. Accessed at: http://oh.muq.ac.ir/uploads/125_193_54_liste%20mavade%20saratanza.pdf. Accessed April 2015.

RIVM (National Institute of Public Health and the Environment). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001. Accessed at: http://rivm.openrepository.com/rivm/bitstream/10029/9662/1/711701025.pdf. Accessed April 2015.

TCEQ (Texas Commission on Environmental Quality). 2014. Effects Screening Levels List. Updated March 17, 2014. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed April 2015.

US EPA (United States Environmental Protection Agency). 1998. Toxicological Review of Hexavalent Chromium (CAS No. 18540-29-9). In Support of Summary Information on the Integrated Risk Information System (IRIS). August 1998. Accessed at: http://www.epa.gov/ncea/iris/toxreviews/0144tr.pdf. Accessed April 2015.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255. Accessed at: http://www.euro.who.int/__data/assets/pdf_file/0005/74732/E71922.pdf. Accessed April 2015.

17.0 COBALT

17.1 Inhalation Exposure Limits

17.1.1 Acute Inhalation

Table B.17-1 Acute Inhalation Exposure Limits for Cobalt

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	24 hour AAQC	-	-	ESL	-
Exposure Limit Value (µg/m³)	-	0.1	-	-	0.2	-
Critical Organ or Effect	-	-	-	-	-	-
Species	-	-	-	-	-	-
Study	-	-	-	-	-	-
Source	-	OMOE 2012	-	-	TCEQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

The TCEQ (2014) reports an interim, short term (1 hour) ESL for cobalt and inorganic cobalt compounds of 0.2 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

The OMOE established a 24 hour AAQC of 0.1 µg/m³ (2012). Although the AAQC is based on health effects, no supporting data was available for this limit; therefore, it was not selected.

Due to the lack of defensible acute inhalation exposure limits, cobalt was not assessed on an acute basis.

17.1.2 Chronic Inhalation

Table B.17-2 Chronic Inhalation Exposure Limits for Cobalt

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	MRL	-	-	TCA	ESL	**pRfC**	-
Exposure Limit Value (µg/m³)	-	0.1	-	-	0.5	0.02	**0.006**	-
Critical Organ or Effect	-	Respiratory	-	-	Lung	-	**Respiratory**	-
Species	-	Human	-	-	Human	-	**Human**	-
Study	-	Nemery *et al.* 1992	-	-	Sprince *et al.* 1988	-	**Nemery *et al.* 1992**	-
Source	-	ATSDR 2014	-	-	RIVM 2001	TCEQ 2014	**US EPA 2008**	-

- not available

Bold – Exposure Limit selected for HHRA.

Cobalt has been reported to act as a sensitizer associated with inhalation and oral exposure. Additionally, there appears to be an interrelationship between cobalt and nickel sensitisation. However, there is insufficient data to establish an exposure limit for this end point (US EPA, 2008).

Cobalt and cobalt compounds (as a group) are classified as possibly carcinogenic to humans (Group 2B) by IARC (2006) and as confirmed animal carcinogens with unknown relevance to humans (Group A3) by ACGIH (2007). However, no unit risk factors were available for cobalt exposure by inhalation. For this reason, cobalt was treated as a non-carcinogen by chronic inhalation for this risk assessment.

The ATSDR (2004) derived a chronic inhalation MRL of 0.1 µg/m³ for respiratory effects based on a cross-sectional study of diamond polishers (Nemery *et al.* 1992). Workers from the high exposure group exhibited reduced lung function and increased spirometric effects compared to the low exposure group and controls. A NOAEL of 5.3 µg/m³ was identified for decreased values on spirometric examination (ATSDR 2004). The NOAEL was adjusted for intermittent exposure (8/24 hours x 5/7 days) to 1.3 µg/m³. An uncertainty factor of 10 was applied to the duration adjusted NOAEL to account for intraspecies variability.

The RIVM (2001) derived a TCA of 0.5 µg/m^3 using the LOAEL of 0.05 mg/m^3 for interstitial lung disease in humans (Sprince *et al.* 1988). A cumulative uncertainty factor of 100 was applied, 10 for extrapolation from a LOAEL and 10 for intraspecies variability.

The TCEQ (2014) reports an interim, long term ESL for cobalt and inorganic cobalt compounds of 0.02 µg/m^3. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

The US EPA (2008) derived a provisional chronic RfC of 0.006 µg/m^3 based on a NOAEL of 5.3 µg/m^3 for effects on pulmonary function using the same study as the ATSDR (Nemery *et al.*, 1992). The NOAEL was adjusted for continuous exposure (1.9 µg/m^3) and uncertainty factors for database insufficiencies (10) and interspecies variability (10) were applied. For the chronic RfC, an additional uncertainty factor of 3 (total uncertainty factor of 300) was applied. Data on worker exposure duration were not available from the critical study and therefore subchronic exposure was assumed. It was noted that this RfC may not be protective for people with hypersensitivity to cobalt. Confidence in the key study was considered low, and confidence in the database was considered medium, for an overall low to medium confidence in the provisional RfC. This value was not used due to the availability of more conservative values.

17.2 Oral Exposure Limits

17.2.1 Chronic Oral

Table B.17-3 Chronic Oral Exposure Limits for Cobalt

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	-	-	**TDI**	pRfD	-
Exposure Limit Value (mg/kg bw/day)	-	-	-	**0.0014**	0.0003	-
Critical Organ or Effect	-	-	-	**Heart**	Thyroid	-
Species	-	-	-	**Humans**	-	-

Table B.17-3 Chronic Oral Exposure Limits for Cobalt

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Study	-	-	-	**Vermeire *et al.* 1991**	Roche and Layrisse, 1956	-
Source	-	-	-	**RIVM 2001**	US EPA 2008	-

- not available

Bold – Exposure Limit selected for HHRA.

Cobalt is an essential nutrient in humans, forming a component of vitamin B12. However, at high doses it may also have toxic effects (US EPA, 2005).

Cobalt and cobalt compounds (as a group) are classified as possibly carcinogenic to humans (Group 2B) by IARC (2006) and as confirmed animal carcinogens with unknown relevance to humans (Group A3) by ACGIH (2007). However, the studies evaluated did not look at oral exposure (IARC 1991). No slope factors were available for cobalt exposure by ingestion. For this reason, cobalt was treated as a non-carcinogen by ingestion for this risk assessment.

Cobalt has been reported to act as a sensitizer associated with inhalation and oral exposure. Additionally, there appears to be an interrelationship between cobalt and nickel sensitisation. However, there is insufficient data to establish an exposure limit for this end point (US EPA, 2008).

The RIVM has selected a TDI of 0.0014 mg/kg bw/d (RIVM 2001) based on an intermediate oral exposure study by Vermeire *et al.* (1991). The study reported a TDI of 0.0014 mg/kg bw/d based on a migration limit of 100 µg cobalt per day from packaging materials to humans. RIVM notes that no chronic oral studies on cobalt were available. The lowest available LOAEL (0.04 mg/kg bw/d) was for cardiomyopathy from a study involving an 8-month exposure *via* intake of cobalt beer. The study was based on a small population of humans and the simultaneous consumption of alcohol may have enhanced cardiac affects. The LOAEL for the general population was expected to be higher than 0.040 mg/kg bw/d. Application of the cumulative uncertainty factor of 30 for intraspecies variability (3) and for extrapolation from a LOAEL (10) to the NOAEL.

The US EPA has not published TRVs for cobalt in the Integrated Risk Information System (IRIS). However, a Provisional Peer Reviewed Toxicity Value has been published (US EPA 2008). A chronic provisional RfD of 0.0003 mg/kg-bw/d was derived based on reduced iodine uptake in the thyroid (Roche and Layrisse, 1956). A LOAEL of 1 mg/kg-bw/day for decreased iodine uptake in the thyroid was adjusted by uncertainty factors of 10 for use of a LOAEL, 10 for the protection of sensitive populations, 10 for use of a subchronic study (two week), and 3 to account for the lack of a multi-

generation toxicity study (cumulative uncertainty factor of 3,000). The US EPA (2008) considered confidence in the principal study to be low to medium, and confidence in the database to be low to medium, resulting in low confidence in the provisional RfD. This value is below the estimated background exposure to cobalt for the general Canadian public (Mitchell 2014) and, therefore, was not chosen.

References

ACGIH (American Conference of Governmental Industrial Hygienists). 2007. TLVs and BEIs based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices. Cincinnati, Ohio. Accessed at: http://www.crios.be/Cobalt/specific_classification/ACGIH.htm. Accessed February 2015.

ATSDR (Agency for Toxic Substances and Disease Registry). 2004. Toxicological Profile for Cobalt. US Department of Health and Human Services. Agency for Toxic Substances and Disease Registry. April, 2004. Accessed at: http://www.atsdr.cdc.gov/toxprofiles/tp33.pdf. Accessed February 2015.

ATSDR (Agency for Toxic Substances and Disease Registry). 2014. Minimal Risk Levels (MRLs) for Hazardous Substances. US Department of Health and Human Services, Public Health Service. Atlanta, GA. December 2014. Accessed at: http://www.atsdr.cdc.gov/mrls/pdfs/atsdr_mrls_december_2014.pdf. Accessed February 2015.

IARC (International Agency for Research on Cancer). 2006. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: Cobalt in Hard Metals and Cobalt Sulfate, Gallium Arsenide, Indium Phosphide and Vanadium Pentoxide. 86: 37-155.

Mitchell, I. 2014. Towards the development of additional soil quality guidelines for trace metals. Presented at the 2014 Federal Contaminated Sites National Workshop. Ottawa, ON, April 15-16, 2014.

Nemery, B., Casier, P., Roosels, D., Lahaye, D. and Demedts, M. 1992. Survey of cobalt exposure and respiratory health in diamond polishers. Am Rev Respir Dis 145:610-616. Cited in: ATSDR 2004.

RIVM (National Institute of Public Health and the Environment). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001. Accessed at: http://rivm.openrepository.com/rivm/bitstream/10029/9662/1/711701025.pdf. Accessed February 2015.

Roche, M. and M. Layrisse. 1956. Effect of cobalt on thyroidal uptake of I131. J. Clin. Endocrinol. Metab. 16:831-833. Cited in US EPA, 2008.

TCEQ (Texas Commission on Environmental Quality). 2014. Effects Screening Levels List. Updated March 17, 2014. Accessed at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed February 2015.

Sprince, NL, Oliver LC, Eisen EA, Greene RE and Chamberlin RI. 1988. Cobalt exposure and lung disease in tungsten carbide production. A cross-sectional study of current workers. Am Rev Respir Dis 138: 1220-1226.

US EPA. 2005. Ecological Soil Screening Levels for Cobalt Interim Final OSWER Directive 9285.7-67. US EPA Office of Solid Waste and Emergency Response.

US EPA. 2008. Provisional Peer Reviewed Toxicity Values for Cobalt (CASRN 7440-48-4) (No. 8-25-2008). Superfund Health Risk Technical Support Center, National Center for Environmental Assessment, Office of Research and Development, Cincinnati, OH. Accessed at: http://hhpprtv.ornl.gov/issue_papers/Cobalt.pdf. Accessed April 2015.

Vermeire, T.G., Apeldoorn, M.E. van, Fouw, J.C. de. And Janssen, P.J.C.M. 1991. Voorstel voor de humaan-toxicologische onderbouwing van C-toetsingswaarden. National Institute of Public Health and the Environment, RIVM-report no. 725201005, February 1991: Bilthoven, The Netherlands. Cited in: RIVM 2001.

18.0 COPPER

18.1 Inhalation Exposure Limits

18.1.1 Acute Inhalation

Table B.18-1 Acute Inhalation Exposure Limits for Copper

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	**1 hour REL**	1 hour ESL	-
Exposure Limit Value (µg/m³)	-	-	**100**	10	-
Critical Organ or Effect	-	-	**Respiratory**	-	-
Species	-	-	**Humans**	-	-
Study	-	-	**ACGIH 2012**	-	-
Source	-	-	**OEHHA 2012, 2008**	TCEQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

The OEHHA (2012, 2008) has adopted an acute (1 hour) REL of 100 µg/m³ based on mild adverse respiratory effects. The REL is reported by the ACGIH (2012) TLV-TWA of 1 mg/m³ for copper dust. The ACGIH-TLV was derived from the results of an unpublished study of occupational exposure by Whitman (1957). Consistent with the onset of symptoms of metal fume fever, exposure to 1 to 3 mg/m³ of copper dust for an unknown duration resulted in a detectable sweet taste being experienced by the workers, with no other symptoms. An uncertainty factor of 10 was applied to the NOAEL of 1 mg/m³ to account for intraspecies variability.

The TCEQ (2014) reports an interim, short term (1 hour) ESL for copper dusts and mists of 10 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

18.1.2 Chronic Inhalation

Table B.18-2 Chronic Inhalation Exposure Limits for Copper

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	**TCA**	ESL	-	-
Exposure Limit Value (µg/m³)	-	-	-	-	**1**	1	-	-
Critical Organ or Effect	-	-	-	-	**Respiratory and Immunological Effects**	-	-	-
Species	-	-	-	-	**Humans**	-	-	-
Study	-	-	-	-	**Baars *et al.* 2001**	-	-	-
Source	-	-	-	-	**RIVM 2001**	TCEQ 2014	-	-

- not available

Bold – Exposure Limit selected for HHRA.

The RIVM (2001) has developed a TCA in air of 1 µg/m³ for copper based on a NOAEC of 0.6 mg/m³ for respiratory and immunological effects. The NOAEC was derived from a subacute study in which rabbits were exposed to copper chloride for 6 hours/day, 5 days/week for 6 weeks (Baars *et al.* 2001). A correction factor was applied to the NOAEC for continuous exposure (x 6/24 hours x 5/7 days) and a cumulative uncertainty factor of 100, for interspecies variability (10) and intraspecies variability (10) was applied to the corrected NOAEC.

The TCEQ (2014) reports a long term ESL for copper dusts and mists of 1 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

18.2 Oral Exposure Limits

18.2.1 Chronic Oral

Table B.18-3 Chronic Oral Exposure Limits for Copper

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	**UL**	-	TDI	-	TDI
Exposure Limit Value (mg/kg bw/day)	-	**0.091 (0 - 4 yrs) 0.111 (5 - 11 yrs) 0.126 (12 - 19 yrs) 0.141 (20+ yrs)**	-	140	-	140
Critical Organ or Effect	-	**Liver and Gastrointestinal**	-	Liver and Gastrointestinal	-	Liver and Gastrointestinal
Species	-	**Humans**	-	Humans	-	Humans
Study	-	**Pratt *et al.* 1985; O'Donohue *et al.* 1993**	-	Vermeire *et al.* 1991	-	Pratt et al. 1985; O'Donohue *et al.* 1993
Source	-	**Health Canada 2010**	-	RIVM 2001	-	WHO 2004

- not available

Bold – Exposure Limit selected for HHRA.

Health Canada (2010) provides TDIs depending on the life stage of interest. From birth to 4 years the TDI is 0.091 mg/kg bw/d, from 5 to 11 years the TDI is 0.11 mg/kg bw/d, from 12 to 19 years the TDI is 0.126 mg/kg bw/d and for 20 years and older the TDI is 0.141 mg/kg bw/d. The Health Canada TDIs are based on a NOAEL of 10 mg/d identified by Institute of Medicine (IOM 2001) for hepatotoxicity. The IOM (2001) identified the NOAEL based on a review of the findings reported by Pratt *et al.* (1985) and O'Donohue *et al.* (1993). The Pratt *et al.* (1985) study was a clinical double-blind study which exposed seven adults to 10 mg/d of copper gluconate for 12 weeks, without effect on the liver. The O'Donohue *et al.* (1993) study was based on a self-intoxication which resulted in acute liver failure. The self-intoxication included exposure to 30 mg/d for 2 years, followed by 60 mg/d for an unspecified duration of copper tablets. Due to the substantial toxicological database that exists for human exposure to copper, which does not indicate any adverse effects from the daily consumption of 10 to 12 mg copper in foods, the IOM (2001) considered the Pratt *et al.* (1985) NOAEL protective of the general adult population without the application of any uncertainty factors. The IOM (2001) assumed the unadjusted NOAEL of 10 mg/d as its adult tolerable upper intake level (UL). The ULs

for the remaining life stage groups were calculated from the adult UL based on relative body weight. A UL for children less than 1 year of age was not identified by the IOM due to insufficient health effects data for this age group and uncertainty regarding the children's ability to cope with excess copper. Health Canada has adopted the TDI of 0.091 mg/kg bw/d for children aged 0 to 4 years (Health Canada, 2010). The age-appropriate TDIs for each life stage were based on liver and gastrointestinal effects.

The RIVM (2001) developed a TDI of 0.14 mg/kg bw/d based on observations that there is no convincing evidence for the genotoxic properties of copper, the proposed mechanism of toxic action suggests a threshold for toxic effects and copper deficiency lead to effects equally critical to human health as the toxic effects. A NOAEL of 8 mg/kg bw/d noted in experimental animals, with the application of a cumulative uncertainty factor of 100 (basis unspecified), would result in a TDI of 0.08 mg/kg bw/d. This TDI is only slightly higher than the daily demand for copper of 0.02 to 0.05 mg/kg bw/d (Vermeire *et al.*, 1991). Similarly, a LOAEL of 4.2 mg/kg bw/d, identified for decreased body weight in mice exposed to copper gluconate, would result in a TDI of 0.004 mg/kg bw/d with the application of a cumulative uncertainty factor of 1,000 to account for interspecies variability (10), intraspecies variability (10) and use of a LOAEL (10). This TDI would be below the minimum requirements of copper. Therefore, the RIVM (2001) adopted the maximal daily intake of the population of 0.14 mg/kg bw/d (Vermeire *et al.* 1991) as its TDI for copper. This TDI is above the minimum requirements for copper and leaves a margin of safety of 30 relative to the LOAEL of 4.2 mg/kg bw/d in experimental animals.

Based on the findings of the IOM (2001), the WHO (2004) uses the UL of 10 mg/kg (which equates to an adult TDI of 0.14 mg/kg bw/d) for setting its guideline for copper in drinking water. The WHO notes that there is still some uncertainty regarding long-term effects of copper in sensitive populations (2004).

References

ACGIH (America Conference of Governmental Industrial Hygienists). 2012. TLVs® and BEIs® Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. ISBN: 978-1-607260-48-6. ACGIH®, Cincinnati. OH.

Baars AJ, Theelen RMC, Janssen PJCM, Hesse JM, van Apeldoorn ME, Meijerink MCM, Verdam L, Zeilmaker MJ (2001): Re-evaluation of humantoxicological maximum permissible risk levels. RIVM report 711701025. National Institute of Public Health and the Environment, Bilthoven, The Netherlands.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme. September 2010.

IOM (Institute of Medicine). 2001. Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. Food and Nutrition Board, Institute of Medicine. National Academy Press. Washington, DC. ISBN- 10: 0-309-07279-4.

OEHHA (California Office of Environmental Health Hazard Assessment). 2008. TSD for Noncancer Reference Exposure Levels. Acute Toxicity Summary. Metallic Copper and Copper Compounds. Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD2_final.pdf#page=74

OEHHA (California Office of Environmental Health Hazard Assessment). 2012. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment. Sacramento, CA. Available at: http://www.oehha.ca.gov/air/allrels.html

O'Donohue, J., Reid, M.A., Varghese, A., Portmann, B. and Williams, R. 1993. Micronodular cirrhosis and acute liver failure due to chronic copper self-intoxication. Eur J Gastroenterol Hepatol 5(7):561- 562. Cited in: IOM 2001.

Pratt, W.B., Omdahl, J.L. and Sorenson, J.R.J. 1985. Lack of effects of copper gluconate supplementation. Am J Clin Nutr 42:681-682.

RIVM (National Institute of Public Health and the Environment). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TEQC (Texas Commission on Environmental Quality). 2014. Effects Screening Levels (ESLs). Accessed at: http://www.tceq.texas.gov/toxicology/esl/list_main.html/#esl_1. Accessed February 2015.

Vermeire TG, Apeldoorn ME van, Fouw JC de and Janssen PJCM. 1991. Voorstel voor de human-toxicologische onderbouwing van C-toetsingswaarden. National Institute of Public Health and the Environment, RIVM-report no. 725201005. February 1991.

WHO (World Health Organization). 2004. Copper in Drinking Water. Background Document for Development of WHO Guidelines for Drinking Water Quality. Available at: http://www.who.int/water_sanitation_health/dwq/chemicals/copper.pdf

19.0 FLUORANTHENE

19.1 Inhalation Exposure Limits

19.1.1 Acute Inhalation Exposure Limits

Table B.19-1 Acute Inhalation Exposure Limits for Fluoranthene

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	ESL	-
Exposure Limit Value (µg/m³)	-	-	-	0.5	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	ESRD 2013	ATSDR 2013	OEHHA 2013	TCEQ 2013	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA

An interim acute ESL of 0.5 µg/m³ was recommended for fluoranthene as a fraction of exhaust PM_{10} by TCEQ (2013), however no supporting documentation was provided for this exposure limit. No short-term occupational exposure limits have been developed for fluoranthene (OSHA 2013).

Fluoranthene is a C16 aromatic hydrocarbon. In the absence of an acute inhalation exposure limit specific to fluoranthene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this chemical. Details on the acute inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

19.1.2 Chronic Inhalation

Table B.19-2 Chronic Inhalation Exposure Limits for Fluoranthene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	-	ESL	-	-
Exposure Limit Value (µg/m³)	-	-	-	-	-	0.05	-	-

Table B.19-2 Chronic Inhalation Exposure Limits for Fluoranthene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Critical Organ or Effect	-	-	-	-	-	-	-	-
Species	-	-	-	-	-	-	-	-
Study		-	-	-	-	-	-	
Source	ESRD 2013	ATSDR 2013	Health Canada 2010	OEHHA 2013	RIVM 2009	TCEQ 2013	US EPA 1994	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA

An interim chronic ESL of 0.05 µg/m^3 was recommended for fluoranthene as a fraction of exhaust PM_{10} by TCEQ (2013); however, no supporting documentation was provided for this exposure limit. The US EPA (1994) and ATSDR (1995) determined there were insufficient data for the purpose of deriving a chronic inhalation exposure concentration for fluoranthene.

In the absence of a chronic inhalation exposure limit specific to fluoranthene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this chemical. Details on the chronic inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

Health Canada (2012) has recommended potency equivalency factors (PEF) for carcinogenic PAH, including fluoranthene, sharing a common mode of action with B[a]P.

For the purpose of this assessment, fluoranthene was also treated as a carcinogen following chronic inhalation exposure and was evaluated as part of the B[a]P equivalent group. Further details are provided in the toxicity profile for B[a]P.

19.2 Oral Exposure Limits

19.2.1 Chronic Oral Exposure Limit

Table B.19-3 Chronic Oral Exposure Limits for Fluoranthene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	MRL (adjusted)	-	-	CR	**RfD**	-
Exposure Limit Value (mg/kg bw/day)	0.04	-	-	0.05	**0.04**	0.0125
Critical Organ or Effect	Liver, Kidney	-	-	Cancer potency relative to B[a]P	**Liver, Kidney**	Liver, Kidney
Species	Mice	-	-	Rat	**Mice**	Mice
Study	US EPA 1988	-	-	Kroese *et al.* 1999	**US EPA 1988**	-
Source	ATSDR 1995	Health Canada 2010	OEHHA 2013	RIVM 2001	**US EPA 1993**	WHO 2003

- not available

Bold – Exposure Limit selected for HHRA

The ATSDR (2013) recommend an intermediate oral MRL of 0.4 mg/kg body weight/day based on a LOAEL of 125 mg/kg body weight/day for liver effects in mice following 90 days gavage exposure to fluoranthene (US EPA 1988; ATSDR 1995). The US EPA (1990) identified the same LOAEL for fluoranthene. Adjusting the ATSDR intermediate MRL by an uncertainty factor of 10 for subchronic to chronic extrapolation would result in a chronic exposure limit of 0.04 mg/kg body weight/day. This approach was taken by the US EPA in their establishment of a chronic oral RfD of 0.04 mg/kg body weight/day for fluoranthene (US EPA 1993).

The RIVM (2001) recommend a CR of 50 μg/kg body weight/day for fluoranthene based on a relative carcinogenic potency to benzo[a]pyrene of 0.01 and an excess lifetime cancer risk of 1 in 10,000.

In their drinking water guideline document, the WHO identified a NOAEL of 125 mg/kg body weight/day for liver and kidney effects in mice following 13-weeks oral gavage exposure to fluoranthene, which is the most commonly detected PAH in drinking water (WHO 2003). An

uncertainty factor of 10,000 was recommended for this NOAEL to account for variation in response within and between species (100), subchronic to chronic extrapolation (10), an inadequate database and clear evidence of co-carcinogenicity with BaP in mouse skin painting studies (10). This would have resulted in an exposure limit of 0.0125 mg/kg body weight/day for fluoranthene and a drinking water guideline of 4 μg/L. The WHO did not recommend this guideline for fluoranthene in drinking water as the resultant concentration was well above fluoranthene concentrations normally found in drinking-water.

The RfD of 0.04 mg/kg body weight/day (ATSDR 1995; US EPA 1993) was selected for the assessment of non-carcinogenic effects following chronic oral exposure to fluoranthene. Fluoranthene was included in the chemical groups for liver and kidney effects following oral exposures. The carcinogenic potential of fluoranthene following chronic oral exposure was also assessed as part of the B[a]P equivalent group. Further details are provided in the toxicity profile for B[a]P.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

ATSDR 1995. Toxicological Profile for Polycyclic Aromatic Hydrocarbons. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. August 1995. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#H. Accessed October 2013.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

Kroese ED, Muller JJA, Mohn GR, Dortant PM, and Wester PW. 1999. Tumorigenic effects in Wistar rats orally administered benzo[a]pyrene for two years (gavage studies). Implications for human cancer risks associated with oral exposure to polycyclic aromatic hydrocarbons. National Institute of Public Health and the Environment, RIVM draft report no. 658603010, July 1999. Cited In: RIVM 2001.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. California Environmental

Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

OSHA (Occupational Safety and Health Administration) 2013. Chemical Sampling Information: Fluoranthene. Available at: https://www.osha.gov/dts/chemicalsampling/data/CH_242225.html. Accessed October 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed October 2013.

US EPA (United States Environmental Protection Agency). 1988. 13-Week mouse oral subchronic toxicity study. Prepared by Toxicity Research Laboratories, Ltd., Muskegon, MI for the Office of Solid Waste, Washington, DC. Cited in: US EPA 1993.

US EPA. 1993. IRIS (Integrated Risk Information System) Summary for Fluoranthene (CASRN 206-44-0). Reference Dose for Chronic Oral Exposure (RfD). Available at: www.epa.gov/iris. Accessed October 2013.

US EPA. 1994. IRIS Summary for Fluoranthene (CASRN 86-73-7). Reference Concentration for Chronic Inhalation Exposure (RfC). Available at: www.epa.gov/iris. Accessed October 2013.

WHO (World Health Organization) 2003. Polynuclear aromatic hydrocarbons in drinking-water. Background document for preparation of WHO Guidelines for drinking-water quality.Geneva,World Health Organization (WHO/SDE/WSH/03.04/59). Available at: http://www.who.int/water_sanitation_health/dwq/chemicals/pahsum.pdf. Accessed October 2013.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255.

20.0 FLUORENE

20.1 Inhalation Exposure Limits

20.1.1 Acute Inhalation Exposure Limits

Table B.20-1 Acute Inhalation Exposure Limits for Fluorene

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	ESL	-
Exposure Limit Value ($\mu g/m^3$)	-	-	-	10	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	ESRD 2013	ATSDR 2013	OEHHA 2013	TCEQ 2013	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

An interim acute ESL of 10 $\mu g/m^3$ was recommended for fluorene as a fraction of exhaust PM_{10} by TCEQ (2013); however no supporting documentation was provided for this exposure limit. No short-term occupational exposure limits have been developed for fluorene (OSHA 2013).

Fluorene is a C13 aromatic hydrocarbon. In the absence of an acute inhalation exposure limit specific to fluorene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this chemical. Details on the acute inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

20.1.2 Chronic Inhalation

Table B.20-2 Chronic Inhalation Exposure Limits for Fluorene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	-	ESL	-	-
Exposure Limit Value ($\mu g/m^3$)	-	-	-	-	-	1	-	-

Table B.20-2 Chronic Inhalation Exposure Limits for Fluorene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Critical Organ or Effect	-	-	-	-	-	-	-	-
Species	-	-	-	-	-	-	-	-
Study		-	-	-	-	-	-	
Source	ESRD 2013	ATSDR 2013	Health Canada 2010	OEHHA 2011	RIVM 2009	TCEQ 2013	US EPA 1990	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

An interim chronic ESL of 1 µg/m^3 was recommended for fluorene as a fraction of exhaust PM_{10} by TCEQ (2013); however, no supporting documentation was provided for this exposure limit. The US EPA (1990) and ATSDR (1995) determined that there were insufficient data for the purpose of deriving a chronic inhalation exposure concentration for fluorene.

In the absence of a chronic inhalation exposure limit specific to fluorene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this C13 aromatic hydrocarbon. Details on the chronic inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

20.2 Oral Exposure Limits

20.2.1 Chronic Oral Exposure Limit

Table B.20-3 Chronic Oral Exposure Limits for Fluorene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA
Exposure Limit Type	MRL (adjusted)	-	-	TDI	**RfD**
Exposure Limit Value (mg/kg bw/day)	0.04	-	-	0.04	**0.04**
Critical Organ or Effect	Liver, kidney, hematological effects	-	-	Body weight	**Liver, kidney, hematological effects**
Species	Mice	-	-	Rat	**Mice**

Table B.20-3 Chronic Oral Exposure Limits for Fluorene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA
Study	US EPA 1989	-	-	Various; TPHCWG 1997	**US EPA 1989**
Source	ATSDR 1995	Health Canada 2010	OEHHA 2013	RIVM 2001	**US EPA 1990**

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (2013) identified an intermediate oral MRL of 0.4 mg/kg body weight/day based on a LOAEL of 125 mg/kg body weight/day for increased relative liver and kidney weights and hematological effects in mice following 90 days gavage exposure to fluorene (US EPA 1989; ATSDR 1995). The US EPA (1990) identified the same LOAEL for fluorene. Adjusting the ATSDR intermediate MRL by an additional uncertainty factor of 10 for subchronic to chronic extrapolation would result in a chronic exposure limit of 0.04 mg/kg body weight/day. This approach was taken by the US EPA in their establishment of a chronic oral RfD of 0.04 mg/kg body weight/day for fluorene (US EPA 1990).

The RIVM (2001) has developed a tolerable daily intake of 0.04 mg/kg body weight/day for non-carcinogenic aromatic compounds with equivalent carbon number >9 to 16, including fluorene. This TDI was adopted from TPHCWG (1997) which identified a range of reported oral RfD values for decreased bodyweight (from 30 to 300 µg/kg body weight/day) in rats following exposure to 8 aromatic compounds within this range; 4 of the 8 RfD values being 40 µg/kg body weight/day.

The RfD of 0.04 mg/kg body weight/day (ATSDR 1995; RIVM 2001; US EPA 1990) was selected to evaluate chronic oral risks associated with fluorene. Fluorene was included in the chemical groups for liver and kidney effects following oral exposures.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

ATSDR 1995. Toxicological Profile for Polycyclic Aromatic Hydrocarbons. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. August 1995. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#H. Accessed October 2013.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

OSHA (Occupational Safety and Health Administration) 2013. Chemical Sampling Information: Fluorene. Available at: https://www.osha.gov/dts/chemicalsampling/data/CH_242230.html. Accessed October 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed October 2013.

TPHCWG (Total Petroleum Hydrocabron Working Group) 1997. Total Petroleum Hydrocarbon Criteria Working Group Series, Vol. 4: Development of Fraction Specific Reference Doses (RfDs) and Reference Specific Concentrations (RfCs) for Total Petroleum Hydrocarbons (TPH). Amherst Scientific Publishers. Amherst, Massachusetts. Available at: http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=5265DE434DA12266C926B29274CD10F7?doi=10.1.1.197.7992&rep=rep1&type=pdf. Accessed October 2013.

US EPA (United States Environmental Protection Agency) 1989. Mouse oral subchronic toxicity study. Prepared by Toxicity Research Laboratories, LTD., Muskegon, MI for the Office of Solid Waste, Washington, DC. Cited in: US EPA 1990.

US EPA. 1990. IRIS (Integrated Risk Information System Summary) for Fluorene (CASRN 86-73-7). Reference Concentration for Chronic Inhalation Exposure (RfC). Reference Dose for Chronic Oral Exposure (RfD). Available at: www.epa.gov/iris. Accessed October 2013.

WHO (World Health Organization) 2000, Air quality guidelines for Europe, 2nd ed. Copenhagen, WHO Regional Office for Europe, 2000 (WHO Regional Publications, European Series, No. 91).

21.0 FORMALDEHYDE

21.1 Inhalation Exposure Limits

21.1.1 Acute Inhalation

Table B.21-1 Acute Inhalation Exposure Limits for Formaldehyde

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	AAQO 1-hour	**MRL** **2-hour**	REL 1-hour 8-hour	ReV 1-hour	AQG 30 min
Exposure Limit Value (µg/m³)	65	**50**	55 9	50	100
Critical Organ or Effect	Respiratory irritation	**Eye and nasal irritation**	Eye irritation Respiratory irritation	Eye and nasal irritation	Eye and respiratory irritation
Species	Human	**Human**	Human	Human	Human
Study	Adopted from TCEQ	**Pazdrak *et al.* 1993**	Kulle *et al.* 1987 Wilhelmsson and Holmstrom, 1992	Pazdrak *et al.* 1993; Krakowiak *et al.* 1998	Various
Source	ESRD 2013	**ATSDR 2013; 1999**	OEHHA 2013; OEHHA 2008	TCEQ 2008	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The ESRD (2013) recommend a 1-hour AAQO of 65 µg/m³ for acute inhalation exposure to formaldehyde. The AAQO was adopted from Texas in 1999, reportedly for human respiratory effects, however the study on which the guideline was based was not provided (AENV 2006; 2008).

The ATSDR (2013) recommend an acute inhalation MRL of 50 µg/m³ for formaldehyde. The MRL was based on a study by Pazdrak *et al.* (1993) which reported eye and nose irritation in human volunteers, including individuals with skin sensitivity to formaldehyde, following 2 hours exposure to 0.4 ppm (0.5 mg/m³) formaldehyde. A 10-fold uncertainty factor was applied to the exposure concentration to account for use of a LOAEL (3) and variability in human response (3) (ATSDR 1999).

A 1-hour ReV of 50 µg/m³ was recommended by the TCEQ (2008) for acute exposure to formaldehyde. Similar to the ATSDR (1999), this ReV was based on eye and nose irritation in human volunteers, including individuals with skin sensitivity to formaldehyde (Pazdrak *et al.* 1993) as well as

individuals with asthmatic symptoms (Krakowiak *et al*. 1998) following 2 hours exposure to 0.5 mg/m^3 formaldehyde. A 10-fold uncertainty factor was applied to the exposure concentration (0.5 mg/m^3) to account for use of a LOAEL (3) and variability in human response (3) (TCEQ 2008).

The OEHHA (2013) recommend a 1-hour REL of 55 µg/m^3 and an 8-hour REL of 9 µg/m^3 as acute exposure limits for formaldehyde. The 1-hour REL of 55 µg/m^3 (0.044 ppm) is based on a NOAEL of 0.5 ppm for mild to moderate eye irritation in nonasthmatic humans exposed to 0.5-3.0 ppm formaldehyde for a 3-hour period (Kulle *et al.* 1987). The OEHHA (2008) calculated a $BMCL_{05}$ of 0.44 ppm for eye irritation which was adjusted by an uncertainty factor of 10 to account for potential asthma exacerbation.

The OEHHA 8-hour REL of 9 µg/m^3 was based on an occupational study (Wilhelmsson and Holmstrom 1992) reporting nasal, eye and respiratory tract irritation in chemical plant workers exposed to a mean air concentration of 0.26 mg/m^3 formaldehyde over an average of 10 years (OEHHA 2008). A NOAEL of 0.09 mg/m^3 was identified from the study and an uncertainty factor of 10 was applied to account for variability in human response (OEHHA 2008).

The WHO (2000) recommend an acute air quality guideline of 100 µg/m^3 over a 30 minute period for formaldehyde. This guideline is based on reports of significant irritation of the eyes, nose and throat in healthy subjects exposed to air concentrations above 100 µg/m^3 formaldehyde.

The lowest 1-hour guideline of 50 µg/m^3 (ATSDR, 1999) was selected for the current assessment of acute inhalation exposure to formaldehyde. Formaldehyde was included in the chemical groups for eye irritation and nasal irritation following acute inhalation exposures.

21.1.2 Chronic Inhalation

Table B.21-2 Chronic Inhalation Exposure Limits for Formaldehyde

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	MRL	RsC	REL RsC	-	ReV RsC	RsC	-
Exposure Limit Value (µg/m^3)	-	10	1.9	9 **2**	-	**11** 18	0.8	-
Critical Organ or Effect	-	Eye and respiratory irritation	Nasal tumours	Respiratory irritation	-	Respiratory irritation Cell proliferation[1]	Nasal tumours	-

Table B.21-2 Chronic Inhalation Exposure Limits for Formaldehyde

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Species	-	Human	Rat	Human Rat	-	Human	Rat	-
Study	-	Holmstrom *et al.* 1989	Monticello *et al.* 1996	Wilhelmsson and Holmstrom, 1992 Kerns *et al.* 1983	-	Wilhelmsson and Holmstrom, 1992 Schlosser *et al*. 2003	Kerns *et al.* 1983	-
Source	ESRD 2013	ATSDR 2013; 1999	Health Canada 2001	OEHHA 2008 2011	RIVM 2001	TCEQ 2008	US EPA 1991	WHO 2000

- not available

[1] Key precursor event to tumorigenesis

Bold – Exposure Limit selected for HHRA.

The ATSDR (2013) recommend a chronic MRL of 10 µg/m^3 (0.008 ppm) for formaldehyde. This MRL was based on a LOAEL of 0.24 ppm as an average 8-hour TWA for mild irritation of the eye and respiratory tract and mild damage to nasal epithelium in chemical plant workers occupationally exposed to formaldehyde for an average of 10.4 years (Holmstrom *et al.* 1989). The LOAEL was adjusted by an uncertainty factor of 30 for use of a LOAEL for mild effects (3) and human variability (10). No adjustment was made for extrapolation to continuous exposure based on evidence provided by Wilmer *et al.* (1987) that formaldehyde exposure concentration was more important than the product of exposure duration and concentration for determining the severity of epithelial damage of the upper respiratory tract (ATSDR 1999).

The OEHHA (2013) recommend a chronic REL of 9 µg/m^3 for noncarcinogenic effects following chronic exposure to formaldehyde. This exposure limit is based on the same study (Wilhelmsson and Holmstrom 1992), NOAEL (0.09 mg/m^3) and uncertainty factor (10) identified for the 8-hour REL for nasal, eye and respiratory tract irritation in chemical plant workers exposed to formaldehyde (OEHHA 2008).

The TCEQ (2008) recommend a chronic ReV of 11 µg/m^3 for noncarcinogenic effects associated with chronic exposure to formaldehyde. This exposure limit is based on the same study (Wilhelmsson and Holmstrom 1992) and NOAEL (0.09 mg/m^3) identified by the OEHHA (2008) for nasal, eye and respiratory tract irritation in chemical plant workers exposed to formaldehyde for 8 hours/day, 5 days/week over an average of 10 years. The NOAEL was adjusted for continuous exposure

(0.032 mg/m^3) and an uncertainty factor of 3 was applied to account for human variability (TCEQ 2008).

IARC (2013) has classified formaldehyde as carcinogenic to humans (Group 1).

Health Canada, OHEHHA (2011), TECQ (2007) and US EPA (1991) have developed chronic inhalation exposure limits based on the carcinogenic potential of formaldehyde.

The US EPA (1991) identified an inhalation unit risk of 1.3×10^{-5} per µg/m^3 from a study reporting nasal squamous cell carcinomas in rats following chronic (2 year) inhalation exposure to formaldehyde (Kerns *et al.* 1983). This unit risk is equivalent to an RsC of 0.8 µg/m^3 assuming a 1 in 100,000 incremental cancer risk level. It is noted that the potential inhalation toxicity of formaldehyde is currently under review by the US EPA with a draft human health assessment released on June 2, 2010 for independent peer review and public comment (US EPA 2012).

The OEHHA (2011) derived an inhalation unit risk of 6×10^{-6} per µg/m^3 using the Kerns *et al.* (1983) data for nasal squamous cell carcinomas in rats. The OEHHA unit risk is equivalent to an RsC of 2 µg/m^3 for an incremental cancer risk of 1 in 100,000. The upper range of cancer risks predicted by the OEHHA (2011) using the rat bioassay data were determined to be consistent with lung cancer mortality risk estimates for workers (cohort of over 26,000) exposed to formaldehyde (Blair *et al.* 1986).

Health Canada (2001) determined a TC_{05} of 9.5 mg/m^3 using data for the incidence of nasal squamous tumours in a more recent study in rats (Monticello *et al.* 1996). This air concentration is associated with a 5% (1 in 20) increase in tumour incidence over background. Dividing the TC_{05} by a factor of 5,000 results in an RsC of 1.9 µg/m^3 for a 1 in 100,000 incremental cancer risk level.

The TCEQ (2008) recommend an RsC of 18 µg/m^3 for formaldehyde assuming a 1 in 100,000 cancer risk level. This exposure limit was derived from Schlosser et al. (2003) who reported BMC and POD values for tumour incidence and cell proliferation in 3 data sets (including Kerns *et al.* 1983) describing these effects in rats following chronic formaldehyde inhalation. Nasal cell proliferation was the POD selected for guideline development as it represents a key event in formaldehyde-induced carcinogenesis. A POD_{HEC} of 0.44 ppm, representing the 95% $BMCL_{01}$, was determined for this endpoint. The RsC of 0.015 ppm (18 µg/m^3) was developed by applying an uncertainty factor of 30 to the POD to account for extrapolation from animal data (3) and human variability (10).

An exposure limit of 9 µg/m^3, recommended by the OEHHA and supported by the ATSDR and TCEQ limits, was selected for the evaluation of non-carcinogenic effects following chronic inhalation exposure to formaldehyde. Formaldehyde was included in the chemical groups for nasal and eye irritation following chronic inhalation exposures.

An exposure limit of 2 μg/m^3, recommended by the OEHHA and supported by the limit derived by Health Canada, was selected for the evaluation of carcinogenic effects following chronic inhalation exposure to formaldehyde. Although the US EPA provided the most conservative guideline (currently under review), the OEHHA and Health Canada conducted more recent evaluations of the available data and considered the results of animal as well as human studies. Formaldehyde was included in the chemical group for nasal tumours following chronic inhalation exposures.

21.2 Oral Exposure Limits

21.2.1 Chronic Oral Exposure Limit

Table B.21-3 Chronic Oral Exposure Limits for Formaldehyde

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA
Exposure Limit Type	MRL	**TDI**	RsD	-	RfD
Exposure Limit Value (mg/kg bw/day)	0.2	**0.15**	0.00048	-	0.2
Critical Organ or Effect	GI tract	**GI tract**	Route extraplotion	-	GI tract
Species	Rat	**Rat**	Rat	-	Rat
Study	Til et al. 1989	**Til *et al.* 1989**	Kerns *et al.* 1983	-	Til *et al.* 1989
Source	ATSDR 2013; 1999	**Health Canada 2001**	OEHHA 2013	RIVM 2001	US EPA 1990

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (2013), Health Canada (2001) and US EPA (1990) have all developed oral exposure limits for formaldehyde based on the same study (Til *et al.* 1989) reporting stomach irritation in rats following chronic exposure to formaldehyde in drinking water.

The ATSDR (1999) and US EPA (1990) both identified a NOAEL of 15 mg/kg bw/day from the Til *et al.* (1989) study for histopathological changes in the gastrointestinal tract of rats following 2 years exposure to formaldehyde in drinking water. An uncertainty factor of 100 was applied to this NOEAL to account for extrapolation from an animal study (10) and human variability (10). The final MRL and RfD values were rounded up from 0.15 to 0.2 mg/kg bw/day, resulting in chronic exposure limits of 0.2 mg/kg bw/day (ATSDR 1999; US EPA 1990).

Health Canada (2001) identified the same NOAEL of 15 mg/kg bw/day from the Til *et al.* (1989) study for histopathological effects in the forestomach and glandular stomach. An uncertainty factor of 100 was applied to account for extrapolation from an animal study (10) and human variability (10). There was no rounding of the final value, resulting in a chronic exposure limit of 0.15 mg/kg bw/day.

The OEHHA (2011) recommend an oral slope factor of 0.021 per mg/kg bw/day for formaldehyde. This slope factor was derived from the chronic inhalation cancer risk estimate described earlier (based on Kerns *et al.* 1983) for nasal squamous cell carcinomas in rats. The OEHHA oral slope factor is equivalent to an RsD of 0.00048 mg/kg bw/day assuming a 1 in 100,000 cancer risk level.

Gastric irritation was the critical effect identified by the ATSDR, Health Canada and US EPA following chronic ingestion exposure to formaldehyde. No treatment-related tumours were reported by Til *et al.* (1989). Therefore, the lowest exposure limit recommended from the drinking water study (*i.e.*, 0.15 mg/kg bw/day) was selected for the current assessment of oral exposures to formaldehyde. Formaldehyde was included in the chemical group for kidney effects following chronic oral exposures.

References

AENV (Alberta Environment) 2006. Assessment Report on Formaldehyde for Developing Ambient Air Quality Objectives. Prepared by Toxio-Logic Consulting Inc. for Alberta Environment. February 2006. Available at: http://environment.gov.ab.ca/info/library/7903.pdf Accessed November 2013.

AENV 2008. Alberta Ambient Air Quality Objectives: Formaldehye. Alberta Environment. Effective September 1, 2008. Available at: http://environment.gov.ab.ca/info/library/7956.pdf Accessed November 2013.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed November 2013.

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed November 2013.

ATSDR 1999. Toxicological Profile for Formaldehye. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. July 1999. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp. Accessed November 2013.

Blair A, Stewart P, O' Berg M, Gaffey W, Walrath J, Ward J, Bales R, Kaplan S and Cubit D. 1986. Mortality among industrial workers exposed to formaldehyde. JNCI 76:1071-1084. Cited In: OEHHA 2011.

Health Canada. 2001. Priority Substances List Assessment Report. Formaldehyde. ISBN 0-662-29447-5 Cat. No. En40-215/61E. Environment Canada, Health Canada, Canadian Environmental Protection Act, 1999 Available at:. http://www.hc-sc.gc.ca/ewh-semt/pubs/contaminants/psl2-lsp2/index-eng.php. Accessed November 2013.

Holmstrom M, Wilhelmsson B, Hellquist H, et al. 1989. Histological changes in the nasal mucosa in persons occupationally exposed to formaldehyde alone and in combination with wood dust. Acta Otolaryngol (Stockh) 107:120-129. Cited In: ATSDR 1999.

IARC (International Agency for Research on Cancer). 2013. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Updated July 16, 2013. Available at: http://monographs.iarc.fr/ENG/Classification/index.php. Accessed November 2013.

Kerns, W.D., K.L. Pavkov, D.J. Donofrio, E.J. Gralla and J.A. Swenberg. 1983. Carcinogenicity of formaldehyde in rats and mice after long-term inhalation exposure. Cancer Res. 43: 4382-4392. Cited In: US EPA 1991.

Krakowiak A, Gorski P, Pazdrak K, *et al.* 1998. Airway response to formaldehyde inhalation in asthmatic subjects with suspected respiratory formaldehyde sensitization. Am J Ind Med 33:274-281. Cited In: TCEQ 2008.

Kulle TJ, Sauder LR, Hebel JR, *et al.* 1987. Formaldehyde dose-response in healthy nonsmokers. J Air Pollut Control Assoc 37:919-924. Cited In: OEHHA 2008.

Monticello, T.M., Swenberg, J.A., Gross, E.A., Leininger, J.R., Kimbell, J.S., Seilkop, S., Starr, T.B., Gibson, J.E. and Morgan, K.T. 1996. Correlation of regional and nonlinear formaldehyde-induced nasal cancer with proliferating populations of cells. Cancer Research. 56:1012-1022. Cited In: Health Canada 2001.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of October 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology.Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed November 2013.

OEHHA 2008. Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. December 2008 (updated October 2013). Appendix D.1 Individual Acute, 8-hour, and Chronic Reference Exposure Level Summaries. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and

Epidemiology.Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD1_final.pdf#page=128 Accessed November 2013.

OEHHA 2011. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. Appendix B. Chemical-specific summaries of the information used to derive unit risk and cancer potency values. Updated 2011. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology.Available at: http://www.oehha.ca.gov/air/hot_spots/2009/AppendixB.pdf. Accessed November 2013

Pazdrak K, Gorski P, Krakowiak A, *et al.* 1993. Changes in nasal lavage fluid due to formaldehyde inhalation. Int Arch Occup Environ Health 64:515-519. Cited In: ATSDR 1999.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

Schlosser PM, Lilly PD, Conolly RB, et al. 2003. Benchmark dose risk assessment for formaldehyde using airflow modeling and a single-compartment, DNA-protein cross-link dosimetry model to estimate human equivalent doses. Risk Anal 23:473-487. Cited In: TCEQ 2008.

TCEQ (Texas Commission on Environmental Quality) 2008. Final Development Support Document: Formaldehyde. CAS Registry Number: 50-00-0. Prepared by Joseph Haney, M.S. Toxicology Section. Available at: http://www.tceq.texas.gov/assets/public/implementation/tox/dsd/final/formaldehyde_50-00-0_final.pdf. Accessed November 2013.

Til HP, Woutersen RA, Feron VJ, Hollanders VHM, Falke HE, Clary JJ (1989). Two-year drinking-water study of formaldehyde in rats. Fd. Chem. Toxic 27: 77-86. Cited In: ATSDR 1999.

US EPA (Environmental Protection Agency). 1990. IRIS (Integrated Risk Information System) Summary for Formaldehyde (CASRN 50-00-0). Reference Dose for Chronic Oral Exposure (RfD). Available at: www.epa.gov/iris. Accessed November 2013.

US EPA 1991. IRIS Summary for Formaldehyde (CASRN 50-00-0). Quantitative Estimate of Carcinogenic Risk from Inhalation Exposure. Available at: www.epa.gov/iris. Accessed November 2013.

US EPA 2012. IRIS Toxicological Review of Formaldehyde (Inhalation) (External Review Draft 2010). Available at: http://cfpub.epa.gov/ncea/iris_drafts/recordisplay.cfm?deid=223614. Last Updated on Wednesday, December 5th, 2012. Accessed November 2013.

WHO 2000, Air quality guidelines for Europe, 2nd ed. Copenhagen, WHO Regional Office for Europe, 2000 (WHO Regional Publications, European Series, No. 91).

Wilhelmsson B, Holmstrom M. 1992. Possible mechanisms of formaldehyde-induced discomfort in the upper airways. Scand J Work Environ Health 18:403-407. Cited In: OEHHA 2008.

Wilmer JWG, Woutersen RA, Appelman LM, *et al.* 1987. Subacute (4-week) inhalation toxicity study of formaldehyde in male rats: 8-hour intermittent versus 8-hour continuous exposures. J Appl Toxicol 7:15-16. Cited In: ATSDR 1999.

22.0 LEAD

22.1 Inhalation Exposure Limits

22.1.1 Acute Inhalation

Table B.22-1 Acute Inhalation Exposure Limits for Lead

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	AAQO	24 hr standard 30 d standard	-	-	-	-
Exposure Limit Value (µg/m³)	1.5	0.5 0.2	-	-	-	-
Critical Organ or Effect	-	Neurological	-	-	-	-
Species	-	Human Children	-	-	-	-
Study	-	Cal EPA 2001	-	-	-	-
Source	Alberta Government 2013	OMOE 2007	-	-	-	-

- not available

Bold – Exposure Limit selected for HHRA.

The OMOE (2007) has a 30-day standard of 0.2 µg/m³ for lead and lead compounds based on neurological effects in children. The 30-day standard was derived using a model developed by the California Environmental Protection Agency (Cal EPA) to determine the air lead concentration associated with a 5% probability of children in a reference population exceeding a blood lead level of concern of 10 µg/dL. This LOC is considered to be out of date with respect to the state of science surrounding blood lead concentrations and potential adverse effects. The OMOE 24 hour value is derived from the 30-day standard.

The Alberta Government (2013) provides an AAQO of 1.5 µg/m³ for a 1-hour averaging period, which was adopted from the Texas Natural Resource Conservation Commission, but no specific basis is provided.

Due to the lack of defensible acute inhalation exposure limits, lead was not assessed on an acute basis.

22.1.2 Chronic Inhalation

Table B.22-2 Chronic Inhalation Exposure Limits for Lead

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	TC	RsC	-	-	**NAAQS***	AQG
Exposure Limit Value (µg/m³)	-	-	0.1	0.8	-	-	**0.15**	0.5
Critical Organ or Effect	-	-	-	Kidneys	-	-	**-**	-
Species	-	-	-	Rats	-	-	**-**	-
Study	-	-	Oral toxicity conversion	Azar 1973	-	-	**-**	-
Source	-	-	Health Canada (2015)	OEHHA 2009	-	-	**US EPA 2008**	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.
* NAAQS – National Ambient Air Quality Standard.

Lead and inorganic lead compounds are classified as probably carcinogenic to humans (Group 2A) by IARC, as reasonably anticipated to be human carcinogens (Group K) by NTP and as confirmed animal carcinogens with unknown relevance to humans (Group A3) by ACGIH (OSU, 2010). However, the data for establishing an RSD was considered weak (US EPA 2004), and potential neurological effects has been identified as a more sensitive end point than carcinogenicity (Health Canada, pers comm. 2015). For this reason, lead was treated as a non-carcinogen by inhalation for this risk assessment and an RsD was calculated.

The WHO (2000) inhalation guideline of 0.5 µg/m³ is based on the recommendation that the annual average air concentration of lead not exceed 0.5 µg/m³. This guideline was based on the assumption that the upper limit of non-anthropogenic blood lead levels is 30 µg/L. Recent scientific evidence indicates that this assumption may not be protective against potential neurological effects (Health Canada 2013).

The OEHHA (2009) has derived an inhalation unit risk estimate of $1.2x10^{-5}$ $(\mu g/m^3)^{-1}$ (equivalent to an RsC of about 0.8 $\mu g/m^3$). This cancer-based value was derived from an oral rat study, where male and female rats were administered lead acetate in the diet for a duration of 2 years (Azar *et al.*, 1973). Significant incidences of kidney tumours were observed in the animals. A linearized multistage model was used to fit the male tumour incidence data, and human equivalent doses were calculated. This value was not selected as it was not considered to be protective against potential neurological effects (Health Canada 2013).

The US EPA has not reported an RsC due to insufficient data (US EPA, 2004). An estimate of carcinogenic risk was not derived by the US EPA from the oral exposure studies by Azar *et al.* (1973).

Based on the *Clean Air Act*, which indicates a primary standard is to be set at the maximum permissible ambient air level which will protect the health of any [sensitive] group of the population, the US EPA revised the primary national ambient air quality standards (NAAQS) for lead to 0.15 $\mu g/m^3$ (US EPA, 2008). This limit is set to be protective of air emission and multi-exposure pathways. The NAAQS was set to provide increased protection for children and other at-risk populations against an array of adverse effects in children, including neurocognitive and neurobehavioral effects. The averaging time for the primary NAAQS was revised to a rolling 3-month period with a maximum (not-to-be-exceeded) form, evaluated over a 3-year period. The NAAQS was derived from a blood lead level of 10 $\mu g/dL$ (100 $\mu g/L$) in consideration of studies assessing potential adverse health effects in association with measured blood lead concentrations. The US EPA primary standard was intended to include an adequate margin of safety to address uncertainties associated with inconclusive scientific and technical information available at the time of standard setting. It was also intended to provide a reasonable degree of protection against hazards that research has not yet identified. As this limit is currently the lowest limit defined for inhalation of lead and data indicating blood lead concentrations are most senstivie to oral exposure rather than inhalation of air (OEHHA 2007), the US EPA NAAQS was selected for the current assessment.

A chronic inhalation TC of 0.1 $\mu g/m^3$ was calculated from the oral exposure limit of 0.0005 mg/kg bw/day recommended by Health Canada (pers. comm. 2015). Discussion of the basis for the oral exposure limit is provided below. The calculated TC is slightly lower than the US EPA NAAQS; however, it was not selected for the current assessment, as it is an estimation of an inhalation TRV from oral exposure data. The US EPA NAAQS is derived from inhalation exposure data.

The calculation of the chronic inhalation exposure for the toddler age group (generally the most sensitive life stages) is as follows:

$$TC = \frac{oral\ exposure\ limit}{IR} \times BW$$

TC = Tolerable concentration (µg/m^3)
IR = Inhalation rate (m^3/d)
BW = Body weight (kg)

$$TC = \frac{0.0005 mg/kg/d}{8.3\ m^3/d} \times 16.5 kg \times \frac{1000 \mu g}{mg} = 1 \mu g/m^3$$

22.2 Oral Exposure Limits

22.2.1 Chronic Oral

Table B.22-3 Chronic Oral Exposure Limits for Lead

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	**BMDL$_{01}$**	RsD	TDI	-	-
Exposure Limit Value (mg/kg bw/day)	-	**0.0005**	0.0012	0.0036	-	-
Critical Organ or Effect	-	**Neurotoxicity**	Kidney tumors		-	-
Species	-	**Human children**	Male rats		-	-
Study	-	**-**	-		-	-
Source	-	**Health Canada, pers comm. 2015**	OEHHA 2009	RIVM 2001	-	-

- not available

Bold – Exposure Limit selected for HHRA.

Lead and inorganic lead compounds are classified as probably carcinogenic to humans (Group 2A) by IARC, as reasonably anticipated to be human carcinogens (Group K) by NTP and as confirmed animal carcinogens with unknown relevance to humans (Group A3) by ACGIH (OSU, 2010).

However, potential neurological effects has been identified as a more sensitive end point than carcinogenicity (Health Canada, pers comm. 2015; US EPA, 2004, 2008). For this reason, lead was treated as a non-carcinogen by ingestion for this risk assessment.

Health Canada (2013) has concluded that their previous provisional tolerable weekly intake of 0.025 mg/kg bw/day for lead could no longer be considered protective of human health since there is no evidence of a threshold for critical lead-induced health effects. Health Canada recommends the use of the $BMDL_{01}$ of 0.0005 mg/kg bw/d derived by the European Food Safety Authority (EFSA 2010) from a blood lead level of 12 µg/L for developmental neurotoxicity in children (Health Canada, pers comm. 2015). This value was used for the assessment.

The RIVM (2001) provides an oral exposure limit of 0.0036 mg/kg bw/d based on the TDI established by the WHO (2003).

The WHO (2003) derived a TDI of 0.0036 mg/kg bw/d developed from the provisional tolerable weekly intake (PTWI) of 0.025 mg/kg bw/d. This PTWI has been recently withdrawn, based on scientific evidence that it is no longer considered protective (JECFA/FAO 2011; EFSA 2010). Because the dose–response analyses do not provide any indication of a threshold for the key effects of lead, JECFA concluded that it was not possible to establish a new PTWI that would be considered to be health protective.

The OEHHA (2009) derived a chronic oral slope factor of 8.5×10^{-3} $(mg/kg/d)^{-1}$ (equivalent to an RsD of 0.0012 mg/kg bw/d) based on the incidence of kidney tumours in male rats.

References

Alberta Government. 2013. Alberta Ambient Air Quality Objectives and Guidelines Summary. Accessed at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed March 2015.

Azar, A., H.J. Trochimowicz and M.E. Maxfield. 1973. Review of lead studies in animals carried out at Haskell Laboratory - Two year feeding study and response to hemorrhage study. In: Barth D., A. Berlin, R. Engel, P. Recht and J. Smeets, Ed. Environmental health aspects of lead: Proceedings International Symposium; October 1972; Amsterdam, The Netherlands. Commission of the European Communities, Luxemberg. p. 199-208.

Cal/EPA (California Environmental Protection Agency). 2001. Risk Management Guidelines for New, Modified, and Existing Sources of Lead. California Environmental Protection Agency, Air Resources Board. March 2001.

EFSA (European Food Safety Authority). 2010. Scientific Opinion on Lead in Food. EFSA Panel on Contaminants in the Food Chain (CONTAM). EFSA Journal. 8(4): 1570.

Health Canada. 2013. Final Human Health State of the Science Report on Lead. February 2013. Government of Canada. Available at: http://www.hc-sc.gc.ca/ewhsemt/alt_formats/pdf/pubs/contaminants/dhhssrl-rpecscepsh/dhhssrl-rpecscepsh-eng.pdf.

JECFA (Joint FAO/WHO Expert Committee on Food Additives). 2011. World Health Organization Food Additive Series: 64 – Safety Evaluation of Certain Food Additives and Contaminants. Prepared by the seventy-third meeting of JECFA, Join FAO-WHO Expert Committee on Food Additives. ISBN 9789241660648.

OEHHA (California Office of Environmental Health Hazard Assessment). 2009. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology Branch. May 2009. Available at: http://www.oehha.ca.gov/air/hot_spots

OEHHA (Office of Enironmental Health Hazard Assessment). 2007. Development for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(g): Child-Specific Benckmark Change in Blood Lead Concentration for the School Site Risk Assessment.

OMOE (Ontario Ministry of the Environment). 2007. Ontario Air Standards for Lead and Lead Compounds. Accessed at: http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2007/PA06E0006-f.pdf. Accessed March 2015.

OSU (Ohio State University). 2010. Chemical Hygiene Plan Table 9 Carcinogens Table: OSHA, IARC, NTP, ACGIH. Office of Environmental Health and Safety. Accessed at: http://oh.muq.ac.ir/uploads/125_193_54_liste%20mavade%20saratanza.pdf. Accessed March 2015.

RIVM (National Institute of Public Health and the Environment). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

US EPA (United States Environmental Protection Agency). 2004. Lead and compounds (inorganic) (CASRN 7439-92-1). Accessed at: http://www.epa.gov/iris/subst/0277.htm#quainhal. Accessed March 2015.

US EPA (United States Environmental Protection Agency). 2008. Federal Register. 73 (219): 66964-67062. Accessed at: http://www.gpo.gov/fdsys/pkg/FR-2008-11-12/html/E8-25654.htm. Accessed May 20, 2015.

WHO (World Health Organization). 2003. Lead in Drinking-water. Background document for development of WHO Guidelines for Drinking-water Quality. World Health Organization. WHO/SDE/WSH/03.04/09.

23.0 MANGANESE

23.1 Inhalation Exposure Limits

23.1.1 Acute Inhalation

Table B.23-1 Acute Inhalation Exposure Limits for Manganese

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	1 hour AAQO	24 hour Guideline	-	-	1 hour ESL	-
Exposure Limit Value (µg/m³)	2	2.5	-	-	2	-
Critical Organ or Effect	-	-	-	-	-	-
Species	-	-	-	-	-	-
Study	-	-	-	-	-	-
Source	ESRD 2005	OMOE 2012	-	-	TCEQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

The ESRD (2005) adopted a 1-hour AAQO (Alberta Ambient Air Quality Objective) of 2 µg/m³ from the Texas Natural Resource Conservation Commission. Supporting documentation is not available for this value.

The OMOE (2012) has developed a 24-hour guideline of 2.5 µg/m³; however, the basis of the derivation is not provided.

The TCEQ (2014) reports an interim short term (1 hour) ESL for manganese dust and inorganic compounds of 2 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

Due to the lack of defensible acute inhalation exposure limits, manganese was not assessed on an acute basis.

23.1.2 Chronic Inhalation

Table B.23-2 Chronic Inhalation Exposure Limits for Manganese

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	AAQO	MRL	-	**REL**	-	ESL	RfC	TCA
Exposure Limit Value (µg/m³)	0.2	0.3	-	**0.09**	-	0.2	0.05	0.15
Critical Organ or Effect	-	Nervous System	-	**Nervous System**	-	-	Nervous System	
Species	-	Humans	-	**Humans**	-	-	Humans	Humans
Study	-	Roels *et al.* 1992	-	**Roels *et al.* 1992**	-	-	Roels *et al.* 1992	Roels *et al.* 1992
Source	ESRD 2005	ATSDR 2012	-	**OEHHA 2014**	-	TCEQ 2014	US EPA 1993	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The ESRD (2005) reports an annual AAQO for manganese of 0.2 µg/m³ based on values reported by the TCEQ and the California EPA.

The TCEQ (2014) reports an interim long term ESL for manganese dust and inorganic compounds of 0.2 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

In 2014, OEHHA provided a chronic REL of 0.09 µg/m³ based on a study by Roels *et al.* (1992) in which workers were exposed for an average of 5.3 years to an average concentration of 215 µg/m³ respirable dust and 948 µg/m³ total dust. Various tests, including an audio-verbal short-term memory test, a simple visual reaction time test and three manual tests of hand steadiness, coordination and dexterity were used to measure neurological function. Exposed workers showed significant impairment in the neurobehavioral tests. Exposure concentrations were calculated by dividing the integrated respirable dust levels by exposure durations for each worker (Roels *et al.* 1992). The OEHHA (2014) used the benchmark dose approach to derive a BMCL0.5 (lower 95% confidence bound benchmark confidence level) of 72 µg/m³ for the incidence of neurological effects. The BMCL0.5 was time-adjusted to a concentration of 26 µg/m³ (× 72 × 10/20 m³/d × 5/7 days). A total

uncertainty factor of 300 was applied to account for subchronic to chronic conversion (√10), intraspecies toxicokinetic (10) and intraspecies toxicodynamic (10) variability.

The ATSDR (2012) reports an MRL of 0.3 µg/m³ for neurological effects also using the study by Roels *et al.* (1992). Various benchmark dose models were used to fit the incidence data for abnormal hand-eye coordination scores in workers exposed to respirable manganese. Both 5% and 10% extra risk levels were considered – BMC10, BMC05, BMCL10 and BMCL05 values were calculated and compared. The value associated with the model with the best fit was determined to be the BMCL10 of 142 µg/m³ from the logistic model and was selected as the point of departure for the MRL derivation. Adjustments were made for intermittent to continuous exposure (8/24 hours × 5/7 days), resulting in an adjusted BMCL10 of 33 µg/m³. An uncertainty factor of 100 was applied to the adjusted BMCL10 to account for intraspecies differences (10), and limitations and uncertainties associated with the database of human inhalation data for manganese (10).

The US EPA (1993) also used the study by Roels *et al.* (1992) to derive an RfC of 0.05 mg/m³, based on a LOAEL TWA of 0.15 mg/m³. The LOAEL was derived from an occupational-lifetime integrated respirable dust (IRD) concentration of manganese dioxide (8-hour TWA occupational exposure multiplied by individual work histories in years). The geometric mean of the IRD concentration (0.793 mg/m3 x years) was divided by the average duration of MnO2 exposure (5.3 years) to obtain a LOAEL TWA of 0.15 mg/m3. The LOAEL(HEC), adjusted for continuous exposure, was 0.05 mg/m³. Applying an uncertainty factor of 1,000, (10 to protect sensitive individuals, 10 for use of a LOAEL, and 10 for database limitations), resulted an RfC of 0.05 µg/m³. The US EPA RfC was not used, as more recently derived values that employed benchmark dose modelling are available using the same key study.

The WHO (2000) uses a value of 0.15 µg/m³, also based on the Roels *et al.* (1992) study. Benchmark dose modelling was completed for neurotoxicity. The lower 95% confidence limits for the best concentration estimate giving a 10% (BMDL10) and 5% (BMDL5) effect were calculated, resulting in values of 74 µg/m³ and 30 µg/m³, respectively. The lower value (BMDL5) was chosen as the NOAEL. This value was adjusted for continuous exposure by dividing by a factor of 4.2 (8/24 hours × 5/7 days). An uncertainty factor of 50 was applied to account for the sensitivity of children (5) and intraspecies variability (10).

23.2 Oral Exposure Limits

23.2.1 Chronic Oral

Table B.23-3 Chronic Oral Exposure Limits for Manganese

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	TDI	-	-	**RfD**	TDI
Exposure Limit Value (mg/kg bw/day)	-	0.136 (0 to 4 yrs) 0.122 (5 to 11 yrs) 0.142 (12 to 19 yrs) 0.156 (20+ yrs)	-	-	**0.140 (food)** **0.047 (soil and water)**	0.06
Critical Organ or Effect	-	Nervous System	-	-	**Nervous System**	Upper Range of Intake
Species	-	Human	-	-	**Human**	Human
Study	-	IOM 2002 (based on Greger 1999)	-	-	**NRC, 1989; Freeland-Graves *et al.*, 1987; WHO, 1973**	Greger, 1999; IOM, 2002
Source	-	Health Canada, 2010	-	-	**US EPA 1996**	WHO 2011

- not available

Bold – Exposure Limit selected for HHRA.

Health Canada (2010) gives Upper Limits of daily intakes for manganese on an age-specific basis. The maximum Upper Limit for daily intake by adults over 20 years of age is 0.156 mg/kg bw/d, for 12 to 19 years is 0.142 mg/kg bw/d, for 5 to 11 is 0.122 mg/kg bw/d and for 0 to 4 years is 0.136 mg/kg bw/d. These values are based on a NOAEL of 11 mg/d derived from epidemiological and experimental studies in humans. However, the exposure concentrations and durations associated with this value are not clear. The NOAEL that is the basis of the Health Canada value is a no-effect level; it is not clear at which concentration the threshold for adverse effects might be.

The US EPA (1996) uses an oral RfD of 0.140 mg/kg bw/d based on a NOAEL of 10 mg/d (0.14 mg/kg bw/d for a 70 kg adult). The NOAEL was derived using several studies based on central nervous system effects in humans. Since the data was obtained from large populations consuming normal diets over an extended period of time with no adverse health effects, an uncertainty factor of

one was applied to the NOAEL; however, a modifying factor of 3 was recommended when assessing exposure from drinking water or soil due to possible increased uptake of manganese, possible adverse health effects associated with a lifetime exposure through drinking water, possible increased exposure to infants through powdered formula and possible increased absorption and decreased excretion of manganese in neonates.

The World Health Organization (WHO 2011) presents a TDI of 0.06 mg/kg bw/d based on the upper range manganese intake value of 11 mg/day observed in the general population. The TDI was calculated by dividing the NOAEL of 11 mg/day by an uncertainty factor of 3 (to allow for the possible increased bioavailability of manganese from water) and an adult body weight of 60 kg. This value was not used since the threshold concentration for adverse effects was not clear.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2012. Toxicological Profile For Manganese. Accessed at: http://www.atsdr.cdc.gov/toxprofiles/tp151.pdf. Accessed February 2015.

ESRD (Alberta Environment and Sustainable Resource Development). 2005. Alberta Ambient Air Quality Objectives. Accessed at: http://esrd.alberta.ca/air/objectives-directives-policies-and-standards/documents/6679.pdf Accessed February 2015.

Freeland-Graves, J.H., C.W. Bales and F. Behmardi. 1987. Manganese requirements of humans. In: Nutritional Bioavailability of Manganese, C. Kies, ed. American Chemical Society, Washington, DC. p. 90-104.

Greger, J.L. 1999. Nutrition versus toxicology of manganese in humans: Evaluation of potential biomarkers. Neurotoxicol. 20: 205–212.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

IOM (Institute of Medicine). 2002. Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. A Report of the Panel on Micronutrients, Subcommittees on Upper Reference Levels of Nutrients and of the Interpretation and Uses of Dietary Intakes, and Standing Committee on the Scientific Evaluation of Dietary Reference Intakes. Food and Nutrition Board of the Institute of Medicine of the National Academies. National Academy Press, Washington, DC.

NRC (National Research Council). 1989. Recommended Dietary Allowances, 10th ed. Food and Nutrition Board, National Research Council, National Academy Press, Washington, DC. p. 230-235.

OEHHA (California Office of Environmental Health Hazard Assessment). 2014. TSD for Noncancer RELs. Appendix D. Individual Acute, 8-Hour, and Chronic Reference Exposure Level Summaries. Accessed at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD1_final.pdf#page=170. Accessed February 2015.

OMOE (Ontario Ministry of the Environment). 2012. Summary of Standards and Guidelines To Support Ontario Regulation 419/05 - Air Pollution – Local Air Quality (Including Schedule 6 Of O. Reg. 419/05 On Upper Risk Thresholds). Accessed at: https://ia902505.us.archive.org/5/items/summaryofstandar00snsn21806/summaryofstandar00snsn21806.pdf. Accessed February 2015.

Roels, H.A., Ghyselen, P., Buchet, J.P., *et al.* 1992. Assessment of the permissible exposure level to manganese in workers exposed to manganese dioxide dust. British Journal of Industrial Medicine 49:25-34.

TEQC (Texas Commission on Environmental Quality). 2014. Effects Screening Levels (ESLs). Accessed at: http://www.tceq.texas.gov/toxicology/esl/list_main.html/#esl_1. Accessed February 2015.

US EPA (United States Environmental Protection Agency). 1993. Manganese (CASRN 7439-96-5). Accessed at: http://www.epa.gov/ncea/iris/subst/0373.htm#reforal. Accessed February 2015.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. Who Regional Publications, European Series, No 91. World Health Organization Regional Office for Europe, Copenhagen. Accessed at: http://www.euro.who.int/__data/assets/pdf_file/0005/74732/E71922.pdf. Accessed February 2015.

WHO (World Health Organization). 2011. Manganese in Drinking Water, Background document for development of WHO Guidelines for Drinking-Water Quality. WHO, Geneva, Switzerland. Accessed at: http://www.who.int/water_sanitation_health/dwq/chemicals/manganese.pdf. Accessed March 2015.

24.0 MERCURY

24.1 Inhalation Exposure Limits

24.1.1 Acute Inhalation

Table B.24-1 Acute Inhalation Exposure Limits for Mercury

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	24 hour AAQC	-	**1 hour REL**	1 hour ESL	-
Exposure Limit Value (µg/m³)	-	2	-	**0.6**	0.25	-
Critical Organ or Effect	-	Not Available	-	**Nervous System**	-	-
Species	-	Not Available	-	**Rats**	-	-
Study	-	Not Available	-	**Danielsson *et al.* 1993**	-	-
Source	-	OMOE 2012	-	**OEHHA 2014**	TCEQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

California's OEHHA (2014) has developed an acute 1-hour REL for elemental mercury of 0.6 µg/m³ based on developmental neurotoxicity. In the primary study on which the acute REL is based (Danielsson *et al.* 1993), groups of 12 pregnant rats were exposed by inhalation to 1.8 mg/m³ of metallic mercury vapour for 1 or 3 hours/day during gestational days 11-14 and 17-21, with the dose level selected to avoid materal toxicity. Motor activity in offspring aged 3 to 7 months showed significant dose-dependent deficits compared to the control group. A cumulative uncertainty factor of 3,000 was used to account for the use of a LOAEL instead of a NOAEL (10), interspecies differences in toxicokinetics (3), interspecies differences in toxicodynamics (10), and intraspecies variability in toxicokinetics (3) and toxicodynamics (3) to obtain the 1-hour REL of 0.6 µg/m³.

The OMOE (2012) provides an ambient air quality criteria (AAQC) of 2 µg/m³ based on a 24-hour averaging period; however, no supporting documentation is available.

The TCEQ (2014) reports an interim, short term (1 hour) ESL for mercury metal and inorganic forms of 0.25 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM10. No supporting data was available for this limit; therefore, it was not selected.

24.1.2 Chronic Inhalation

Table B.24-2 Chronic Inhalation Exposure Limits for Mercury

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	MRL	-	**REL**	TCA	ESL	RfC	RfC
Exposure Limit Value (µg/m³)	-	0.2	-	**0.03**	0.2	0.025	0.3	1
Critical Organ or Effect	-	Nervous System	-	**Nervous System**	Nervous System	-	Nervous System	Nervous System, Kidneys and Non-Specific
Species	-	Male Humans	-	**Humans**	Humans	-	Humans	Humans
Study	-	Multiple	-	**Multiple**	Multiple	-	Multiple	Multiple
Source	-	ATSDR 1999	-	**OEHHA 2014**	RIVM 2001	TCEQ 2014	US EPA 1995	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The US EPA has developed an RfC for elemental mercury of 0.3 µg/m³ (US EPA 1995). The RfC is derived from a LOAEL of 0.025 mg/m³ for neurobehavioral effects in occupationally exposed males based on various studies. The LOAEL was derived from an 8-hour TWA occupational exposure and was adjusted to the LOAELHEC of 0.009 mg/m³ for continuous exposure. A cumulative uncertainty factor of 30 was applied to account for the protection of sensitive subpopulations and the use of a LOAEL (10) as well as database deficiencies (3), resulting in an RfC of 0.3 µg/m³.

The ATSDR (1999) provides a chronic inhalation MRL of 0.2 µg/m³ for metallic (elemental) mercury vapour based on a study by Fawer *et al.* (1983) on a group of 26 exposed workers from three industries. A significant increase in the occurrence of tremors was observed upon exposure to low levels of mercury for an average of 15.3 years. The LOAEL of 0.026 mg/m³ was adjusted to continuous exposure to obtain an adjusted LOAEL of 0.0062 mg/m3. A cumulative uncertainty factor

of 30 was applied to the adjusted LOAEL to account for intra-species variability (10) and for use of a LOAEL (3).

The OEHHA (2014) has derived a chronic REL of 0.03 µg/m³ based upon neurotoxicity to humans. The chronic REL was calculated based on various neurotoxicity studies with long-term exposures. An LOAEL of approximately 0.025 mg/m³ was derived from the studies and adjusted for worker ventilation and workweek exposure to 9 µg/m³ (25 µg/m³ x 10 m3/20 m3 x 5 d/7 d). A cumulative uncertainty factor of 300 was applied, for the use of a LOAEL (10), for intraspecies toxicokinetic (√10) and toxicodynamic (10) variability, to derive the chronic REL of 0.03 µg/m³.

The RIVM (2001) appears to have adopted the ATSDR's MRL of 0.2 µg/m³ as its TCA for metallic mercury but minimal information is provided regarding the RIVM interpretation of the value.

The TCEQ (2014) reports a long term ESL for mercury metal and inorganic forms of 0.025 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

The WHO (2000) value is based upon a range of LOAELs for mercury vapour (10 to 30 µg/m³) associated with neurological, renal and non-specific effects in exposed workers from various studies. A cumulative uncertainty factor of 20 was applied to account for intrahuman variability (10) and the use of a LOAEL (2) to derive the RfC of 1 µg/m³.

24.2 Oral Exposure Limits

24.2.1 Chronic Oral

Table B.24-3 Chronic Oral Exposure Limits for Mercury

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	RfD	-	TDI	**RfD**	TDI
Exposure Limit Value (mg/kg bw/day)	-	0.0003	-	0.002	**0.0003**	0.002
Critical Organ or Effect	-	Kidney	-	Kidney	**Kidney**	Kidney
Species	-	Rats	-	Rats	**Rats**	Rats

Table B.24-3 Chronic Oral Exposure Limits for Mercury

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Study	-	US EPA 1987	-	NTP 1993	**US EPA 1987**	ICPS 2003
Source	-	Health Canada 2010	-	RIVM 2001	**US EPA 1995**	WHO 2005

- not available

Bold – Exposure Limit selected for HHRA.

The US EPA (1995) derived its RfD of 0.0003 mg/kg bw/d based on a drinking water equivalent level (DWEL) of 0.010 mg/L, which was derived from studies using rats exposed to mercuric chloride via ingestion or subcutaneous injection (US EPA 1987). Back calculation from the DWEL, assuming a daily water intake of 2 L and an average body weight of 70 kg, resulted in a RfD of 0.0003 mg/kg/day for autoimmune glomerulonephritis. The DWEL and back calculated RfD were derived from an intensive review and workshop discussions of the entire inorganic mercury database (US EPA, 1987). A cumulative uncertainty factor of 1,000 was applied to the LOAELs of the three rat studies used (0.226 mg/kg/day, 0.317 mg/kg/day and 0.633 mg/kg/day) to account for LOAEL to NOAEL conversion (10), use of subchronic studies (10) and both intra and interspecies variability (10).

Health Canada (2010) has adopted the US EPA's RfD of 0.0003 mg/kg bw/d (described above) as its TDI for mercury.

The RIVM (2001) provides an oral TDI of 0.002 mg/kg bw/day for inorganic mercury, derived from an NTP (1993) study with rats that identifies a NOAEL of 0.23 mg/kg bw/day for renal effects. A cumulative uncertainty factor of 100 was applied for interspecies (10) and intraspecies (10) variation to obtain a TDI of 0.002 mg/kg bw/day for kidney effects.

The WHO (2005) adopted a TDI of 0.002 mg/kg bw/day for inorganic as recommended by an IPCS Working Group (IPCS 2003). The TDI was based on a LOAEL of 1.9 mg/kg/day for kidney effects in rats exposed to inorganic mercury for 2 years. A cumulative uncertainty factor of 1,000 was applied to account for interspecies differences (10), intrahuman variability (10), and for the use of a LOAEL (10).

References

ATSDR (Agency for Toxic Substances and Disease Registry). 1999. Toxicological Profile for Mercury. US Department of Health and Human Services. Public Health Service. Agency for Toxic

Substances and Disease Registry. Atlanta, GA. March 1999. Accessed at: http://www.atsdr.cdc.gov/toxprofiles/tp46.pdf. Accessed February 2015.

Danielsson BR, Fredriksson A, Dahlgren L, Gardlund AT, Olsson L, Dencker L and Archer T (1993). Behavioural effects of prenatal metallic mercury inhalation exposure in rats. Neurotoxicol Teratol 15(6): 391-6.

Fawer RF, DeRibaupierre Y, Guillemin M, *et al.* 1983. Measurement of hand tremor induced by industrial exposure to metallic mercury. Br J Ind Med 40:204-208.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme. September 2010.

IPCS (2003) Elemental mercury and inorganic mercury compounds: human health aspects. Geneva, World Health Organization, International Programme on Chemical Safety (Concise International Chemical Assessment Document 50). Cited in: WHO 2005

OEHHA (California Office of Environmental Health Hazard Assessment). 2014. Acute, 8-hour and Chronic Reference Exposure Level Summaries. Accessed at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD1_final.pdf#page=476. Accessed February 2015.

OMOE (Ontario Ministry of the Environment). 2012. Summary of Standards and Guidelines to Support Ontario Regulation 419/05 - Air Pollution – Local Air Quality (including Schedule 6 of O. Reg. 419/05 on Upper Risk Thresholds). Accessed at: https://ia802505.us.archive.org/5/items/summaryofstandar00snsn21806/summaryofstandar00snsn21806.pdf. Accessed on February 2015.

RIVM (National Institute of Public Health and the Environment). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. Accessed at: http://rivm.openrepository.com/rivm/bitstream/10029/9662/1/711701025.pdf. Accessed February 2015.

US EPA (United States Environmental Protection Agency). 1987. Peer Review Workshop on Mercury Issues. Summary Report. Environmental Criteria and Assessment Office, Cincinnati, OH. October 26-27.

US EPA (United States Environmental Protection Agency). 1995. IRIS Mercuric chloride (HgCl2) (CASRN 7487-94-7). Cincinnati, OH: United States Environmental Protection Agency. Accessed at: http://www.epa.gov/iris/subst/0692.htm. Accessed February 2015.

US EPA (United States Environmental Protection Agency). 1995. Mercury, elemental (CASRN 7439-97-6) Accessed at: http://www.epa.gov/iris/subst/0370.htm. Accessed February 2015.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255. Accessed at http://www.euro.who.int/__data/assets/pdf_file/0005/74732/E71922.pdf. Accessed on February 2015.

WHO (World Health Organization). 2005. Mercury in Drinking-water. Background document for development of WHO Guidelines for Drinking-water Quality. World Health Organization. WHO/SDE/WSH/05.08/10 Accessed on: http://www.who.int/water_sanitation_health/dwq/chemicals/mercuryfinal.pdf?ua=1. Accessed February 2015.

25.0 MOLYBDENUM

25.1 Inhalation Exposure Limits

25.1.1 Acute Inhalation

Table B.25-1 Acute Inhalation Exposure Limits for Molybdenum

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	24 hour Guideline	-	-	1 hour ESL	-
Exposure Limit Value (µg/m³)	-	120	-	-	30	-
Critical Organ or Effect	-	-	-	-	-	-
Species	-	-	-	-	-	-
Study	-	-	-	-	-	-
Source	-	OMOE 2012	-	-	TCEQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

The OMOE (2012) has developed a 24-hour acute guideline for molybdenum particulates of 120 µg/m³. The OMOE does not provide the scientific basis for this limit; therefore, the value was not considered for use in the assessment.

The TCEQ (2014) reports an interim short term (1 hour) ESL for molybdenum of 30 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

Due to the lack of defensible acute inhalation exposure limits, manganese was not assessed on an acute basis.

25.1.2 Chronic Inhalation

Table B.25-2 Chronic Inhalation Exposure Limits for Molybdenum

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	**TCA**	ESL	-	-
Exposure Limit Value (µg/m³)	-	-	-	-	**12**	3	-	-
Critical Organ or Effect	-	-	-	-	**Body Weight**	-	-	-
Species	-	-	-	-	**Rats and Mice**	-	-	-
Study	-	-	-	-	**NTP 1997**	-	-	-
Source	-	-	-	-	**RIVM 2001**	TCEQ 2014	-	-

- not available

Bold – Exposure Limit selected for HHRA.

Molybdenum as Mo (soluble compounds) is classified as a confirmed animal carcinogen with unknown relevance to humans (Group A3) by ACGIH (2007). However, no unit risk factors were available for molybdenum exposure by inhalation. For this reason, molybdenum was treated as a non-carcinogen by chronic inhalation for this risk assessment.

The RIVM (2001) reported an inhalation TCA of 12 µg/m³ based on a subchronic study on rats and mice exposed to molybdenum trioxide via inhalation (NTP 1997). Body weight effects were observed at 300 mg/m³, with a NOAEC of 100 mg/m³. The NOAEC was adjusted for continuous exposure to 12 mg/m³. A cumulative uncertainty factor of 1,000 was applied to the duration-adjusted NOAEC to account for interspecies variability (10), intraspecies variability (10) and extrapolation from sub-chronic to chronic exposure (10).

The TCEQ (2014) reports an interim long term ESL for molybdenum of 3 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

25.2 Oral Exposure Limits

25.2.1 Chronic Oral

Table B.25-3 Chronic Oral Exposure Limits for Molybdenum

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	UL	-	TDI	**RfD**	TDI
Exposure Limit Value (mg/kg bw/day)	-	0.023 (0 - 11 yrs) 0.027 (12 - 19 yrs) 0.028 (≥ 19 yrs)	-	0.010	**0.005**	0.004
Critical Organ or Effect	-	Reproductive Effects	-	-	**Serum Uric Acid Levels**	Adverse Health Effects
Species	-	Rats	-	Rats	**Human**	Human
Study	-	Fungwe *et al.*, 1990	-	Vermeire *et al*. 1991	**Kovalskiy *et al.* 1961**	Chappell 1979
Source	-	Health Canada 2010	-	RIVM 2001	**US EPA 1993**	WHO 2011

- not available

Bold – Exposure Limit selected for HHRA.

Molybdenum is an essential dietary nutrient which is a constituent of several mammalian enzymes. The Food and Nutrition Board of the Subcommittee on the Tenth Edition of the RDAs has established ESAADI values for molybdenum of 0.0025 to 0.00445 mg/kg bw/day for infants, 0.00195 to 0.00536 mg/kg bw/day for children, and 0.0015 to 0.0036 mg/kg bw/day for adolescents and adults (NRC, 1989). These values were derived from the Second National Health and Nutrition Examination Survey (NHANES II). Values for infants and children were extrapolated from the adult values on the basis of body weight.

Molybdenum as Mo (soluble compounds) is classified as a confirmed animal carcinogen with unknown relevance to humans (Group A3) by ACGIH (2007). No slope factors were available for molybdenum exposure by ingestion. For this reason, molybdenum was treated as a non-carcinogen by ingestion for this risk assessment.

Health Canada (2010) has derived a range of TDIs from Tolerable Upper Intake Levels (ULs) reported by the Institute of Medicine (IOM). ULs are "the highest level of daily intake likely to pose no risk of

adverse health effects for almost all individuals in the specified life stage group". The IOM used the NOAEL of 0.9 mg/kg/d for reproductive effects from a rat study to calculate the adult UL of 0.028 mg/kg bw/d. The IOM (2001) calculated the adult UL by dividing the NOAEL by a cumulative uncertainty factor of 30 (10 for interspecies and 3 for intraspecies variability). Health Canada adjusted the IOM ULs for age group and body weight to derive ULs of 0.028 mg/kg bw/day for humans 19 years of age and older, 0.027 mg/kg bw/day for 12 to 19 years, 0.023 mg/kg bw/day for 0 to 11 years (Health Canada, 2010).

The RIVM state that available data does not suggest that molybdenum is a genotoxic compound (2001). They do not provide a toxicological basis for the TDI of 0.010 mg/kg bw/d other than a NOAEL of 1 mg/kg/day in rats (Vermeire *et al*. 1991). Due to the minimal amount of information available, this value was not used.

The US EPA (1993) derived an oral RfD of 0.005 mg/kg bw/d based on increased serum uric acid levels in a human dietary exposure study in Armenia (Kovalskiy *et al.* 1961). The 6-year to lifetime dietary exposure study correlated the dietary intake of molybdenum with serum uric acid levels. The average daily intake of molybdenum was estimated to range from 0.14 to 0.21 mg/kg bw/day for an adult (US EPA 1993). Based on the results of the study, a molybdenum intake of 0.14 mg/kg bw/day could result in serum uric acid levels elevated above the average range of the adult population; this level was designated as a LOAEL. The US EPA (1993) applied a cumulative uncertainty factor of 30 to account for the use of a LOAEL (10) and sensitive individuals (3). A full factor of 10 was not used for the protection of sensitive individuals since the study was conducted in a relatively large human population, resulting in a chronic oral value of 0.005 mg/kg bw/d based on increased serum uric acid levels. This exposure limit was selected over the Health Canada ULs as it was derived from a studies of human exposure and is also the lower, more conservative value.

The WHO (2011) derived a TDI of 0.004 mg/kg bw/d from a 2-year study in Colorado based on humans exposed to molybdenum via drinking water (Chappell 1979). People were evaluated in one of two groups: low-molybdenum group (0.001 to 0.050 mg/L molybdenum in drinking water) and high-molybdenum group (≥ 0.2 mg/L in drinking water). No adverse health effects or abnormal serum uric acid or ceruloplasmin concentrations were observed in the low-molybdenum group. Increased urinary molybdenum and mean serum ceruloplasmin concentrations and decreased mean serum uric acid were observed in the high exposure group. However, since no adverse effects were observed in the high-exposure group, a NOAEL of 0.2 mg/L was identified. An uncertainty factor of 3 was applied by the WHO (2011) to account for intraspecies variability. A factor of 3 was considered adequate since molybdenum is an essential element. The WHO TDI was not used due to concerns about the quality of the primary study on which it was based (WHO 2011).

References

ACGIH (American Conference of Governmental Industrial Hygienists). 2007. TLVs and BEIs based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices. Cincinnati, Ohio. Accessed at: http://www.crios.be/Cobalt/specific_classification/ACGIH.htm. Accessed February 2015.

Fungwe, T.V., F. Buddingh, D.S. Demick, C.D. Lox, M.T. Yang, and S.P. Yang. 1990. The role of dietary molybdenum on estrous activity, fertility, reproduction and molybdenum and copper enzyme activities of female rats. Nutr. Res. 10: 515–524.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

IOM. 2001. Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. A Report of the Panel on Micronutrients, Subcommittees on Upper Reference Levels of Nutrients and of the Interpretation and Uses of Dietary Intakes, and Standing Committee on the Scientific Evaluation of Dietary Reference Intakes. Food and Nutrition Board of the Institute of Medicine of the National Academies. National Academy Press, Washington, DC.

Kovalskiy, V.V., G.A. Yarovaya and D.M. Shmavonyan. 1961. Changes of purine metabolism in man and animals under conditions of molybdenum biogeochemical provinces. Zh. Obshch. Biol. 22:179-191. (Russian trans.)

NRC (National Research Council). 1989. National Academy of Sciences. Recommended Dietary Allowances, 10th Ed., National Academy Press, Washington, DC.

NTP. 1997. Toxicology and carcinogenesis studies of molybdenum trioxide in F344/N rats and B6C3F1 mice (inhalation studies). NIH Publication, NTP.TR 462, US Dept. of Health and Human Services, USA.

OMOE (Ontario Ministry of the Environment). 2012. Summary of Standards and Guidelines to Support Ontario Regulation 419/05 - Air Pollution – Local Air Quality (including Schedule 6 of O. Reg. 419/05 on Upper Risk Thresholds) (sorted by Molybdenum). Standards Development Branch, Ontario Ministry of the Environment. PIBS # 6569e01. Accessed at: http://www.hamnair.ca/uploads/MOE-STANDARDS.pdf. Accessed February 2015.

RIVM (National Institute of Public Health and the Environment). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001. Accessed at http://rivm.openrepository.com/rivm/bitstream/10029/9662/1/711701025.pdf. Accessed February 2015.

TCEQ (Texas Commission on Environmental Quality). 2014. Effects Screening Levels (ESLs). Accessed at: http://www.tceq.texas.gov/toxicology/esl/list_main.html/#esl_1. Accessed February 2015.

US EPA (United States Environmental Protection Agency). 1993. IRIS Molybdenum (CASRN 743998-7) Reference Dose for Chronic Oral Exposure (RfD). Cincinnati, OH: United States Environmental Protection Agency. Accessed at: http://www.epa.gov/iris/subst/0425.htm#reforal. Accessed February 2015.

Vermeire, T.G., Apeldoorn, M.E. van, Foux, J.C. de and Jansse, P.J.C.M. 1991. Voorstel voor de human-toxicologische onderbouwing van C-toetsingswaarden. National Institute of Public Health and the Environment, RIVM-report no. 725201005.

WHO (World Health Organization). 2011. Molybdenum in Drinking Water, Background document for development of WHO Guidelines for Drinking-Water Quality. WHO, Geneva, Switzerland. Accessed at: http://www.who.int/water_sanitation_health/dwq/chemicals/en/molybdenum.pdf. Accessed February 2015.

26.0 NAPHTHALENE

26.1 Inhalation Exposure Limits

26.1.1 Acute Inhalation

Table B.26-1 Acute Inhalation Exposure Limits for Naphthalene

AGENCY	ESRD	ATSDR	OEHHA	ACGIH	TCEQ	WHO
Exposure Limit Type	-	-	-	**Short-term occupational exposure limit**	ESL	-
Exposure Limit Value ($\mu g/m^3$)	-	-	-	**2,000**	200	-
Critical Organ or Effect	-	-	-	**Eye and Respiratory Tract**	Odour	-
Species	-	-	-	**-**	-	-
Study	-	-	-	**OSHA 2013**	-	-
Source	ESRD 2013	ATSDR 2013; 2005	OEHHA 2013	**ACGIH 2013**	TCEQ 2013	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The TCEQ have recommended an ESL of 200 µg/m3 for short–term exposure to naphthalene based on odour (TCEQ 2013). This guideline is not health-based and no supporting documentation was provided for the odour threshold identified.

An occupational exposure limit for short-term exposure to naphthalene has been developed by the American Conference of Governmental Industrial Hygienists (ACGIH), based on the potential for eye and respiratory tract irritation (OSHA 2013). The ACGIH recommend a short-term exposure limit (STEL) of 79 mg/m3 for naphthalene (OSHA 2013). The ACGIH STEL is based on a 15-minute exposure period and was converted to a 1-hour acute air concentration (X) using the following equation:

15 minute STEL of 79 mg/m^3 x 15 min = 1-hour acute exposure limit x 60 min

The above calculation follows Haber's rule which assumes the inhalation toxic potential of a chemical is a constant that is a function of time and exposure concentration. Therefore, a 4-fold increase in exposure duration necessitates a 4-fold decrease in the exposure concentration. Using this assumption, an acute exposure limit of 20 mg/m^3 was determined for 1-hour exposure to naphthalene. The STEL was developed for worker exposure and therefore a 10-fold uncertainty factor was applied to account for sensitive individuals in the general population. The resulting exposure limit of 2 mg/m3 or 2,000 µg/m3 was selected for the evaluation of acute inhalation exposure to naphthalene.

Naphthalene was included in the chemical groups for eye irritants and respiratory irritants following acute inhalation exposures.

26.1.2 Chronic Inhalation

Table B.26-2 Chronic Inhalation Exposure Limits for Naphthalene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	MRL	RfC	RfC RsC	-	-	**RfC**	-
Exposure Limit Value (µg/m^3)	-	4	10	9 **0.3**	-	-	**3**	-
Critical Organ or Effect	-	Nasal lesions	Nasal cytotoxicity	Nasal lesions Nasal tumors	-	-	**Nasal leisons**	-
Species	-	Mouse, Rat	Rats	Mouse Rats	-	-	**Mouse**	-
Study	-	NTP 1992; Abdo *et al.*, 2001; NTP 2000	NTP 2000	NTP 1992 NTP 2000	-	-	**NTP, 1992**	-
Source	ESRD 2013	ATSDR 2013; 2005	Health Canada 2013	OEHHA 2000; 2011	RIVM 2001	TCEQ 2013	**US EPA 1998**	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (2005) recommend a chronic inhalation MRL of 4 µg/m^3 for naphthalene. This MRL was based on the occurrence of nasal lesions as reported in two chronic inhalation studies in mice (NTP 1992) and rats (Abdo *et al.* 2001; NTP 2000). Nasal lesions were observed at the lowest exposure levels (10 ppm; 45 mg/m^3) in both studies. An increased incidence of lung tumours was reported in female

mice but not observed in rats, however, an increased incidence of nasal tumors was reported in rats but not in mice (ATSDR 2005).

An RfC of 9 μg/m^3 is recommended by the OEHHA (2000) for non-carcinogenic effects following chronic inhalation exposure to naphthalene. This RfC was based on the NTP (1992) LOAEL of 45 mg/m^3 for respiratory lesions in mice. The OEHHA (2011) also recommend a unit risk value of 0.034 per mg/m^3 for carcinogenic effects following chronic inhalation exposure to naphthalene. This corresponds to an RsC of 0.3 μg/m^3 assuming a 1 in 100,000 (1x10-5) excess lifetime cancer risk. Unit risk factors were developed for naphthalene using benchmark dose methodology and tumour incidence data for female mice, male rats and female rats (NTP 1992; 2000). The selected unit risk factor was for the male rat (NTP 2000), the species most sensitive to naphthalene exposure via inhalation (OEHHA 2011).

IARC (2013) has classified naphthalene as possibly carcinogenic to humans (Group 2B). The NTP (2011) concluded that naphthalene is reasonably anticipated to be a human carcinogen based on sufficient evidence from studies in experimental animals. This evidence was provided in the NTP (2000) study in which chronic exposure to naphthalene produced highly malignant and extremely rare tumors of the lining of the nose of rats. The mechanism for naphthalene carcinogenesis is not clear but formation of a specific stereoisomer of naphthalene oxide (1R,2S-) as well as oxidative damage and DNA breakage may play a role (NTP 2011).

The US EPA (1998) developed an RfC of 3 μg/m^3 for naphthalene based on nasal lesions in mice (hyperplasia and metaplasia) as reported by NTP (1992). Although this study reported tumours in the female mouse lung (alveolar/bronchiolar carcinomas), the US EPA did not consider the tumour incidence to be related to naphthalene exposure as it was within the range of incidence in historical controls.

Health Canada (2010) is reviewing the TC for naphthalene and no value is currently available. Health Canada (2013) recommends a chronic RfC of 10 μg/m^3 as the chronic exposure limit for naphthalene in the indoor residential environment. This value is based on a chronic LOAEL of 52 mg/m^3 for nasal cytotoxicity from an NTP (2000) study using rats. The LOAEL was adjusted to 9.3 mg/m^3 for continuous exposure and divided by a cumulative uncertainty factor of 1,000 for database deficiencies (10), interspecies variability (10) and intraspecies variability.

It is noted that a more recent review of the inhalation cancer assessment for naphthalene was conducted by US EPA (2004) in which a draft unit risk value was provided, based on the increased incidence of nasal tumors in rats reported by NTP (2000). However, this document was archived in 2004 (US EPA 2004) and as of May 2015 no changes have been made to the IRIS inhalation assessment

for naphthalene as a result of this assessment. The US EPA has determined a toxicological review of naphthalene should be conducted; the process has not yet started (US EPA 2015).

The majority of agencies have developed chronic inhalation exposure limits based on the non-carcinogenic effects (nasal lesions) of naphthalene reported in mice and rats. However the NTP (2011) suggest naphthalene could be carcinogenic to humans and the OEHHA (2011) has recommended a unit risk value for naphthalene based on the carcinogenic effects in rats (nasal tumours) reported by the NTP (2000).

For the purpose of this assessment both carcinogenic and noncarcinogenic endpoints for naphthalene were evaluated. The OEHHA (2011) RsC of 0.3 µg/m³ was selected for the assessment of carcinogenic effects and the US EPA RfC of 3 µg/m³ was selected for the assessment of noncarcinogenic effects following chronic inhalation exposure to naphthalene. Naphthalene was included in the chemical groups for nasal tumors and nasal irritation following chronic inhalation exposures.

26.2 Oral Exposure Limits

*** *naphthalene was not selected for multi-media so not required for current HHRA*

26.2.1 Chronic Oral

Table B.26-3 Chronic Oral Exposure Limits for Naphthalene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	MRL (adjusted)	TDI	RsD	TDI	RfD	-
Exposure Limit Value (µg/kg bw/day)	60	20	0.08	40	20	-
Critical Organ or Effect	Body weight	Body weight	Nasal tumors	Body weight	Body weight	-
Species	Rat	Rat	Rats	Rat	Rat	-
Study	NTP 1980a	BCL, 1980; US EPA 1998	NTP 2000	Various; TPHCWG 1997	NTP, 1980a	-
Source	ATSDR 2005	Health Canada 2010	OEHHA 2011	RIVM, 2001	US EPA 1998	WHO 2000

- not available
Bold – Exposure Limit selected for HHRA.

The ATSDR (2005) has developed an intermediate duration oral MRL value of 60 µg/kg body weight/day for naphthelene. This MRL considered NOAEL and LOAEL values from three exposure studies where reduced body and organ weights were reported in rats (NTP 1980a) or mice (NTP 1980b; Shopp *et al.* 1984) following 90-days gavage exposure to napththalene. The strongest evidence of toxicity was for body weight changes in rats (NTP 1980a) with a NOAEL of 100 mg/kg/day determined from this study. Adjusting the ATSDR intermediate MRL by an uncertainty factor of 10 for subchronic to chronic extrapolation would result in a chronic exposure limit of 60 µg/kg body weight/day for naphthalene.

The US EPA (1998) derived an RfD of 20 µg/kg body weight/day for chronic oral exposure to naphthalene. This RfD was based on the same study and NOAEL identified by the ATSDR (2005) for weight loss in rats (NTP 1980a). The US EPA also evaluated the effects in mice following subchronic exposure to naphthalene (Shopp *et al.* 1984) but considered the effect of reduced body weights in rats to be the most appropriate for RfD derivation. An additional 3-fold uncertainty factor was applied to the study NOAEL to account for database deficiencies including lack of chronic oral exposure studies and 2-generation reproductive toxicity studies (US EPA 1998).

Health Canada (2010) adopted the US EPA RfD of 20 µg/kg body weight/day for chronic oral exposure to naphthalene based on the results of the NTP (1980a) study.

The RIVM (2001) has developed a tolerable daily intake of 40 µg/kg body weight/day for non-carcinogenic aromatic compounds with equivalent carbon number >9 to 16, including naphthalene. This TDI was adopted from TPHCWG (1997) which identified a range of reported oral RfD values (from 30 to 300 µg/kg body weight/day) for decreased bodyweights in rats following exposure to aromatic C9-C16 hydrocarbons.

The OEHHA (2011) did not develop an exposure limit for the noncarcinogenic effects of oral exposure to naphthalene. A slope factor of 0.12 per mg/kg body weight/day, resulting in an RsD of 0.08 µg/kg body weight/day for 1x10-5 excess cancer risk, was recommended. This slope factor was extrapolated from the unit risk factor determined for nasal tumour incidence in male rats following chronic inhalation exposure to naphthalene (OEHHA 2011). The RsD was not considered for the current assessment as none of the available oral studies for naphthalene, although limited by their exposure duration, support route to route extrapolation of the nasal tissue effects observed following chronic inhalation exposure to naphthalene.

The RfD of 20 µg/kg body weight/day recommended by the US EPA (1998) and Health Canada (2010) was selected to evaluate chronic oral risks associated with naphthalene.

References

Abdo KM, Grumbein S, Chou BJ, *et al*. 2001. Toxicity and carcinogenicity study in F344 rats following 2 years of whole-body exposure to naphthalene vapors. Inhal Toxicol 13:931-950. Cited In: ASTDR 2005.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

ATSDR 2005. Toxicological Profile for Naphthalene, 1-Methylnaphthalene, and 2-Methylnaphthalene. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. August 2005. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#H. Accessed October 2013.

BCL (Battelle's Columbus Laboratories). 1980. Unpublished subchronic toxicity study: Naphthalene (C52904), Fischer 344 rats. Prepared by Battelle Laboratories under NTP Subcontract No. 76-34-106002. Cited In: Health Canada 2010.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

Health Canada. 2013. Residential Indoor Air Quality Guideline Science Assessment Document Naphthalene. Water and Air Quality Bureau Healthy Environments and Consumer Safety Branch.

IARC (International Agency for Research on Cancer). 2013. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Updated July 16, 2013. Available at: http://monographs.iarc.fr/ENG/Classification/index.php. Accessed October 2013.

NTP (National Toxicology Program) 2011. Report on Carcinogens, Twelfth Edition (2011). Naphthalene. CAS No. 91-20-3. Available at: http://ntp.niehs.nih.gov/ntp/roc/twelfth/profiles/naphthalene.pdf Accessed October 2013.

NTP 2000. Toxicology and carcinogenesis studies of naphthalene (CAS No. 91-20-3) in F344/N rats (inhalation studies). National Toxicology Program. NTP TR 500, NIH Publ. No. 01-4434. Cited In: ASTDR 2005.

NTP 1992. Toxicology and carcinogenesis studies of naphthalene (CAS No. 91-20-3) in B6C3F1 mice (inhalation studies). Research Triangle Park, NC: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health. National Toxicology Program. NIH Publication No. 92-3141. Technical report series no. 410. Cited In: ASTDR 2005.

NTP. 1980a. Subchronic toxicity study: Naphthalene (C52904), Fischer 344 rats. Research Triangle Park, NC: U.S. Department of Health and Human Services, National Toxicology Program. Cited In: ASTDR 2005

NTP. 1980b. Subchronic toxicity study: Naphthalene (C52904), B6C3F1 mice. Research Triangle Park, NC: U.S. Department of Health and Human Services, National Toxicology Program. Cited In: ASTDR 2005

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

OEHHA 2011. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. Appendix B. Chemical-specific summaries of the information used to derive unit risk and cancer potency values. Updated 2011. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/tsd052909.html Accessed October 2013.

OEHHA 2000. Technical Support Document for Noncancer RELs. Appendix D.3 Chronic RELs and toxicity summaries using the previous version of the Hot Spots Risk Assessment guidelines. Chronic Toxicity Summary: Naphthalene. April 2000. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD3_final.pdf#page=413 Accessed October 2013.

OSHA (Occupational Safety and Health Administration) 2013. Chemical Sampling Information. Naphthalene: Exposure Limits and Health Effects. Available at: https://www.osha.gov/dts/chemicalsampling/data/CH_255800.html Accessed October 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

Shopp GM, White KL JR, Holsapple MP, et al. 1984. Naphthalene toxicity in CD-1 mice: General toxicology and immunotoxicology. Fundam Appl Toxicol 4:406-419. Cited In: ATSDR 2005.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed October 2013.

TPHCWG (Total Petroleum Hydrocabron Working Group) 1997. Total Petroleum Hydrocarbon Criteria Working Group Series, Vol. 4: Development of Fraction Specific Reference Doses (RfDs) and Reference Specific Concentrations (RfCs) for Total Petroleum Hydrocarbons (TPH). Amherst Scientific Publishers. Amherst, Massachusetts. Available at: http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=5265DE434DA12266C926B29274CD10F7?doi=10.1.1.197.7992&rep=rep1&type=pdf. Accessed October 2013.

US EPA 1998. Toxicological Review of Naphthalene (CAS No. 91-20-3) in Support of Summary Information on the Integrated Risk Information System (IRIS). August 1998 U.S. Environmental Protection Agency Washington, DC.
Available at: http://www.epa.gov/iris/toxreviews/0436tr.pdf. Accessed October 2013.

US EPA 2004. IRIS Toxicological Review of Naphthalene (2004 External Review Draft, Update). U.S. Environmental Protection Agency, Washington, DC, NCEA-S-1707, 2004. Available at: http://cfpub.epa.gov/ncea/iris_drafts/recordisplay.cfm?deid=84403 Accessed October 2013.

US EPA 2015. IRISTrack Detailed Report. Naphthalene Assessment Milestones and Dates. http://cfpub.epa.gov/ncea/iristrac/index.cfm?fuseaction=viewChemical.showChemical&sw_id=1042

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255

27.0 NICKEL

27.1 Inhalation Exposure Limits

27.1.1 Acute Inhalation

Table B.27-1 Acute Inhalation Exposure Limits for Nickel

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	1 hour AAQO	24 hour AAQC	-	**1 hour REL**	1 hour ReV	-
Exposure Limit Value (µg/m³)	6	0.1 (PM_{10}) 0.2 (TSP)	-	**0.2**	1.1	-
Critical Organ or Effect	-	Adverse Health Effects	-	**Immune System**	Respiratory	-
Species	-	-	-	**Mice**	Human	-
Study	-	-	-	**Graham *et al.* 1978**	Cirla *et al.* 1985	-
Source	Alberta Government 2013	OMOE 2012	-	**OEHHA 2012b**	TCEQ 2011	-

- not available

Bold – Exposure Limit selected for HHRA.

ESRD (2013) uses an AAQO of 6 µg/m³ for a 1-hour averaging period. This value was adopted from an outdated OEHHA value (OEHHA 2008). Since the OEHHA has changed its REL, the ESRD AAQO was not used in the current assessment.

The OMOE uses an AAQC of 0.1 µg/m³ (PM10) and 0.2 µg/m³ (TSP) for a 24-hour averaging period for nickel (OMOE 2012). This criterion is based on adverse health effects; however, the specific derivation is unclear.

The OEHHA (2012b) report an acute REL of 0.2 µg/m³ for nickel and common nickel compounds, with the exception of nickel carbonyl due its unique toxicity. The OEHHA reports available human studies were limited to case reports and small occupational clinical studies with limited reporting and inadequate exposure data. Therefore, the 1-hour REL was based on an inhalation study using mice

(Graham *et al.* 1978), with the critical effect being a depressed antibody response. The dose response data from the Graham *et al.* (1978) study was used to calculate a BMDL of 165 µg Ni/m³ and an extrapolated 1-hour concentration of 233 µg Ni/m³ was derived. A cumulative uncertainty factor of 1000 was applied to the extrapolated 1-hour concentration to account for uncertainty related to the benchmark response rate (√10), interspecies differences (10) and intraspecies variability (30). The resultant 1-hour REL of 0.2 µg Ni/m³ was used for the acute inhalation assessment. An 8-hour REL of 0.06 µg/m³ was also reported but was not used in the assessment since it was based on repeated 8-hour exposures.

The TCEQ (2011) derived a 1-hour ReV of 1.1 µg/m³ for inorganic, soluble and metallic nickel compounds. Organic nickel compounds such as nickel carbonyl are not covered by this ReV. Acute inhalation studies suggest that nickel sulphate is the most toxic inorganic form. The 1-hour ReV was derived based on a human study by Cirla *et al.* (1985), with support from an animal study by Graham *et al.* (1978). The human exposure study was based on a group of seven metal plating workers with occupational asthma who were evaluated for atopy and pulmonary function challenge in response to inhalational challenge with nickel sulfate hexahydrate and other metals. A LOAEL of 67 µg/m³ from the Cirla *et al*. (1985) study was associated with significant bronchoconstriction. This LOAEL was chosen since it was based on a human study which involved a sensitive population (occupational asthmatics). The LOAEL from the primary human study was adjusted for continuous exposure to 33.5 µg/m³. A cumulative uncertainty factor of 30 was applied to account for the use of a LOAEL (10) and for database uncertainties (3), resulting in a human-based 1-hour ReV of 1.1 µg/m³.

27.1.2 Chronic Inhalation

Table B.27-2 Chronic Inhalation Exposure Limits for Nickel

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	AAQO	MRL	**RsC** **TC**	RsC REL	TCA	RsC ReV	RsC	RsC
Exposure Limit Value (µg/m³)	0.05	0.09	0.0077 (RsC, oxidic/sulphidic/soluble) 0.014 (RsC, soluble) 0.02 (TC, oxidic) 0.018 (TC, subsulphide) **0.0035 (TC, sulphate)** 0.018 (TC, metallic)	0.04 (RsC) 0.014 (REL, nickel and compounds) 0.02 (REL, nickel oxide)	0.05	0.059 (RsC) 0.23 (ReV)	0.04 (refinery dust) 0.02 (subsulphide)	0.025

Table B.27-2 Chronic Inhalation Exposure Limits for Nickel

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Critical Organ or Effect	Lung	Lung	**Lung Cancer Lung**	Lung and Nasal Cancers Lung	Lung	Lung Cancer	Lung Cancer	Lung Cancer
Species	Rats	Rats	**Human (cancer) Mice, rats, rabbits (non cancer)**	Human (cancer) Rat (non cancer)	-	Human	Human	Human
Study	NTP 1996	NTP 1996	**Doll *et al.* 1990 (cancer) Multiple (non cancer)**	Multiple (cancer) NTP 1994 (non cancer)	-	Multiple (cancer) NTP 1996 (non cancer)	Multiple	-
Source	ESRD 2013	ATSDR 2005	**Health Canada 2010**	OEHHA 2002 (cancer) OEHHA 2012 a,b (non cancer)	-	TCEQ 2011	US EPA 1991a and 1991b	Anderson *et al.* 1992 and 1996

- not available

Bold – Exposure Limit selected for HHRA.

Nickel compounds are classified as carcinogenic to humans by IARC (Group 1) and NTP (Group K); insoluble nickel compounds are classified as confirmed human carcinogens by ACGIH (Group A1); and ,metallic nickel and alloys are considered to be possible human carcinogens by IARC (Group 2B) and as reasonably expected to be human carcinogens by NTP (Group R). Several cancer based and non-cancer based exposure limits have been derived for nickel.

Health Canada (2010) derived a combined inhalation unit risk of 1.3 per mg/m^3 for oxidic, sulphidic and soluble nickel, which equates to an RsC of 0.0077 µg/m^3. Health Canada also derived a unit risk estimate of 0.71 per mg/m^3 for soluble forms of nickel (equivalent to an RsC of 0.014) based on the same epidemiological data set (Doll *et al.* 1990), although this limit was not selected since it is less conservative. The unit risk of 1.3 per mg/m^3 (for combined forms of nickel) was based on lung cancer mortality data collected from epidemiological studies of exposed workers. The unit risk was derived from a TC05 (5% increase in mortality due to lung cancer) of 0.04 mg/m^3. This value corresponds to

an excess lifetime risk of one in 100,000. The corresponding inhalation RsC of 0.0077 µg/m³ based on lung cancer was used in the chronic carcinogenic assessment of nickel.

The TCEQ (2011) derived a unit risk of 1.7 x 10-4 per mg/m³ for nickel, which equates to an RsC of 0.059 µg/m³. The unit risk was based on the incidence of lung cancers in two human occupational studies (Grimsrud *et al.* 2003 and Enterline and Marsh 1982). The data sets were adjusted for continuous exposure due to the differences in exposure frequency between workers and the general population. Poisson regression and maximum likelihood estimates were used to estimate the dose-response relationship in support of the derivation of a combined URE. The ESL was derived from the combined URE of 1.74 × 10-4 per µg/m³, which is equivalent to an RsC of 0.059 µg/m³. This value was not used, due to the availability of the more conservative Health Canada RsC value.

The OEHHA (2002) derived a cancer unit risk estimate of 2.6 x 10-4 (µg/m³)-1, equivalent to an RsC of 0.04 µg/m³, for nickel and nickel compounds. This value is based on human epidemiological data (Chovil *et al.* 1981, Roberts *et al.* 1983, Muir *et al.* 1984 and ICNCM 1990) for occupational workers from a nickel refinery in Ontario and are based on mortalities from lung and nasal cancers. A linear relative risk model was used to fit the data. Excess cancer risk for smokers was assumed to be the same as for non-smokers. Standard mortality ratios were plotted against cumulative exposure. The 95% upper confidence limit of the slope of the linear regression data was determined to be 11.26. This value was adjusted for continuous exposure (8/24 days × 5/7 days/week × 48/52 weeks/year) and the upper bound unit risk value of 2.6 x 10-4 (µg/m³)-1 was calculated. Since the Health Canada value is more conservative, this value was not selected.

The US EPA (1991a, 1991b) derived RsC values for both refinery dust and nickel subsulfide. The RsC for refinery dust was determined using data sets from studies at four different nickel refineries (Chovil *et al.* 1981, Peto *et al*. 1984, Magnus *et al*. 1982, Enterline and Marsh 1982). Additive and multiplicative excess risk models were fitted to each data set whenever possible. The unit risk estimates ranged from 0.000011 µg/m³ to 0.00046 µg/m³, with the midpoint of 0.00024 µg/m³ being considered the best estimate. This URE equates to an RsC of 0.04 µg/m³. The RsC for nickel subsulfide was derived using the same four data sets from occupationally exposed workers at nickel refineries. Since nickel subsulfide is a major component of nickel refinery dust and produces the highest incidence of tumors for nickel compounds in animals (US EPA 1991b), the incremental unit risk estimate of nickel refinery dust (0.00024 µg/m³) was used with a multiplication factor of 2 to account for the roughly 50% nickel subsulfide composition. The URE of 0.00048 is equivalent to an RsC of 0.02 µg/m³. The US EPA RsCs were not selected since the Health Canada value is more conservative and considered several forms of nickel.

The WHO (2000) derived an RsC of 0.025 µg/m³ for nickel using studies with occupationally exposed humans (Anderson *et al.* 1992 and 1996). An incremental risk of 3.8 × 10-4 was estimated for 1 µg/m³

of nickel in air, based on exposure and risk information estimated for industrial populations. This value was not used since supporting documentation describing study details was not available.

The RIVM (2001) derived a chronic TCA of 0.05 µg/m³ based on a NOAEC of 30 µg/m³ for the incidence of alveolar macrophage activity. However, the basis for this value is not presented, therefore, the RIVM value was not selected.

The OEHHA (2012a, b) derived a chronic REL of 0.014 µg/m³ for nickel and its compounds and 0.02 µg/m³ for nickel oxide, both based on lung inflammation. Minimal differences were observed in the toxicological data between insoluble and soluble nickel compounds, with the exception of nickel oxide. The chronic REL for nickel and nickel compounds is based on a NTP inhalation study (NTP 1994) using rats. Benchmark dose analysis identified a BMDL05 of 30.5 µg Ni/m³ based on alveolar proteinosis in male and female rats. The BMDL05 was adjusted for chronic exposure to 5.4 µg Ni/m³ and a human equivalent concentration of 1.4 µg Ni/m³was calculated. A cumulative uncertainty factor of 100 was applied for interspecies variability (√10) and intraspecies variability (30). The chronic REL for nickel oxide is based on a NTP inhalation study (NTP 1996) in which male and female rats and mice were exposed to nickel oxide/m³ by inhalation. A BMDL05 of 117 µg Ni/m³ was identified based on alveolar proteinosis. A human equivalent concentration of 2.0 µg Ni/m³ was calculated, to which a cumulative uncertainty factor of 100 was applied for intraspecies and interspecies variability, resulting in a final REL of 0.02 µg Ni/m³.

Health Canada (2010) also derived non-carcinogenic values for various forms of nickel compounds based on respiratory effects. Tolerable concentrations of 0.020 µg/m³ (nickel oxide), 0.018 µg/m³ (nickel subsulphide), 0.0035 µg/m³ (nickel sulphate), and 0.018 µg/m³ (metallic nickel) were derived based on various studies (Spiegelberg *et al.* 1984, Benson *et al.* 1990, Dunnick *et al.* 1989, Johansson *et al.* 1983) on mice, rats or rabbits.

The TCEQ (2011) derived a chronic ReV for inorganic and metallic nickel compounds of 0.23 µg/m³. In the key study, male and female rats and mice were exposed to nickel sulphate hexahydrate for 6 hours plus 8 minutes/day, 5 days/week for a duration of 104 weeks (NTP 1996). A NOAEL of 0.03 mg/m³ for respiratory inflammation was identified. Benchmark dose modelling was completed on macrophage hyperplasia and alveolar proteinosis data sets. This analysis revealed that the BMC were very similar to the NOAEL, and thus the NOAEL was selected as the POD for the calculation of the ReV. The NOAEL was adjusted for continuous exposure to 5 µg/m³ and a human equivalent of 7 µg/m³ was calculated. A cumulative uncertainty factor of 30 was applied to account for interspecies differences (3), and intraspecies differences (10), resulting in the chronic ReV of 0.23 µg/m³. Because the OEHHA REL is more conservative, the TCEQ ReV was not used.

The ATSDR (2005) derived a chronic MRL of 0.09 µg/m³ based on lung inflammation and fibrosis in rats (NTP 1996). Male and female rats were exposed to nickel sulphate hexahydrate. The lowest exposure concentration of 0.03 mg nickel/m³ was selected by the ATSDR as a NOAEL for respiratory effects. This NOAEL was adjusted for continuous exposure to a NOAELADJ of 0.0054 mg nickel/m³ and for human exposure to a NOAELHEC of 0.0027 mg nickel/m³. A cumulative uncertainty factor of 30 was applied to the NOAELHEC to account for interspecies differences (3) and intraspecies variability (10). The ATSDR value was not used in the assessment since the OEHHA value is more conservative.

The ESRD (2013) AAQO of 0.05 µg/m³ was adopted from an outdated OEHHA REL for nickel and compounds.

27.2 Oral Exposure Limits

27.2.1 Chronic Oral

Table B.27-3 Chronic Oral Exposure Limits for Nickel

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	TDI	**REL**	RfD	RfD	TDI
Exposure Limit Value (mg/kg bw/day)	-	0.010 (nickel chloride) 0.010 (nickel sulphate)	**0.011**	0.050	0.020	0.012
Critical Organ or Effect	-	Perinatal mortality	**Perinatal mortality**	-	Body Weight	Body Weight
Species	-	Rats	**Rats**	Rats	Rats	Human
Study	-	SLI 2000	**NiPERA 2000**	Vermeire *et al.* 1991	Ambrose *et al.* 1976	Nielsen *et al.* 1999
Source	-	Health Canada 2010	**OEHHA 2012b**	RIVM 2001	UA EPA 1996	WHO 2005

- not available

Bold – Exposure Limit selected for HHRA.

Nickel compounds are classified as carcinogenic to humans by IARC (Group 1) and NTP (Group K); insoluble nickel compounds are classified as confirmed human carcinogens by ACGIH (Group A1); and ,metallic nickel and alloys are considered to be possible human carcinogens by IARC (Group 2B)

and as reasonably expected to be human carcinogens by NTP (Group R). No defensible slope factors were available for Nickel exposure by ingestion. For this reason, Nickel was treated as a non-carcinogen by ingestion for this risk assessment.

The OEHHA (2012b) derived a chronic oral REL of 0.011 mg/kg bw/day based on a study of male and female Sprague Dawley rats exposed to nickel via aqueous gavage (NiPERA 2000). The OEHHA identified 1.12 mg/kg/day as the study NOAEL based on perinatal mortality. A cumulative uncertainty factor of 100 was applied to account for interspecies (10) and intraspecies (10) variations. This value was selected for use in the assessment of nickel over the WHO value, due to limitations in the design of the study used by WHO.

The WHO (2005) derived a TDI of 0.012 mg/kg bw/d based on a study with 12 adult females with known nickel sensitivity (Nielsen *et al.* 1999). In this study, nickel was administered as a single dose at a level that is much higher than would normally be possible through drinking-water and/or with the presence of food in the stomach, which would significantly reduce the absorption. No uncertainty factors were applied to the LOAEL of 0.012 mg/kg bw/d in the derivation of the TDI since the LOAEL was based on a highly sensitive human population. Due to limitations of study design (acute duration, small number of subjects, single-blinding), this TDI was not selected for use in the assessment.

Health Canada (2010) uses a TDI of 0.011 mg/kg bw/d for nickel chloride and nickel sulphate. The WHO (2005) is cited as the source of the TDI based on a study with rats (SLI 2000). This value was not selected since the WHO uses a TDI based on human studies (WHO 2005).

The US EPA (1996) derived an oral RfD of 0.020 mg/kg bw/d for nickel soluble salts. The primary study (Ambrose *et al*. 1976) involved rats that were fed nickel in their diet over 2 years. No adverse effects on body weight and organ weights were observed. A NOAEL of 5 mg/kg bw/d was identified for decreased body and organ weights. A cumulative uncertainty factor of 300 was applied to the NOAEL to account for interspecies variability (10), intraspecies variability (10) and to account for inadequacies in the reproductive studies (3). Several limitations in study design (low statistical power) and a poor survival rate over the study duration were highlighted by the US EPA. As a result, the US EPA value was not selected.

The RIVM (2001) provide a TDI of 0.050 mg/kg/day based on a subchronic study of nickel sulphate in rats. A NOAEL of 5 mg/kg/day was identified but details of the supporting study were not provided; therefore, this value was not selected.

References

Alberta Government 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued February 2013. Accessed at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed April 2015.

Ambrose, A.M., D.S. Larson, J.R. Borzelleca and G.R. Hennigar, Jr. 1976. Long-term toxicologic assessment of nickel in rats and dogs. J. Food Sci. Technol. 13: 181-187.

Andersen, A. 1996. Recent follow–up of nickel refinery workers in Norway and respiratory cancer. In: Nieboer, E. & Nriagu, J.O., ed. Nickel and human health. New York, Wiley, 1992, pp. 621–628. 10.

Andersen, A. et al. 1996 Exposure to nickel compounds and smoking in relation to incidence of lung and nasal cancer among nickel refinery workers. Occupational and environmental medicine, 53: 708–713.

ATSDR (Agency for Toxic Substances and Disease Registry). 2005. Toxicological Profile for Nickel. August 2005. Atlanta, GA: US Department of Health and Human Services, Public Health Service. Accessed at: http://www.atsdr.cdc.gov/toxprofiles/tp15.pdf. Accessed April 2015.

Benson, J.M., D.G. Burt, Y.S. Cheng, A.F. Eidson, D.K. Gulati, F.F. Hahn, C.H. Hobbs, and J.A. Pickrell. 1990. Subchronic inhalation toxicity of nickel subsulfide to rats and mice. Inhalation Toxicol. 2: 1–19.

Chovil A, Sutherland RB and Halliday M. 1981. Respiratory cancer in a cohort of nickel sinter plant workers. Br J Ind Med 38:327-333.

Cirla, A.M., F Bernabeo, and F Ottoboni. 1985. Nickel induced occupational asthma: Immunological and clinical aspects. In Progress in Nickel Toxicology, edited by S. S. Brown and F. W. Sunderman. Boston Blackwell Scientific Publications.

Dunnick, J.K., M.R. Elwell, J.M. Benson, C.H. Hobbs, F.F. Hahn, P.J. Haley, Y.S. Cheng, and A.F. Eidson. 1989. Lung toxicity after 13-week inhalation exposure to nickel oxide, nickel subsulfide, or nickel sulfate hexahydrate in F344/N rats and B6C3F1 mice. Fund. Appl. Toxicol. 12: 584–594.

Enterline, P.E. and G.M. Marsh. 1982. Mortality among workers in a nickel refinery and alloy manufacturing plant in West Virginia. J. Natl. Cancer Inst. 68: 925-933.

Government of Canada. 1994. Canadian Environmental Protection Act. Priority Substances List Assessment Report. Nickel and its Compounds. ISBN 0-662-22340-3 Cat. No. En40-215/43E.

Graham, J. A., F. J. Miller, M. J. Daniels, E. A. Payne, and D. E. Gardner. 1978. Influence of cadmium, nickel, and chromium on primary immunity in mice. Environ Res 16 (1-3):77- 87.

Grimsrud, T.K., Berge, S.R., Martinsen, J.I. and Andersen, A. 2003. Lung cancer incidence among Norwegian nickel-refinery workers 1953-2000. J Environ Monit 5:190-197

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

ICNCM (International Committee on Nickel Carcinogenesis in Man). 1974. Report of the International Committee on Nickel Carcinogenesis in Man. Scand J Wrk Environ Health 16:1-84.

Johansson, A., P. Camner, C. Jarstrand, and A. Wiernik. 1983. Rabbit lungs after long-term exposure to low nickel dust concentration. II. Effects on morphology and function. Environ. Res. 30(1): 142–151.

Magnus, K. A. Andersen and A. Hogetveit. 1984. Cancer of respiratory organs among workers at a nickel refinery in Norway. Int. J. Cancer. 30: 681-685.

Muir DCF, Julian JA and Roberts RS. 1984. Mortality analysis in a Canadian sinter plant: a comparison of two cohorts based on year of first hiring. In: Progress in Nickel Toxicology: Proceedings of the Third International Conference on Nickel Metabolism and Toxicology, 4-7 September 1984, Paris, France. Brown SS and Sunderman FW, eds. Blackwell Scientific Publications, Oxford, England, pp. 207-210.

Nielsen GD et al. (1999) Absorption and retention of nickel from drinking water in relation to food intake and nickel sensitivity. Toxicology and Applied Pharmacology, 154(1):67–75.

NiPERA (2000b). An Oral (Gavage) Two-Generation Reproduction Toxicity Study in Sprague-Dawley Rats with Nickel Sulfate Hexahydrate. Final Report. 12/22/00. Springborn Laboratories, Inc. Spencerville, OH, sponsored by the Nickel Producers Environmental Research Association (NiPERA), Durham, NC.

NTP (National Toxicology Program). 1994. Toxicology and Carcinogenesis Studies of Nickel Sulfate Hexahydrate (CAS No. 10101-97-0) in F344 Rats and B6C3F1 Mice (Inhalation Studies). NTP TR 454. Accessed at: http://ntp.niehs.nih.gov/?objectid=070A4CB0-B76E-2CCF-43D6F8E87198E857. Accessed April 2015.

NTP (National Toxicology Program). 1996. NTP technical report on the toxicology and carcinogenesis studies of nickel sulfate hexahydrate (CAS no. 10101-97-0) in F344/N rats and B6C3F1s mice (inhalation studies). In NIH publication; National Toxicology Program technical report series;

no. 454. Place Published: Springfield, Va. Accessed at: http://purl.access.gpo.gov/GPO/LPS77230. Accessed April 2015.

OEHHA (Office of Environmental Health Hazard Assessment). 2002. Air Toxic Hot Spots Program Risk Assessment Guidelines. Part II: Technical Support Document for Describing Available Cancer Potency Factors. Accessed at: http://www.oehha.ca.gov/air/hot_spots/pdf/TSDNov2002.pdf. Accessed April 2015.

OEHHA (California Office of Environmental Health Hazard Assessment). 2009. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology Branch. May 2009. Accessed at: http://www.oehha.ca.gov/air/hot_spots/2009/AppendixA.pdf. Accessed April 2015.

OEHHA (California Office of Environmental Health Hazard Assessment). 2012a. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment. Sacramento, CA. Accessed at: http://www.oehha.ca.gov/air/allrels.html. Accessed April 2015.

OEHHA (Office of Environmental Health Hazard Assessment). 2012b. Nickel Reference Exposure Levels: Nickel and Nickel Compounds. Nickel Oxide. Reference Exposure Levels (RELs). Accessed at: http://www.oehha.ca.gov/air/chronic_rels/pdf/032312NiREL_Final.pdf. Accessed April 2015.

Ontario's Ambient Air Quality Criteria (Sorted by Contaminant Name) PIBS# 6570E01. 2012. Standards Development Branch Ontario Ministry of the Environment. Accessed at: https://dr6j45jk9xcmk.cloudfront.net/documents/1343/221b-ambient-air-quality-sorted-by-contaminent.pdf. Accessed April 2015.

Peto, J. H. Cuckle, R. Doll, C. Hermon and L.G. Morgan. 1984. Respiratory cancer mortality of Welsh nickel refinery workers. In: Nickel in the Human Environment: Proceedings of a Joint Symposium, March, 1983. IARC Scientific Publ. No. 53. International Agency for Research on Cancer, Lyon, France, p. 36-46.

RIVM (National Institute of Public Health and the Environment). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001. Accessed at http://rivm.openrepository.com/rivm/bitstream/10029/9662/1/711701025.pdf. Accessed April 2015.

Roberts RS, Julian JA, Muir DCF and Shannon HS. 1983. Cancer mortality associated with the hightemperature oxidation of nickel subsulfide. In: Nickel in the Human Environment:

Proceedings of a Joint Symposium held at IARC, 8-11 March 1983. Sunderman FW, ed. International Agency for Research on Cancer, Lyon, France, pp. 23-35.

Spiegelberg, T., W. Kordel, and D. Hochrainer. 1984. Effects of NiO inhalation on alveolar macrophages and the humoral immune systems of rats. Ecotox. Environ. Safety 8: 516–525.

Springborn Laboratories, Inc. (SLI). 2000. An Oral (Gavage) Two-Generation Reproduction Toxicity Study in Sprague-Dawley Rats with Nickel Sulphate Hexahydrate. Prepared by Springborn Laboratories, Inc., Spencerville, OH, for Nickel Producers Environmental Research Association, Durham, NC (Study No. 3472.2).

TCEQ (Texas Commission on Environmental Quality). 2011a. Nickel and Inorganic Nickel Compounds CAS Registry Numbers: Nickel: 7440-02-0 Nickel Sulfate: 7786-81-4 Nickel Subsulfide: 12035-72-2 Nickel Oxide: 1313-99-1 Nickel Chloride: 7718-54-9. Toxicology Division, June 1, 2011. Accessed at: http://www.tceq.texas.gov/assets/public/implementation/tox/dsd/final/june11/nickel_&_compounds.pdf. Accessed April 2015.

US EPA (United States Environmental Protection Agency). 1991a. IRIS Summary of Nickel refinery dust (no CASRN). Carcinogenicity Assessment for Lifetime Exposure (RsC). Accessed at: http://www.epa.gov/iris/subst/0272.htm#reforal. Accessed April 2015.

US EPA (United States Environmental Protection Agency). 1991b. IRIS Summary of Nickel subsulfide (CASRN 12035-72-2). Accessed at: http://www.epa.gov/iris/subst/0273.htm#refinhal. Accessed April 2015.

US EPA (United States Environmental Protection Agency). 1996. IRIS Nickel, soluble salts (CASRN Various) Reference Dose for Chronic Oral Exposure (RfD). Cincinnati, OH: United States Environmental Protection Agency. Accessed at: http://www.epa.gov/iris/subst/0271.htm. Accessed April 2015.

Vermeire TG, Apeldoorn ME, van Fouw JC de and Janssen PJCM. 1991. Voorstel voor de human-toxicologische onderbouwing van C-toetsingswaarden. National Institute of Public Health and the Environment, RIVM-report no. 725201005.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. Copenhagen: World Health Organization, Regional Office for Europe. WHO Regional Publications, European Series No. 91. Accessed at: http://www.euro.who.int/document/e71922.pdf. Accessed April 2015.

WHO (World Health Organization). 2005. Nickel in Drinking-water. Background document for development of WHO Guidelines for Drinking-water Quality. Accessed at: WHO/SDE/WSH/05.08/55.

http://www.sasolcanada.com/wp-content/uploads/app/Documents/Volume%202/V2_Appendix%2013A_Toxicity%20Profiles.pdf. Accessed April 2015.

28.0 NITROGEN DIOXIDE

28.1 Inhalation Exposure Limits

28.1.1 Acute Inhalation

Table B.28-1 Acute Inhalation Exposure Limits for Nitrogen Dioxide

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	TCEQ	US EPA	WHO
Exposure Limit Type	1-hour AAQO	-	-	1-hour REL	-	**1-hour NAAQS**	1-hour
Exposure Limit Value (µg/m³)	300	-	-	470	-	**188**	200
Critical Organ or Effect	Respiratory system		-	Respiratory system		**Respiratory system**	Respiratory system
Species	Human	-	-	Human	-	**Human**	Human
Study	Various	-	-	CARB, 1992	-	**Various**	Various
Source	ESRD 2013	ATSDR 2013	-	OEHHA 2008; 2013	TCEQ 2013	**US EPA 2008; 2012**	WHO 2005

- not available

Bold – Exposure Limit selected for HHRA.

Clinical studies of controlled human exposure have reported increased airway responsiveness to inhaled allergens in sensitive individuals as a result of acute exposure to nitrogen dioxide while epidemiological studies have correlated ambient nitrogen dioxide exposure with increased respiratory symptoms, emergency department visits and hospital admissions (AENV 2011; 2007; US EPA 2008).

Alberta currently recommends a 1-hour air quality objective of 300 µg/m³ for nitrogen dioxide to protect against respiratory effects (ESRD 2013). The US EPA (2008; 2012) has implemented a 1-hour NAAQS of 188 µg/m³ to protect against the respiratory effects of nitrogen dioxide. This standard considers the 3-year average of the 98th percentile of the yearly distribution of 1-hour daily maximum nitrogen dioxide concentrations.

The OEHHA (2008; 2013) recommends a 1-hour REL of 470 µg/m^3. This REL was equivalent to a NOAEL for increased airway reactivity in asthmatics exposed to nitrogen dioxide for 1 hour (CARB, 1992).

In controlled exposure studies, acute effects on the pulmonary function of asthmatics were observed at nitrogen dioxide concentrations levels greater than 500 µg/m^3, with one meta-analysis suggesting an increase in bronchial responsiveness in asthmatics exposed to air concentrations above 200 µg/m^3 (Folinsbee, 1992; WHO 2005). The WHO (2005) has therefore set a 1-hour exposure limit of 200 µg/m^3 for short-term exposure to nitrogen dioxide.

Considering the weight of available evidence for airway reactivity of susceptible individuals (*i.e.*, asthmatics) exposed to nitrogen dioxide, the lowest reported exposure limit, US EPA NAAQS of 188 µg/m^3, was selected for use in the acute effects assessment of nitrogen dioxide. Nitrogen dioxide was included in the chemical group for respiratory irritation following acute inhalation exposures.

28.1.2 Chronic Inhalation

Table B.28-2 Chronic Inhalation Exposure Limits for Nitrogen Dioxide

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	Annual average	-	-	-	-	-	Annual Average NAAQS	**Annual Average-**
Exposure Limit Value (µg/m^3)	45	-	-	-	-	-	100	**40**
Critical Organ or Effect	Vegetation effects	-	-	-	-	-	Respiratory system	**Respiratory system**
Species	Plant	-	-	-	-	-	Human	**Human**
Study	-	-	-	-	-	-	Various	**Various**
Source	ESRD 2013	ATSDR 2013	-	OEHHA 2013	RIVM, 2001	TCEQ 2013	US EPA 2008; 2012	**WHO 2005; 2000**

- not available

Bold – Exposure Limit selected for HHRA.

The ESRD (2013) has established an annual average guideline of 45 µg/m^3 for nitrogen dioxide. This exposure limit was based on potential effects on vegetation (AENV 2011).

The WHO (2000; 2005) established an annual average guideline value of 40 μg/m^3 for nitrogen dioxide. In the absence of a particular study or set of studies that clearly support an annual average guideline, the WHO considered background ambient levels of 15 μg/m^3 and evidence of a 20% increase in respiratory illness in primary children with an increase of 28 μg/m^3 nitrogen dioxide indoors (averaged over 1 year) (WHO 1997).

The US EPA (2012) annual standard for nitrogen dioxide is 100 μg/m^3. This exposure limit is based on limited evidence to support a link between long-term exposure to nitrogen dioxide and adverse respiratory effects, particularly for persons with preexisting pulmonary dysfunction (US EPA 2008).

The lowest reported annual exposure limit (WHO guideline of 40 μg/m^3) was selected for the assessment of chronic inhalation exposure to nitrogen dioxide.

28.2 Oral Exposure Limits

No chronic oral exposure limit was required for nitrogen dioxide as this chemical was not identified for inclusion in the multiple pathway exposure assessment.

References

AENV (Alberta Environment) 2011. Alberta Ambient Air Quality Objectives. Nitrogen Dioxide. Effective June 15, 2011. Available at: http://environment.alberta.ca/01005.html. Accessed October 2013.

AENV 2007. Assessment Report for Nitrogen Dioxide for Developing Ambient Air Quality Objectives. Prepared by Toxico-Logic Consulting Inc. for Alberta Environment. ISBN No. 978-0-7785-9959-3.

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

CARB (California Air Resources Board). Review of the one-hour ambient air quality standard for nitrogen dioxide technical support document. Sacramento: State of California Air Resources Board Technical Support Division; December 1992. Cited In: OEHHA 2012.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

Folinsbee LJ. Does nitrogen dioxide exposure increase airways responsiveness? Toxicology and Industrial Health, 1992, 8:273–283. Cited in WHO 2006.

Health Canada. 2006. Environmental and Workplace Health: Regulations Related to Health and Air Quality. National Ambient Air Quality Objectives (NAAQOs). Date Modified 2006-05-16. Available at: http://www.hc-sc.gc.ca/ewh-semt/air/out-ext/reg-eng.php#a3. Accessed October 2013.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

OEHHA 2008. Technical Support Document for Noncancer RELs. Appendix D.2. Acute RELs and toxicity summaries using the previous version of the Hot Spots Risk Assessment Guidelines. Acute Toxicity Summary: Nitrogen Dioxide. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD2_final.pdf#page=209. Accessed October 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html Accessed October 2013.

US EPA (United States Environmental Protection Agency). 2012. National Ambient Air Quality Standards (NAAQS). Washington, DC: U.S. Environmental Protection Agency, Office of Air and Radiation. http://www.epa.gov/air/criteria.html. December 14, 2012. Accessed October 2013.

US EPA. 2008. Integrated Science Assessment for Oxides of Nitrogen - Health Criteria. National Center for Environmental Assessment. EPA/600/R-08/071. Available at: http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=194645. Accessed October 2013.

WHO (World Health Organization) 2005. Air Quality Guidelines. Global Update 2005. Particulate Matter, ozone, nitrogen dioxide and sulfur dioxide. ISBN 92 890 2192 6. World Health Organization, Germany. 2006.

WHO. 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255

WHO. 1997. United Nations Environment Programme, International Labour Organisation, World Health Organization, International Programme on Chemical Safety. Environmental Health

Criteria 188. Nitrogen Oxides (Second Edition). World Health Organization, Geneva. Available at: http://www.inchem.org/documents/ehc/ehc/ehc188.htm#PartNumber:9. Accessed October 2013.

29.0 PARTICULATE MATTER <2.5 μM IN DIAMETER (PM2.5)

29.1 Inhalation Exposure Limits

29.1.1 Acute Inhalation

Table B.29-1 Acute Inhalation Exposure Limits for $PM_{2.5}$

AGENCY	ESRD	ATSDR	CCME	CARB	TCEQ	US EPA	WHO
Exposure Limit Type	24-hour AAQO	-	24-hour CWS/CAAQS	-	-	24-hour	24-hour
Exposure Limit Value (μg/m³)	30	-	**27**-30	-	-	35	25
Critical Organ or Effect	Adopted 2000 CWS		Population mortality and morbidity			Population mortality and morbidity	Population mortality and morbidity
Species	Human	-	Human	-	-	Human	Human
Study	Various	-	Various	-	-	Various	Various
Source	ESRD 2013	ATSDR 2013	CCME 2000; 2012	CARB 2009	TCEQ 2013	US EPA 2012; 2009	WHO 2005

- not available

Bold – Exposure Limit selected for HHRA.

The CCME (2000) developed a 24-hour Canada Wide Standard (CWS) of 30 μg/m³ for PM2.5 based on the 3-year average of the annual 98th percentile of the 24-hour average concentrations. The impetus behind the development of a guideline for fine particulate matter (PM<2.5 μm) was the weight of available evidence for an association between acute exposure to ambient fine particulate matter and increased population mortality and morbidity, reported in numerous epidemiological studies from the US, Canada, Britain and Europe (WGAQOG 1998; Health Canada 2000; 2006).

In May 2013, Canadian Ambient Air Quality Standards (CAAQS) for $PM_{2.5}$ were published in the Canada Gazette (Vol 147, No. 21). The CAAQS will replace the existing CWS for fine particulate matter. The 24-hour standard to be achieved by 2015 will be 28 μg/m³ (3 year average of the annual 98th percentile of the 24-hour average concentrations) with a slightly more stringent standard of 27 μg/m³ recommended for 2020 (CCME 2012).

The US EPA (2012) implemented a 24-hour primary standard (NAAQS) of 35 μg/m³ for $PM_{2.5}$ based on the 3-year average of 98th percentile concentrations. This standard is intended to increase

protection against adverse health effects associated with acute exposure to respirable particles, including premature mortality and increased hospital admission and emergency room visits (US EPA 2009).

The WHO (2005) established a 24-hour guideline of 25 µg/m^3 for $PM_{2.5}$, representing the 99th percentile of the distribution of daily concentrations over a year. Epidemiological studies have established a link between short-term PM exposure and measures of mortality and morbidity while toxicological research has proposed various mechanisms by which PM may exacerbate acute diseases, a central mechanism being inflammation due to the production of reactive oxygen species (WHO 2005). The WHO recognizes this exposure limit may be difficult for some countries to attain and has recommended three interim 24-hour target levels of 75 µg/m^3, 50 µg/m^3 and 37.5 50 µg/m^3 as a stepped approach for countries as they develop successive and sustained abatement measures to move towards eventual compliance with the 25 µg/m^3 guideline (WHO 2005).

The CAAQS of 27 µg/m^3 was selected for the assessment of acute inhalation exposure to $PM_{2.5}$.

29.1.2 Chronic Inhalation

Table B.29-2 Chronic Inhalation Exposure Limits for $PM_{2.5}$

AGENCY	ESRD	ATSDR	CCME	CARB	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	Annual Average CAAQS	Annual Average	-	-	Annual Average NAAQS	Annual Average
Exposure Limit Value (µg/m^3)	-	-	**8.8**-10	12	-	-	12	10
Critical Organ or Effect	-	-	Premature mortality	Population mortality and morbidity	-	-	Population mortality and morbidity	Population mortality and morbidity
Species	-	-	Human	Human	-	-	Human	Human
Study	-	-	Various	Various	-	-	Various	Pope *et al.*, 2002 and others
Source	ESRD 2013	ATSDR 2013	CCME 2012	CARB 2009	RIVM, 2001	TCEQ 2013	US EPA 2012; 2009	WHO 2005; 2000

- not available

Bold – Exposure Limit selected for HHRA.

Annual average CAAQS for $PM_{2.5}$ were also published in the Canada Gazette in May 2013. The annual average standard to be achieved by 2015 will be 10 $\mu g/m^3$ (3 year average of the annual average concentrations) with a slightly more stringent standard of 8.8 $\mu g/m^3$ recommended for 2020 (CCME 2012).

The California Air Resources Board (CARB, 2009) have established an annual ambient air quality standard of 12 $\mu g/m^3$ (arithmetic mean) for $PM_{2.5}$ to protect against: increased risk of hospitalization for lung and heart-related illness; premature death of the elderly and individuals with compromised pulmonary function, and; reduced lung function or increased respiratory symptoms/illness in children.

The US EPA (2012) has implemented a primary annual standard (NAAQS) of 12 $\mu g/m^3$ for $PM_{2.5}$ based on the 3-year average of 98th percentile concentrations. The annual standard is intended to continue protection against adverse health effects associated with chronic exposure to respirable particles, including premature mortality and development of chronic respiratory disease (US EPA 2009).

The WHO (2005) have established an annual mean guideline of 10 $\mu g/m^3$ for $PM_{2.5}$, representing the lower end of the air concentration range in the American Cancer Society (ACS) epidemiological study at which robust associations were reported between mortality and long-term exposure to $PM_{2.5}$ (Pope *et al.*, 2002). In addition to this guideline the WHO has recommended three interim target levels of 35, 25 and 15 $\mu g/m^3$ as a stepped approach for countries as they develop successive and sustained abatement measures to move towards eventual compliance with the 10 $\mu g/m^3$ guideline (WHO 2005). Adherence to the annual average guideline is recommended over 24-hour targets for $PM_{2.5}$, however, the 24-hour average is intended to protect against peaks of pollution that would lead to substantial excess morbidity or mortality (WHO 2005).

The CAAQS of 8.8 $\mu g/m^3$ was selected for the assessment of chronic inhalation exposure to $PM_{2.5}$.

29.2 Oral Exposure Limits

The adverse health effects of $PM_{2.5}$ are mediated through inhalation and therefore no evaluation of oral exposure was conducted.

References

CARB (California Air Resources Board) 2009. Ambient Air Quality Standards (AAQS) for Particulate Matter. Reviewed November 24, 2009. Available at: http://www.arb.ca.gov/research/aaqs/pm/pm.htm. Accessed October 2013.

CCME (Canadian Council of Ministers of the Environment). 2012. Air Quality Management System. Canadian Ambient Air Quality Standards (CAAQS) for Fine Particulate Matter (PM2.5) and Ozone. Available at: http://www.ccme.ca/ourwork/air.html?category_id=146#490 Accessed October 2013.

CCME. 2000. Canada-Wdie Standards for Particulate Matter (PM) and Ozone. Endorsed by CCME Council of Ministers, June 5-6, 2000, Quebce City. Available at: http://www.ccme.ca/assets/pdf/pmozone_standard_e.pdf Accessed October 2013.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

Health Canada 2000. Priority Substances List Assessment Report. Respirable Particulate Matter Less Than or Equal to 10 Microns. ISBN 0-662-28531-X. Cat. no. En40-215/47E. Environment Canada, Health Canada, Canadian Environmental Protection Act, 1999. Available at: http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/contaminants/psl2-lsp2/pm10/pm10-eng.pdf. Accessed October 2013.

Health Canada 2006. Human Health Effects of Fine Particulate Matter: Update in Support of the Canada-Wide Standards for Particulate Matter and Ozone. Prepared for the Canadian Council of Ministers of the Environment. Revised July 2004. Available at: http://www.ccme.ca/assets/pdf/prrvw_pm_fine_rvsd_e.pdf. Accessed October 2013.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

Pope CA *et al.* Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution. JAMA, 2002, 287:1132–1141. Cited In: WHO 2005.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed October 2013.

US EPA. 2012. National Ambient Air Quality Standards (NAAQS). Washington, DC: U.S. Environmental Protection Agency, Office of Air and Radiation. http://www.epa.gov/air/criteria.html. December 14, 2012. Accessed October 2013.

US EPA. 2009. Integrated Science Assessment for Particulate Matter. National Center for Environmental Assessment-RTP Division, Office of Research and Development, U.S. Environmental Protection Agency, Research Triangle Park, NC. December 2009. EPA/600/R-08/139F. Available at: http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=216546. Accessed October 2013.

WGAQOG (Working Group on Air Quality Objectives and Guidelines). 1998. National Ambient Air Quality Objectives for Particulate Matter. 1: Science Assessment Document. A report prepared by the Federal–Provincial Working Group on Air Quality Objectives and Guidelines for the Canadian Environmental Protection Act Federal–Provincial Advisory Committee. Available at: http://www.hc-sc.gc.ca/ewh-semt/pubs/air/naaqo-onqaa/particulate_matter_matieres_particulaires/summary-sommaire/index-eng.php. Accessed October 2013.

WHO (World Health Organization) 2005. Air Quality Guidelines. Global Update 2005. Particulate Matter, ozone, nitrogen dioxide and sulfur dioxide. ISBN 92 890 2192 6. World Health Organization, Germany. 2006.

30.0 PARTICULATE MATTER >10 μM IN DIAMETER (PM_{10})

30.1 Inhalation Exposure Limits

30.1.1 Acute Inhalation

Table B.30-1 Acute Inhalation Exposure Limits for PM_{10}

AGENCY	ESRD	ATSDR	CCME	CARB	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	24-hour	-	24-hour	**24-hour**
Exposure Limit Value (μg/m³)	-	-	-	50	-	150	**50**
Critical Organ or Effect	-		-	Population mortality and morbidity		Population mortality and morbidity	**Population mortality and morbidity**
Species	-	-	-	-	-	Human	**Human**
Study	-	-	-	-	-	Various	**Various $PM_{2.5}$ studies**
Source	-	-	-	CARB 2009	-	US EPA 2012; 2010	**WHO 2005**

- not available

Bold – Exposure Limit selected for HHRA.

CARB has established a 24-hour standard for PM_{10} of 50 μg/m³ (2009).

The US EPA (2012) established a 24-hour primary standard (NAAQS) of 150 μg/m³ for PM_{10} (not to be exceeded more than once per year on average over 3 years).

The WHO recommended guidelines and interim targets for PM_{10} to protect against harmful effects of coarse fragments. Due to insufficient quantitative evidence on coarse PM, the numerical guideline value for PM_{10} was based on studies using $PM_{2.5}$ as an indicator and a $PM_{2.5}$:PM_{10} ratio of 0.5 (WHO 2005). A 24-hour guideline of 50 μg/m³ for PM_{10} was recommended, based on the 99th percentile of the distribution of daily concentrations over a year for $PM_{2.5}$ (25 μg/m³) and the indicator ratio. The WHO recognizes this exposure limit may be difficult for some countries to attain and has recommended three interim 24-hour target levels of 150 μg/m³, 100 μg/m³ and 75 μg/m³ as a stepped approach for countries as they develop successive and sustained abatement measures to move towards eventual compliance with the 50 μg/m³ guideline (WHO 2005).

The WHO guideline of 50 µg/m³ was selected for the assessment of acute inhalation exposure to PM_{10}.

30.1.2 Chronic Inhalation

Table B.30-2 Chronic Inhalation Exposure Limits for PM_{10}

AGENCY	ESRD	ATSDR	CCME	CARB	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	Annual Average	-	-	-	**Annual Average**
Exposure Limit Value (µg/m³)	-	-	-	20	-	-	-	**20**
Critical Organ or Effect	-	-	-	Population mortality and morbidity	-	-	-	**Population mortality and morbidity**
Species	-	-	-	Human	-	-	-	**Human**
Study	-	-	-	Various	-	-	-	**Various $PM_{2.5}$ studies**
Source	-	-	-	CARB 2009	-	-	-	**WHO 2005**

- not available

Bold – Exposure Limit selected for HHRA.

CARB has established an annual average standard for PM_{10} of 20 µg/m³ (2009).

The US EPA (2012) revoked the annual standard for PM_{10} because available evidence generally did not suggest a link between long-term exposure to current ambient levels of coarse particles and health welfare effects (US EPA 2010).

Due to insufficient quantitative evidence on coarse PM, the numerical guideline value for PM_{10} was based on studies using $PM_{2.5}$ as an indicator and a $PM_{2.5}$:PM_{10} ratio of 0.5 (WHO 2005). An annual guideline of 20 µg/m³ for PM_{10} was recommended, based on the 99th percentile of the distribution of daily concentrations over a year for $PM_{2.5}$ (10 µg/m³) and the indicator ratio. The WHO recognizes this exposure limit may be difficult for some countries to attain and has recommended three interim annual target levels of 70 µg/m³, 50 µg/m³ and 30 µg/m³ as a stepped approach for countries as they develop successive and sustained abatement measures to move towards eventual compliance with the 20 µg/m³ guideline (WHO 2005).

The WHO guideline of 20 μg/m^3 was selected for the assessment of chronic inhalation exposure to PM_{10}.

30.2 Oral Exposure Limits

The adverse health effects of PM_{10} are mediated through inhalation and therefore no evaluation of oral exposure was conducted.

References

CARB (California Air Resources Board) 2009. Ambient Air Quality Standards (AAQS) for Particulate Matter. Reviewed November 24, 2009. Available at: http://www.arb.ca.gov/research/aaqs/pm/pm.htm. Accessed January 2015.

US EPA. 2010. Quantitative Health Risk Assessment for Particulate Matter. US Environmental Protection Agency, Office of Air and Radiation, Office of Air Quality Planning and Standards, Health and Environmental Impacts Division, Research Triangle Park, NC. June 2010. EPA-452/R-10-005. Available at: http://www.epa.gov/ttn/naaqs/standards/pm/data/PM_RA_FINAL_June_2010.pdfAccessed January 2015.

US EPA. 2012. National Ambient Air Quality Standards (NAAQS). Washington, DC: U.S. Environmental Protection Agency, Office of Air and Radiation. Available at: http://www.epa.gov/air/criteria.html. December 14, 2012. Accessed January 2015.

WHO (World Health Organization) 2005. Air Quality Guidelines. Global Update 2005. Particulate Matter, ozone, nitrogen dioxide and sulfur dioxide. ISBN 92 890 2192 6. World Health Organization, Germany. 2006. Available at: http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/pre2009/air-quality-guidelines.-global-update-2005.-particulate-matter,-ozone,-nitrogen-dioxide-and-sulfur-dioxide. Accessed January 2015.

31.0 PETROLEUM HYDROCARBONS

Complex mixtures of petroleum hydrocarbons (PHC) with limited data to describe toxicological properties have been separated into aromatic and aliphatic groups (fractions) according to size to facilitate the development of exposure limits representative of each group of hydrocarbons (MA DEP 1994; TPHCWG 1997; MA DEP 2003; CCME 2008). The Massachusetts Department of Environmental Protection (MA DEP) introduced the concept of using size-based fractions for evaluation of human health effects associated with petroleum hydrocarbons with the development of oral toxicity values representative of groups of aliphatic (C5-C8, C9-C18, and C19-C32) and aromatic (C9-C32) PHC. In 2002, the MA DEP revised their oral exposure limits and developed inhalation exposure limits for their aliphatic and aromatic PHC groups (MA DEP 2003).

In 1997 the Total Petroleum Hydrocarbon (TPH) Criteria Working Group identified oral as well as inhalation exposure limits for similar aliphatic (C5-C8, C9-C16, and C17-C35) and aromatic (C9-C16 and C17-C35) PHC groups (TPHCWG 1997). The ATSDR (1999a) identified chronic inhalation and/or oral MRLs using surrogate chemicals to represent aliphatic (C5-C8 and C9-C16) and aromatic (C5-C9, C10-C16, and C17-C35) PHC groups.

The CCME (2008) separated PHC into the following aliphatic and aromatic fractions: C6-C10; C11-C16; C17-C34; and C34+. The CCME adopted the TPHCWG (1997) chronic oral and inhalation toxicological endpoints in their development of Canada Wide Standards for PHC in soil (CCME 2008). For the purpose of the current assessment, PHC were separated into the following groups: aliphatic C5-C8, C9-C16 and C17-C34 and aromatic C9-C16 and C17-C34. The exposure limits identified to represent each PHC group are described below.

32.0 ALIPHATIC C5-C8 PETROLEUM HYDROCARBONS

32.1 Inhalation Exposure Limits

32.1.1 Acute Inhalation

Table B.32-1 Acute Inhalation Exposure Limits for Aliphatic C5-C8 Hydrocarbons

AGENCY	ATSDR	CCME	MA DEP	TCEQ	TPHCWG
Exposure Limit Type	-	-	-	**1-hour ReV (n-pentane)**	-
Exposure Limit Value (µg/m³)	-	-	-	**200,000**	-
Critical Organ or Effect	-	-	-	**Neurological**	-
Species	-	-	-	**Rat**	-
Study	-	-	-	**Lammers *et al.*, 2011**	-
Source	ATSDR 2013	CCME 2008	MA DEP 2003	**TCEQ 2013**	TPHCWG 1997

- not available

Bold – Exposure Limit selected for HHRA.

No acute inhalation exposure limits have been developed for aliphatic C5-C8 hydrocarbons by the MA DEP (1994; 2003), TPHCWG (1997), ATSDR (2013) or CCME (2008). The available exposure limits for individual chemicals within the aliphatic C5-C8 range were reviewed for the purpose of identifying a surrogate limit to represent the group.

The TCEQ was the only agency to report short-term ESL values for aliphatic C5-C8 substances and substituted forms thereof (including cycloheptane, cyclohexane , cyclohexene, cyclooctane, cyclopentane, cyclopentene, heptane, heptene, n-hexane, hexene, octane, pentane, pentenes) (TCEQ 2013). However, the majority of these were not accompanied by supporting documentation of the health effects observed and the basis for the short-term ESL derived.

Development support documents were available to describe derivation of ESLs for n-hexane, pentane and pentene (TCEQ 2007a; 2007b; 2011); however, data were insufficient for the development of health-based inhalation ReVs for n-hexane and pentene (TCEQ 2007a; 2007b). An acute exposure limit with supporting documentation was available for pentane and all its isomers (TCEQ 2011). A 1-hour ReV of 200,000 µg/m^3 was recommended based on a NOAEL for neurological effects (clinical, motor activity and neurobehavioral) in rats exposed *via* inhalation to up to 20,000 mg/m^3 of n-pentane for 8 hours per day for three consecutive days. An uncertainty factor of 100 was applied to the NOAEL to account for use of animal study (3), variation in human response (10) and database deficiencies (3) (TCEQ 2011).

The CCME (2008), RIVM (2001) and TPHCWG (1997) have reported that the n-hexane content in petroleum products is low and use of n-hexane as a surrogate for aliphatic C5-C8 petroleum hydrocarbons would probably overstate the toxicity of hydrocarbons in this group. The TPHCWG (1997) describe a study comparing the neurotoxicity of C5-C8 aliphatic hydrocarbons (*i.e.*, n-hexane, n-pentane, cyclohexane, 2-methylpentane and 3-methylpentane) where neurotoxic effects were only associated with n-hexane. The peripheral neurotoxicity observed with n-hexane was shown to be mediated through a gamma diketone metabolite (2,5-hexanedione) which has not been observed in metabolism studies with other C5-C8 alkane/cycloalkane compounds (TPHCWG 1997).

As described by the CCME (2008), several C6-C8 aliphatics (*i.e.*, n-heptane, 3-methyl hexane, 3,4-dimethyl hexane and n-nonane) could form neurotoxic metabolites; however, the limited data available suggests the neurotoxic potential of these aliphatics would be significantly lower than that of n-hexane. For the purpose of the current assessment, n-hexane was assessed individually and not grouped with aliphatic C5-C8 hydrocarbons.

The TCEQ 1-hour ReV of 200,000 µg/m^3 for pentane was selected to represent the acute inhalation toxicity of the aliphatic C5-C8 hydrocarbon group. This group was included in the chemical group for neurological effects following acute inhalation exposures.

32.1.2 Chronic Inhalation

Table B.32-2 Chronic Inhalation Exposure Limits for Aliphatic C5-C8 Hydrocarbons

AGENCY	ATSDR	CCME	MA DEP	RIVM	TPHCWG
Exposure Limit Type	MRL	RfC	RfC	**TCA**	RfC

Table B.32-2 Chronic Inhalation Exposure Limits for Aliphatic C5-C8 Hydrocarbons

AGENCY	ATSDR	CCME	MA DEP	RIVM	TPHCWG
Exposure Limit Value (µg/m³)	2,000	18,400	200	**18,400**	18,400
Critical Organ or Effect	Neurological	NOAEL neurological, developmental, reproductive, liver	Neurological	**NOAEL neurological, developmental, reproductive, liver**	NOAEL neurological, developmental, reproductive, liver
Species	Human	Rat, mouse	Human	**Rat, mouse**	Rat, mouse
Study	Sanagi *et al.*, 1980	Adopted TPHCWG 1997	Sanagi *et al.*, 1980	**Adopted TPHCWG 1997**	various
Source	ATSDR 1999a; 1999b	CCME 2008	MA DEP 2003	**RIVM, 2001**	TPHCWG 1997

- not available

Bold – Exposure Limit selected for HHRA.

The MA DEP (2003) recommends a chronic inhalation toxicity value of 200 µg/m³ for the aliphatic C5-C8 PHC group based on an occupational study by Sanagi *et al.* (1980) reporting a LOAEL of 73 mg/m³ for neurotoxic effects from chronic inhalation exposure to n-hexane. This exposure limit was adopted from the 1990 US EPA RfC for n-hexane. The US EPA (2005) have since revised their RfC for n-hexane due to concerns with the Sanagi *et al.* (1980) study, principally co-exposure with acetone which has been shown to potentiate n-hexane metabolism and neurotoxicity. The current US EPA (IRIS) RfC for n-hexane is 700 µg/m³ (US EPA 2005).

The ATSDR (1999a) recommend a chronic inhalation MRL of 2,000 µg/m³ for the aliphatic C5-C8 PHC group. This MRL was also based on n-hexane neurotoxicity using the same Sanagi *et al.* (1980) study (ATSDR 1999b). The ATSDR MRL is higher than the former US EPA and MA DEP values as the ATSDR did not adjust the Sanagi *et al.* (1980) study LOAEL by an uncertainty factor to account for continuous exposure, based on evidence of steady-state conditions for n-hexane in blood within 100 minutes of exposure.

The TPHCWG (1997) RfC of 18,400 µg/m³ is based on a NOAEL of 1,840 mg/m³ derived from a range of studies in mice and rats exposed via inhalation to commercial hexane (containing 53% n-hexane, 16% 3-methylpentane, 14% methylcyclopentane, 12% 2-methylpentane, 3% cyclohexane, 1% 2,3-dimethylbutane, and <1% several minor compounds). A 100-fold uncertainty factor was applied to NOAEL of 1,840 mg/m³ to account for use of an animal study (10) and variation in human response (10) (TPHCWG 1997). No adverse neurological, reproductive, developmental or hepatic effects were

reported in these studies at the NOAEL identified. The results of these studies suggest the potential neurotoxicity of n-hexane is influenced (reduced) by the presence of other hydrocarbons (TPHCWG 1997). The RIVM (2001) and CCME (2008) adopted the TPHCWG (1997) chronic inhalation exposure limit of 18,400 µg/m^3 for aliphatic C6-C8 hydrocarbons.

The TPHCWG RfC of 18,400 µg/m^3 was used to evaluate chronic inhalation risks associated with the aliphatic C5-C8 group. The aliphatic C5-C8 group was included in the chemical group for neurological effects following chronic inhalation exposures.

32.2 Oral Exposure Limits

32.2.1 Chronic Oral

Table B.32-3 Chronic Oral Exposure Limits for Aliphatic C5-C8 Hydrocarbons

AGENCY	ATSDR	CCME	MA DEP	RIVM	TPHCWG
Exposure Limit Type	-	TDI	RfD	TDI	**RfD**
Exposure Limit Value (µg/kg bw/day)	-	5,000	40	5,000	**5,000**
Critical Organ or Effect	-	Derived from Chronic RfC	Neurotoxicity	Derived from Chronic RfC	**Derived from Chronic RfC**
Species	-	Rat, mouse	Rat	Rat, mouse	**Rat, mouse**
Study	-	Adopted TPHCWG 1997	Krasavage *et al.* 1980	Adopted TPHCWG 1997	**various**
Source	ATSDR 1999a	CCME 2008;	MA DEP 2003	RIVM, 2001	**TPHCWG 1997**

- not available

Bold – Exposure Limit selected for HHRA.

The TPHCWG (1997) recommend an RfD of 5,000 µg/kg body weight/day for oral exposure to aliphatic C5-C8 hydrocarbons. This RfD was derived from the inhalation RfC for this group (*i.e.*, 18.4 mg/m^3 for commercial hexane) assuming 100% absorption and an inhalation rate of 20 m^3/day for a 70 kg human (TPHCWG 1997).

The MA DEP (2003) developed an RfD of 40 µg/kg body weight/day for oral exposure to aliphatic C5-C8 hydrocarbons. This RfD was based on a LOAEL of 570 mg/kg bw/day for peripheral

neurotoxicity in rats gavaged with n-hexane daily for 5 days/week over a 90 or 120 day period (Krasavage *et al.* 1980). The LOAEL was adjusted for continous exposure and an uncertainty factor of 10,000 was applied to account for extrapolation from an animal study (10), use of a subchronic study (10), use of a LOAEL (10) and variability in human response (10) (MA DEP 2003).

The CCME (2008) and RIVM (2001) have adopted the TPHCWG (1997) chronic oral exposure limit of 5,000 µg/kg body weight/day. The RfD for n-hexane (Krasavage *et al.* 1980) was not considered representative (*i.e.*, would overestimates the risks) of the aliphatic C5-C8 hydrocarbons within this group (RIVM 2001; CCME 2008).

The TPHCWG RfC of 5,000 µg/kg body weight/day was used to evaluate chronic oral risks associated with the aliphatic C5-C8 group. The aliphatic C5-C8 group was included in the chemical group for neurological effects following chronic oral exposures.

33.0 ALIPHATIC C9-C16 PETROLEUM HYDROCARBONS

33.1 Inhalation Exposure Limits

33.1.1 Acute Inhalation

Table B.33-1 Acute Inhalation Exposure Limits for Aliphatic C9-C16 Hydrocarbons

AGENCY	ATSDR	CCME	MA DEP	TCEQ	TPHCWG
Exposure Limit Type	**Intermediate MRL**	-	-	-	-
Exposure Limit Value (µg/m^3)	**9,000**	-	-	-	-
Critical Organ or Effect	**Liver**	-	-	-	-
Species	**Mouse**	-	-	-	-
Study	**Air Force 1984**	-	-	-	-
Source	**ATSDR 1999a; 1995a**	CCME 2008	MA DEP 2003	TCEQ 2013	TPHCWG 1997

- not available

Bold – Exposure Limit selected for HHRA.

No acute inhalation exposure limits have been developed for aliphatic C9-C16 hydrocarbons by the MA DEP (1994; 2003), TPHCWG (1997), ATSDR (1999a) or CCME (2008). The ATSDR (1999a) considered jet fuel JP-4 or JP-7 to be representative of the toxicity of the aliphatic C9-C16 fraction. An intermediate MRL has been developed for jet fuel JP-4 which is distilled from crude oil and consists of a wide array of hydrocarbons in the C4 to C16 range (ATSDR 1995a; 1999a).

An intermediate MRL of 9,000 ug/m^3 was established for JP-4 based on observed liver toxicity in mice continuously exposed (24-hrs/day) for 90 days to 500 mg/m^3 JP-4. This LOAEL was adjusted by a human equivalency dose factor of 5.7 and a 300-fold uncertainty factor to account for interspecies extrapolation (3) and human variability (10) as well as use of a LOAEL (10) (ATSDR 1995a).

The intermediate MRL was selected as a screening value for 24-hour concentrations of aliphatic C9-C16 hydrocarbons for the purpose of this assessment, although this exposure limit may be overly

conservative in the prediction of human health risks following acute inhalation exposures to aliphatic C9-C16 hydrocarbons.

33.1.2 Chronic Inhalation

Table B.33-2 Chronic Inhalation Exposure Limits for Aliphatic C9-C16 Hydrocarbons

AGENCY	ATSDR	CCME	MA DEP	RIVM	TPHCWG
Exposure Limit Type	MRL	RfC	**RfC**	TCA	RfC
Exposure Limit Value ($\mu g/m^3$)	300	1,000	**200**	1,000	1,000
Critical Organ or Effect	Liver	Liver, blood	**Neurological**	Liver, blood	Liver
Species	Rat	Rat, mouse	**Rat**	Rat, mouse	Rat, mouse
Study	Air Force 1991	Adopted TPHCWG 1997	**Lund *et al.* 1995**	Adopted TPHCWG 1997	Phillips and Egan, 1984 Mattie *et al.*, 1991
Source	ATSDR 1999a; 1995a	CCME 2008	**MA DEP 2003**	RIVM, 2001	TPHCWG 1997

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (1995a) developed a chronic inhalation MRL for jet fuel JP-7, considered representative of aliphatic C9-C16 toxicity (ATSDR 1999a). JP-7 is a blend of kerosene distillates consisting predominately of hydrocarbons in the C9-C16 range with a maximum aromatic content of 5% by volume (ATSDR 1995a; 1999a). A chronic MRL of 300 $\mu g/m^3$ was established for JP-7 based on observed liver toxicity in rats exposed to 150 mg/m^3 JP-7 for 6 hours/day, 5 days/week (Air Force 1991). An uncertainty factor of 300 was applied to the LOAEL of 150 mg/m^3 to account for interspecies extrapolation (3), use of a LOAEL (10) and human variability (10) (ATSDR 1995a).

The TPHCWG (1997) recommend an RfC of 1,000 $\mu g/m^3$ for inhalation exposure to aliphatic C9-C16 hydrocarbons. This RfC was developed from NOAELs reported in sub-chronic inhalation studies of rats exposed to de-aromatized petroleum streams for 6 hours/day, 5 days/week over 12 weeks (Phillips and Egan, 1984) or rats and mice continuously exposed to jet fuel JP-8 for 90 days (Mattie *et al.*, 1991). Thioe RIVM (2001) and CCME (2008) have adopted the chronic inhalation exposure limit of 1,000 $\mu g/m^3$ for aliphatic C9-C16 hydrocarbons from the TPHCWG (1997).

The MA DEP (2003) recommends a chronic inhalation toxicity value of 200 µg/m³ for the aliphatic C9-C18 petroleum hydrocarbon group. This exposure limit was based on a LOAEL of 2,620 mg/m³ for neurological effects in rats exposed to de-aromatized white spirit (DAWS) for 6 hours/day, 5 days/week over 6 months (Lund *et al.* 1995). The LOAEL was adjusted for continuous exposure and an uncertainty factor of 3,000 applied to account for human variability (10), extrapolation from an animal study (10), use of a LOAEL (10) and less than lifetime exposure (3). The MA DEP also evaluated the study on JP-8 by Mattie *et al.* (1991), however this study was not selected based on concerns of a higher aromatic content in JP-8 (up to 20%) compared to other petroleum streams (<0.1 to 1.5%) (MA DEP 2003).

For the current assessment, the most conservative RfC of 200 µg/m³ was selected to evaluate chronic inhalation risks associated with the aliphatic C9-C16 group. The aliphatic C9-C16 group was included in the chemical group for neurological effects following chronic inhalation exposures.

33.2 Oral Exposure Limits

33.2.1 Chronic Oral

Table B.33-3 Chronic Oral Exposure Limits for Aliphatic C9-C16 Hydrocarbons

AGENCY	ATSDR	CCME	MA DEP	RIVM	TPHCWG
Exposure Limit Type	-	TDI	RfD	TDI	**RfD**
Exposure Limit Value (mg/kg bw/day)	-	0.1	0.1	0.1	**0.1**
Critical Organ or Effect	-	Liver	Liver	Liver	**Liver**
Species	-	Rat	Rat	Rat	**Rat**
Study	-	Adopted TPHCWG 1997	Various	Adopted TPHCWG 1997	**Various**
Source	ATSDR 1999a; 1995a	CCME 2008;	MA DEP 2003	RIVM, 2001	**TPHCWG 1997**

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (1999a) have not recommended an oral exposure limit for aliphatic C9-C16 petroleum hydrocarbons as no chronic oral exposure studies were identified for JP-4 or JP-7 jet fuel (1995a).

The TPHCWG (1997) recommend an RfD of 0.1 mg/kg body weight/day for oral exposure to aliphatic C9-C16 hydrocarbons. This RfD was based on the result of several sub-chronic studies of rats exposed by oral gavage to de-aromatized petroleum streams or jet fuel JP-8. These studies identified LOAEL and NOAEL for liver effects as described in TPHCWG (1997). The RIVM (2001) and CCME (2008) have adopted the chronic oral exposure limit of 0.1 mg/ kg body weight/day for aliphatic C9-C16 hydrocarbons from the TPHCWG (1997).

The MA DEP (2003) also developed an RfD of 0.1 mg/kg body weight/day for oral exposure to aliphatic C9-C18 hydrocarbons based on the results of sub-chronic studies of rats exposed to de-aromatized petroleum streams. These studies reported LOAEL or NOAEL for changes in serum chemistry and liver weight (MA DEP 2003).

For the current assessment, an RfD of 0.1 mg/kg body weight/day was selected to evaluate chronic oral risks associated with the aliphatic C9-C16 group. The aliphatic C9-C16 group was included in the chemical group for liver effects following oral exposures.

34.0 ALIPHATIC C17-C34 PETROLEUM HYDROCARBONS

34.1 Inhalation Exposure Limits

No inhalation exposure limits were recommended for the aliphatic C17-C34 hydrocarbon group by the ATSDR (1999a), MA DEP (1994; 2003) or TPHCWG (1997). Aliphatic hydrocarbons in this group range would have extremely low volatility and therefore inhalation was not considered to be a relevant exposure pathway (TPHCWG 1997; RIVM 2001; CCME 2008).

34.2 Oral Exposure Limits

34.2.1 Chronic Oral

Table B.34-1 Chronic Oral Exposure Limits for Aliphatic C17-C34 Hydrocarbons

AGENCY	ATSDR	CCME	MA DEP	RIVM	TPHCWG
Exposure Limit Type	-	TDI	RfC	TDI	RfC
Exposure Limit Value (mg/kg bw/day)	-	2	2	2	2
Critical Organ or Effect	-	Liver	Liver	Liver	Liver
Species	-	Rat	Rat	Rat	Rat
Study	-	Adopted TPHCWG 1997	Smith *et al.*, 1996	Adopted TPHCWG 1997	Smith *et al.*, 1996
Source	ATSDR 1999a	CCME 2008;	MA DEP 2003	RIVM, 2001	TPHCWG 1997

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (1999a) suggest the use of mineral oils as a surrogate for aliphatic C17-C34 hydrocarbons but do not recommended any oral MRLs. The TPHCWG (1997) used toxicity data available for white mineral oils to develop an RfD for aliphatic hydrocarbons C17-C21 and C22-C35. White mineral oils are essentially pure aliphatic hydrocarbons and have virtually no aromatic components or other contaminants (TPHCWG 1997). An oral RfD of 2 mg/kg body weight/day was recommended based on a subchronic feeding study which reported no adverse liver effects in rats fed up to 200 mg/kg/day of the lower molecular weight white mineral oils (Smith *et al.*, 1996). An uncertainty factor of 100 was applied to this NOAEL to account for extrapolation from an animal study (3), human variability (10)

and use of a subchronic NOAEL (3) (TPHCWG 1997). The TPHCWG (1997) RfD was adopted by the CCME (2008) and RIVM (2001).

An oral RfD of 2 mg/kg body weight/day was also developed by the MA DEP (2003) for aliphatic C19-C32 hydrocarbons using the same NOAEL from the Smith *et al.* (1996) study and the same uncertainty factor identified by the TPHCWG (1997).

An RfD of 2 mg/kg body weight/day was selected to evaluate chronic oral risks associated with the aliphatic C17-C34 group. These hydrocarbons were included in the chemical group for liver effects following oral exposures.

35.0 AROMATIC C9-C16 PETROLEUM HYDROCARBONS

35.1 Inhalation Exposure Limits

35.1.1 Acute Inhalation

Table B.35-1 Acute Inhalation Exposure Limits for Aromatic C9-C16 Hydrocarbons

AGENCY	ATSDR	CCME	MA DEP	TCEQ	TPHCWG
Exposure Limit Type	-	-	-	-	-
Exposure Limit Value (µg/m^3)	-	-	-	-	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	ATSDR 1999a	CCME 2008	MA DEP 2003	TCEQ 2013	TPHCWG 1997

- not available

Bold – Exposure Limit selected for HHRA.

No acute inhalation exposure limits have been derived for aromatic C9-C16 petroleum hydrocarbons. The ATSDR (1999a) have recommended naphthalene (aromatic C10) as a surrogate for this group but do not provide an acute inhalation MRL for naphthalene. An occupational exposure limit for short-term exposure to naphthalene has been developed by the American Conference of Governmental Industrial Hygienists (ACGIH).

The ACGIH recommend a 15 minute or short-term exposure limit (STEL) of 79 mg/m^3 for naphthalene based on the potential for eye and respiratory tract irritation (OSHA 2013). The ACGIH STEL, based on a 15-minute exposure period, was converted to a 1-hour acute air concentration (X) using the following equation:

15 minute STEL of 79 mg/m^3 x 15 min = 1-hour acute exposure limit (X) x 60 min

The above calculation follows Habers rule which assumes the inhalation toxic potential of a chemical is a constant that is a function of time and exposure concentration. Therefore, a 4-fold increase in exposure duration necessitates a 4-fold decrease in the exposure concentration. Using this assumption, an acute exposure limit of 20 mg/m^3 was determined for 1-hour exposure to naphthalene. A 10-fold uncertainty factor was applied to account for the response of sensitive individuals, resulting in an acute (1-hour) inhalation exposure limit of 2 mg/m^3 or 2,000 µg/m^3 for aromatic C9-C16 petroleum hydrocarbons. These hydrocarbons were included in the chemical groups for eye irritants and respiratory irritants following acute inhalation exposures.

35.1.2 Chronic Inhalation

Table B.35-2 Chronic Inhalation Exposure Limits for Aromatic C9-C16 Hydrocarbons

AGENCY	ATSDR	CCME	MA DEP	RIVM	TPHCWG
Exposure Limit Type	MRL	RfC	**RfC**	TCA	RfC
Exposure Limit Value (µg/m^3)	4	200	**50**	200	200
Critical Organ or Effect	Nasal	Liver, kidney	**Liver, kidney**	Liver, kidney	Liver, kidney
Species	Rat, mouse	Rats	**Rats**	Rats	Rats
Study	Abdo *et al.*, 2001; NTP 1992; 2000	Adopted TPHCWG 1997	**Clark *et al.*, 1989**	Adopted TPHCWG 1997	Clark *et al.*, 1989
Source	ATSDR 2013; 2005	CCME 2008;	**MA DEP 2003**	RIVM, 2001	TPHCWG 1997

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (1999a) suggest the use of naphthalene as a surrogate for aromatic C9-C16 hydrocarbons. A chronic inhalation MRL of 4 µg/m^3 is recommended for naphthalene based on the occurrence of nasal lesions in rats and mice following long-term inhalation exposures (ATSDR 2005; Abdo *et al.*, 2001; NTP 1992; 2000).

The TPHCWG (1997) recommend an RfC of 200 µg/m^3 for inhalation exposure to aromatic C9-C16 hydrocarbons. This RfC was developed from a NOAEL of 900 mg/m^3 for increased liver and kidney weights in rats following inhalation exposure to aromatic C9 hydrocarbon mixtures for 6 hours/day, 5 days/week over 12 months (Clark *et al.*, 1989). A 1,000-fold uncertainty factor was applied to the

NOAEL to account for extrapolation from an animal study (10), human variability (10) and less than chronic exposure (10) (TPHCWG, 1997). The RIVM (2001) and CCME (2008) have adopted the chronic inhalation exposure limit of 200 µg/m^3 for aromatic C9-C16 hydrocarbons from the TPHCWG (1997).

The MA DEP (2003) recommends a chronic RfC of 50 µg/m^3 for the aromatic C9-C18 petroleum hydrocarbon group based on the same rat inhalation study of aromatic C9 hydrocarbon mixtures (high flash aromatic naphtha) by Clark *et al.* (1989). An additional 3-fold uncertainty factor was applied to the study NOAEL of 900 mg/m^3 to account for lack of toxicity information on non-PAH compounds in the C9 – C16 aromatic fraction range (MA DEP 2003). It is noted the MA DEP (2003) deemed the inhalation toxicity of naphthalene unduly conservative to represent the toxicity of the aromatic C9-C18 range.

For the current assessment, the MA DEP RfC of 50 µg/m^3 was selected to evaluate chronic inhalation risks associated with the aromatic C9-C16 group. This group was included in the chemical groups for liver and kidney effects following chronic inhalation exposures.

35.2 Oral Exposure Limits

35.2.1 Chronic Oral

Table B.35-3 Chronic Oral Exposure Limits for Aromatic C9-C16 Hydrocarbons

AGENCY	ATSDR	CCME	MA DEP	RIVM	TPHCWG
Exposure Limit Type	MRL (adjusted)	TDI	RfC	TDI	**RfD**
Exposure Limit Value (mg/kg bw/day)	0.06	0.04	0.03	0.04	**0.04**
Critical Organ or Effect	Body weight	Body weight	Kidney	Body weight	**Body weight**
Species	Rat	Rat	Mice	Rat	**Rat**
Study	NTP 1980a	Adopted TPHCWG 1997	US EPA 1989a	Adopted TPHCWG 1997	**Various**
Source	ATSDR 2005	CCME 2008	MA DEP 2003	RIVM, 2001	**TPHCWG 1997**

- not available
Bold – Exposure Limit selected for HHRA.

The ATSDR (2005) has developed an intermediate duration oral MRL value of 0.06 mg/kg body weight/day for naphthalene. This MRL considered NOAEL and LOAEL values from three exposure studies where reduced body and organ weights were reported in rats (NTP 1980a) or mice (NTP 1980b; Shopp *et al.* 1984) following 90-days gavage exposure to naphthalene. The strongest evidence of toxicity was for body weight changes in rats (NTP 1980a) with a NOAEL of 100 mg/kg/day was determined from this study. Adjusting the ATSDR intermediate MRL by an uncertainty factor of 10 for subchronic to chronic extrapolation would result in a chronic exposure limit of 0.06 mg/kg body weight/day for naphthalene.

The TPHCWG (1997) developed a tolerable daily intake of 0.04 mg/kg body weight/day for decreased bodyweights in rats following oral exposure to aromatic C9-C16 hydrocarbons. Eight RfD values were identified for aromatic C9-C16 hydrocarbons, ranging from 30 to 300 µg/kg body weight/day (TPHCWG 1997). The TPHCWG RfD was adopted by the CCME (2008) and RIVM (2001).

The MA DEP (2003) selected pyrene (a C17 aromatic hydrocarbon) as a surrogate to represent chronic oral exposure to aromatic petroleum hydrocarbons in the C9-C32 range. The RfD of 30 µg/kg body weight/day was adopted from the US EPA (1993a) and derived from a NOAEL of 75 mg/kg body weight/day for kidney effects in mice following subchronic gavage exposure to pyrene (US EPA 1989a).

An RfD of 0.04 mg/kg body weight/day was selected to evaluate chronic oral risks associated with the aromatic C9-C16 group.

36.0 AROMATIC C17-C34 PETROLEUM HYDROCARBONS

36.1 Inhalation Exposure Limits

No inhalation exposure limits were recommended for the aromatic C17-C34 hydrocarbon group by the ATSDR (1999a), MA DEP (1994; 2003) or TPHCWG (1997). Aromatic hydrocarbons in this group range would have extremely low volatility and therefore inhalation was not considered to be a relevant exposure pathway (TPHCWG 1997; RIVM 2001; CCME 2008).

36.2 Oral Exposure Limits

36.2.1 Chronic Oral

Table B.36-1 Chronic Oral Exposure Limits for Aromatic C17-C34 Hydrocarbons

AGENCY	ATSDR	CCME	MA DEP	RIVM	TPHCWG
Exposure Limit Type	MRL (adjusted)	TDI	RfD	TDI	**RfD**
Exposure Limit Value (mg/kg bw/day)	0.04	0.03	0.03	0.03	**0.03**
Critical Organ or Effect	Liver, Hematological effects	Kidney	Kidney	Kidney	**Kidney**
Species	Mice	Mice	Mice	Mice	**Mice**
Study	US EPA 1988; 1989b	Adopted TPHCWG 1997	US EPA 1989b	Adopted TPHCWG 1997	**US EPA 1989b**
Source	ATSDR 1999a; 1995b	CCME 2008	MA DEP 2003	RIVM, 2001	**TPHCWG 1997**

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (1999a) recommend use of the intermediate oral MRLs for fluorene and fluoranthene as a surrogate for aromatic C17-C35 petroleum hydrocarbons. An intermediate oral MRL of 0.4 mg/kg body weight/day was recommended for fluoranthene based on a LOAEL of 125 mg/kg body weight/day for liver effects in mice following 90 days gavage exposure to fluoranthene (US EPA 1988; ATSDR 1995b). The same LOAEL and MRL were identified for mice orally exposed for 90 days to fluorene; increased relative liver weights and hematological effects were the critical effects associated

with the fluorene LOAEL (US EPA 1989b; ATSDR 1995b). Adjusting the ATSDR intermediate MRL for fluoranthene and fluorene by an uncertainty factor of 10 for subchronic to chronic extrapolation would result in a chronic exposure limit of 0.04 mg/kg body weight/day for aromatic C17-C35 petroleum hydrocarbons. This approach was taken by the US EPA (IRIS) in their establishment of chronic oral RfDs of 0.04 mg/kg body weight/day for fluorene and fluoranthene (US EPA 1990; 1993b).

The TPHCWG (1997) selected pyrene (C17) as a surrogate to represent chronic oral exposure to aromatic C17-C35 petroleum hydrocarbons. The RfD of 0.03 mg/kg body weight/day was derived for pyrene by the US EPA (1993a) and adopted by the TPHCWG (1997). This RfD was derived from a NOAEL of 75 mg/kg body weight/day for kidney effects observed in a subchronic gavage study in mice (US EPA 1989a). The US EPA and TPHCWG RfD was adopted by the CCME (2008) and RIVM (2001).

The MA DEP (2003) also recommends pyrene and the US EPA (1993a) oral RfD of 0.03 mg/kg body weight/day as a surrogate for evaluating chronic oral exposures to aromatic C9-C32 hydrocarbons.

An RfD of 0.03 mg/kg body weight/day was selected to evaluate chronic oral risks associated with the aromatic C17-C34 group. These hydrocarbons were included in the chemical group for kidney effects following chronic oral exposures.

References

Abdo KM, Grumbein S, Chou BJ, *et al*. 2001. Toxicity and carcinogenicity study in F344 rats following 2 years of whole-body exposure to naphthalene vapors. Inhal Toxicol 13:931-950. Cited In: ASTDR 2005.

Air Force. 1984. Ninety-day continuous inhalation exposure to petroleum JP-4 jet fuel. In: Toxic hazards research unit annual technical report: 1984. Report no. AMRL-TR-84-001. Wright-Patterson Air Force Base, OH: Aerospace Medical Research Laboratory, Aerospace Medical Division, Air Force Systems Command. Document no. AD-A14785717, 46-62. Cited In: ATSDR 1995.

Air Force. 1991. Tumorigenic evaluation of jet fuels JP-TS and JP-7. Report no. AAMRL-TR-91-0020. Wright-Patterson Air Force Base, OH: Aerospace Medical Research Laboratory, Aerospace Medical Division, Air Force Systems Command. Cited In: ATSDR 1995

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

ATSDR 2005. Toxicological Profile for Naphthalene, 1-Methylnaphthalene, and 2-Methylnaphthalene. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. August 2005. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#H. Accessed October 2013.

ATSDR 1999a. Toxicological Profile for Total Petroleum Hydrocarbons (TPH). U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. September 1999. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#H. Accessed October 2013.

ATSDR 1999b. Toxicological Profile for n-Hexane. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. July 1999. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#H. Accessed October 2013.

ATSDR 1998. Toxicological Profile for Jet Fuels JP-5 and JP-8. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. August 1998. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#H. Accessed October 2013.

ATSDR 1995a. Toxicological Profile for Jet Fuels JP-4 and JP-7. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. June 1995. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#H. Accessed October 2013.

ATSDR 1995b. Toxicological Profile for Polycyclic Aromatic Hydrocarbons. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. August 1995. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#H. Accessed October 2013.

CCME (Canadian Council of Ministers of the Environment). 2008. Canada-Wide Standard for Petroleum Hydrocarbons (PHC) in Soil: Scientific Rationale. Supporting Technical Document. PN 1399. ISBN 978-1-896997-77-3. Available at: http://www.ccme.ca/assets/pdf/pn_1399_phc_sr_std_1.2_e.pdf. Accessed October 2013.

Clark, D.G., Butterworth, S.T., Martin, J.G., Roderick, H.R., and Bird, M.G. (1989). Inhalation toxicity of high flash aromatic naphtha. Toxic. Ind. Health. 5(3):415-428. Cited In: TPHCWG 1997.

Krasavage, W.J., O'Donoghue, J.L., Divencenzo, G.D. and Erhaar, T. 1980. Relative neurotoxicity of MBK, n-hexane and their metabolites. Toxicol. Appl. Pharmacol. 52(3):433-441. Cited In: MA DEP 2003.

Lammers J, H Muijse, D Owen et al. 2011. Neurobehavioral effects of acute exposures to (n-) paraffins. Int J Toxicol 30(1):47-58. Cited in: TCEQ 2011.

Lund, S.P., Simonsen, L., Hass, U., Ladefoged, O., Lam, H.R., and Ostergaard, G. 1995. Dearomatized white spirit inhalation exposure causes long-lasting neurophysiological changes in rats. Neurotox. Terat.18:67-76. Cited In: MA DEP 2003.

MA DEP (Massachusetts Department of Environmental Protection). 2003. Updated petroleum hydrocarbon fraction toxicity values for the VPH / EPH / APH methodology final. Boston, MA: Massachusetts Department of Environmental Protection. Available at: http://www.mass.gov/dep/cleanup/laws/tphtox03.pdf. Accessed October 2013.

MA DEP, 1994. Interim Final Petroleum Report: Development of Health-Based Alternative to the Total Petroleum Hydrocarbon (TPH) Parameter. Office of Research and Standards, Boston, MA. August, 1994. Cited In: MA DEP 2003.

Mattie, D.R., Alden, C.L., Newell, T.K., Gaworski, C.L., and Flemming, C.D. (1991). A 90-day continuous vapor inhalation toxicity study of JP-8 jet fuel followed by 20 or 21 months of recovery in Fischer 344 rats and C57BL/6 mice. Toxic. Pathol 19(2):77-87. Cited in: TPHCWG 1997.

NTP (National Toxicology Program). 2000. Toxicology and carcinogenesis studies of naphthalene (CAS No. 91-20-3) in F344/N rats (inhalation studies). National Toxicology Program. NTP TR 500, NIH Publ. No. 01-4434. Cited In: ASTDR 2005.

NTP 1992. Toxicology and carcinogenesis studies of naphthalene (CAS No. 91-20-3) in B6C3F1 mice (inhalation studies). Research Triangle Park, NC: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health. National Toxicology Program. NIH Publication No. 92-3141. Technical report series no. 410. Cited In: ASTDR 2005.

NTP. 1980a. Subchronic toxicity study: Naphthalene (C52904), Fischer 344 rats. Research Triangle Park, NC: U.S. Department of Health and Human Services, National Toxicology Program. Cited In: ASTDR 2005

NTP. 1980b. Subchronic toxicity study: Naphthalene (C52904), B6C3F1 mice. Research Triangle Park, NC: U.S. Department of Health and Human Services, National Toxicology Program. Cited In: ASTDR 2005

OSHA (Occupational Safety and Health Administration) 2013. Naphthalene Exposure Limits and Health Effects. Available at: https://www.osha.gov/dts/chemicalsampling/data/CH_255800.html Accessed October 2013.

Phillips, R.D. and Egan, G.F. (1984). Subchronic inhalation exposure of dearomatized white spirit and C10-C11 isoparaffinic hydrocarbon in Sprague-Dawley rats. Fund. Appl. Toxic. 4:808-818. Cited in: TPHCWG 1997.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

Sanagi, S., Seki, Y., Sugimoto, K. and Hirata, M. 1980. Peripheral nervous system functions of workers exposed to n-hexane at a low level. International Archives of Occupational and Environmental Health 47: 69-79. Cited In: US EPA 2005.

Shopp GM, White KL JR, Holsapple MP, et al. 1984. Naphthalene toxicity in CD-1 mice: General toxicology and immunotoxicology. Fundam Appl Toxicol 4:406-419. Cited In: ATSDR 2005.

Smith, J.H., Mallett, A.k, Priston, R.A.J., Brantom, P.G., Worell, N.R., Sexsmith, C, and Simpson, B.J. 1996. Ninety-day feeding study in Fischer 344 rats of highly refined petroleum-derived food grade white oils and waxes. Toxicol. Pathol. 24:214-230. Cited In: MA DEP (2003).

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at http://www.tceq.texas.gov/toxicology/esl/list_main.html Accessed October 2013.

TCEQ 2011. Development Support Document: Pentane, All Isomers (CAS Registry Numbers: n-Pentane: 109-66-0, Isopentane: 78-78-4, Neopentane: 463-82-1. July 29, 2011. Prepared by: Jong-Song Lee, Ph.D. Toxicology Division, Chief Engineer's Office, Texas Commission on Environmental Quality. Available at: http://www.tceq.state.tx.us/implementation/tox/dsd/final.html. Accessed October 2013.

TCEQ 2007a. Development Support Document: n-Hexane (CAS Registry Number: 100-54-3). October 15, 2007. Prepared by: Bernard Kadlubar. Toxicology Section, Chief Engineer's Office, Texas Commission on Environmental Quality. Available at: http://www.tceq.state.tx.us/implementation/tox/dsd/final.html. Accessed October 2013.

TCEQ 2007b. Development Support Document: Pentenes (CAS Registry Numbers: 1-pentene: 109-67-1, c-2-pentene: 627-20-3, t-2-pentene: 646-04-8. October 15, 2007. Prepared by: Valerie Meyers, Ph.D. Toxicology Section, Chief Engineer's Office, Texas Commission on Environmental Quality. Available at: http://www.tceq.state.tx.us/implementation/tox/dsd/final.html. Accessed October 2013.

TPHCWG (Total Petroleum Hydrocarbon Working Group) 1997. Total Petroleum Hydrocarbon Criteria Working Group Series, Vol. 4: Development of Fraction Specific Reference Doses (RfDs) and Reference Specific Concentrations (RfCs) for Total Petroleum Hydrocarbons (TPH). Amherst Scientific Publishers. Amherst, Massachusetts. Available at: http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=5265DE434DA12266C926B29274CD10F7?doi=10.1.1.197.7992&rep=rep1&type=pdf. Accessed October 2013.

US EPA (United States Environmental Protection Agency). 2005. Toxicological Review of n-Hexane (CAS No. 110-54-3). In Support of Summary Information on the Integrated Risk Information System (IRIS). November 2005. U.S. Environmental Protection Agency. Washington, DC. EPA/635/R-03/012. Available at: www.epa.gov/iris. Accessed October 2013.

US EPA. 1988. 13-Week mouse oral subchronic toxicity study. Prepared by Toxicity Research Laboratories, Ltd., Muskegon, MI for the Office of Solid Waste, Washington, DC. Cited in: US EPA 1993a.

US EPA. 1989a. Mouse Oral Subchronic Toxicity of Pyrene. Study conducted by Toxicity Research Laboratories, Muskegon, MI for the Office of Solid Waste, Washington, DC. Cited in US EPA 1993b.

US EPA. 1989b. Mouse oral subchronic toxicity study. Prepared by Toxicity Research Laboratories, LTD., Muskegon, MI for the Office of Solid Waste, Washington, DC. Cited in: US EPA 1990.

US EPA. 1990. IRIS Summary for Fluorene (CASRN 86-73-7). Reference Dose for Chronic Oral Exposure (RfD). Available at: www.epa.gov/iris. Accessed October 2013.

US EPA. 1993a. IRIS Summary for Pyrene (CASRN 129-00-0). Reference Dose for Chronic Oral Exposure (RfD). Available at: www.epa.gov/iris. Accessed October 2013.

US EPA. 1993b. IRIS Summary for Fluoranthene (CASRN 206-44-0). Reference Dose for Chronic Oral Exposure (RfD). Available at: www.epa.gov/iris. Accessed October 2013.

37.0 PHENANTHRENE

37.1 Inhalation Exposure Limits

37.1.1 Acute Inhalation Exposure Limits

Table B.37-1 Acute Inhalation Exposure Limits for Phenanthrene

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	ESL	-
Exposure Limit Value (µg/m³)	-	-	-	0.5	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	ESRD 2013	ATSDR 2013; 1995	OEHHA 2013	TCEQ 2013	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The TCEQ (2014) reports a short term ESL for phenanthrene of 0.5 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit and it is currently under review; therefore, it was not selected.

No short-term occupational exposure limits have been developed for phenanthrene (OSHA 2013).

Phenanthrene is a C14 aromatic hydrocarbon. In the absence of an acute inhalation exposure limit specific to phenanthrene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this chemical. Details on the acute inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

37.1.2 Chronic Inhalation

Table B.37-2 Chronic Inhalation Exposure Limits for Phenanthrene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	-	ESL	-	-
Exposure Limit Value (µg/m³)	-	-	-	-	-	0.05	-	-
Critical Organ or Effect	-	-	-	-	-	-	-	-
Species	-	-	-	-	-	-	-	-
Study		-	-	-	-	-	-	
Source	ESRD 2013	ATSDR 2013; 1995	Health Canada 2010	OEHHA 2013	RIVM 2009	TCEQ 2013	US EPA 2013	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (1995) determined there were no adequate dose-response data for the purpose of deriving chronic inhalation MRLs for polycyclic aromatic hydrocarbons.

The TCEQ (2014) reports a long term ESL for phenanthrene of 0.05 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit and it is currently under review; therefore, it was not selected.

In the absence of a chronic inhalation exposure limit specific to phenanthrene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this chemical. Details on the chronic inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

IARC (2013) has classified phenanthrene as possibly carcinogenic to humans (Group 2B). Health Canada (2012) has recommended potency equivalency factors (PEF) for carcinogenic PAH, including phenanthrene, sharing a common mode of action with B[a]P. For the purpose of this assessment, phenanthrene was also treated as a carcinogen following chronic inhalation exposure and was evaluated as part of the B[a]P equivalent group. Further details are provided in the toxicity profile for B[a]P.

37.2 Oral Exposure Limits

37.2.1 Chronic Oral

Table B.37-3 Chronic Oral Exposure Limits for Phenanthrene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	-	-	TDI	-	-
Exposure Limit Value (mg/kg bw/day)	-	-	-	0.04	-	-
Critical Organ or Effect	-	-	-	Body weight	-	-
Species	-	-	-	Rat	-	-
Study	-	-	-	Adopted TPHCWG 1997	-	-
Source	ATSDR 2005	Health Canada 2010	OEHHA 2013	RIVM, 2001	US EPA 2013	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The RIVM (2001) recommend a tolerable daily intake of 40 µg/kg body weight/day for phenanthrene. This TDI was adopted from the TPHCWG (1997) which reported decreased bodyweights in rats following oral exposure to aromatic C9-C16 hydrocarbons.

The TDI of 0.04 mg/kg body weight/day was selected for the assessment of non-carcinogenic effects following chronic oral exposure to phenanthrene. The carcinogenic potential of phenanthrene following chronic oral exposure was also assessed as part of the B[a]P equivalent group. Further details are provided in the toxicity profile for B[a]P.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

ATSDR 1995. Toxicological Profile for Polycyclic Aromatic Hydrocarbons. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. August 1995. Available at: http://www.atsdr.cdc.gov/toxprofiles/tp69.pdf. Accessed October 2013.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

Health Canada. 2012. Federal Contaminated Site Risk Assessment in Canada. Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA) Version 2.0. Contaminated Sites Division. Safe Environments Programme. Cat.: H128-1/11-632E-PDF, ISBN: 978-1-100-17671-0. September 2010. Revised 2012.

IARC (International Agency for Research on Cancer). 2013. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Updated July 16, 2013. Available at: http://monographs.iarc.fr/ENG/Classification/index.php. Accessed October 2013.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

OSHA (Occupational Safety and Health Administration) 2013. Chemical Sampling Information: Phenanthrene. Available at: https://www.osha.gov/dts/chemicalsampling/data/CH_261000.html. Accessed October 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2014. Effects Screening Levels List. Updated March 2014. Available at: http:// www.tceq.texas.gov/toxicology/esl/list_main.html/#esl_1. Accessed May 2015.

TPHCWG (Total Petroleum Hydrocabron Working Group) 1997. Total Petroleum Hydrocarbon Criteria Working Group Series, Vol. 4: Development of Fraction Specific Reference Doses (RfDs) and Reference Specific Concentrations (RfCs) for Total Petroleum Hydrocarbons (TPH). Amherst Scientific Publishers. Amherst, Massachusetts. Available at:

http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=5265DE434DA12266C926B29274CD10F7?doi=10.1.1.197.7992&rep=rep1&type=pdf. Accessed October 2013.

US EPA (United States Environmental Protection Agency). 2013. Integrated Risk Information System (IRIS) database on-line search. A-Z List of Substances. Available at: http://cfpub.epa.gov/ncea/iris/index.cfm?fuseaction=iris.showSubstanceList&list_type=alpha&view. Accessed October 2013.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255

38.0 PROPYLENE (PROPENE)

38.1 Inhalation Exposure Limits

38.1.1 Acute Inhalation

Table B.38-1 Acute Inhalation Exposure Limits for Propylene

AGENCY	ESRD	ATSDR	OEHHA	TCEQ
Exposure Limit Type	-	-	-	-
Exposure Limit Value ($\mu g/m^3$)	-	-	-	-
Critical Organ or Effect	-	-	-	-
Species	-	-	-	-
Study	-	-	-	-
Source	-	-	-	-

- not available

Bold – Exposure Limit selected for HHRA.

No exposure limits for acute inhalation exposure to propylene were available. Propylene has a low order of acute toxicity by the inhalation route of exposure. The lower flammability limit for propylene is 2% or 20,000 ppm. The threshold for narcosis in humans is 46,000 ppm. Thus, the explosive range of airborne concentrations for propylene is reached before any acute narcotic effects can be manifested (IOMC, 2012) and assessment of the potential acute effects was not required for the HHRA.

38.1.2 Chronic Inhalation

Table B.38-2 Chronic Inhalation Exposure Limits for Propylene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	**RfC**	-	-	-	-

Table B.38-2 Chronic Inhalation Exposure Limits for Propylene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Value ($\mu g/m^3$)	-	-	-	**3,000**	-	-	-	-
Critical Organ or Effect	-	-	-	**Metaplasia, Hyperplasia and Inflammation**	-	-	-	-
Species	-	-	-	**Rats**	-	-	-	-
Study	-	-	-	**Quest *et al.*, 1984**	-	-	-	-
Source	-	-	-	**OEHHA, 2000**	-	-	-	-

- not available

Bold – Exposure Limit selected for HHRA.

The OEHHA (2000) recommends an RfC of 3,000 $\mu g/m^3$ for propylene. This RfC was based on a 2-year study in F344/N rats and B6C3F1 mice (Quest *et al.*, 1984). In exposed rats, treatment-related chronic effects were observed in the nasal cavity. In female rats, epithelial hyperplasia and squamous metaplasia were observed. In male rats, squamous metaplasia and inflammatory changes, characterized by an influx of lymphocytes, macrophages and granulocytes into the submucosa and granulocytes into the lumen, were observed.

38.2 Oral Exposure Limits

No chronic oral exposure limit was required for propylene as this chemical was not identified for inclusion in the multiple pathway exposure assessment.

References

Inter-Organization Programme for the Sound Management of Chemicals (IOMC). 2012. SIDS Initial Assessment Profiles agreed in the course of the OECD HPV Chemicals Programme from 1993-2011. OECD (The Organization for Economic Co-operation and Development) Environment, Health and Safety Publications, Series on Testing and Assessment, No. 166.

Office of Environmental Health Hazard Assessment (OEHHA). 2000. Chronic Toxicity Summary Propylene CAS Registry Number: 115-07-1. Accessed at: http://oehha.ca.gov/air/chronic_rels/pdf/115071.pdf. Accessed January, 2015.

Quest JA, Tomaszewski JE, Haseman JK, Boorman GA, Douglas JF, and Clarke WJ. 1984. Two-year inhalation toxicity study of propylene in F344/N rats and B6C3F1 mice. Toxicol. Appl. Pharmacol. 76:288-295.

39.0 PYRENE

39.1 Inhalation Exposure Limits

39.1.1 Acute Inhalation Exposure Limits

Table B.39-1 Acute Inhalation Exposure Limits for Pyrene

AGENCY	ESRD	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	ESL	-
Exposure Limit Value ($\mu g/m^3$)	-	-	-	0.5	-
Critical Organ or Effect	-	-	-	-	-
Species	-	-	-	-	-
Study	-	-	-	-	-
Source	ESRD 2013	ATSDR 2013; 1995	OEHHA 2013	TCEQ 2013	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The TCEQ (2014) reports an interim short term ESL for pyrene of 0.5 $\mu g/m^3$. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

No short-term occupational exposure limits have been developed for pyrene (OSHA 2013).

Pyrene is a C11 aromatic hydrocarbon. In the absence of an acute inhalation exposure limit specific to pyrene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this chemical. Details on the acute inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

39.1.2 Chronic Inhalation

Table B.39-2 Chronic Inhalation Exposure Limits for Pyrene

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	-	ESL	-	-
Exposure Limit Value (µg/m³)	-	-	-	-	-	0.05	-	-
Critical Organ or Effect	-	-	-	-	-	-	-	-
Species	-	-	-	-	-	-	-	-
Study		-	-	-	-	-	-	
Source	ESRD 2013	ATSDR 2013; 1995	Health Canada 2010	OEHHA 2013	RIVM 2009	TCEQ 2013	US EPA 1993	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (1995) determined that there were no adequate dose-response data for the purpose of deriving chronic inhalation MRLs for polycyclic aromatic hydrocarbons.

The TCEQ (2014) reports an interim long term ESL for pyrene of 0.05 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

In the absence of a chronic inhalation exposure limit specific to pyrene, the exposure limit developed for the aromatic C9-C16 hydrocarbon group was assigned to this C11 aromatic hydrocarbon. Details on the chronic inhalation exposure limit for the aromatic C9-C16 hydrocarbon group are provided in the toxicity profile for Petroleum Hydrocarbons.

39.2 Oral Exposure Limits

39.2.1 Chronic Oral

Table B.39-3 Chronic Oral Exposure Limits for Pyrene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	RfD	-	CR	**RfD**	-
Exposure Limit Value (mg/kg bw/day)	-	0.03	-	0.5	**0.03**	-
Critical Organ or Effect	-	Kidney	-	Cancer potency relative to B[a]P	**Kidney**	-
Species	-	Mice	-	Rat	**Mice**	-
Study	-	US EPA 1989	-	Kroese *et al*. 1999	**US EPA 1989**	-
Source	ATSDR 2005	Health Canada 2010	OEHHA 2013	RIVM, 2001	**US EPA 1993**	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The US EPA (1993) derived an RfD of 0.03 mg/kg body weight/day for pyrene based on a NOAEL of 75 mg/kg body weight/day for kidney effects in mice following subchronic gavage exposure (US EPA 1989). The US EPA RfD for pyrene was adopted by Health Canada (2010).

The RIVM (2001) recommend a CR of 0.5 mg/kg body weight/day for pyrene based on relative carcinogenic potency to benzo[a]pyrene of 0.001 and an excess lifetime cancer risk of 1 in 10,000.

The US EPA (1993) and Health Canada (2010) RfD of 0.3 mg/kg body weight/day was selected to evaluate risks associated with chronic oral exposure to pyrene. Pyrene was included in the chemical group for kidney effects following chronic oral exposures. Pyrene was also included as a component of the aromatic C9-C16 hydrocarbon group and included in the assessment of chronic oral exposure to these hydrocarbons.

The assessment of cancer risks associated with exposure to polycyclic aromatic hydrocarbons (PAHs) is described in detail in the toxicity profile for benzo[a]pyrene. Health Canada (2012) does not

recommend a potency equivalence factor (PEF) relative to benzo[a]pyrene for pyrene and therefore this PAH was not included in that assessment. The exposure limit developed by the US EPA (1993) for non-carcinogenic effects associated with chronic oral exposure to pyrene is lower and therefore more conservative than the RIVM (2001) exposure limit for potential carcinogenic effects of pyrene.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

ATSDR 1995. Toxicological Profile for Polycyclic Aromatic Hydrocarbons. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. August 1995. Available at: http://www.atsdr.cdc.gov/toxprofiles/tp69.pdf. Accessed October 2013.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

Health Canada. 2012. Federal Contaminated Site Risk Assessment in Canada. Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA) Version 2.0. Contaminated Sites Division. Safe Environments Programme. Cat.: H128-1/11-632E-PDF, ISBN: 978-1-100-17671-0. September 2010. Revised 2012.

Kroese ED, Muller JJA, Mohn GR, Dortant PM, and Wester PW. 1999. Tumorigenic effects in Wistar rats orally administered benzo[a]pyrene for two years (gavage studies). Implications for human cancer risks associated with oral exposure to polycyclic aromatic hydrocarbons. National Institute of Public Health and the Environment, RIVM draft report no. 658603010, July 1999. Cited In: RIVM 2001.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

OSHA (Occupational Safety and Health Administration) 2013. Chemical Sampling Information: Pyrene. Available at: https://www.osha.gov/dts/chemicalsampling/data/CH_265100.html. Accessed October 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed October 2013.

US EPA. 1989. Mouse Oral Subchronic Toxicity of Pyrene. Study conducted by Toxicity Research Laboratories, Muskegon, MI for the Office of Solid Waste, Washington, DC. Cited in US EPA 1993b.

US EPA. 1993. IRIS Summary for Pyrene (CASRN 129-00-0). Reference Dose for Chronic Oral Exposure (RfD). Available at: www.epa.gov/iris. Accessed October 2013.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. ISBN 92 890 1358 3 ISSN 0378-2255

40.0 SELENIUM

40.1 Inhalation Exposure Limits

40.1.1 Acute Inhalation

Table B.40-1 Acute Inhalation Exposure Limits for Selenium

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	24 Hour Guideline	-	-	ESL	-
Exposure Limit Value (µg/m³)	-	10	-	-	2	-
Critical Organ or Effect	-	-	-	-	-	-
Species	-	-	-	-	-	-
Study	-	-	-	-	-	-
Source	-	OMOE 2012	-	-	TCEQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

The OMOE (2012) derived a 24-hour guideline of 10 µg/m³ for selenium. Although the guideline is health based, supporting documentation was not available. As a result, it was not used in the acute effects assessment.

The TCEQ (2014) reports an interim short term ESL for selenium and compounds of 2 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

Due to the lack of defensible acute inhalation exposure limits, selenium was not assessed on an acute basis.

40.1.2 Chronic Inhalation

Table B.40-2 Chronic Inhalation Exposure Limits for Selenium

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	**REL**	-	ESL	-	-
Exposure Limit Value (µg/m³)	-	-	-	**20**	-	0.2	-	-
Critical Organ or Effect	-	-	-	**Clinical Selenosis**	-	-	-	-
Species	-	-	-	**Human**	-	-	-	-
Study	-	-	-	**Yang *et al* 1989**	-	-	-	-
Source	-	-	-	**OEHHA 2001**	-	TCEQ 2014	-	-

- not available

Bold – Exposure Limit selected for HHRA.

Selenium sulfide is classified as being reasonably anticipated to be a human carcinogen (Group R) by the NTP (2014). However, no unit risk factors were available for selenium exposure by inhalation. For this reason, selenium was treated as a non-carcinogen by chronic inhalation for this risk assessment.

The OEHHA (2001) uses a chronic inhalation REL of 20 µg/m³ for selenium and selenium compounds (other than hydrogen selenide) based on the US EPA's oral RfD of 0.005 mg/kg bw/d for clinical selenosis (US EPA 1991). The principal study for the US EPA RfD was a Chinese epidemiological study of 400 individuals (Yang *et al*. 1989). The OEHHA (2001) derived the reference level through route-to-route extrapolation of the oral REL using an inhalation extrapolation factor of 3,500 µg/m³ per mg/kg-day (*i.e.*, assuming a body weight of 70 kg, an inhalation rate of 20 m³/day). Although there was some uncertainty with the route-to-route extrapolation, the REL of 20 µg/m³ based on neurological effects and liver dysfunction was used as the chronic inhalation limit for selenium since selenosis is a relevant toxicological effect for both the oral and inhalation routes.

The TCEQ (2014) reports an interim long term ESL for selenium and compounds of 0.2 µg/m^3. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

40.2 Oral Exposure Limits

40.2.1 Chronic Oral

Table B.40-3 Chronic Oral Exposure Limits for Selenium

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	MRL	UL	REL	-	**RfD**	TDI
Exposure Limit Value (mg/kg bw/day)	0.005	0.0055 (0- 6 mths), 0.0062 (7 mths-4 yrs), 0.0063 (5-11 yrs), 0.0062 (12-19 yrs), 0.0057 (for 20+ yrs)	0.005	-	**0.005**	0.004
Critical Organ or Effect	Clinical Selenosis	Clinical Selenosis	Clinical Selenosis	-	**Clinical Selenosis**	Alanine aminotransferase
Species	Human	Human	Human	-	**Human**	Human
Study	Yang *et al.* 1989	Yang and Zhou (1994)	Yang *et al.* 1989	-	**Yang *et al.* 1989**	Longnecker 1991
Source	US EPA 1991	Health Canada 2010	US EPA 1991	-	**US EPA 1991**	WHO 2011

- not available

Bold – Exposure Limit selected for HHRA.

Selenium sulfide is classified as being reasonably anticipated to be a human carcinogen (Group R) by the NTP (2014). No slope factors were available for Selenium exposure by ingestion. For this reason, Selenium was treated as a non-carcinogen by ingestion for this risk assessment.

The US EPA (1991) reported a chronic oral exposure RfD of 0.005 mg/kg bw/d based on a NOAEL of 0.015 mg/kg bw/d for clinical selenosis observed in a human epidemiological study in rural China (Yang *et al.* 1989). In the study, selenium intakes were evaluated in association with food and water intake. Hair, fingernail, toenail and blood samples were obtained from subjects in the different areas. The lowest whole blood selenium concentration at which no effects were observed was 1.0 mg/L, which corresponded to a NOAEL of 0.015 mg/kg bw/d. An uncertainty factor of 3 was applied to the

NOAEL to account for sensitive individuals. A full factor of 10 was not deemed necessary since similar NOAELs were identified in two other moderately-sized populations exposed to selenium levels without apparent clinical signs of selenosis. The oral RfD of 0.005 mg/kg bw/d, based on chronic selenosis (neurological effects and changes in blood parameters symptomatic of liver dysfunction), was used in the chronic effects assessment for selenium.

The OEHHA (2012) reports a chronic oral REL of 0.005 mg/kg bw/d, based on the US EPA oral RfD.

The ATSDR (2003) also derived a chronic oral MRL of 0.005 mg/kg bw/d based on the study by Yang *et al.* (1989) using the same method as the US EPA.

Health Canada (2010) has derived life stage-specific ULs for selenium based on an analysis by the IOM (2000) of two different studies: Shearer and Hadjimarkos (1975), and Yang and Zhou (1994). The ULs are "the highest level of daily intake likely to pose no risk of adverse health effects for almost all individuals in the specified life stage group". Health Canada uses the NOAEL of 0.007 mg/kg bw/d for selenosis in infants and an uncertainty factor of 1 to derive ULs of 0.0055 mg/kg bw/d (0 to 6 months), 0.0062 mg/kg bw/d (7 months to 4 years), 0.0063 mg/kg bw/d (5 to 11 years), 0.0062 mg/kg bw/d (12 to 19 years) and 0.0057 mg/kg bw/d (for 20+ years). The limits derived by Health Canada (2010) were not used in the oral assessment since the US EPA has derived a more conservative value based on a more comprehensive analysis of exposure in a larger population.

The WHO (2003) has established a TDI of 0.004 mg/kg bw/d, based on the absence of clinical effects in an exposed population of 142 individuals over 2 years (Longnecker 1991). An association between selenium intake and alanine aminotransferase levels in serum was observed but considered to be clinically not significant. A NOAEL of 0.004 mg/kg bw/d was derived based on the assumption that soluble selenium salts in drinking water may be more toxic than organic-bound selenium in food. Since the US EPA value has been adjusted for sensitive individuals and is better explained and therefore more supportable than the WHO value, the WHO value was not selected.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2003. Toxicological Profile for Selenium. Accessed at: http://www.atsdr.cdc.gov/toxprofiles/tp92.html. Accessed March 2015.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme. September 2010.

Longnecker MP et al. Selenium in diet, blood and toenails in relation to human health in a seleniferous area. American journal of clinical nutrition, 1991, 53:1288-1294. 60. Schrauzer GN,

White DA. Selenium in human nutrition: dietary intakes and effects of supplementation. Bioinorganic chemistry, 1978, 8:303-318.

NTP (National Toxicology Program). 2014. 13th Report on Carcinogens. Selenium Sulfide accessed at: http://ntp.niehs.nih.gov/ntp/roc/content/profiles/seleniumsulfide.pdf. Accessed March 2015.

OEHHA (California Office of Environmental Health Hazard Assessment). 2001. Determination of Noncancer Chronic Reference Exposure Levels. Chronic Toxicity Summary for Selenium and Selenium Compounds. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment. Sacramento, CA. December 2001. Accessed at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD3_final.pdf#page=476. Accessed March 2015.

OMOE (Ontario Ministry of the Environment). 2012. Summary of Standards and Guidelines to Support Ontario Regulation 419/05 - Air Pollution – Local Air Quality (including Schedule 6 of O. Reg. 419/05 on Upper Risk Thresholds) (sorted by Chemical Name). Standards Development Branch, Ontario Ministry of the Environment. PIBS # 6569e01. Accessed at: https://ia902505.us.archive.org/5/items/summaryofstandar00snsn21806/summaryofstandar00snsn21806.pdf. Accessed March 2015.

TCEQ (Texas Commission on Environmental Quality). 2014. ESL List. Accessed at: https://www.tceq.texas.gov/toxicology/esl/list_main.html/#esl_1. Accessed March 2015.

US EPA (United States Environmental Protection Agency). 1991. IRIS Selenium and Compounds (CASRN 7782-49-2) Reference Dose for Chronic Oral Exposure (RfD). Cincinnati, OH: United States Environmental Protection Agency. Accessed at: http://www.epa.gov/iris/subst/0472.htm#reforal. Accessed March 2015.

WHO (World Health Organization). 2011. Selenium in Drinking Water. Background document for the Development of the WHO Guidelines on Drinking-water Quality. WHO/HSE/WSH/10.01/14. Accessed at: http://www.who.int/water_sanitation_health/dwq/chemicals/selenium.pdf. Accessed March 2015.

Yang, G., Yin, S., Zhou, R., *et al.* 1989. Studies of a safe maximal daily dietary selenium intake in a seleniferous area in China. II. Relation between Se- intake and the manifestation of clinical signs and certain biochemical alterations in blood and urine. Journal of Trace Elements and Electrolytes in Health and Disease. 3(2):123-130. Cited in: US EPA 1991.

Yang, G-Q. and Zhou, R-H. 1994. Further observations on the human maximum safe dietary selenium intake in a seleniferous area of China. Journal of Trace Elements and Electrolytes in Health and Disease. 8(3-4):159-165.

41.0 SULPHUR DIOXIDE

41.1 Inhalation Exposure Limits

41.1.1 Acute Inhalation

Table B.41-1 Acute Inhalation Exposure Limits for Sulphur Dioxide

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	TCEQ	US EPA	WHO
Exposure Limit Type	1-hour 24-hour AAQO	1-hour MRL	-	1-hour REL	-	1-hour NAAQS	10-min 24-hour
Exposure Limit Value (µg/m³)	**450** 125	26	-	660	-	200	**500** **20**
Critical Organ or Effect	Respiratory system	Respiratory system	-	Respiratory system	-	Respiratory system	Respiratory system
Species	Human	Human	-	Human	-	Human	Human
Study	Various	Sheppard *et al.* 1981	-	Roger *et al.*, 1985; Linn *et al.* 1987	-	Various	Various
Source	ESRD 2013	ATSDR 2013; 1998	-	OEHHA 2008; 2013	-	US EPA 2012; 2010	WHO 2005

- not available

Bold – Exposure Limit selected for HHRA.

Alberta recommends 1-hour and 24-hour ambient air quality objectives of 450 and 125 µg/m³, respectively, for sulphur dioxide (ESRD 2013). The 1-hour guideline was intended to protect against pulmonary effects associated with acute sulphur dioxide exposure while the 24-hour objective was adopted from the European Union for the protection of human health (AENV 2011).

The ATSDR (2013) recommend a MRL of 26 µg/m³ for acute exposure to sulphur dioxide. This MRL was derived from a study examining acute sulphur dioxide exposure and bronchoconstriction in mild asthmatics during exercise (Sheppard *et al.* 1981). The LOAEL identified for pulmonary effects in this study was supported by other controlled exposure studies in asthmatics (ATSDR 1998).

The OEHHA (2013) recommends a 1-hour REL of 660 µg/m³. This exposure limit was based on NOAELs reported in studies of respiratory effects in healthy, asthmatic and atopic individuals

following controlled exposure to sulphur dioxide with or without exercise (Roger *et al.*, 1985; Linn *et al.* 1987).

The US EPA (2012) has implemented a 1-hour NAAQS of 200 µg/m^3 for sulphur dioxide to protect against respiratory effects. This standard considers the 3-year average of the 99th percentile of 1-hour daily maximum sulphur dioxide concentrations. The basis for this exposure limit was the protection of sensitive individuals (including asthmatic children) from adverse respiratory effects during periods of exertion. This standard also considered epidemiological studies reporting causal associations between 1-hour daily maximum sulphur dioxide concentrations and respiratory morbidity (increased hospital admissions). The 1-hour NAAQS was expected to substantially limit asthmatics short-term exposure (5-10 minutes) to sulphur dioxide concentrations above 500 µg/m^3 (US EPA 2010).

Breathing difficulties in response to sulphur dioxide can occur within the first few minutes of exposure and may provoke asthma attacks, particularly during exercise; therefore, the WHO (2005) has recommended a 10-minute time-weighted average guideline of 500 µg/m^3 for acute exposures to sulphur dioxide. The WHO (2005) also recommends a 24-hour guideline of 20 µg/m^3 for sulphur dioxide, based on epidemiological studies that found an association between mortality, morbidity or lung function changes in relation to 24-hour average sulphur dioxide concentrations in ambient air. The WHO recognizes this exposure limit for sulphur dioxide may be difficult for some countries to attain and has recommended two interim 24-hour target levels of 125 µg/m^3 and 50 µg/m^3 as a stepped approach for countries as they develop successive and sustained abatement measures to move towards eventual compliance with the 20 µg/m^3 guideline (WHO 2005).

The ESRD (2013) 1-hour objective of 450 µg/m^3 and the WHO (2005) 10-min and 24-hour guidelines of 500 µg/m^3 and 20 µg/m^3 were selected for use in the assessment of acute inhalation exposure to sulphur dioxide. Sulphur dioxide was included in the chemical group for respiratory irritation following acute inhalation exposures.

41.1.2 Chronic Inhalation

Table B.41-2 Chronic Inhalation Exposure Limits for Sulphur Dioxide

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	Annual average	-	-	-	-	-	-	**AQG**
Exposure Limit Value (µg/m³)	20	-	-	-	-	-	-	**20**
Critical Organ or Effect	Ecosystem protection	-	-	-	-	-	-	**-**
Species	-	-	-	-	-	-	-	**-**
Study	-	-	-	-	-	-	-	**-**
Source	ESRD 2013	-	-	-	-	-	-	**-**

- not available

Bold – Exposure Limit selected for HHRA.

The ESRD (2013) has established an annual average guideline of 20 µg/m³ for sulphur dioxide. This exposure limit was developed for ecosystem protection (AENV 2011).

The WHO (2005) 24-hour air quality guideline of 20 µg/m³ was assumed to be protective of inhalation risks associated with chronic exposures in the absence of other guidelines.

41.2 Oral Exposure Limits

No chronic oral exposure limit was required for sulphur dioxide as this chemical was not identified for inclusion in the multiple pathway exposure assessment.

References

AENV (Alberta Environment) 2011. Alberta Ambient Air Quality Objectives. Sulphur Dioxide. Effective February 15, 2011. Available at: http://environment.alberta.ca/01005.html. Accessed October 2013

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services, Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed October 2013.

ATSDR. 1998. Toxicological Profile for Sulphur Dioxide. Prepared by Sciences International, Inc. under subcontract to: Research Triangle Institute under contract No. 205-93-0606. Prepared for US Department of Health and Human Services. Public Health Service. Agency for Toxic Substances and Disease Registry. Atlanta, GA. December 1998. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp. Accessed October 2013.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

Health Canada. 2006. Environmental and Workplace Health: Regulations Related to Health and Air Quality. National Ambient Air Quality Objectives (NAAQOs). Date Modified 2006-05-16. Available at: http://www.hc-sc.gc.ca/ewh-semt/air/out-ext/reg-eng.php#a3. Accessed October 2013.

Linn WS, Avol EL, Peng R, Shamoo DA, Hackney JD. Replicated dose-response study of sulfur dioxide effects in normal, atopic, and asthmatic volunteers. Am Rev Respir Dis 1987;136:1127-1134. Cited In: OEHHA 2008.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of August 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed October 2013.

OEHHA 2008. Technical Support Document for Noncancer RELs. Appendix D.2. Acute RELs and toxicity summaries using the previous version of the Hot Spots Risk Assessment Guidelines. Acute Toxicity Summary: Sulphur Dioxide. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD2_final.pdf#page=272 Accessed October 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

Roger LJ, Kehrl HR, Hazucha M, Horstman DH. Bronchoconstriction in asthmatics exposed to sulfur dioxide during repeated exercise. J Appl Physiol 1985 Sep;59(3):784-791. Cited In: OEHHA 2008.

Sheppard D, Saisho A, Nadel JA, *et al.* 1981. Exercise increases sulfur dioxide-induced bronchoconstriction in asthmatic subjects. Am Rev Respir Dis 123:486-491. Cited In: ATSDR, 1998.

TCEQ (Texas Commission on Environmental Quality). 2013. Effects Screening Levels List. Updated February 1, 2013. Available at: http://www.tceq.texas.gov/toxicology/esl/list_main.html. Accessed October 2013.

US EPA (United States Environmental Protection Agency). 2012. National Ambient Air Quality Standards (NAAQS). Washington, DC: U.S. Environmental Protection Agency, Office of Air and Radiation. http://www.epa.gov/air/criteria.html. December 14, 2012. Accessed October 2013.

US EPA. 2010. Code of the Federal Register. Environmental Protection Agency. 40 CFR Parts 50, 53 and 58. Primary National Ambient Air Quality Standard for Sulfur Dioxide: Final Rule. Available at: http://www.gpo.gov/fdsys/pkg/FR-2010-06-22/html/2010-13947.htm. Accessed October 2013.

42.0 THALLIUM

42.1 Inhalation Exposure Limits

42.1.1 Acute Inhalation

Table B.42-1 Acute Inhalation Exposure Limits for Thallium

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	-	ESL	-
Exposure Limit Value (µg/m³)	-	-	-	-	1	-
Critical Organ or Effect	-	-	-	-	-	-
Species	-	-	-	-	-	-
Study	-	-	-	-	-	-
Source	-	-	-	-	TCEQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

The TCEQ (2014) reports an interim short term ESL for thallium and compounds of 1 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

Due to the lack of defensible acute inhalation exposure limits, thallium was not assessed on an acute basis.

42.1.2 Chronic Inhalation

Table B.42-2 Chronic Inhalation Exposure Limits for Thallium

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	-	ESL	-	-
Exposure Limit Value (µg/m³)	-	-	-	-	-	0.1	-	-
Critical Organ or Effect	-	-	-	-	-	-	-	-
Species	-	-	-	-	-	-	-	-
Study	-	-	-	-	-	-	-	-
Source	-	-	-	-	-	TCEQ 2014	-	-

- not available

Bold – Exposure Limit selected for HHRA.

The TCEQ (2014) reports an interim long term ESL for thallium and compounds of 0.1 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

Due to the lack of defensible chronic inhalation exposure limits, thallium was not assessed on an acute basis.

42.2 Oral Exposure Limits

42.2.1 Chronic Oral

Table B.42-3 Chronic Oral Exposure Limits for Thallium

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	-	-	-	pRfD	-
Exposure Limit Value (mg/kg bw/day)	-	-	-	-	0.00002 (thallium sulphate), **0.00001 (soluble thallium),** 0.00002 (thallium acetate, thallium carbonate, thallium chloride and thallium nitrate)	-
Critical Organ or Effect	-	-	-	-	Hair follicle atrophy	-
Species	-	-	-	-	Rat	-
Study	-	-	-	-	Midwest Research Institute 1988	-
Source	-	-	-	-	US EPA 2012	-

- not available

Bold – Exposure Limit selected for HHRA.

The US EPA (2012) has derived provisional RfDs for thallium and compounds. The RfDs are based on a 90 day study in which rats were administered an aqueous solution of thallium sulphate (Midwest Research Institute 1988). the high dose (0.25 mg/kg bw/d of thallium sulphate or 0.2 mg/kg bw/d of soluble thallium) was characterized as a LOAEL for hair follicle atrophy. The NOAEL could not be determined with certainty. Given the low incidence of hair follicle atrophy in female rats and the absence of hair follicle atrophy in male rats, the mid-dose (0.05 mg/kg bw/d of thallium sulphate or 0.04 mg/kg bw/d of soluble thallium) was assumed to be a NOAEL for skin histopathology and used as the point of departure for the RfDs. The chronic RfDs for thallium sulphate and soluble thallium were derived by applying a cumulative uncertainty factor of 3,000 to their NOAELs (10 for interspecies variability, 10 for intraspecies variability, 10 for database limitations and 3 for extrapolation from subchronic to chronic exposure), resulting in a pRfD of 0.00002 mg/kg bw/d for thallium sulphate and 0.00001 mg/kg bw/d for soluble thallium. Based on molecular weight adjustments and stoichiometric calculations, chronic pRfDs were also derived for thallium acetate, thallium carbonate, thallium chloride and thallium nitrate, all of which were 0.00002 mg/kg bw/d.

References

Midwest Research Institute. (1988). Toxicity of thallium (I) sulfate (CAS No. 7446-18-6) in Sprague-Dawley rats. Vol. 2. Subchronic (90-day) study. Rockville, MD: Dynamac Corporation.

TCEQ (Texas Commission on Environmental Quality). 2014. ESL List. Accessed at: https://www.tceq.texas.gov/toxicology/esl/list_main.html/#esl_1. Accessed March 2015.

US EPA (United States Environmental Protection Agency). 2009. IRIS Summary of Thallium (I), soluble salts (CASRN Various). Reference Dose for Chronic Oral Exposure (RfD). Accessed at: http://www.epa.gov/iris/subst/1012.htm#reforal. Accessed March 2015.

US EPA (United States Environmental Protection Agency). 2012. Metallic Thallium (7440-28-0), Thallium (I) acetate (563-68-8), Thallium (I) carbonate (6533-73-9), Thallium (I) chloride (7791-12-0), Thallium (I) nitrate (10102-45-1), and Thallium (I) sulfate (7446-18-6). Accessed at: http://hhpprtv.ornl.gov/issue_papers/ThalliumSolubleSalts.pdf. Accessed March 2015.

43.0 TOLUENE

43.1 Inhalation Exposure Limits

43.1.1 Acute Inhalation

Table B.43-1 Acute Inhalation Exposure Limits for Toluene

AGENCY	ESRD	ATSDR	OEHHA	TCEQ
Exposure Limit Type	1-hour 24-hour	Acute ≤ 14 days MRL	1-hour REL	**1-hour** **ReV**
Exposure Limit Value ($\mu g/m^3$)	1,880 400	3,800	37,000	**15,000**
Critical Organ or Effect	Neurological	Neurological Eye and nose irritation	Neurological Eye and nose irritation	**Neurological** **Eye and nose irritation**
Species	Human	Human	Human	**Human**
Study	1-hr from TCEQ; 24-hr from US EPA	Anderson *et al.* 1983	Anderson *et al.* 1983	**Andersen *et al.* 1983**
Source	ESRD 2013	ATSDR 2013; 2000	OEHHA 2013; 2008	**TCEQ 2008**

- not available

Bold – Exposure Limit selected for HHRA.

The ESRD (2013) recommend a 1-hour AAQO of 1,800 $\mu g/m^3$ and a 24-hour AAQO of 400 $\mu g/m^3$ for toluene. The basis for the 1-hour AAQO was the 2003 TCEQ 1-hour ReV which was developed from the ACGIH threshold limit value of 50 ppm (190 mg/m^3) (AENV 2004). The TCEQ ReV for toluene has since been revised as described below. The basis for the 24-hour AAQO was the 1992 US EPA RfC for toluene which was developed from a LOAEL of 88 ppm (332 mg/m^3) reported by Foo *et al* (1990) for neurological effects in workers exposed to toluene (AENV 2004). The US EPA RfC for ethylbenzene has also since been revised as described in the chronic inhalation section below.

The ATSDR (2000), OEHHA (2008) and TCEQ (2008) have derived acute exposure limits for toluene based on an acute human exposure study reporting mild, reversible neurological effects (headache, dizziness) and irritation in the eyes and nose following controlled exposure to toluene for 6 hours a day over 4 consecutive days (Anderson *et al.* 1983).

An MRL of 3,800 µg/m³ (1 ppm) is recommended by the ATSDR (2013) for acute exposures to toluene. The ATSDR (2000) identified a NOAEL of 40 ppm for neurological effects from the Anderson *et al.* (1983) study. This NOAEL was adjusted for continuous exposure and an uncertainty factor of 10 applied to account for variability in human response.

THE OEHHA (2008) identified the same NOAEL of 40 ppm from the Anderson *et al.* (1983) study. The NOAEL was adjusted for 1-hour exposure and an uncertainty factor of 10 applied for human variability to arrive at a 1-hour REL of 37,000 µg/m³ (9.8 ppm) (OEHHA 2008).

The TCEQ (2008) adjusted the NOAEL of 40 ppm from the Anderson *et al.* (1983) study by an uncertainty factor of 10 for human variability to recommend a 1-hour ReV of 15,000 µg/m³ (4 ppm). No adjustment was made for exposure duration as the neurological effects associated with toluene exposure were considered to be associated with exposure concentration rather than exposure duration (TCEQ 2008).

The lowest 1-hour exposure limit of 15,000 µg/m³ (TCEQ) was selected for the assessment of acute exposure to toluene. Toluene was included in the chemical group for neurological effects as well as eye and nose irritation following acute inhalation exposures.

43.1.2 Chronic Inhalation

Table B.43-2 Chronic Inhalation Exposure Limits for Toluene

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	MRL	TC	REL	TCA	ReV	**RfC**	AQG
Exposure Limit Value (µg/m³)	300	3,750	300	400	4,100	**5,000**	260
Critical Organ or Effect	Neurological	Neurological	Neurological	Neurological	Neurological	**Neurological**	Neurological
Species	Human	Human	Rat	Human	Human	**Human**	Human
Study	Zavalic *et al.*, 1998a; 1998b	Anderson *et al.* 1983	Hillefors-Berglund *et al.* 1995	Foo *et al.* 1990	Zavalic *et al.* 1998a	**Multiple**	Foo *et al.*, 1990
Source	ATSDR 2013; 2000	Health Canada 2010; 1992	OEHHA 2013; 2000	RIVM 2001	TCEQ 2008	**US EPA 2005**	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (2000) and TCEQ (2008) both derived acute exposure limits for toluene based on a human study reporting colour vision impairment in workers occupationally exposed to toluene for 8 hours/day, 5 days/week (Zavalic *et al.* 1998a; 1988b).

A MRL of 300 µg/m^3 (0.08 ppm) is recommended by the ATSDR (2013) for chronic exposures to toluene. The ATSDR (2000) identified a LOAEL of 35 ppm (geometric mean of toluene exposure concentrations) for colour vision impairment in workers (Zavalic *et al.* 1998al 1998b). This LOAEL was adjusted for continuous exposure and an uncertainty factor of 100 applied to account for use of a LOAEL and variability in human response (ATSDR 2000).

The TCEQ (2008) identified a LOAEL of 32 ppm (median toluene exposure concentration) for colour vision impairment reported in the Zavalic *et al.* (1998a) study. An uncertainty factor of 10 was applied to this LOAEL to account for variability in human response, resulting in a chronic ReV of 4,100 µg/m^3 (11.4 ppm). Again, no adjustment was made by the TCEQ (2008) for exposure duration as the neurological effects associated with toluene were considered to be associated with exposure concentration rather than exposure duration.

Health Canada (2010) recommends a TC of 3,800 µg/m^3 for toluene. This TC was developed from the acute exposure study by Anderson *et al.* (1983) which reported a NOAEL of 150 mg/m^3 for neurological effects in volunteers exposed to up to 375 mg/m^3 toluene for 6 hours/day over 4 days. The NOAEL was adjusted for continuous exposure (from 8 hours/day, 5 days/week) and divided by an uncertainty factor of 10 to account for variability in human response (Health Canada 1992).

The OEHHA (2000) identified a NOAEL of 40 ppm for neurological effects in rats following subchronic exposure to toluene (6 hours/day, 5 days/week for 4 weeks) (Hillefors-Berglund *et al.* 1995). An uncertainty factor of 100 was applied to this NOAEL to account for use of a subchronic study and variability in human response. An uncertainty factor for extrapolation from animal to human response was not applied based on evidence of human effects at levels that were broadly consistent with animal data (OEHHA 2000).

The RIVM (2001) adopted the 1992 US EPA RfC of 400 µg/m^3 for toluene which was developed from a LOAEL of 88 ppm (332 mg/m^3) for neurological effects in workers exposed to toluene (Foo *et al.* 1990).

The US EPA (2005) currently recommends a RfC of 5,000 µg/m^3 for toluene. The EPA evaluated a large database of occupational studies for neurological effects following subchronic and chronic exposure to toluene, including studies by Zavalic *et al.* (1998a) and (Foo *et al.* 1990). Several occupational studies reported NOAELs in the range of 25-50 ppm toluene. The US EPA (2005) derived an arithmetic mean NOAEL of 34 ppm from 4 equally weighted occupational studies. The NOAEL was adjusted for continuous exposure (from 8 hours/day, 5 days/week) and divided by an

uncertainty factor of 10 to account for variability in human response to determine a chronic RfC of 5,000 µg/m^3 (US EPA 2005).

The WHO (2000) established an air quality guideline of 260 µg/m^3 for toluene. This guideline was based on the lowest available air concentration of 88 ppm (332 mg/m^3) associated with neurobehavioral effects following chronic occupational exposure to toluene (Foo *et al.* 1990; 1993). The LOAEL was adjusted for continuous exposure and divided by an uncertainty factor of 300 for use of a LOAEL (10), variability in human response (10) and the potential for human CNS developmental effects as observed in animal studies (WHO 2000).

The US EPA RfC of 5,000 µg/m^3 was selected for the evaluation of chronic exposure to toluene as this RfC was recently developed and took into account the results from a range of human exposure studies, including those identified by the ATSDR and TCEQ (Zavalic *et al.* 1998a) and RIVM and WHO (Foo *et al.* 1990). Toluene was included in the chemical group for neurological effects following chronic inhalation exposures.

43.2 Oral Exposure Limits

No chronic oral exposure limit was required for toluene as this chemical was not identified for inclusion in the multiple pathway exposure assessment.

References

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed October 2013.

AENV (Alberta Environment). 2004. Assessment Report on Toluene for Developing Ambient Air Quality Objectives. Prepared by Cantox Environmental Inc.in conjunction with RWDI West Inc. Edmonton, AB: Science and Standards Branch, Alberta Environment. ISBN No. 0-7785-3981-4. Available at: http://environment.alberta.ca/01005.html Accessed November 2013.

Andersen, I., G.R. Lundqvist, L. Molhave, O.F. Pedersen, D.F. Procter, M. Vaeth, and D.P. Wyon. 1983. Human response to controlled levels of toluene in six-hour exposures. Scand. J. Work Environ. Health 9: 405-418. Cited In: Health Canada 1992.

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services, Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed November 2013.

ATSDR 2000. Toxicological Profile for Toluene. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. September 2000. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp Accessed November 2013.

Foo, SC; Jeyaratnam, J; D. Koh, D. 1990. Chronic neurobehavioral effects of toluene. Br J Ind Med 47:480-484. Cited In: US EPA 2005.

Foo S.C. et al. 1993. Neurobehavioural effects in occupational chemical exposure. Environmental research, 60: 267–273 (1993). Cited In: WHO 2000.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

Health Canada 1992. Priority Substances List Assessment Report No. 4. Toluene. ISBN: 0-662-19950-2. Cat. No.: En40-215/4E. Environment Canada, Health Canada, Canadian Environmental Protection Act, 1999. Available at: http://www.hc-sc.gc.ca/ewh-semt/pubs/contaminants/psl1-lsp1/toulene/index-eng.php Accessed November 2013.

Hillefors-Berglund M, Liu Y, and von Euler G. 1995. Persistent, specific and dose-dependent effects of toluene exposure on dopamine D2 agonist binding in the rat caudate-putamen. Toxicology 100:185-94. Cited In: OEHHA 2000.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of October 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed November 2013.

OEHHA 2008. Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Appendix D.2 Acute RELs and toxicity summaries using the previous version of the Hot Spots Risk Assessment guidelines. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD2_final.pdf#page=285 Accessed November 2013.

OEHHA 2000. Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Appendix D.3 Chronic RELs and toxicity summaries using the previous version of the Hot Spots Risk Assessment guidelines. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD3_final.pdf#page=560 Accessed November 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2008. Final Development Support Document: Toluene. Prepared by Manuel Reyna, Toxicology Section. April 2008. Available at: http://www.tceq.texas.gov/assets/public/implementation/tox/dsd/final/toluene_108-88-3_final_4-15-08.pdf. Accessed November 2013.

US EPA (Environmental Protection Agency). 2005. IRIS (Integrated Risk Information System) Summary for Toluene (CASRN 108-88-3). Reference Concentration for Chronic Inhalation Exposure (RfC). Available at: www.epa.gov/iris. Accessed November 2013.

WHO 2000, Air quality guidelines for Europe, 2nd ed. Copenhagen, WHO Regional Office for Europe, 2000 (WHO Regional Publications, European Series, No. 91).

Zavalic, M, Z Mandic, R Turk, *et al.* 1998a. Quantitative assessment of color vision impairment in workers exposed to toluene. Am J Ind Med 33:297-304. Cited In: ATSDR 2010.

Zavalic, M, Mandic, Z, Turk, R *et al.* 1988b. Assessment of colour vision impairment in male workeres exposed to toluene generally above occupational exposure limits. Occup Med 48(3):175-180. Cited In: ATSDR 2010.

44.0 URANIUM

44.1 Inhalation Exposure Limits

44.1.1 Acute Inhalation

Table B.44-1 Acute Inhalation Exposure Limits for Uranium

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	-	-	-	ESL	-
Exposure Limit Value (µg/m³)	-	-	-	-	0.5 (soluble) 2 (insoluble)	-
Critical Organ or Effect	-	-	-	-	-	-
Species	-	-	-	-	-	-
Study	-	-	-	-	-	-
Source	-	-	-	-	TCEQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

The TCEQ (2014) reports interim short term ESLs for uranium, soluble compounds (0.5 µg/m³) and uranium, insoluble compounds (2 µg/m³) Although the ESLs are based on health effects, they were derived based on exposure to PM_{10}. No supporting data was available for these limits; therefore, they were not selected.

Due to the lack of defensible acute inhalation exposure limits, uranium was not assessed on an acute basis.

44.1.2 Chronic Inhalation

Table B.44-2 Chronic Inhalation Exposure Limits for Uranium

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	**MRL**	-	-	-	ESL	-	-
Exposure Limit Value (µg/m³)	-	**0.04 (soluble)** **0.8 (insoluble)**	-	-	-	0.1	-	-
Critical Organ or Effect	-	**-**	-	-	-	-	-	-
Species	-	**-**	-	-	-	-	-	-
Study	-	**Stokinger *et al.* 1953** **Leach *et al* 1970, 1973**	-	-	-	-	-	-
Source	-	**ATSDR 2012**	-	-	-	TCEQ 2014	-	-

- not available

Bold – Exposure Limit selected for HHRA.

Uranium (as U) is classified as being a confirmed human carcinogen (Group A1) by the ACGIH (2007). However, no unit risk factors were available for uranium exposure by inhalation. For this reason, uranium was treated as a non-carcinogen by chronic inhalation for this risk assessment.

The ATSDR (2012) has derived chronic duration MRLs of 0.8 µg/m³ and 0.04 µg/m³ for the insoluble and soluble forms of uranium, respectively. The chronic inhalation exposure MRL for soluble uranium compounds is based on a $BMCL_{10}$ of 0.019 µg/m³ for renal effects in dogs exposed to uranium tetrachloride 33 hours/week for 1 year (Stokinger et al. 1953). The $BMCL_{10}$ was adjusted to 0.0037 µg/m³ for chronic duration. A cumulative uncertainty factor of 100 was applied to the adjusted BMCL for interspecies (10) and intraspecies (10) variability. The chronic inhalation exposure MRL for insoluble uranium compounds is based on a LOAEL of 5.1 µg/m³ for lung fibrosis in monkeys exposed to uranium dioxide 5.4 hours/day, 5 days/week for 5 years (Leach *et al.* 1970, 1973). A cumulative uncertainty factor of 1,000 was applied for the use of a LOAEL (10); and for interspecies (10) and intraspecies (10) variability. The ATSDR MRL of 0.04 µg/m³, based on kidney effects, was used in the chronic inhalation assessment for uranium.

The TCEQ (2014) reports interim long term ESLs for uranium, soluble compounds (0.05 µg/m^3) and uranium, insoluble compounds (0.2 µg/m^3). Although the ESLs are based on health effects, they were derived based on exposure to PM_{10}. No supporting data was available for these limits; therefore, they were not selected.

44.2 Oral Exposure Limits

44.2.1 Chronic Oral

Table B.44-3 Chronic Oral Exposure Limits for Uranium

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	-	**TDI**	-	-	RfD	-
Exposure Limit Value (mg/kg bw/day)	-	**0.0006**	-	-	0.003	-
Critical Organ or Effect	-	**Kidney**	-	-	Weight Loss, Kidney	-
Species	-	**Rats**	-	-	Rabbits, Rats, Dogs	-
Study	-	**Gilman *et al.* 1998**	-	-	Maynard and Hodge 1949	-
Source	-	**Health Canada 2010**	-	-	US EPA 1989	-

- not available

Bold – Exposure Limit selected for HHRA.

Uranium (as U) is classified as being a confirmed human carcinogen (Group A1) by the ACGIH (2007). No slope factors were available for uranium exposure by ingestion. For this reason, uranium was treated as a non-carcinogen by ingestion for this risk assessment.

Health Canada (2010) provides an oral TDI of 0.0006 mg/kg bw/d based on a LOAEL of 0.06 mg/kg-d. The TDI is based on a subchronic drinking water study using rats exposed to uranyl nitrate hexahydrate (Gilman *et al.* 1998). A cumulative uncertainty factor of 100 was applied to the LOAEL for interspecies (10) and intraspecies (10) variability to derive the TDI of 0.06 mg/kg-d based on kidney effects. An additional uncertainty factor to account for the use of a LOAEL instead of a

NOAEL was not used due to the minimal degree of severity of the kidney lesions reported in the study. An adjustment was not made for chronic exposure since the estimated half-life of uranium in the kidneys is only 15 days (Health Canada 2001).

The US EPA (1989) uses an oral RfD of 0.003 mg/kg bw/d for initial body weight loss and moderate nephrotoxicity. The RfD is based on a LOAEL of 2.8 mg/kg bw/d from a study where rabbits, rats and dogs were administered uranium compounds in their diets for up to 2 years (Maynard and Hodge 1949). A cumulative uncertainty factor of 1,000 was applied to the LOAEL for interspecies variability (10), intraspecies variability (10) and the use of a LOAEL(10). The US EPA classified confidence in the RfD as medium, noting that the critical study was well designed, but used a relatively small number of experimental animals. The resultant RfD of 0.003 mg/kg bw/d was not used in the chronic oral assessment of uranium as the Health Canada TDI is more conservative.

References

ACGIH (American Conference of Governmental Industrial Hygienists). 2007. TLVs and BEIs based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices. Cincinnati, Ohio. Accessed at: http://www.crios.be/Cobalt/specific_classification/ACGIH.htm. Accessed March 2015.

ATSDR (Agency for Toxic Substances and Disease Registry). 2012. Minimal Risk Levels (MRLs) for Hazardous Substances. US Department of Health and Human Services, Public Health Service. Atlanta, GA. Accessed at: http://www.atsdr.cdc.gov/toxprofiles/tp150-a.pdf. Accessed March 2015.

Gilman, A.P., D.C. Villeneuve, V.E. Secours, A.P. Yagminas, B.L. Tracy, J.M. Quinn, V.E. Valli, R.J. Willes, and M.A. Moss. 1998. Uranyl nitrate: 28-day and 91-day toxicity studies in the Sprague-Dawley rat. Fund. Appl. Toxicol. 41: 117–128.

Health Canada. 2001. Uranium: Guidelines for Canadian Drinking Water Quality – Supporting Documentation. Accessed at: http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/water-eau/uranium/uranium-eng.pdf. Accessed March 2015.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme. September 2010.

Leach LJ, Maynard EA, Hodge HC, *et al.* 1970. A five-year inhalation study with natural uranium dioxide (UO2) dust. I. Retention and biological effects in the monkey, dog, and rat. Health Physics 18:599-612. Leach LJ, Yuile CL, Hodge HC, et al. 1973. A five-year inhalation study with natural uranium dioxide (UO2) dust. II. Postexposure retention and biologic effects in the monkey, dog, and rat. Health Physics 25: 239-258.

Maynard, E.A. and H.C. Hodge. 1949. Studies of the toxicity of various uranium compounds when fed to experimental animals. In: The Pharmacology and Toxicology of Uranium Compounds. Nations Nuclear Energy Service. Division VI, Vol. I, C. Voegtlin, and H.C. Hodge, Eds. McGraw Hill, New York, NY. p. 309-376.

Stokinger HC, Baxter RC, Dygert HP, et al. 1953. Uranium Tetrachloride: Toxicity following inhalation for 1 and 2 years. In: Voegtlin C, Hodge HC, eds. Pharmacology and toxicology of uranium compounds. National Nuclear Energy Series: Manhattan Project Technical Section, Division VI, Vol 1. New York, NY: McGraw-Hill. pp. 1522-1553.

TCEQ (Texas Commission on Environmental Quality). 2014. ESL List. Accessed at: https://www.tceq.texas.gov/toxicology/esl/list_main.html/#esl_1. Accessed March 2015.

US EPA (United States Environmental Protection Agency). 1989. IRIS Summary of Uranium, soluble salts (no CASRN). Reference Dose for Chronic Oral Exposure (RfD). Accessed at: http://www.epa.gov/iris/subst/0421.htm#reforal. Accessed March 2015.

45.0 VANADIUM

45.1 Inhalation Exposure Limits

45.1.1 Acute Inhalation

Table B.45-1 Acute Inhalation Exposure Limits for Vanadium

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	24 hour Standard	MRL	**1 hour REL**	1 hour ESL	24 hour Guideline
Exposure Limit Value (µg/m³)	-	2	0.8	**30**	0.5	1
Critical Organ or Effect	-	-	Respiratory	**Respiratory**	-	-
Species	-	-	Rodents	**Human**	-	-
Study	-	-	NTP 2002	**Zenz and Berg 1967**	-	-
Source	-	OMOE 2012	ATSDR 2012	**OEHHA 2008**	-	-

- not available

Bold – Exposure Limit selected for HHRA.

The OMOE (2012) has a 24-hour standard of 2 µg/m³. Although the standard is based on health effects, supporting documentation is not available and, therefore, it was not used in the acute assessment.

The ATSDR (2012) derived an acute MRL of 0.8 µg/m³ based on an acute study in rodents exposed to vanadium pentoxide particulate aerosols for 6 hours per day, 5 days per week for a duration of 16 days (NTP 2002). A LOAEL of 0.56 mg/m³ for lung inflammation was identified was selected as the point of departure for the MRL. The LOAEL was adjusted for continuous exposure (6/24 hours × 5/7 days) to a $LOAEL_{ADJ}$ of 0.1 mg/m³. This $LOAEL_{ADJ}$ was then converted to a human equivalent concentration $LOAEL_{HEC}$ of 0.073 mg/m³. A cumulative uncertainty factor of 90 was applied for the use of a minimal LOAEL (3), interspecies differences (3) and intraspecies variability (10). Since the OEHHA's reported a human based value for the same toxicological endpoint of respiratory irritation, the ATSDR value was not selected for use in the acute assessment.

The OEHHA (2008) uses an acute (1-hour) REL of 30 µg/m³ for vanadium pentoxide. The REL is based on a study in which nine adult male volunteers were exposed to vanadium pentoxide for an eight hour period (Zenz and Berg 1967). A LOAEL of 0.25 mg/m³ for vanadium pentoxide was identified for five of the human volunteers. A NOAEL/LOAEL of 0.1 mg/m³ was identified in two of the volunteers. The critical effect was based on subjective reports of increased respiratory mucus production that was cleared by coughing. The lowest LOAEL of 0.1 mg/m³ was adjusted from an 8-hour exposure to a 1-hour exposure to 0.3 mg/m³. An uncertainty factor of 10 was applied to the adjusted LOAEL to account for intraspecies variability. Although a LOAEL was used instead of a NOAEL, an uncertainty factor was not applied to account for the associated uncertainty, due to the minor nature of the observed effects. This acute REL of 30 µg/m³ based on respiratory irritation was used in the acute assessment as a 1-hour exposure limit.

The TCEQ (2014) reports an interim short term (1 hour) ESL for vanadium and compounds (as vanadium pentoxide) of 0.5 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

The WHO (2000) has derived a 24-hour guideline of 1 µg/m³; however, this value is based on a LOAEL of 20 µg/m³ for chronic respiratory symptoms in occupational long-term studies. Since the adverse nature of the observed effects on the upper respiratory tract were minimal at 20 µg/m³ and a susceptible subpopulation had not been identified, a protection factor of 20 was applied to derive guideline of 1 µg/m³ with an averaging time of 24 hours. The WHO also identified an acute LOAEL of 60 µg/m³ based on acute occupational exposures; however this LOAEL was not considered for the acute guideline and supporting information was limited. Since the WHO guideline of 1 µg/m³ was based on chronic occupational studies and supporting information was lacking, it was not used in the acute assessment.

45.1.2 Chronic Inhalation

Table B.45-2 Chronic Inhalation Exposure Limits for Vanadium

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	**MRL**	-	-	Provisional TCA	ESL	-	-
Exposure Limit Value (µg/m³)	-	**0.1**	-	-	1	0.05	-	-

Table B.45-2 Chronic Inhalation Exposure Limits for Vanadium

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Critical Organ or Effect	-	**Respiratory**	-	-	Respiratory	-	-	-
Species	-	**Rodents**	-	-	Rodents	-	-	-
Study	-	**NTP 2002**	-	-	NTP 2002	-	-	-
Source	-	**ATSDR 2012**	-	-	RIVM 2009	TCEQ 2014	-	-

- not available

Bold – Exposure Limit selected for HHRA.

Vanadium pentoxide is classified as possibly carcinogenic to humans (Group 2B) by IARC (2006) and as a confirmed animal carcinogen with unknown relevance to humans (Group A3) by ACGIH (2007). However, no unit risk factors were available for vanadium exposure by inhalation. For this reason, vanadium was treated as a non-carcinogen by chronic inhalation for this risk assessment.

The ATSDR (2012) derived a chronic MRL of 0.1 µg/m³ based on a rodent study (NTP 2002). Male and female F344 rats were exposed to vanadium pentoxide for 6 hours per day, 5 days per week for up to 104 weeks. Statistically significant increases in respiratory lesions were observed in all exposed animals. Benchmark dose modelling was completed on the incidence of various types of respiratory lesions, and $BMCL_{10}$ values (for vanadium) were calculated for alveolar epithelial hyperplasia, bronchiolar epithelia hyperplasia, laryngeal chronic inflammation, degeneration of epiglottis epithelium and hyperplasia of nasal goblet cells. All of these BMCLs were adjusted for continuous exposure (6/24 hours × 5/7 days) and were converted to human equivalent concentrations (HEC). The most conservative $BMCL_{10}$(HEC) was determined to be 0.003 mg/m³ for degeneration of the epithelium of the epiglottis. A cumulative uncertainty factor of 30 was applied to account for interspecies differences for the use of a HEC (3) and intrahuman variability (10). The ATSDR MRL of 0.1 µg/m³ based on respiratory effects was used in the chronic inhalation assessment.

The RIVM (2009) provides a provisional TCA of 1 µg/m³ for vanadium based on a chronic inhalation study involving rats and mice exposed to vanadium pentoxide (NTP 2002). LOAELs of 0.5 mg/m³ for rats and 1 mg/m³ for mice were identified for. A cumulative uncertainty factor of 1,000 was applied to account for extrapolation of a LOAEL to NOAEL (10), interspecies variation (10), and intraspecies variation (10). The resulting TCA values (for vanadium pentoxide) were 0.5 for rats and 1 µg/m³ for mice. Since these values were similar to the WHO's 24-hour guideline of 1 µg/m³, the provisional

TCA of 1 µg/m³ was adopted for vanadium. Since the RIVM provide a provisional TCA value based on a LOAEL and since the ATSDR provide a more conservative value based on benchmark dose modelling, the RIVM exposure limit was not selected for use in the chronic inhalation assessment.

The TCEQ (2014) reports an interim long term ESL for vanadium and compounds (as vanadium pentoxide) of 0.05 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

45.2 Oral Exposure Limits

45.2.1 Chronic Oral

Table B.45-3 Chronic Oral Exposure Limits for Vanadium

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	Intermediate Duration MRL	-	-	**Provisional TDI**	RfD	-
Exposure Limit Value (mg/kg bw/day)	0.01	-	-	**0.002**	0.009	-
Critical Organ or Effect	Hematological and Blood Pressure	-	-	**Developmental**	Decreased Cysteine in Hair	-
Species	Human	-	-	**Rats**	Rats	-
Study	Fawcett *et al.* 1997	-	-	**Domingo *et al.* 1986**	Stokinger *et al.* 1953	-
Source	ATSDR 2012	-	-	**RIVM 2009**	US EPA 1996	-

- not available

Bold – Exposure Limit selected for HHRA.

Vanadium pentoxide is classified as possibly carcinogenic to humans (Group 2B) by IARC (2006) and as a confirmed animal carcinogen with unknown relevance to humans (Group A3) by ACGIH (2007). No slope factors were available for Vanadium exposure by ingestion. For this reason, Vanadium was treated as a non-carcinogen by ingestion for this risk assessment.

The ATSDR (2012) reported an intermediate-duration MRL of 0.01 mg/kg bw/d for vanadium based on a NOAEL of 0.12 mg/kg bw/d for hematological and blood pressure effects in humans exposed to vanadyl sulphate for 12 weeks (Fawcett *et al.* 1997). An uncertainty factor of 10 was applied to the

NOAEL to derive the MRL of 0.01 mg/kg bw/d. The ATSDR did not report a chronic-duration oral MRL.

The RIVM (2009) provides a provisional TDI of 0.002 mg/kg bw/d based on a LOAEL of 2.1 mg/kg bw/d for vanadium in a reproduction study using rats (Domingo *et al.* 1986). A cumulative uncertainty factor of 1,000 was applied to the LOAEL to account for interspecies differences (10), subchronic to chronic exposure (10), and intraspecies differences (10). The resulting TDI of 0.002 mg/kg bw/d for developmental effects was used in the assessment. Since the RIVM provide a provisional TCA value based on a LOAEL

The US EPA (1996) uses an RfD of 0.009 mg/kg bw/d for vanadium pentoxide based on a study where rats were exposed to vanadium pentoxide through their diet for 2.5 years (Stokinger *et al.* 1953). A NOAEL of 17.85 ppm was identified for vanadium pentoxide, with the only significant change being decreased cysteine in the hair of the animals. The NOAEL was adjusted to 0.89 mg/kg bw/d for humans. A cumulative uncertainty factor of 100 was applied to account for interspecies variability (10) and intraspecies variability (10). The US EPA RfD was not chosen for the assessment since the RIVM provides a more conservative TDI for vanadium rather than for the vanadium pentoxide fraction provided by the US EPA.

References

ACGIH (American Conference of Governmental Industrial Hygienists). 2007. TLVs and BEIs based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices. Cincinnati, Ohio. Accessed at: http://www.crios.be/Cobalt/specific_classification/ACGIH.htm. Accessed February 2015.

ATSDR (Agency for Toxic Substances and Disease Registry). 2012. Toxicological profile for vanadium. Accessed at: http://www.atsdr.cdc.gov/toxprofiles/tp58.pdf. Accessed February 2015.

Domingo JL, Paternain JL, Llobet JM, Corbella J (1986). Effects of vanadium on reproduction, gestation, parturition and lactation in rats upon oral administration. Life Sci 39: 819-824. Cited in Janssen et al., 1998 and EFSA, 2004

Fawcett JP, Farquhar SJ, Thou T, *et al.* 1997. Oral vanadyl sulphate does not affect blood cells, viscosity or biochemistry in humans. Pharmacol Toxicol. 80:202-206.

IARC (International Agency for Research on Cancer). 2006. Vanadium Pentoxide, Volume 86. Accessed at: http://monographs.iarc.fr/ENG/Monographs/vol86/mono86-10.pdf. Accessed February 2015.

NTP (National Toxicology Program). 2002. Toxicology and carcinogenesis studies of vanadium pentoxide in F344/N rats and B6C3F1 mice (inhalation). Natl Toxicol Program Tech Rep Ser (507): 1-343.

OEHHA (California Office of Environmental Health Hazard Assessment). 2012. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment. Sacramento, CA. Accessed at: http://www.oehha.ca.gov/air/allrels.html. Accessed February 2015.

OMOE (Ontario Ministry of the Environment). 2012. Summary of Standards and Guidelines to Support Ontario Regulation 419/05 - Air Pollution – Local Air Quality (including Schedule 6 of O. Reg. 419/05 on Upper Risk Thresholds) (sorted by Chemical Name). Standards Development Branch, Ontario Ministry of the Environment. PIBS # 6569e01. April 2012. Accessed at: https://ia802505.us.archive.org/5/items/summaryofstandar00snsn21806/summaryofstandar00snsn21806.pdf. Accessed February 2015.

RIVM (National Institute of Public Health and the Environment). 2009. Re-evaluation of some human toxicological Maximum Permissible Risk levels earlier evaluated in the period 1991-2001. RIVM Report 711701092/2009. Accessed at: http://www.rivm.nl/bibliotheek/rapporten/711701092.pdf. Accessed February 2015.

Stokinger, H.E., W.D. Wagner, J.T. Mountain, F.R. Stacksill, O.J. Dobrogorski and R.G. Keenan. 1953. Unpublished results. Division of Occupational Health, Cincinnati, OH. (Cited in Patty's Industrial Hygiene and Toxicology, 3rd ed., 1981)

TCEQ (Texas Commission on Environmental Quality). 2014. Effects Screening Levels (ESLs). Accessed at: http://www.tceq.texas.gov/toxicology/esl/list_main.html/#esl_1. Accessed February 2015.

WHO (World Health Organization). 2000. Air Quality Guidelines for Europe, Second Edition. World Health Organization, Regional Office for Europe, Copenhagen. WHO Regional Publications, European Series, No. 91. Accessed at: http://www.euro.who.int/__data/assets/pdf_file/0005/74732/E71922.pdf. Accessed February 2015.

Zenz C, Berg BA. Human responses to controlled vanadium pentoxide exposure. Arch Environ Health 1967;14:709-712 [cited in NAS, 1974].

46.0 XYLENES

46.1 Inhalation Exposure Limits

46.1.1 Acute Inhalation

Table B.46-1 Acute Inhalation Exposure Limits for Xylenes

AGENCY	ESRD	ATSDR	OEHHA	TCEQ
Exposure Limit Type	1-hour 24-hour	Acute MRL	1-hour REL	**1-hour ReV**
Exposure Limit Value ($\mu g/m^3$)	2,300 700	8,000	22,000	**7,400**
Critical Organ or Effect	1 hr- adopted from Ontario 24-hr adopted from California	Respiratory, neurological	Eye irritation respiratory irritation	**Respiratory, neurological**
Species	Human (24-hour)	Human	Human	**Human**
Study	Uchida *et al.* 1993 (24-hr)	Ernstgard *et al.* 2002	Hastings *et al.* 1984	**Ernstgard *et al.* 2002**
Source	ESRD 2013	ATSDR 2013; 2007	OEHHA 2013; 2008	**TCEQ 2009**

- not available

Bold – Exposure Limit selected for HHRA.

The ESRD (2013) recommend 1-hour and 24-hour exposure limits of 2,300 $\mu g/m^3$ and 700 $\mu g/m^3$, respectively for acute exposure to all three isomers of xylenes (ortho-, meta- and para-xylene). The 1-hr guideline represents an odour threshold for m-xylene identified by the Ontario Ministry of Environment (OMOE, 2001). The 24-hour guideline was adopted from the OEHHA (2000) and represents a reference exposure level for neurological effects in workers following chronic exposure (average of 7 years) to xylene isomers (Uchida *et al.* 1993). This study was not considered appropriate for assessment of acute exposures but was considered below in the discussion of chronic inhalation exposure limits.

The ATSDR (2013) recommend an acute MRL of 8,000 $\mu g/m^3$ (2 ppm) for xylenes. This MRL was derived from a LOAEL of 50 ppm (200 mg/m^3) for slight respiratory effects and subjective neurological symptoms in healthy female volunteers following controlled acute (2 hour) exposure to m-xylene vapours (Ernstgard *et al.* 2002). An uncertainty factor of 30 was applied to the LOAEL to

account for human variability (10) and use of a minimal LOAEL (3), resulting in a MRL of 2 ppm (8 mg/m^3) (ATSDR 2007).

The TCEQ (2009) developed a 1-hour ReV of 7,400 µg/m^3 (1.7 ppm) for xylene isomers. The 1-hour ReV was derived using the same study (Ernstgard *et al.* 2002), LOAEL (50 ppm) and uncertainty factor (30) recommended by the ATSDR (2007) with no rounding of the final value.

The OEHHA (2013) recommend a 1-hour REL of 22,000 µg/m^3 (5 ppm) for xylene isomers. The REL was developed from a study reporting a NOAEL of 100 ppm (430 mg/m^3) for eye and respiratory irritation in healthy volunteers exposed for 30 minutes to mixed xylenes (Hastings *et al.* 1984). The NOAEL was adjusted for 1-hour exposure (50 ppm) and an uncertainty factor of 10 was applied to account for human variability.

The lowest recommended, health-based 1-hour guideline of 7,400 µg/m^3 (TCEQ 2009) was selected for the assessment of acute inhalation exposures to all xylene isomers. Xylenes were included in the chemical groups for neurological effects, eye irritation and respiratory irritation following acute inhalation exposures.

46.1.2 Chronic Inhalation

Table B.46-2 Chronic Inhalation Exposure Limits for Xylenes

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	**Chronic MRL**	TC (provisional)	REL	TCA	ReV	RfC	-
Exposure Limit Value (µg/m^3)	**200**	180	700	870	610	100	-
Critical Organ or Effect	**Respiratory and eye irritation, neurological**	Fetotoxicity	Respiratory and eye irritation, neurological	Developmental neurotoxicity	Respiratory and eye irritation, neurological	Neurological	-
Species	**Human**	Rat	Human	Rat	Human	Rat	-
Study	**Uchida *et al.* 1993**	Ungvary and Tatrai 1985	Uchida *et a.l* 1993	Hass and Jakobsen 1993	Uchida *et al.* 1993	Korsak *et al.* 1994	-
Source	**ATSDR 2013; 2007**	Health Canada 2010; 1993	OEHHA 2013; 2000	RIVM 2001	TCEQ 2009	US EPA 2003	WHO 2000

- not available

Bold – Exposure Limit selected for HHRA.

The ATSDR (2013) recommend a chronic MRL of 200 µg/m^3 for xylene isomers. This MRL was based on symptoms of neurotoxicity and respiratory and eye irritation reported by workers exposed to mixed xylenes in Chinese factories producing boots or plastic coated wire or involved in printing work (Uchida *et al*. 1993). The ATSDR (2007) identified a LOAEL of 14 ppm (56 mg/m^3) based on a time-weighted average geometric mean of exposure concentrations over a 7 year period. This LOAEL was adjusted by an uncertainty factor of 300 to account for human variability (10), use of a LOAEL (10) and lack of supporting studies on the neurotoxicity of xylenes following chronic inhalation exposures (3).

The TCEQ (2009) developed a chronic ReV of 610 µg/m^3 for xylene isomers. The TCEQ selected the same study (Uchida et al. 1993) and LOAEL (14 ppm) for respiratory and neurological effects identified by the ATSDR (2007). An uncertainty factor of 100 was applied to the LOAEL to account for human variability (10), use of a LOAEL (3) and an incomplete database regarding chronic neurotoxicity studies (3).

The OEHHA (2013) recommend a chronic REL of 700 µg/m^3 for xylene isomers. This exposure limit was also derived from the LOAEL of 14 ppm reported by Uchida et al. (1993). The OEHHA (2000) adjusted the LOAEL (14.2 ppm) to account for continuous exposure (7 days/week) and differences in occupational inhalation rates, resulting in an adjusted LOAEL of 5.1 ppm. An uncertainty factor of 30 was applied to the adjusted LOAEL to account for human variability (10) and use of a LOAEL (3).

The RIVM (2001) recommend a TCA of 870 µg/m^3 for xylene isomers. This guideline is based on a LOAEL of 870 mg/m^3 for developmental neurotoxocity in rats (Hass and Jakobsen. 1993). An uncertainty factor of 1,000 was applied to the LOAEL to account for extrapolation from animals to humans (10), variability in human response (10) and use of a LOAEL (10).

Health Canada (2010) recommends a TC (provisional) of 180 µg/m^3 for xylene isomers. The TC was based on a study by Ungvary and Tatrai (1985) which reported maternal toxicity (unspecified) and fetotoxicity (skeletal retardation) in rats exposed to 250 mg/m^3 xylenes on gestation days 7 to 15 (Health Canada 1993). This LOAEL was adjusted for human exposure using inhalation to body weight dose scaling and an uncertainty factor of 1,000 applied to account for extrapolation from animal response (10), variability in human response (10) and use of a LOAEL (10).

The US EPA (2003) developed a RfC of 100 µg/m^3 for xylene isomers. The RfC is based on a NOAEL of 50 ppm for impaired motor coordination in rats exposed to m-xylene for 3 months (Korsak *et al.* 1994). The US EPA (2003) calculated a NOAEL (HEC) of 39 mg/m^3 to which an uncertainty factor of 300 was applied to account for human variability (10), interspecies differences (3), extrapolation from subchronic to chronic exposure duration study (3) and uncertainties in the database (3).

The chronic human exposure study conducted by Uchida *et al.* (1993) was identified by three agenices for the development of chronic inhalation exposure limits for xylenes. The lowest exposure limit of 200 µg/m^3 (ATSDR 2007) was selected for the assessment of chronic inhalation exposure to xylene isomers. Xylenes were included in the chemical groups for neurological effects, eye irritation and nasal irritation following chronic inhalation exposures.

46.2 Oral Exposure Limits

No chronic oral exposure limit was required for ortho-, meta- or para-xylenes as these chemicals were not identified for inclusion in the multiple pathway exposure assessment.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2013. Minimal Risk Levels (MRLs) for Hazardous Substances. July 2013. US Department of Health and Human Services,Public Health Service. Atlanta, GA. Available at: http://www.atsdr.cdc.gov/mrls/mrllist.asp. Accessed November 2013.

ATSDR 2007. Toxicological Profile for Xylene. U.S. Department of Health and Human Service, Public Health Service, Agency for Toxic Substances and Disease Registry. August 2007. Available at: http://www.atsdr.cdc.gov/toxprofiles/index.asp Accessed November 2013.

ESRD (Alberta Environment and Sustainable Resource Development). 2013. Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN: 978-1-4601-0758-4. Issued August 2013. Available at: http://environment.gov.ab.ca/info/library/5726.pdf. Accessed November 2013.

Ernstgard, L, E Gullstrand, A Lof, *et al.* 2002. Are women more sensitive than men to 2-propanol and m-xylene vapors? Occup Environ Med 59:759-767. Cited In: TCEQ 2009.

Hass U & Jakobsen BM. 1993. Prenatal toxicity of xylene inhalation in the rat: a teratogenicity and postnatal study. Pharmacol Toxicol 73, 20-23. Cited In; RIVM 2001.

Hastings L, Cooper GP, Burg W. Human sensory response to selected petroleum hydrocarbons. In: Advances in Modern Environmental Toxicology. Volume VI. Applied Toxicology of Petroleum Hydrocarbons. MacFarland HN, Holdsworth CE, MacGregor JA, Call RW, and Lane ML, eds. Princeton, New Jersey: Princeton Scientific Publishers, Inc., 1984. p. 255-270. Cited In: OEHHA 2008.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme.

Health Canada 1993. Priority Substances List Assessment Report: Xylenes. ISBN: 0-662-21040-9. Cat. No.: En40-215/22E. Environment Canada, Health Canada, Canadian Environmental Protection Act, 1999. Available at: http://www.ec.gc.ca/ese-ees/default.asp?lang=En&n=95D719C5-1 Accessed November 2013.

Korsak, Z; Wisniewska-Knypl, J; Swiercz, R. (1994) Toxic effects of subchronic combined exposure to n-butyl alcohol and m-xylene in rats. Int J Occup Med Environ Health 7:155-166. Cited In: US EPA 2003.

OEHHA (Office of Environmental Health Hazard Assessment) 2013. Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary Table as of October 2013. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/allrels.html. Accessed November 2013.

OEHHA 2008. Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Appendix D.2 Acute RELs and toxicity summaries using the previous version of the Hot Spots Risk Assessment guidelines. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD2_final.pdf#page=312 Accessed November 2013.

OEHHA 2000. Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Appendix D.3 Chronic RELs and toxicity summaries using the previous version of the Hot Spots Risk Assessment guidelines. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Available at: http://www.oehha.ca.gov/air/hot_spots/2008/AppendixD3_final.pdf#page=602 Accessed November 2013.

OMOE (Ontario Ministry of the Environment) 2001. Ontario Air Standards for Xylene. March 2001. Standards Development Branch. Ontario Ministry of the Environment. Available at: http://home.cogeco.ca/~gwotton/medical/xylene.pdf Accessed November 2013.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

TCEQ (Texas Commission on Environmental Quality). 2009. Final Development Support Document: Xylenes. Prepared by Manuel Reyna. Toxicology Division February 2009. Available at: http://www.tceq.texas.gov/assets/public/implementation/tox/dsd/final/xylenes_all_isomers_final_2-13-09.pdf. Accessed November 2013.

Uchida, Y, H Nakatasuka, T Watanabe, Y-T Liu, M-Y Huang, Y-L Wang, F-Z Zhu, H Yin, M Ikeda 1993. Symptoms and signs in workers exposed predominately to xylenes. Arch Occup Environ Health 64:597-605. Cited In: TCEQ 2009.

Ungvary, G. and E. Tatrai. 1985. On the embryotoxic effects of benzene and its alkyl derivatives in mice, rats and rabbits. Arch. Toxicol. Suppl. 8: 425-430. Cited In: Health Canada 1993.

US EPA (Environmental Protection Agency). 2003. IRIS (Integrated Risk Information System) Summary for Xylenes (CASRN 13300-20-7). Reference Concentration for Chronic Inhalation Exposure (RfC). Available at: www.epa.gov/iris. Accessed November 2013.

47.0 ZINC

47.1 Inhalation Exposure Limits

47.1.1 Acute Inhalation

Table B.47-1 Acute Inhalation Exposure Limits for Zinc

AGENCY	ESRD	OMOE	ATSDR	OEHHA	TCEQ	WHO
Exposure Limit Type	-	24 Hour AAQC	-	-	1 Hour ESL	-
Exposure Limit Value (µg/m³)	-	120	-	-	20	-
Critical Organ or Effect	-	-	-	-	-	-
Species	-	-	-	-	-	-
Study	-	-	-	-	-	-
Source	-	OMOE 2012	-	-	TCEQ 2014	-

- not available

Bold – Exposure Limit selected for HHRA.

The OMOE (2012) provides a particulate-based 24-hour AAQC of 120 µg/m³ for zinc. The scientific basis of this limit is not provided and, therefore, it was not used.

The TCEQ (2014) reports an interim short term (1 hour) ESL for zinc and compounds of 20 µg/m³. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

Due to the lack of defensible acute inhalation exposure limits, zinc was not assessed on an acute basis.

47.1.2 Chronic Inhalation

Table B.47-2 Chronic Inhalation Exposure Limits for Zinc

AGENCY	ESRD	ATSDR	Health Canada	OEHHA	RIVM	TCEQ	US EPA	WHO
Exposure Limit Type	-	-	-	-	-	2	-	-
Exposure Limit Value ($\mu g/m^3$)	-	-	-	-	-	-	-	-
Critical Organ or Effect	-	-	-	-	-	-	-	-
Species	-	-	-	-	-	-	-	-
Study	-	-	-	-	-	-	-	-
Source	-	-	-	-	-	**TCEQ 2014**	-	-

- not available

Bold – Exposure Limit selected for HHRA.

Zinc chromate (VI) is classified as a human carcinogen (Group 1) by IARC, as a known human carcinogen (Group K) by NTP and a confirmed human carcinogen (Group A1) by ACGIH (OSU 2010). Zinc chromate (VI) hydroxide is classified as a human carcinogen (Group 1) by IARC (OSU 2010). Zinc chromates as chromium (zinc potassium chromate and zinc yellow) are classified as confirmed human carcinogens (Group A1) by ACGIH (OSU 2010). The chromium (VI) ion present in these compounds is a well-known human lung carcinogen (OSU 2010). However, no unit risk factors were available for zinc exposure by inhalation. For this reason, zinc was treated as a non-carcinogen by chronic inhalation for this risk assessment.

The TCEQ (2014) reports an interim long term ESL for zinc and compounds of 2 $\mu g/m^3$. Although the ESL is based on health effects, it was derived based on exposure to PM_{10}. No supporting data was available for this limit; therefore, it was not selected.

Due to the lack of defensible chronic inhalation exposure limits, zinc was not assessed on a chronic basis.

47.2 Oral Exposure Limits

47.2.1 Chronic Oral

Table B.47-2 Chronic Oral Exposure Limits for Zinc

AGENCY	ATSDR	Health Canada	OEHHA	RIVM	US EPA	WHO
Exposure Limit Type	MRL	UL	-	TDI	**RfD**	TDI
Exposure Limit Value (mg/kg bw/day)	0.3	Infants and Children: 0.5 Adults: 0.6	-	0.5	**0.3**	1
Critical Organ or Effect	ESOD Activity	Increased Growth of Infant Length, Weight and Head Circumference; Reduced iron and Copper Status	-	ESOD Activity	**ESOD Activity**	-
Species	Human	Human	-	Human	**Human**	-
Study	Yadrick *et al.* 1989	Yadrick *et al.* 1989, Walravens and Hambridge (1976)	-	ATSDR 2005	**Multiple**	-
Source	ATSDR 2005	Health Canada 2010	-	RIVM 2001	**US EPA 2005**	WHO 2003

- not available

Bold – Exposure Limit selected for HHRA.

Zinc chromate (VI) is classified as a human carcinogen (Group 1) by IARC, as a known human carcinogen (Group K) by NTP and a confirmed human carcinogen (Group A1) by ACGIH (OSU 2010). Zinc chromate (VI) hydroxide is classified as a human carcinogen (Group 1) by IARC (OSU 2010). Zinc chromates as chromium (zinc potassium chromate and zinc yellow) are classified as confirmed human carcinogens (Group A1) by ACGIH (OSU 2010). The chromium (VI) ion present in these compounds is a well-known human carcinogen (OSU 2010). No slope factors were available for zinc exposure by ingestion. For this reason, zinc was treated as a non-carcinogen by ingestion for this risk assessment.

Zinc is an essential trace element that is crucial to survival and health maintenance, as well as growth, development, and maturation of developing organisms of all animal species (US EPA 2005). Thus, insufficient as well as excessive oral intake can cause toxicity and disease. The zinc content of a

typical mixed diet of North American adults is approximately 10 to 15 mg/day (IOM, 2001). The recommended dietary allowances (RDAs) for zinc for the year 2000 (IOM, 2001) are 11 mg/day for adult males and 8 mg/day for adult females (not pregnant or lactating).

The US EPA (2005) presents an oral exposure limit of 0.3 mg/kg bw/d based on decreases in erythrocyte copper zinc-superoxidase dismutase (ESOD) activity (*i.e.*, a change in copper status) based on a human study. A LOAEL of 0.91 mg/kg bw/d was derived as an average from effect levels reported in four separate studies with similar methodologies (Yadrick *et al.* 1989, Fischer *et al*. 1984, Davis *et al.* 2000, Milne *et al.* 2001). A total uncertainty factor of 3 was applied to the LOAEL for intraspecies variability. An uncertainty factor greater than 3 was not applied for intraspecies variability as this would result in an exposure limit lower than the daily requirement for sensitive humans. An uncertainty factor was not deemed necessary from the use of the minimal LOAEL. The oral RfD of 0.3 mg/kg bw/d was used in the chronic multiple pathway assessment of zinc.

The ATSDR (2005) also recommends a chronic oral MRL of 0.3 mg/kg bw/d, which was adopted from the intermediate oral MRL. The intermediate MRL is based on decreases in ESOD activity, a sensitive indicator of body copper status, as well as on changes in serum ferritin in women given supplements containing zinc gluconate for 10 weeks (Yadrick *et al.* 1989). An uncertainty factor of 3 was applied to account for human variability. No uncertainty factors were applied by the ATSDR to account for a subchronic duration. As a result, this MRL was not selected for use in the assessment.

Health Canada (2010) presents upper limits (ULs) for zinc on a life stage-specific basis. The UL for adults over 19 years of age is 0.6 mg/kg bw/d based on reduced iron and copper status; and the UL for infants and children is 0.5 mg/kg bw/d based on increased growth of infant length, weight and head circumference. The adult UL is based on a LOAEL of 60 mg/d identified by the IOM (2001) for reduced iron and copper status based on a significant reduction in ESOD activity (Yadrick *et al.* 1989). The IOM applied an uncertainty factor of 1.5 for intrahuman variability and use of a LOAEL instead of a NOAEL. The result is a UL of 40 mg/d for adults. For infants, toddlers, children and teens, Health Canada based their UL on a NOAEL of 5.8 mg/d identified by IOM (2001) from a study by Walravens and Hambridge (1976) in which infants were fed formula containing 1.8 mg/L (control) or 5.8 mg/L of zinc for 6 months. No adverse effects were reported. The NOAEL was adjusted to a daily intake of 4.5 mg/d, assuming an estimated average daily intake of human milk of 0.78 L/d. Health Canada's ULs for toddlers, children and teens were calculated on the basis of relative body weight.

The RIVM (2001) provides a TDI value of 0.5 mg/kg bw/d based on a LOAEL of 1 mg/kg bw/d for humans reported previously by ATSDR (2005) for ESOD activity. A margin of safety of 2 was used to convert a LOAEL to a NOAEL. The TDI recommended by RIVM was not used for the chronic oral assessment of zinc because the ATSDR has since updated its oral exposure limit for zinc and exposure durations and concentrations were not presented.

The WHO (2003) provides a provisional maximum TDI of 1 mg/kg bw/d that was derived by the WHO JECFA Committee. The WHO concludes that, in the light of recent studies on humans, the derivation of a health-based guideline value for drinking water is not required. The toxicological basis of the TDI value is not clearly provided by the WHO (2003). As a result, it was not used in the assessment.

References

ATSDR (Agency for Toxic Substances and Disease Registry). 2005. Toxicological Profile for Zinc. US Department of Health and Human Services. Public Health Service. Agency for Toxic Substances and Disease Registry. Atlanta, GA. August 2005.

Davis, C.D., Milne, D.B. and Nielsen, F.H. 2000. Changes in dietary zinc and copper affect zinc-status indicators of postmenopausal women, notably, extracellular superoxide dismutase and amyloid precursor proteins. Am J Clin Nutr 71:781-788. Cited in: US EPA 2005.

Fischer, P.W., Giroux, A. and L'Abbe, M.R. 1984. Effect of zinc supplementation on copper status in adult man. Am J Clin Nutr 40:743-746.

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical Specific Factors Version 2.0. Contaminated Sites Division. Safe Environments Programme. September 2010.

IOM (Institute of Medicine). 2001. Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. Food and Nutrition Board, Institute of Medicine. National Academy Press. Washington, DC. ISBN-10: 0-309-07279-4.

Milne, D.B., Davis, C.D. and Nielsen, F.H. 2001. Low dietary zinc alters indices of copper function and status in postmenopausal women. Nutrition 17:701-708. Cited in: US EPA 2005.

OMOE (Ontario Ministry of the Environment). 2012. Summary of Standards and Guidelines to Support Ontario Regulation 419/05 - Air Pollution – Local Air Quality (including Schedule 6 of O. Reg. 419/05 on Upper Risk Thresholds) (sorted by Chemical Name). Standards Development Branch, Ontario Ministry of the Environment. PIBS # 6569e01. April 2012.

OSU (Ohio State University). 2010. Chemical Hygiene Plan Table 9 Carcinogens Table: OSHA, IARC, NTP, ACGIH. Office of Environmental Health and Safety. Accessed at: http://oh.muq.ac.ir/uploads/125_193_54_liste%20mavade%20saratanza.pdf. Accessed March 2015.

RIVM (National Institute of Public Health and the Environment). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

US EPA (United States Environmental Protection Agency). 2005. Zinc and Compounds (CASRN 7440-66-6). Accessed at: http://www.epa.gov/iris/subst/0426.htm. Accessed February 2015.

Walravens, P. and Hambridge, K.M. 1976. Growth of infants fed a zinc-supplemented formula. Am J Clin Nutr. 29:1114-1121. Cited in: IOM 2001.

WHO (World Health Organization). 2003. Zinc in Drinking-water. Background document for development of WHO Guidelines for Drinking-water Quality. WHO/SDE/WSH/03.04/17.

Yadrick, M.K., Kenney, M.A. and Winterfeldt, E.A. 1989. Iron, copper, and zinc status: response to supplementation with zinc or zinc and iron in adult females. Am J Clin Nutr 49:145-150. Cited in: US EPA 2005.

APPENDIX C: ACUTE INHALATION RESULTS

TABLE C.1 Predicted Hazard Quotients from Inhalation of Criteria Air Contaminants

COPC	SO2									NO2			CO						PM2.5			PM10		
Averaging Time	10 min			1 hour			24 hour			1 hour			1 hour			8 hour			24 hour			24 hour		
Receptor Location	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application
RSA-MPOI	9.71E-02	2.65E-02	1.06E-01	1.61E-01	5.84E-03	1.67E-01	1.74E-01	1.05E-01	2.80E-01	3.55E+00	1.89E-01	3.57E+00	9.37E-01	2.41E-02	9.61E-01	4.22E-01	5.24E-02	4.72E-01	1.60E+00	2.56E-01	1.85E+00	5.86E+00	4.24E-01	6.28E+00
FL-MPOI	1.24E-02	9.36E-03	2.10E-02	6.75E-02	6.50E-03	7.33E-02	3.75E-02	1.09E-01	1.43E-01	1.71E+00	3.55E-01	1.73E+00	3.94E-01	3.39E-02	4.17E-01	1.76E-01	6.52E-02	2.26E-01	4.73E-01	3.01E-01	7.27E-01	1.68E+00	4.84E-01	2.10E+00
R1	6.32E-04	1.50E-02	1.50E-02	1.06E-03	1.06E-02	1.06E-02	1.85E-03	1.57E-01	1.59E-01	3.48E-01	4.91E-01	4.91E-01	5.32E-03	7.84E-02	7.84E-02	3.23E-03	1.46E-01	1.46E-01	2.44E-02	4.88E-01	4.90E-01	4.67E-02	7.59E-01	7.70E-01
R2	9.92E-04	8.66E-03	9.59E-03	2.14E-03	5.84E-03	7.92E-03	2.68E-03	1.05E-01	1.08E-01	4.51E-01	1.89E-01	4.69E-01	1.17E-02	2.40E-02	3.48E-02	8.21E-03	5.16E-02	5.87E-02	2.58E-02	2.55E-01	2.79E-01	5.85E-02	4.23E-01	4.79E-01
R3	4.52E-04	1.07E-02	1.08E-02	3.06E-03	7.43E-03	8.85E-03	1.66E-03	1.18E-01	1.18E-01	3.25E-01	5.08E-01	5.08E-01	1.67E-02	5.79E-02	5.79E-02	6.31E-03	1.10E-01	1.10E-01	2.56E-02	3.98E-01	3.99E-01	4.89E-02	6.06E-01	6.18E-01
R4	5.24E-04	8.62E-03	9.12E-03	9.97E-04	5.81E-03	6.78E-03	8.65E-04	1.05E-01	1.06E-01	2.36E-01	1.79E-01	3.82E-01	5.74E-03	2.35E-02	2.88E-02	3.93E-03	5.09E-02	5.42E-02	1.14E-02	2.53E-01	2.65E-01	2.31E-02	4.22E-01	4.44E-01
R5	7.92E-04	8.63E-03	9.39E-03	1.44E-03	5.81E-03	7.22E-03	1.44E-03	1.05E-01	1.07E-01	3.05E-01	1.81E-01	4.51E-01	8.44E-03	2.35E-02	3.14E-02	6.56E-03	5.11E-02	5.71E-02	1.41E-02	2.54E-01	2.67E-01	3.84E-02	4.22E-01	4.59E-01
R6	5.01E-04	1.36E-02	1.37E-02	2.14E-03	9.64E-03	9.66E-03	1.46E-03	1.57E-01	1.58E-01	3.16E-01	5.43E-01	5.43E-01	1.05E-02	9.13E-02	9.13E-02	4.17E-03	1.72E-01	1.72E-01	2.90E-02	6.85E-01	6.86E-01	4.18E-02	1.11E+00	1.11E+00
R7	3.66E-04	1.17E-02	1.17E-02	1.56E-03	8.46E-03	8.46E-03	1.68E-03	1.33E-01	1.34E-01	2.99E-01	5.01E-01	5.01E-01	8.40E-03	6.43E-02	6.43E-02	3.89E-03	1.26E-01	1.26E-01	2.11E-02	4.54E-01	4.55E-01	3.36E-02	7.39E-01	7.43E-01
R8	1.35E-03	2.01E-02	2.04E-02	1.89E-03	1.51E-02	1.51E-02	4.51E-03	2.01E-01	2.04E-01	3.43E-01	6.94E-01	6.94E-01	9.79E-03	1.59E-01	1.59E-01	4.84E-03	2.60E-01	2.60E-01	2.51E-02	8.04E-01	8.09E-01	6.64E-02	1.29E+00	1.32E+00
R9	2.38E-03	8.94E-03	1.11E-02	2.47E-03	6.11E-03	8.25E-03	8.60E-03	1.07E-01	1.14E-01	5.18E-01	2.60E-01	5.35E-01	1.34E-02	2.90E-02	3.65E-02	8.93E-03	5.71E-02	6.22E-02	9.29E-02	2.72E-01	3.47E-01	2.47E-01	4.44E-01	6.69E-01
R10	6.67E-03	8.71E-03	1.53E-02	1.61E-02	5.88E-03	2.19E-02	1.30E-02	1.06E-01	1.18E-01	6.33E-01	1.98E-01	6.50E-01	9.16E-02	2.48E-02	1.15E-01	5.24E-02	5.32E-02	1.03E-01	2.12E-01	2.59E-01	4.68E-01	6.81E-01	4.27E-01	1.10E+00
R11	6.73E-03	8.67E-03	1.53E-02	1.41E-02	5.84E-03	1.99E-02	1.46E-02	1.05E-01	1.20E-01	5.66E-01	1.89E-01	5.83E-01	7.96E-02	2.41E-02	1.03E-01	3.93E-02	5.24E-02	8.97E-02	1.03E-01	2.56E-01	3.58E-01	3.13E-01	4.24E-01	7.36E-01
R12	1.45E-03	8.79E-03	1.01E-02	7.05E-03	5.95E-03	1.28E-02	5.92E-03	1.06E-01	1.11E-01	4.47E-01	2.16E-01	4.64E-01	3.95E-02	2.60E-02	6.28E-02	2.13E-02	5.50E-02	7.21E-02	5.66E-02	2.64E-01	3.13E-01	1.20E-01	4.33E-01	5.44E-01
R13	3.22E-03	8.74E-03	1.18E-02	1.16E-02	5.91E-03	1.74E-02	6.40E-03	1.06E-01	1.12E-01	5.43E-01	2.04E-01	5.60E-01	6.60E-02	2.52E-02	8.92E-02	2.59E-02	5.38E-02	7.67E-02	5.55E-02	2.61E-01	3.11E-01	1.69E-01	4.30E-01	5.94E-01
R14	4.55E-04	2.48E-02	2.48E-02	1.62E-03	1.84E-02	1.84E-02	1.52E-03	2.20E-01	2.21E-01	3.11E-01	5.18E-01	5.18E-01	8.51E-03	1.48E-01	1.48E-01	3.77E-03	2.62E-01	2.62E-01	2.09E-02	7.84E-01	7.84E-01	3.64E-02	1.23E+00	1.24E+00

TABLE C.2 Predicted Hazard Quotients from Inhalation of Metals

Criteria Air Contaminant	Aluminum			Antimony			Arsenic			Cadmium			Chromium			Copper			Mercury			Nickel			Selenium			Vanadium		
Averaging Time	1 hour			1 hour			1 hour			1 hour			1 hour			1 hour			1 hour			1 hour			1 hour			1 hour		
Receptor Location	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application
RSA-MPOI	3.39E-04	3.68E-04	3.68E-04	6.43E-04	1.15E-04	6.43E-04	2.22E-01	1.18E-01	2.23E-01	6.18E-04	1.42E-04	6.18E-04	1.70E-03	4.56E-04	1.70E-03	8.59E-04	2.01E-04	8.60E-04	7.88E-04	1.41E-04	7.88E-04	4.18E-01	7.46E-02	4.18E-01	2.06E-04	3.67E-05	2.06E-04	2.66E-03	6.88E-04	2.66E-03
FL-MPOI	5.38E-05	3.07E-04	3.07E-04	5.74E-05	1.06E-04	1.06E-04	2.85E-02	1.08E-01	1.08E-01	5.95E-05	1.30E-04	1.30E-04	1.72E-04	4.16E-04	4.16E-04	8.33E-05	1.84E-04	1.84E-04	7.03E-05	1.29E-04	1.29E-04	3.73E-02	6.85E-02	6.85E-02	1.84E-05	3.37E-05	3.37E-05	2.66E-04	6.28E-04	6.28E-04
R1	1.30E-05	1.34E-04	1.34E-04	1.38E-05	2.63E-05	2.77E-05	7.34E-03	3.94E-02	3.94E-02	1.45E-05	3.33E-05	3.40E-05	4.22E-05	1.15E-04	1.15E-04	2.03E-05	4.76E-05	4.82E-05	1.69E-05	3.21E-05	3.37E-05	8.95E-03	1.70E-02	1.79E-02	4.40E-06	8.38E-06	8.81E-06	6.52E-05	1.71E-04	1.71E-04
R2	1.38E-05	2.52E-06	1.54E-05	1.04E-05	1.47E-07	1.04E-05	5.35E-03	6.85E-04	5.78E-03	1.06E-05	3.43E-07	1.08E-05	3.05E-05	1.37E-06	3.11E-05	1.49E-05	5.00E-07	1.51E-05	1.27E-05	1.78E-07	1.28E-05	6.73E-03	9.45E-05	6.78E-03	3.31E-06	4.65E-08	3.34E-06	4.73E-05	1.97E-06	4.81E-05
R3	1.03E-05	7.43E-05	7.46E-05	1.39E-05	1.26E-05	1.46E-05	6.01E-03	2.10E-02	2.14E-02	1.41E-05	1.82E-05	1.94E-05	4.02E-05	6.29E-05	6.53E-05	1.97E-05	2.61E-05	2.76E-05	1.71E-05	1.53E-05	1.79E-05	9.07E-03	8.10E-03	9.51E-03	4.46E-06	3.99E-06	4.68E-06	6.24E-05	9.33E-05	9.74E-05
R4	4.34E-06	1.15E-06	5.45E-06	2.59E-06	9.01E-08	2.61E-06	1.53E-03	3.13E-04	1.72E-03	2.77E-06	1.72E-07	2.81E-06	8.18E-06	6.48E-07	8.34E-06	3.88E-06	2.48E-07	3.94E-06	3.17E-06	1.09E-07	3.19E-06	1.68E-03	5.77E-05	1.69E-03	8.28E-07	2.84E-08	8.33E-07	1.26E-05	9.44E-07	1.28E-05
R5	6.77E-06	1.69E-06	7.58E-06	5.03E-06	1.02E-07	5.03E-06	2.48E-03	4.59E-04	2.58E-03	5.21E-06	2.03E-07	5.22E-06	1.50E-05	8.50E-07	1.51E-05	7.28E-06	2.97E-07	7.30E-06	6.15E-06	1.23E-07	6.16E-06	3.27E-03	6.52E-05	3.27E-03	1.61E-06	3.21E-08	1.61E-06	2.33E-05	1.21E-06	2.33E-05
R6	1.15E-05	1.47E-04	1.48E-04	1.14E-05	4.36E-05	4.37E-05	5.41E-03	5.11E-02	5.12E-02	1.17E-05	5.62E-05	5.63E-05	3.35E-05	1.84E-04	1.84E-04	1.64E-05	7.97E-05	7.98E-05	1.40E-05	5.31E-05	5.32E-05	7.43E-03	2.82E-02	2.82E-02	3.66E-06	1.39E-05	1.39E-05	5.20E-05	2.76E-04	2.76E-04
R7	1.05E-05	9.22E-05	9.24E-05	6.58E-06	2.83E-05	2.84E-05	3.45E-03	3.10E-02	3.10E-02	6.88E-06	3.43E-05	3.44E-05	2.00E-05	1.09E-04	1.10E-04	9.64E-06	4.85E-05	4.87E-05	8.05E-06	3.45E-05	3.46E-05	4.27E-03	1.83E-02	1.84E-02	2.10E-06	9.02E-06	9.05E-06	3.09E-05	1.65E-04	1.65E-04
R8	1.19E-05	2.96E-04	2.96E-04	1.23E-05	8.67E-05	8.67E-05	6.64E-03	1.04E-01	1.04E-01	1.29E-05	1.13E-04	1.13E-04	3.78E-05	3.70E-04	3.70E-04	1.81E-05	1.60E-04	1.60E-04	1.50E-05	1.06E-04	1.06E-04	7.98E-03	5.61E-02	5.61E-02	3.93E-06	2.76E-05	2.76E-05	5.83E-05	5.55E-04	5.55E-04
R9	5.38E-05	1.49E-05	5.82E-05	3.85E-05	1.11E-06	3.85E-05	2.00E-02	4.33E-03	2.08E-02	3.90E-05	2.55E-06	3.90E-05	1.11E-04	1.01E-05	1.11E-04	5.45E-05	3.71E-06	5.45E-05	4.72E-05	1.35E-06	4.72E-05	2.50E-02	7.18E-04	2.50E-02	1.23E-05	3.53E-07	1.23E-05	1.73E-04	1.46E-05	1.73E-04
R10	4.62E-05	4.97E-06	4.69E-05	5.74E-05	3.42E-07	5.75E-05	2.85E-02	1.35E-03	2.87E-02	5.95E-05	7.53E-07	5.96E-05	1.72E-04	3.04E-06	1.73E-04	8.33E-05	1.10E-06	8.35E-05	7.03E-05	4.10E-07	7.04E-05	3.73E-02	2.17E-04	3.74E-02	1.84E-05	1.07E-07	1.84E-05	2.66E-04	4.37E-06	2.67E-04
R11	5.32E-05	3.06E-06	5.58E-05	3.84E-05	2.28E-07	3.86E-05	2.20E-02	8.33E-04	2.20E-02	4.05E-05	4.68E-07	4.08E-05	1.18E-04	1.86E-06	1.19E-04	5.67E-05	6.82E-07	5.71E-05	4.70E-05	2.74E-07	4.72E-05	2.50E-02	1.45E-04	2.50E-02	1.23E-05	7.15E-08	1.23E-05	1.82E-04	2.67E-06	1.84E-04
R12	2.68E-05	8.09E-06	2.92E-05	2.04E-05	5.67E-07	2.04E-05	1.13E-02	2.33E-03	1.20E-02	2.08E-05	1.32E-06	2.08E-05	5.96E-05	5.30E-06	5.96E-05	2.91E-05	1.92E-06	2.91E-05	2.49E-05	6.78E-07	2.49E-05	1.32E-02	3.60E-04	1.32E-02	6.51E-06	1.77E-07	6.51E-06	9.24E-05	7.62E-06	9.25E-05
R13	1.99E-05	5.82E-06	2.06E-05	2.44E-05	4.03E-07	2.44E-05	1.20E-02	1.69E-03	1.22E-02	2.52E-05	9.67E-07	2.53E-05	7.27E-05	3.87E-06	7.29E-05	3.52E-05	1.41E-06	3.53E-05	2.99E-05	4.83E-07	2.99E-05	1.59E-02	2.57E-04	1.59E-02	7.80E-06	1.26E-07	7.81E-06	1.12E-04	5.57E-06	1.13E-04
R14	1.09E-05	3.07E-04	3.07E-04	1.13E-05	1.06E-04	1.06E-04	6.09E-03	1.08E-01	1.08E-01	1.19E-05	1.30E-04	1.30E-04	3.48E-05	4.16E-04	4.16E-04	1.67E-05	1.84E-04	1.84E-04	1.38E-05	1.29E-04	1.29E-04	7.35E-03	6.85E-02	6.85E-02	3.62E-06	3.37E-05	3.37E-05	5.37E-05	6.28E-04	6.28E-04

TABLE C.3 Predicted Hazard Quotients from Inhalation of Volatile Organic Compounds

Criteria Air Contaminant	Benzene			Toluene			Xylenes			Acetaldehyde			Acrolein			Formaldehyde			Acenaphthene			Acenaphthylene			Anthracene			Fluoranthene			Fluorene			Naphthalene			Phenanthrene			Pyrene		
Averaging Time	1 hour			1 hour			1 hour			1 hour			1 hour			1 hour			1 hour			1 hour			1 hour			1 hour			1 hour			1 hour			1 hour			1 hour		
Receptor Location	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application
RSA-MPOI	4.53E-04	4.93E-04	4.93E-04	6.35E-06	6.91E-06	6.91E-06	8.84E-06	9.62E-06	9.62E-06	1.82E-05	1.98E-05	1.98E-05	1.07E-03	1.16E-03	1.16E-03	5.35E-04	5.82E-04	5.82E-04	7.93E-06	8.63E-06	8.63E-06	1.56E-05	1.70E-05	1.70E-05	2.08E-06	2.27E-06	2.27E-06	6.83E-06	7.43E-06	7.43E-06	2.17E-05	2.36E-05	2.36E-05	2.20E-05	2.40E-05	2.40E-05	6.91E-05	7.52E-05	7.52E-05	6.29E-06	6.84E-06	6.84E-06
FL-MPOI	7.21E-05	4.11E-04	4.11E-04	1.01E-06	5.75E-06	5.75E-06	1.41E-06	8.00E-06	8.01E-06	2.89E-06	1.65E-05	1.65E-05	1.70E-04	9.67E-04	9.68E-04	8.51E-05	4.84E-04	4.84E-04	1.26E-06	7.18E-06	7.18E-06	2.49E-06	1.42E-05	1.42E-05	3.32E-07	1.89E-06	1.89E-06	1.09E-06	6.18E-06	6.19E-06	3.45E-06	1.96E-05	1.96E-05	3.50E-06	1.99E-05	2.00E-05	1.10E-05	6.26E-05	6.26E-05	1.00E-06	5.69E-06	5.70E-06
R1	1.74E-05	1.80E-04	1.80E-04	2.43E-07	2.52E-06	2.52E-06	3.39E-07	3.50E-06	3.50E-06	6.96E-07	7.20E-06	7.20E-06	4.09E-05	4.23E-04	4.23E-04	2.05E-05	2.12E-04	2.12E-04	3.04E-07	3.14E-06	3.14E-06	5.99E-07	6.20E-06	6.20E-06	7.99E-08	8.26E-07	8.26E-07	2.62E-07	2.71E-06	2.71E-06	8.31E-07	8.60E-06	8.60E-06	8.44E-07	8.73E-06	8.73E-06	2.65E-06	2.74E-05	2.74E-05	2.41E-07	2.49E-06	2.49E-06
R2	1.85E-05	3.37E-06	2.06E-05	2.59E-07	4.72E-08	2.88E-07	3.60E-07	6.57E-08	4.01E-07	7.40E-07	1.35E-07	8.25E-07	4.35E-05	7.94E-06	4.85E-05	2.18E-05	3.98E-06	2.43E-05	3.23E-07	5.90E-08	3.60E-07	6.37E-07	1.16E-07	7.10E-07	8.49E-08	1.55E-08	9.47E-08	2.78E-07	5.08E-08	3.10E-07	8.83E-07	1.61E-07	9.85E-07	8.97E-07	1.64E-07	1.00E-06	2.82E-06	5.14E-07	3.14E-06	2.56E-07	4.67E-08	2.86E-07
R3	1.38E-05	9.96E-05	9.99E-05	1.93E-07	1.39E-06	1.40E-06	2.68E-07	1.94E-06	1.95E-06	5.51E-07	3.99E-06	4.00E-06	3.24E-05	2.35E-04	2.35E-04	1.62E-05	1.17E-04	1.18E-04	2.41E-07	1.74E-06	1.75E-06	4.74E-07	3.43E-06	3.45E-06	6.32E-08	4.58E-07	4.59E-07	2.07E-07	1.50E-06	1.50E-06	6.58E-07	4.76E-06	4.78E-06	6.68E-07	4.84E-06	4.85E-06	2.10E-06	1.52E-05	1.52E-05	1.91E-07	1.38E-06	1.38E-06
R4	5.82E-06	1.53E-06	7.30E-06	8.14E-08	2.15E-08	1.02E-07	1.13E-07	2.99E-08	1.42E-07	2.33E-07	6.15E-08	2.93E-07	1.37E-05	3.61E-06	1.72E-05	6.86E-06	1.81E-06	8.61E-06	1.02E-07	2.68E-08	1.28E-07	2.01E-07	5.29E-08	2.52E-07	2.67E-08	7.05E-09	3.36E-08	8.76E-08	2.31E-08	1.10E-07	2.78E-07	7.34E-08	3.49E-07	2.83E-07	7.45E-08	3.55E-07	8.87E-07	2.34E-07	1.11E-06	8.06E-08	2.13E-08	1.01E-07
R5	9.07E-06	2.26E-06	1.02E-05	1.27E-07	3.16E-08	1.42E-07	1.77E-07	4.40E-08	1.98E-07	3.63E-07	9.05E-08	4.07E-07	2.14E-05	5.32E-06	2.39E-05	1.07E-05	2.66E-06	1.20E-05	1.59E-07	3.95E-08	1.78E-07	3.13E-07	7.79E-08	3.50E-07	4.17E-08	1.04E-08	4.67E-08	1.37E-07	3.40E-08	1.53E-07	4.34E-07	1.08E-07	4.86E-07	4.40E-07	1.10E-07	4.93E-07	1.38E-06	3.44E-07	1.55E-06	1.26E-07	3.13E-08	1.41E-07
R6	1.53E-05	1.97E-04	1.98E-04	2.15E-07	2.76E-06	2.77E-06	2.99E-07	3.84E-06	3.86E-06	6.15E-07	7.90E-06	7.93E-06	3.61E-05	4.65E-04	4.66E-04	1.81E-05	2.33E-04	2.33E-04	2.68E-07	3.45E-06	3.46E-06	5.29E-07	6.80E-06	6.82E-06	7.05E-08	9.07E-07	9.09E-07	2.31E-07	2.97E-06	2.98E-06	7.34E-07	9.43E-06	9.46E-06	7.45E-07	9.58E-06	9.61E-06	2.34E-06	3.01E-05	3.02E-05	2.13E-07	2.73E-06	2.74E-06
R7	1.40E-05	1.24E-04	1.24E-04	1.96E-07	1.73E-06	1.73E-06	2.73E-07	2.41E-06	2.41E-06	5.62E-07	4.95E-06	4.96E-06	3.30E-05	2.91E-04	2.92E-04	1.65E-05	1.46E-04	1.46E-04	2.45E-07	2.16E-06	2.16E-06	4.83E-07	4.26E-06	4.27E-06	6.44E-08	5.68E-07	5.69E-07	2.11E-07	1.86E-06	1.86E-06	6.70E-07	5.91E-06	5.92E-06	6.81E-07	6.00E-06	6.01E-06	2.14E-06	1.88E-05	1.89E-05	1.94E-07	1.71E-06	1.72E-06
R8	1.60E-05	3.97E-04	3.97E-04	2.24E-07	5.55E-06	5.55E-06	3.11E-07	7.73E-06	7.73E-06	6.40E-07	1.59E-05	1.59E-05	3.76E-05	9.34E-04	9.35E-04	1.88E-05	4.68E-04	4.68E-04	2.79E-07	6.94E-06	6.94E-06	5.51E-07	1.37E-05	1.37E-05	7.34E-08	1.82E-06	1.82E-06	2.41E-07	5.97E-06	5.97E-06	7.64E-07	1.90E-05	1.90E-05	7.76E-07	1.93E-05	1.93E-05	2.43E-06	6.05E-05	6.05E-05	2.21E-07	5.50E-06	5.50E-06
R9	7.21E-05	1.99E-05	7.80E-05	1.01E-06	2.79E-07	1.09E-06	1.41E-06	3.89E-07	1.52E-06	2.89E-06	7.99E-07	3.13E-06	1.70E-04	4.70E-05	1.84E-04	8.51E-05	2.35E-05	9.20E-05	1.26E-06	3.49E-07	1.36E-06	2.49E-06	6.88E-07	2.69E-06	3.32E-07	9.16E-08	3.59E-07	1.09E-06	3.00E-07	1.18E-06	3.45E-06	9.54E-07	3.73E-06	3.50E-06	9.69E-07	3.79E-06	1.10E-05	3.04E-06	1.19E-05	1.00E-06	2.76E-07	1.08E-06
R10	6.19E-05	6.66E-06	6.29E-05	8.66E-07	9.32E-08	8.80E-07	1.21E-06	1.30E-07	1.23E-06	2.48E-06	2.67E-07	2.52E-06	1.46E-04	1.57E-05	1.48E-04	7.30E-05	7.85E-06	7.41E-05	1.08E-06	1.16E-07	1.10E-06	2.13E-06	2.30E-07	2.17E-06	2.84E-07	3.06E-08	2.89E-07	9.32E-07	1.00E-07	9.47E-07	2.96E-06	3.18E-07	3.01E-06	3.01E-06	3.23E-07	3.05E-06	9.43E-06	1.02E-06	9.58E-06	8.58E-07	9.23E-08	8.71E-07
R11	7.13E-05	4.10E-06	7.48E-05	9.98E-07	5.74E-08	1.05E-06	1.39E-06	7.99E-08	1.46E-06	2.86E-06	1.64E-07	3.00E-06	1.68E-04	9.65E-06	1.76E-04	8.41E-05	4.83E-06	8.82E-05	1.25E-06	7.17E-08	1.31E-06	2.46E-06	1.41E-07	2.58E-06	3.28E-07	1.88E-08	3.44E-07	1.07E-06	6.17E-08	1.13E-06	3.41E-06	1.96E-07	3.58E-06	3.46E-06	1.99E-07	3.63E-06	1.09E-05	6.25E-07	1.14E-05	9.88E-07	5.68E-08	1.04E-06
R12	3.59E-05	1.08E-05	3.91E-05	5.02E-07	1.52E-07	5.47E-07	7.00E-07	2.11E-07	7.62E-07	1.44E-06	4.34E-07	1.57E-06	8.45E-05	2.55E-05	9.21E-05	4.23E-05	1.28E-05	4.61E-05	6.28E-07	1.89E-07	6.84E-07	1.24E-06	3.74E-07	1.35E-06	1.65E-07	4.98E-08	1.80E-07	5.40E-07	1.63E-07	5.89E-07	1.72E-06	5.18E-07	1.87E-06	1.74E-06	5.26E-07	1.90E-06	5.47E-06	1.65E-06	5.96E-06	4.98E-07	1.50E-07	5.42E-07
R13	2.66E-05	7.80E-06	2.76E-05	3.73E-07	1.09E-07	3.86E-07	5.19E-07	1.52E-07	5.38E-07	1.07E-06	3.12E-07	1.11E-06	6.27E-05	1.84E-05	6.50E-05	3.14E-05	9.20E-06	3.26E-05	4.66E-07	1.36E-07	4.83E-07	9.18E-07	2.69E-07	9.52E-07	1.22E-07	3.58E-08	1.27E-07	4.01E-07	1.17E-07	4.16E-07	1.27E-06	3.73E-07	1.32E-06	1.29E-06	3.79E-07	1.34E-06	4.06E-06	1.19E-06	4.21E-06	3.69E-07	1.08E-07	3.83E-07
R14	1.46E-05	4.11E-04	4.11E-04	2.04E-07	5.75E-06	5.75E-06	2.84E-07	8.00E-06	8.01E-06	5.84E-07	1.65E-05	1.65E-05	3.43E-05	9.67E-04	9.68E-04	1.72E-05	4.84E-04	4.84E-04	2.55E-07	7.18E-06	7.18E-06	5.03E-07	1.42E-05	1.42E-05	6.70E-08	1.89E-06	1.89E-06	2.20E-07	6.18E-06	6.19E-06	6.97E-07	1.96E-05	1.96E-05	7.08E-07	1.99E-05	2.00E-05	2.22E-06	6.26E-05	6.26E-05	2.02E-07	5.69E-06	5.70E-06

Table C4 - Timeseries Data for PM10

Application

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	1	1	3.87E-01	4.20E-03	3.55E-01	8.96E-02	4.43E-01	4.35E+00	2.34E+00	6.76E+00	1.34E-01	7.94E+00	1.14E+00	9.11E-01	1.28E+00	5.75E+00	7.47E-01
2002	1	2	1.38E-01	0.00E+00	9.00E-02	0.00E+00	0.00E+00	1.06E+00	5.10E-01	2.38E+00	1.31E-03	1.71E+00	2.07E-02	6.52E-01	2.81E-01	1.65E+00	2.42E-01
2002	1	3	4.03E-02	0.00E+00	9.19E-04	0.00E+00	0.00E+00	3.60E-01	3.57E-01	1.06E+00	1.64E-16	2.64E+00	4.45E-03	5.43E-01	1.94E-01	5.84E-01	7.00E-02
2002	1	4	1.37E-01	0.00E+00	5.86E-03	0.00E+00	0.00E+00	5.72E-01	4.96E-01	1.75E+00	9.54E-03	3.47E+00	1.68E-03	6.03E-01	2.77E-01	9.42E-01	2.34E-01
2002	1	5	1.41E-01	0.00E+00	1.16E-02	0.00E+00	0.00E+00	5.76E-01	7.41E-01	2.05E+00	1.07E-15	5.70E+00	2.16E-03	8.66E-01	2.62E-01	1.35E+00	2.12E-01
2002	1	6	4.56E-02	0.00E+00	1.39E-02	0.00E+00	9.65E-04	4.31E-01	3.56E-01	1.02E+00	1.04E-06	9.69E-01	1.27E-01	4.26E-01	2.85E-01	6.63E-01	1.14E-01
2002	1	7	5.21E-01	3.41E-05	6.59E-02	3.94E-06	6.88E-04	2.86E+00	2.87E-01	2.87E+00	6.10E-02	9.93E-01	2.78E-01	9.24E-03	3.05E-01	1.18E+00	8.43E-01
2002	1	8	3.17E-01	7.39E-06	5.64E-02	4.93E-08	2.86E-04	2.00E+00	5.61E-01	3.04E+00	4.25E-02	2.03E+00	6.43E-02	5.46E-01	3.53E-01	1.56E+00	5.50E-01
2002	1	9	3.81E-01	0.00E+00	1.23E-01	0.00E+00	0.00E+00	8.75E-01	3.90E-01	2.65E+00	1.58E-04	6.58E+00	4.19E-07	4.36E-01	1.21E+00	1.41E+00	5.36E-01
2002	1	10	6.11E-02	0.00E+00	5.82E-04	0.00E+00	0.00E+00	3.37E-01	3.18E-01	8.12E-01	3.27E-15	1.80E+00	6.32E-03	4.83E-01	1.82E-01	5.91E-01	9.70E-02
2002	1	11	4.95E-01	8.81E-02	1.80E-01	1.95E-01	5.69E-01	1.62E+00	1.49E+00	3.64E+00	1.24E-01	7.95E+00	2.48E+00	2.82E+00	3.25E+00	2.08E+00	7.17E-01
2002	1	12	4.64E-02	0.00E+00	6.71E-03	0.00E+00	1.28E-03	5.47E-01	2.01E-01	6.51E-01	7.04E-04	1.03E+00	6.80E-02	1.75E-01	1.93E-01	5.13E-01	1.35E-01
2002	1	13	4.41E-01	9.96E-05	2.39E-01	4.77E-06	2.38E-05	2.07E+00	9.22E-01	4.62E+00	9.98E-02	3.08E+00	7.62E-04	9.96E-01	1.07E+00	3.35E+00	6.84E-01
2002	1	14	2.50E+00	1.20E-01	2.76E+00	1.18E-02	6.92E-02	5.17E+00	2.49E+00	6.59E+00	1.01E+01	4.69E+00	1.33E+00	9.47E-01	1.33E+00	6.79E+00	3.54E+00
2002	1	15	1.11E+00	6.40E-04	5.19E-01	1.30E-04	2.53E-04	4.48E+00	2.18E+00	9.22E+00	3.30E-01	9.14E+00	2.48E-03	3.83E+00	3.83E+00	6.07E+00	1.98E+00
2002	1	16	3.50E-01	1.32E-04	1.08E-01	1.15E-05	5.77E-05	1.79E+00	1.67E+00	4.48E+00	3.82E-02	9.82E+00	9.76E-04	1.54E+00	1.08E+00	3.15E+00	4.55E-01
2002	1	17	7.56E-01	4.22E-04	1.12E-01	3.75E-04	1.23E-03	3.02E+00	2.30E+00	6.31E+00	3.21E-02	1.12E+01	4.66E-02	2.60E+00	1.34E+00	5.29E+00	1.18E+00
2002	1	18	1.98E-01	2.89E-04	9.99E-02	2.82E-05	1.27E-04	2.78E+00	1.12E+00	4.60E+00	3.49E-02	4.83E+00	4.00E-03	6.93E-01	8.19E-01	2.85E+00	2.50E-01
2002	1	19	5.35E-02	0.00E+00	7.81E-04	0.00E+00	0.00E+00	3.89E-01	3.58E-01	1.03E+00	1.47E-16	2.19E+00	5.40E-03	4.65E-01	2.07E-01	6.29E-01	7.40E-02
2002	1	20	5.98E-02	0.00E+00	1.10E-02	0.00E+00	2.37E-10	5.38E-01	3.12E-01	1.20E+00	3.88E-03	1.54E+00	3.70E-02	3.50E-01	2.11E-01	6.18E-01	9.00E-02
2002	1	21	1.47E-01	0.00E+00	7.25E-02	0.00E+00	0.00E+00	1.15E+00	5.82E-01	3.15E+00	1.24E-03	2.36E+00	1.71E-02	6.50E-01	2.13E-01	1.37E+00	2.77E-01
2002	1	22	2.62E-02	0.00E+00	1.24E-01	0.00E+00	0.00E+00	1.74E+00	6.77E-01	3.60E+00	8.62E-03	2.16E+00	3.29E-02	6.46E-01	3.16E-01	2.20E+00	8.19E-02
2002	1	23	9.11E-02	0.00E+00	1.69E-02	0.00E+00	0.00E+00	7.72E-01	3.96E-01	1.81E+00	1.40E-03	2.64E+00	1.18E-02	4.54E-01	1.78E-01	8.64E-01	1.10E-01
2002	1	24	2.33E-01	0.00E+00	2.26E-02	0.00E+00	4.77E-05	9.25E-01	1.56E-01	6.16E-01	2.73E-02	6.94E-01	9.96E-02	1.04E-01	1.92E-01	6.38E-01	4.77E-01
2002	1	25	5.26E-01	8.21E-01	2.10E-01	7.38E-02	4.66E-02	1.56E+00	5.58E-01	2.42E+00	3.34E-01	1.86E+00	6.75E-01	1.57E-01	3.32E-01	1.73E+00	7.27E-01
2002	1	26	1.13E+00	7.01E-03	2.17E-01	1.50E-02	1.80E-01	1.49E+00	9.52E-01	3.27E+00	9.31E-02	1.92E+00	2.64E+00	5.03E-02	2.18E-01	2.73E+00	1.67E+00
2002	1	27	2.00E+00	9.08E-01	7.06E-01	3.66E-01	4.97E-01	4.82E+00	2.06E+00	5.90E+00	1.37E+00	2.99E+00	6.11E+00	3.59E-01	4.73E-01	5.09E+00	2.67E+00
2002	1	28	4.07E-01	1.91E-02	2.39E-01	7.74E-03	1.56E-02	4.38E+00	1.63E+00	7.58E+00	2.23E-01	6.67E+00	6.94E-02	1.40E+00	1.05E+00	5.10E+00	5.52E-01
2002	1	29	2.83E-01	1.61E-05	8.63E-02	9.37E-07	4.41E-06	2.86E+00	8.65E-01	4.89E+00	4.66E-02	5.38E+00	3.51E-03	8.03E-01	5.42E-01	3.21E+00	3.92E-01
2002	1	30	2.54E-01	2.02E-06	2.03E-02	0.00E+00	7.41E-08	1.83E+00	6.62E-01	3.61E+00	1.55E-02	2.45E+00	2.18E-03	9.43E-01	2.08E-01	1.75E+00	3.68E-01
2002	1	31	3.70E-01	0.00E+00	7.37E-02	0.00E+00	1.72E-06	1.71E+00	3.66E-01	1.79E+00	3.16E-02	2.01E+00	9.79E-02	3.12E-01	3.77E-01	1.10E+00	6.22E-01
2002	2	1	1.41E-01	0.00E+00	1.28E-02	0.00E+00	4.47E-12	7.91E-01	4.74E-01	2.16E+00	1.87E-07	3.30E+00	2.14E-02	5.32E-01	2.76E-01	1.04E+00	2.59E-01
2002	2	2	5.87E-02	0.00E+00	5.92E-03	0.00E+00	0.00E+00	5.43E-01	3.47E-01	1.38E+00	7.05E-06	1.61E+00	1.59E-02	5.12E-01	1.93E-01	6.24E-01	1.09E-01
2002	2	3	4.68E-02	0.00E+00	5.61E-03	0.00E+00	8.03E-12	4.03E-01	2.85E-01	8.70E-01	2.89E-16	1.62E+00	3.90E-02	3.99E-01	1.76E-01	5.55E-01	8.12E-02
2002	2	4	7.58E-02	0.00E+00	1.89E-02	0.00E+00	0.00E+00	9.57E-01	4.32E-01	1.95E+00	6.09E-04	3.61E+00	3.57E-03	4.38E-01	3.19E-01	1.00E+00	1.14E-01
2002	2	5	2.41E-01	9.71E-08	2.56E-02	1.86E-07	5.99E-03	5.72E-01	3.38E-01	1.50E+00	2.52E-02	1.22E+00	3.27E-01	2.08E-01	2.23E-01	7.95E-01	3.82E-01
2002	2	6	4.09E-01	3.22E-05	6.32E-02	3.43E-02	2.77E-01	1.55E+00	4.15E-01	1.44E+00	4.10E-02	1.87E+00	1.35E+00	3.52E-01	1.69E-01	1.04E+00	6.70E-01
2002	2	7	1.08E+00	1.37E-01	4.28E-01	2.30E-02	3.33E-02	2.14E+00	4.44E-01	2.36E+00	5.11E-01	1.30E+00	6.86E-01	5.15E-02	3.37E-01	1.56E+00	1.39E+00
2002	2	8	3.17E+00	5.13E-01	1.46E+00	1.87E-01	2.57E-01	4.30E+00	1.49E+00	5.13E+00	2.15E+00	2.95E+00	4.08E+00	1.31E+00	1.65E+00	3.99E+00	4.05E+00
2002	2	9	2.58E-01	3.44E-04	1.01E-01	1.41E-04	1.76E-04	2.36E+00	8.18E-01	4.00E+00	4.25E-02	5.05E+00	8.64E-03	1.18E+00	1.86E-01	2.32E+00	3.44E-01
2002	2	10	7.25E-02	0.00E+00	2.59E-02	0.00E+00	1.43E-03	6.23E-01	2.28E-01	8.28E-01	1.15E-03	1.20E+00	1.05E-01	2.60E-01	2.21E-01	5.83E-01	1.04E-01
2002	2	11	1.27E-01	0.00E+00	2.39E-02	0.00E+00	0.00E+00	8.30E-01	2.25E-01	1.81E+00	5.23E-04	3.40E+00	6.13E-04	4.40E-01	7.30E-01	9.37E-01	2.91E-01
2002	2	12	5.40E-01	2.83E-07	2.82E-01	0.00E+00	3.18E-08	1.99E+00	5.32E-01	2.97E+00	6.13E-03	4.88E+00	1.24E-03	3.71E-01	8.12E-01	2.26E+00	7.20E-01
2002	2	13	1.07E-01	0.00E+00	3.64E-02	0.00E+00	0.00E+00	9.03E-01	2.82E-01	1.67E+00	7.65E-05	2.45E+00	1.15E-02	4.52E-01	3.41E-01	9.98E-01	2.78E-01
2002	2	14	2.79E-01	2.56E-06	3.94E-02	0.00E+00	6.65E-08	1.58E+00	4.30E-01	3.07E+00	1.45E-02	3.38E+00	2.48E-04	5.42E-01	5.61E-01	1.82E+00	3.28E-01
2002	2	15	1.41E-01	0.00E+00	3.03E-02	0.00E+00	0.00E+00	1.27E+00	6.56E-01	3.02E+00	2.35E-02	4.04E+00	4.36E-03	6.94E-01	2.70E-01	1.47E+00	2.63E-01
2002	2	16	1.81E-01	1.16E-04	1.39E-01	7.59E-06	6.72E-05	2.54E+00	8.94E-01	4.02E+00	3.95E-02	3.58E+00	3.83E-02	6.71E-01	2.67E-01	2.52E+00	2.37E-01
2002	2	17	4.35E-01	2.72E-05	3.21E-01	2.63E-07	8.63E-06	2.21E+00	1.12E+00	3.58E+00	5.38E-02	4.35E+00	1.85E-02	1.00E+00	3.14E-01	3.06E+00	9.07E-01
2002	2	18	3.05E-01	3.02E-04	1.57E-01	1.50E-05	9.07E-05	1.88E+00	9.61E-01	4.19E+00	2.22E-02	2.57E+00	2.19E-02	8.04E-01	3.91E-01	2.71E+00	5.09E-01
2002	2	19	1.47E-01	4.41E-06	8.16E-02	5.11E-05	3.96E-02	1.00E+00	6.08E-01	2.65E+00	3.73E-02	1.78E+00	4.38E-01	3.53E-01	4.67E-01	1.28E+00	3.24E-01
2002	2	20	1.14E-01	0.00E+00	9.80E-03	0.00E+00	0.00E+00	7.28E-01	6.08E-01	2.12E+00	1.07E-04	3.97E+00	3.48E-02	6.56E-01	3.36E-01	1.12E+00	2.11E-01
2002	2	21	1.79E-01	4.76E-06	8.55E-03	9.53E-02	9.58E-02	9.58E-01	4.25E-01	9.49E-01	1.41E-02	2.97E+00	8.19E-01	5.04E-01	3.18E-01	8.11E-01	3.30E-01
2002	2	22	5.20E-01	1.46E-05	3.18E-01	5.73E-09	2.93E-06	1.62E+00	1.89E-01	8.07E-01	9.66E-01	1.25E+00	4.60E-02	1.21E-01	4.51E-01	1.44E+00	8.33E-01
2002	2	23	9.15E-01	0.00E+00	5.00E-01	0.00E+00	0.00E+00	9.54E-01	3.72E-03	7.45E-01	2.20E+00	7.98E-04	0.00E+00	0.00E+00	9.09E-25	1.82E+00	1.11E+00
2002	2	24	3.40E+00	3.46E-04	2.33E+00	6.63E-05	1.47E-04	4.07E+00	3.08E-01	3.53E+00	2.73E+00	5.91E-03	1.18E-03	1.06E-02	5.57E-03	4.30E+00	3.91E+00
2002	2	25	1.30E+00	1.17E-03	9.58E-01	2.07E-04	5.14E-04	4.28E+00	1.61E+00	7.86E+00	1.18E+00	5.38E+00	2.45E-02	9.76E-01	1.41E+00	6.67E+00	1.85E+00
2002	2	26	4.43E-02	0.00E+00	6.52E-04	0.00E+00	0.00E+00	4.71E-01	2.46E-01	1.32E+00	2.91E-12	2.72E+00	2.13E-03	6.74E-01	6.28E-01	6.71E-01	7.58E-02
2002	2	27	7.02E-02	0.00E+00	1.29E-02	0.00E+00	0.00E+00	9.67E-01	6.03E-01	2.58E+00	1.32E-03	4.56E+00	4.25E-03	9.93E-01	1.06E+00	1.37E+00	1.48E-01
2002	2	28	2.34E+00	2.68E-01	1.17E+00	3.45E-02	4.28E-02	4.08E+00	6.85E-01	4.07E+00	4.49E-01	1.09E+00	1.15E+00	3.65E-01	3.60E-01	3.31E+00	2.77E+00
2002	3	1	2.24E+00	2.76E-01	1.17E+00	7.32E-02	1.73E-01	4.36E+00	3.58E-01	3.97E+00	1.84E+00	1.56E+00	7.63E-01	4.67E-01	5.81E-01	2.96E+00	2.56E+00
2002	3	2	3.86E-01	1.00E-05	7.85E-02	0.00E+00	0.00E+00	2.89E+00	7.37E-01	5.17E+00	1.77E-02	4.69E+00	5.62E-05	1.77E+00	1.98E+00	2.29E+00	6.50E-01
2002	3	3	5.25E-02	0.00E+00	3.88E-04	0.00E+00	0.00E+00	3.88E-01	2.77E-01	1.09E+00	4.83E-14	2.43E+00	3.54E-04	3.63E-01	2.75E-01	5.54E-01	8.56E-02
2002	3	4	1.78E-01	1.65E-01	2.51E-02	2.30E-02	9.61E-02	3.96E-01	3.10E-01	8.59E-01	7.92E-02	7.18E-01	1.01E+00	1.77E-01	8.63E-02	7.11E-01	2.46E-01
2002	3	5	6.71E-01	7.29E-03	5.17E-01	3.26E-03	2.42E-03	8.62E-01	2.46E-03	1.12E+00	1.85E+00	9.48E-04	2.13E-03	2.81E-04	4.93E-04	1.79E+00	8.00E-01
2002	3	6	1.08E+00	0.00E+00	5.06E-01	0.00E+00	0.00E+00	1.08E+00	3.77E-03	6.31E-01	3.33E+00	1.22E-04	0.00E+00	0.00E+00	3.17E-29	2.03E+00	1.32E+00
2002	3	7	2.12E+00	1.60E-02	1.03E+00	1.44E-03	5.39E-04	2.21E+00	9.08E-02	2.03E+00	5.20E+00	1.21E-03	4.44E-03	8.56E-04	5.93E-04	2.87E+00	2.71E+00
2002	3	8	3.07E+00	3.01E-01	1.60E+00	1.82E-01	3.79E-01	4.47E+00	4.54E-01	4.39E+00	2.65E+00	2.16E+00	1.03E+00	3.75E-01	2.54E-01	4.43E+00	3.92E+00
2002	3	9	2.85E+00	2.61E-01	1.07E+00	4.86E-02	7.99E-02	3.84E+00	1.15E+00	6.47E+00	3.16E-01	3.90E+00	9.22E-01	5.58E-01	1.44E-01	5.61E+00	3.79E+00
2002	3	10	5.22E-01	8.57E-02	9.12E-02	5.39E-02	1.67E-01	2.94E+00	4.22E-01	2.63E+00	1.00E-01	1.09E+00	1.59E+00	1.13E-01	2.92E-01	1.27E+00	8.25E-01
2002	3	11	8.31E-02	0.00E+00	7.27E-03	0.00E+00	1.94E-06	6.98E-01	1.21E-01	3.32E-01	4.70E-03	6.01E-01	7.01E-02	9.16E-02	1.85E-01	3.60E-01	1.66E-01
2002	3	12	9.16E-02	0.00E+00	1.68E-02	0.00E+00	1.53E-09	7.80E-01	1.73E-01	8.61E-01	2.99E-03	6.95E-01	5.68E-02	6.39E-02	2.36E-01	5.29E-01	1.56E-01
2002	3	13	4.49E-01	1.80E-05	9.65E-02	1.06E-06	4.73E-04	1.71E+00	4.79E-01	3.17E+00	4.05E-02	1.95E+00	1.39E-01	2.50E-01	3.79E-01	1.67E+00	7.20E-01
2002	3	14	3.33E-01	2.61E-05	1.16E-01	1.17E-06	1.82E-05	2.46E+00	1.02E+00	3.57E+00	3.65E-02	6.00E+00	6.44E-03	9.19E-01	3.22E-01	2.68E+00	4.49E-01
2002	3	15	6.91E-01	5.15E-01	8.82E-02	6.91E-02	1.51E-01	1.60E+00	3.29E-01	2.74E+00	6.07E-02	1.05E+00	1.28E+00	3.25E-02	2.27E-01	1.55E+00	9.39E-01
2002	3	16	1.43E+00	4.09E-03	7.00E-01	3.77E-07	0.00E+00	1.64E+00	2.92E-02	1.03E+00	2.13E+00	7.48E-04	2.86E-05	6.80E-06	8.35E-06	1.82E+00	1.50E+00
2002	3	17	1.57E+00	2.50E-03	7.36E-01	6.53E-05	1.89E-05	1.92E+00	6.93E-02	2.05E+00	1.76E+00	1.52E-04	1.87E-04	7.21E-05	6.01E-05	2.07E+00	1.87E+00
2002	3	18	1.72E+00	4.22E-01	6.37E-01	1.42E-01	1.39E-01	1.67E+00	1.43E-01	1.67E+00	6.26E+00	3.81E-01	4.28E-01	6.71E-03	1.37E-02	2.62E+00	2.29E+00
2002	3	19	8.48E-01	0.00E+00	6.06E-01	0.00E+00	0.00E+00	1.08E+00	2.42E-03	8.73E-01	2.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E+00	1.00E+00
2002	3	20	2.88E+00	1.09E-04	1.68E+00	2.97E-07	5.61E-06	3.02E+00	2.09E-02	1.73E+00	8.10E-01	2.07E-03	3.71E-04	2.90E-03	1.97E-03	2.43E+00	3.21E+00
2002	3	21	3.56E+00	1.14E-01	1.85E+00	4.07E-02	1.29E-01	4.39E+00	1.23E+00	6.26E+00	2.53E+00	4.65E+00	7.94E-01	1.05E+00	1.15E+00	5.67E+00	4.41E+00
2002	3	22	2.53E+00	1.09E-02	1.78E+00	1.78E-03	4.72E-03	4.78E+00	1.81E+00	7.34E+00	3.09E+00	8.44E+00	3.97E-02	1.77E+00	2.10E+00	5.55E+00	3.06E+00
2002	3	23	3.88E+00	4.70E-03	2.19E+00	4.45E-04	9.65E-04	3.05E+00	5.33E-01	4.30E+00	3.04E+00	1.55E-02	8.28E-03	2.87E-02	2.04E-02	4.89E+00	4.73E+00
2002	3	24	2.94E+00	1.92E+00	1.86E+00	7.36E-01	6.81E-01	4.89E+00	2.29E+00	8.19E+00	3.04E+00	7.70E+00	3.60E+00	1.41E+00	1.51E+00	7.24E+00	4.29E+00
2002	3	25	6.53E-01	1.01E-02	1.18E-01	5.33E-02	2.69E-01	2.56E+00	1.01E+00	4.80E+00	8.17E-02	7.75E+00	1.62E+00	1.01E+00	1.45E+00	3.56E+00	8.41E-01
2002	3	26	2.74E-02	9.94E-07	6.36E-02	0.00E+00	3.65E-06	1.08E+00	3.52E-01	1.61E+00	2.98E-02	1.73E+00	6.86E-02	3.34E-01	2.28E-01	1.33E+00	1.76E-01
2002	3	27	7.42E-02	0.00E+00	2.99E-03	0.00E+00	0.00E+00	6.09E-01	3.58E-01	1.74E+00	5.05E-17	1.92E+00	1.07E-02	3.82E-01	1.81E-01	7.12E-01	1.34E-01
2002	3	28	5.39E-02	0.00E+00	3.15E-02	0.00E+00	0.00E+00	8.01E-01	3.81E-01	2.47E+00	4.52E-03	2.32E+00	5.12E-03	2.97E-01	3.55E-01	1.50E+00	9.75E-02
2002	3	29	5.86E-01	1.73E-05	3.33E-01	1.74E-06	7.41E-06	1.88E+00	1.26E+00	2.65E+00	9.13E-02	5.93E+00	1.62E-02	3.97E-01	5.71E-01	2.55E+00	8.87E-01
2002	3	30	7.10E-01	3.24E-04	2.37E-01	3.65E-05	1.08E-04	1.41E+00	9.26E-01	2.54E+00	1.49E-01	7.41E+00	2.65E-02	5.84E-01	1.56E+00	2.50E+00	1.15E+00
2002	3	31	2.71E-01	2.67E-05	8.57E-02	1.20E-05	3.39E-05	8.08E-01	8.30E-01	1.17E+00	7.02E-01	1.18E+00	2.86E-02	3.67E-01	5.21E-01	1.01E+00	4.17E-01

Baseline

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	1	1	3.64E-01	4.16E-03	3.55E-01	3.32E-03	6.33E-03	4.34E+00	2.27E+00	4.91E+00	1.25E-01	3.81E-02	1.69E-02	6.91E-02	5.11E-02	5.57E+00	6.32E-01
2002	1	2	1.05E-01	0.00E+00	9.00E-02	0.00E+00	0.00E+00	1.06E+00	4.90E-01	1.71E+00	1.31E-03	0.00E+00	0.00E+00	3.11E-03	5.32E-04	1.63E+00	1.83E-01
2002	1	3	4.03E-02	0.00E+00	9.19E-04	0.00E+00	0.00E+00	3.60E-01	3.18E-01	5.73E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-01	7.00E-02
2002	1	4	1.37E-01	0.00E+00	5.86E-03	0.00E+00	0.00E+00	5.72E-01	4.31E-01	1.13E+00	9.54E-03	1.83E-04	0.00E+00	2.90E-03	1.72E-03	9.35E-01	2.34E-01
2002	1	5	1.41E-01	0.00E+00	1.16E-02	0.00E+00	0.00E+00	5.76E-01	6.47E-01	1.25E+00	0.00E+00	0.00E+00	0.00E+00	3.42E-06	0.00E+00	1.32E+00	2.12E-01
2002	1	6	4.56E-02	0.00E+00	1.39E-02	0.00E+00	0.00E+00	4.31E-01	3.55E-01	6.92E-01	1.04E-06	4.82E-07	0.00E+00	1.42E-03	4.94E-04	6.63E-01	1.14E-01
2002	1	7	5.21E-01	3.41E-05	6.59E-02	3.94E-06	4.37E-05	2.86E+00	2.86E-01	2.03E+00	6.10E-02	9.91E-03	7.72E-04	8.59E-03	1.25E-02	1.13E+00	8.43E-01
2002	1	8	3.16E-01	7.39E-06	5.64E-02	4.93E-08	1.60E-05	2.00E+00	5.25E-01	2.04E+00	4.22E-02	4.84E-03	5.66E-04	1.31E-02	1.10E-02	1.55E+00	5.44E-01
2002	1	9	3.52E-01	0.00E+00	1.23E-01	0.00E+00	0.00E+00	8.71E-01	3.34E-01	2.22E+00	1.48E-04	1.04E-08	0.00E+00	1.67E-04	1.89E-05	1.32E+00	4.59E-01
2002	1	10	6.11E-02	0.00E+00	5.82E-04	0.00E+00	0.00E+00	3.37E-01	2.83E-01	5.03E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.90E-01	9.70E-02
2002	1	11	4.08E-01	1.46E-03	1.69E-01	2.00E-03	4.13E-03	1.60E+00	1.04E+00	2.45E+00	2.21E-02	1.08E-02	5.57E-03	2.57E-02	1.74E-02	1.90E+00	5.72E-01
2002	1	12	4.64E-02	0.00E+00	6.71E-03	0.00E+00	4.29E-07	5.47E-01	1.82E-01	3.98E-01	7.04E-04	3.50E-04	8.62E-06	1.90E-03	1.42E-03	5.13E-01	1.35E-01
2002	1	13	4.14E-01	9.43E-05	2.38E-01	3.36E-06	1.88E-05	2.07E+00	8.56E-01	3.69E+00	2.34E-02	1.94E-03	4.77E-04	6.42E-03	3.54E-03	3.32E+00	5.88E-01
2002	1	14	2.30E+00	4.32E-03	1.68E+00	9.95E-04	2.42E-03	4.50E+00	2.41E+00	5.78E+00	1.31E-01	4.11E-02	1.51E-02	9.39E-02	6.45E-02	6.64E+00	3.18E+00
2002	1	15	9.92E-01	6.37E-04	5.13E-01	1.30E-04	2.53E-04	4.44E+00	1.92E+00	7.76E+00	8.49E-02	9.22E-03	2.37E-03	3.61E-02	1.86E-02	5.91E+00	1.68E+00
2002	1	16	3.38E-01	1.32E-04	1.06E-01	1.15E-05	5.77E-05	1.78E+00	1.52E+00	3.12E+00	3.69E-02	5.63E-03	9.08E-04	2.63E-02	1.46E-02	3.12E+00	4.45E-01
2002	1	17	7.55E-01	7.58E-05	1.12E-01	2.43E-05	1.43E-04	3.02E+00	2.07E+00	4.63E+00	3.07E-02	5.63E-03	8.80E-04	2.43E-02	1.28E-02	5.23E+00	1.18E+00
2002	1	18	1.96E-01	2.89E-04	9.99E-02	2.82E-05	1.27E-04	2.78E+00	1.04E+00	3.61E+00	3.49E-02	6.19E-03	1.65E-03	2.06E-02	1.13E-02	2.80E+00	2.40E-01
2002	1	19	5.35E-02	0.00E+00	7.81E-04	0.00E+00	0.00E+00	3.89E-01	3.17E-01	5.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.29E-01	7.40E-02
2002	1	20	5.98E-02	0.00E+00	1.10E-02	0.00E+00	0.00E+00	5.38E-01	2.93E-01	7.66E-01	3.88E-03	2.97E-06	0.00E+00	2.49E-03	9.33E-04	6.18E-01	9.00E-02
2002	1	21	9.68E-02	0.00E+00	7.25E-02	0.00E+00	0.00E+00	1.15E+00	5.48E-01	2.06E+00	1.22E-03	8.51E-06	2.07E-08	1.63E-03	1.72E-04	1.36E+00	1.99E-01
2002	1	22	2.44E-02	0.00E+00	1.24E-01	0.00E+00	0.00E+00	1.74E+00	6.46E-01	2.62E+00	8.62E-03	8.00E-04	4.91E-05	9.56E-03	3.57E-03	2.18E+00	7.48E-02
2002	1	23	9.11E-02	0.00E+00	1.69E-02	0.00E+00	0.00E+00	7.72E-01	3.57E-01	1.22E+00	1.40E-03	7.94E-06	0.00E+00	7.23E-04	1.56E-04	8.53E-01	1.10E-01
2002	1	24	2.33E-01	0.00E+00	2.26E-02	0.00E+00	4.14E-08	9.25E-01	1.54E-01	5.37E-01	2.73E-02	5.60E-03	6.48E-05	4.35E-03	7.52E-03	6.38E-01	4.77E-01
2002	1	25	4.99E-01	1.48E-02	1.90E-01	7.26E-03	8.23E-03	1.54E+00	5.29E-01	2.20E+00	6.46E-02	2.56E-02	2.01E-02	2.81E-02	2.66E-02	1.70E+00	6.96E-01
2002	1	26	1.11E+00	6.47E-04	2.16E-01	1.01E-03	7.96E-03	1.49E+00	9.37E-01	3.01E+00	6.78E-02	3.20E-02	1.86E-02	2.18E-02	2.86E-02	2.70E+00	1.64E+00
2002	1	27	1.83E+00	2.22E-02	6.91E-01	1.56E-02	2.28E-02	4.74E+00	2.00E+00	5.00E+00	1.51E-01	5.29E-02	4.08E-02	6.05E-02	5.19E-02	5.00E+00	2.41E+00
2002	1	28	3.78E-01	8.89E-04	2.35E-01	3.91E-04	6.91E-04	4.37E+00	1.43E+00	5.87E+00	6.16E-02	1.02E-02	2.97E-03	3.47E-02	1.96E-02	4.99E+00	5.06E-01
2002	1	29	2.75E-01	1.61E-05	8.52E-02	9.37E-07	4.41E-06	2.85E+00	7.82E-01	3.45E+00	4.54E-02	2.07E-03	1.66E-04	1.45E-02	8.03E-03	3.18E+00	3.65E-01
2002	1	30	2.54E-01	2.02E-06	2.03E-02	0.00E+00	7.41E-08	1.83E+00	5.79E-01	2.20E+00	1.55E-02	6.13E-04	3.97E-05	1.00E-02	2.95E-03	1.73E+00	3.68E-01
2002	1	31	3.37E-01	0.00E+00	7.37E-02	0.00E+00	9.49E-08	1.71E+00	3.43E-01	1.43E+00	3.16E-02	2.53E-03	2.17E-05	8.95E-03	7.37E-03	1.10E+00	5.15E-01
2002	2	1	1.41E-01	0.00E+00	1.28E-02	0.00E+00	0.00E+00	7.91E-01	4.26E-01	1.25E+00	1.87E-07	0.00E+00	0.00E+00	1.68E-03	4.43E-05	1.04E+00	2.59E-01
2002	2	2	5.87E-02	0.00E+00	5.92E-03	0.00E+00	0.00E+00	5.43E-01	3.29E-01	7.07E-01	7.05E-06	0.00E+00	0.00E+00	1.78E-03	3.93E-05	6.24E-01	1.09E-01
2002	2	3	4.68E-02	0.00E+00	5.61E-03	0.00E+00	0.00E+00	4.03E-01	2.66E-01	5.99E-01	0.00E+00	0.00E+00	0.00E+00	1.26E-03	1.22E-05	5.55E-01	8.12E-02
2002	2	4	7.58E-02	0.00E+00	1.89E-02	0.00E+00	0.00E+00	9.57E-01	3.71E-01	1.40E+00	6.09E-04	4.95E-05	1.69E-06	8.94E-04	1.99E-04	9.60E-01	1.14E-01
2002	2	5	2.41E-01	9.71E-08	2.55E-02	1.86E-07	1.90E-04	5.71E-01	3.28E-01	1.25E+00	2.33E-02	5.78E-03	1.11E-03	2.97E-03	4.94E-03	7.84E-01	3.79E-01
2002	2	6	3.56E-01	3.22E-05	6.30E-02	6.62E-04	2.74E-03	1.55E+00	4.06E-01	1.08E+00	3.92E-02	9.86E-03	3.54E-03	1.26E-02	8.27E-03	1.04E+00	5.51E-01
2002	2	7	9.33E-01	1.91E-03	4.19E-01	3.14E-04	4.92E-04	2.13E+00	4.43E-01	2.11E+00	5.27E-02	8.72E-03	2.65E-03	1.60E-02	1.20E-02	1.55E+00	1.19E+00
2002	2	8	2.38E+00	2.01E-02	1.29E+00	6.17E-03	6.66E-03	4.04E+00	1.09E+00	4.04E+00	9.92E-02	2.24E-02	1.68E-02	3.17E-02	2.48E-02	3.48E+00	2.90E+00
2002	2	9	2.58E-01	3.44E-04	1.01E-01	1.41E-04	1.76E-04	2.36E+00	7.18E-01	2.68E+00	4.25E-02	2.19E-03	3.06E-04	2.00E-02	8.25E-03	2.29E+00	3.44E-01
2002	2	10	7.25E-02	0.00E+00	2.59E-02	0.00E+00	9.56E-06	6.23E-01	2.12E-01	6.81E-01	1.15E-03	3.55E-04	6.56E-05	4.01E-03	2.60E-03	5.35E-01	1.04E-01
2002	2	11	1.21E-01	0.00E+00	2.39E-02	0.00E+00	0.00E+00	8.30E-01	2.08E-01	1.37E+00	5.23E-04	0.00E+00	0.00E+00	3.66E-05	7.28E-07	9.31E-01	2.80E-01
2002	2	12	4.85E-01	0.00E+00	2.65E-01	0.00E+00	0.00E+00	1.91E+00	5.00E-01	2.35E+00	5.01E-03	9.96E-06	0.00E+00	2.69E-03	6.02E-04	2.24E+00	5.99E-01
2002	2	13	1.03E-01	0.00E+00	3.64E-02	0.00E+00	0.00E+00	9.03E-01	2.61E-01	1.19E+00	6.87E-05	0.00E+00	0.00E+00	1.50E-03	2.02E-04	9.84E-01	2.72E-01
2002	2	14	2.79E-01	2.56E-06	3.94E-02	0.00E+00	6.65E-08	1.58E+00	3.62E-01	2.47E+00	1.45E-02	1.42E-03	2.06E-04	1.06E-02	4.32E-03	1.80E+00	3.28E-01
2002	2	15	1.41E-01	0.00E+00	3.03E-02	0.00E+00	0.00E+00	1.27E+00	5.87E-01	1.99E+00	2.35E-02	3.62E-04	0.00E+00	1.54E-02	5.88E-03	1.43E+00	2.63E-01
2002	2	16	1.75E-01	1.16E-04	1.39E-01	7.59E-06	6.72E-05	2.54E+00	8.19E-01	2.84E+00	3.95E-02	5.07E-03	8.06E-04	1.76E-02	1.08E-02	2.47E+00	2.17E-01
2002	2	17	3.61E-01	2.72E-05	3.18E-01	2.63E-07	8.63E-06	2.20E+00	1.07E+00	2.66E+00	4.78E-02	5.65E-03	7.42E-04	1.79E-02	1.23E-02	3.02E+00	7.26E-01
2002	2	18	2.87E-01	3.02E-04	1.57E-01	1.50E-05	9.07E-05	1.88E+00	9.21E-01	2.66E+00	2.22E-02	4.25E-03	1.26E-03	8.86E-03	6.55E-03	2.69E+00	4.37E-01
2002	2	19	1.23E-01	4.41E-06	8.16E-02	3.92E-05	2.89E-04	1.00E+00	5.87E-01	1.80E+00	3.72E-02	5.54E-03	6.07E-04	1.89E-02	1.38E-02	1.28E+00	2.70E-01
2002	2	20	1.14E-01	0.00E+00	9.80E-03	0.00E+00	0.00E+00	7.28E-01	5.49E-01	1.15E+00	1.07E-04	2.63E-06	0.00E+00	2.50E-03	3.96E-04	1.11E+00	2.11E-01
2002	2	21	1.79E-01	4.76E-06	8.55E-03	2.65E-04	5.79E-04	9.58E-01	3.92E-01	6.64E-01	1.41E-02	2.48E-03	1.96E-04	4.87E-03	6.41E-03	8.10E-01	3.30E-01
2002	2	22	5.03E-01	4.45E-06	2.78E-01	5.73E-09	2.93E-06	1.55E+00	1.72E-01	7.78E-01	2.39E-02	4.30E-03	3.91E-04	1.20E-02	1.24E-02	1.42E+00	8.09E-01
2002	2	23	9.15E-01	0.00E+00	4.66E-01	0.00E+00	0.00E+00	9.19E-01	3.72E-03	7.45E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.82E+00	1.11E+00
2002	2	24	2.66E+00	3.46E-04	1.53E+00	6.63E-05	1.47E-04	3.57E+00	2.93E-01	3.25E+00	2.44E-02	3.18E-03	1.16E-03	9.49E-03	5.18E-03	4.23E+00	2.81E+00
2002	2	25	6.96E-01	1.15E-03	6.92E-01	2.07E-04	5.14E-04	3.67E+00	1.39E+00	6.77E+00	5.48E-02	8.99E-03	3.05E-03	2.86E-02	1.57E-02	6.16E+00	1.13E+00
2002	2	26	4.43E-02	0.00E+00	6.52E-04	0.00E+00	0.00E+00	4.71E-01	2.20E-01	5.57E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.71E-01	7.58E-02
2002	2	27	7.02E-02	0.00E+00	1.29E-02	0.00E+00	0.00E+00	9.67E-01	5.36E-01	1.82E+00	1.32E-03	0.00E+00	0.00E+00	1.00E-03	5.46E-05	1.37E+00	1.48E-01
2002	2	28	1.86E+00	3.02E-03	1.03E+00	1.48E-03	2.20E-03	3.86E+00	6.46E-01	3.38E+00	5.28E-02	1.40E-02	6.89E-03	1.97E-02	1.65E-02	3.27E+00	1.98E+00
2002	3	1	1.90E+00	7.43E-03	7.28E-01	2.01E-03	4.00E-03	3.78E+00	3.13E-01	3.52E+00	6.11E-02	1.89E-02	1.17E-02	2.78E-02	2.21E-02	2.87E+00	2.07E+00
2002	3	2	3.50E-01	1.00E-05	7.85E-02	0.00E+00	0.00E+00	2.89E+00	4.77E-01	3.94E+00	1.06E-02	3.61E-04	5.08E-05	6.98E-03	1.30E-03	2.18E+00	5.89E-01
2002	3	3	5.25E-02	0.00E+00	3.88E-04	0.00E+00	0.00E+00	3.88E-01	2.40E-01	5.48E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.53E-01	8.56E-02
2002	3	4	1.78E-01	5.47E-03	2.50E-02	1.84E-03	5.85E-03	3.94E-01	3.04E-01	6.45E-01	9.75E-03	4.06E-03	9.56E-03	5.58E-03	3.77E-03	7.11E-01	2.46E-01
2002	3	5	6.70E-01	1.01E-03	4.23E-01	8.16E-04	5.60E-04	7.84E-01	2.43E-03	1.12E+00	3.15E-04	2.78E-04	4.88E-04	1.09E-04	1.59E-04	1.79E+00	7.91E-01
2002	3	6	1.08E+00	0.00E+00	4.53E-01	0.00E+00	0.00E+00	1.02E+00	3.77E-03	6.31E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E+00	1.32E+00
2002	3	7	2.02E+00	7.64E-03	9.88E-01	1.41E-03	5.35E-04	2.12E+00	9.08E-02	2.02E+00	1.03E-02	1.17E-03	2.06E-03	8.56E-04	5.89E-04	2.87E+00	2.54E+00
2002	3	8	2.58E+00	5.71E-03	1.50E+00	5.99E-03	9.36E-03	4.39E+00	4.22E-01	4.04E+00	8.38E-02	2.29E-02	1.21E-02	3.46E-02	3.25E-02	4.38E+00	2.98E+00
2002	3	9	2.74E+00	6.86E-03	1.02E+00	2.77E-03	3.27E-03	3.65E+00	1.10E+00	6.07E+00	7.55E-02	1.36E-02	7.33E-03	2.85E-02	1.93E-02	5.56E+00	3.55E+00
2002	3	10	5.08E-01	3.45E-03	9.10E-02	2.45E-03	4.04E-03	2.94E+00	4.20E-01	2.00E+00	9.76E-02	2.09E-02	8.52E-03	3.49E-02	2.91E-02	1.23E+00	8.02E-01
2002	3	11	8.31E-02	0.00E+00	7.27E-03	0.00E+00	0.00E+00	6.98E-01	1.21E-01	3.23E-01	4.70E-03	7.08E-04	3.18E-06	4.82E-03	3.60E-03	3.60E-01	1.66E-01
2002	3	12	9.16E-02	0.00E+00	1.68E-02	0.00E+00	0.00E+00	7.80E-01	1.72E-01	6.14E-01	2.99E-03	1.58E-05	0.00E+00	5.71E-03	2.18E-03	5.25E-01	1.56E-01
2002	3	13	4.37E-01	1.80E-05	9.62E-02	1.06E-06	4.48E-04	1.71E+00	4.68E-01	2.25E+00	3.83E-02	8.81E-03	1.81E-03	1.66E-02	1.24E-02	1.66E+00	6.84E-01
2002	3	14	3.33E-01	2.61E-05	1.16E-01	1.17E-06	1.82E-05	2.46E+00	9.29E-01	2.27E+00	3.53E-02	3.55E-03	4.19E-04	2.00E-02	1.03E-02	2.66E+00	4.48E-01
2002	3	15	6.84E-01	9.38E-03	8.76E-02	4.93E-03	7.18E-03	1.59E+00	3.28E-01	2.18E+00	4.99E-02	1.68E-02	1.18E-02	2.71E-02	2.13E-02	1.54E+00	9.05E-01
2002	3	16	1.41E+00	4.44E-04	6.33E-01	3.77E-07	0.00E+00	1.52E+00	2.92E-02	1.03E+00	2.03E-03	2.81E-05	2.86E-05	6.80E-06	8.35E-06	1.82E+00	1.45E+00
2002	3	17	1.56E+00	1.49E-03	6.79E-01	6.46E-05	1.89E-05	1.80E+00	6.93E-02	2.05E+00	4.92E-03	1.52E-04	1.87E-04	7.21E-05	6.01E-05	2.07E+00	1.83E+00
2002	3	18	1.72E+00	8.62E-03	6.23E-01	9.97E-03	1.18E-02	1.59E+00	1.43E-01	1.67E+00	1.91E-02	1.14E-02	1.28E-02	6.65E-03	7.64E-03	2.62E+00	2.29E+00
2002	3	19	8.48E-01	0.00E+00	5.25E-01	0.00E+00	0.00E+00	9.71E-01	2.42E-03	8.73E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E+00	1.00E+00
2002	3	20	2.28E+00	1.09E-04	1.41E+00	2.97E-07	5.61E-06	2.83E+00	2.08E-02	1.71E+00	1.59E-02	1.35E-03	3.71E-04	2.90E-03	1.97E-03	2.42E+00	2.26E+00
2002	3	21	2.93E+00	4.01E-03	1.73E+00	1.28E-03	2.60E-03	4.28E+00	1.13E+00	5.63E+00	5.00E-02	1.58E-02	8.10E-03	3.74E-02	2.36E-02	5.57E+00	3.33E+00
2002	3	22	2.25E+00	3.24E-03	1.63E+00	6.95E-04	1.68E-03	4.60E+00	1.48E+00	6.18E+00	9.68E-02	2.06E-02	8.92E-03	4.60E-02	3.06E-02	5.30E+00	2.65E+00
2002	3	23	3.45E+00	3.32E-03	2.04E+00	4.44E-04	9.61E-04	2.95E+00	5.31E-01	4.22E+00	7.81E-02	1.43E-02	6.30E-03	2.77E-02	1.96E-02	4.85E+00	4.01E+00
2002	3	24	2.60E+00	5.23E-02	1.74E+00	3.88E-02	4.29E-02	4.72E+00	2.15E+00	7.08E+00	1.94E-01	7.82E-02	6.31E-02	1.07E-01	8.63E-02	7.08E+00	3.52E+00
2002	3	25	6.48E-01	4.41E-03	1.18E-01	2.98E-03	8.62E-03	2.56E+00	8.88E-01	3.38E+00	6.12E-02	2.50E-02	1.68E-02	3.71E-02	2.99E-02	3.50E+00	8.32E-01
2002	3	26	2.25E-02	9.94E-07	6.24E-02	0.00E+00	1.02E-08	1.08E+00	3.40E-01	1.37E+00	2.87E-02	1.09E-03	2.78E-05	1.32E-02	4.87E-03	1.32E+00	1.63E-01
2002	3	27	7.42E-02	0.00E+00	2.99E-03	0.00E+00	0.00E+00	6.09E-01	3.30E-01	1.10E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-04	0.00E+00	7.12E-01	1.34E-01
2002	3	28	5.33E-02	0.00E+00	3.15E-02	0.00E+00	0.00E+00	8.01E-01	3.39E-01	1.75E+00	4.52E-03	3.98E-05	4.81E-07	3.54E-04	1.22E-04	1.49E+00	9.25E-02
2002	3	29	5.53E-01	1.26E-05	3.28E-01	1.24E-06	5.55E-06	1.83E+00	1.25E+00	2.31E+00	2.22E-02	2.05E-03	1.36E-04	1.25E-02	5.48E-03	2.54E+00	8.23E-01
2002	3	30	6.76E-01	3.24E-04	2.36E-01	3.65E-05	1.08E-04	1.41E+00	9.01E-01	2.28E+00	7.20E-02	2.05E-02	2.10E-03	3.53E-02	3.21E-02	2.49E+00	1.07E+00
2002	3	31	2.64E-01	2.67E-05	8.56E-02	1.20E-05	3.36E-05	8.05E-01	8.20E-01	1.00E+00	9.37E-03	8.71E-04	1.41E-04	8.07E-03	2.51E-03	9.97E-01	4.06E-01

Project

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	1	1	2.27E-02	4.51E-05	4.03E-06	8.63E-02	4.36E-01	4.00E-05	7.57E-02	1.85E+00	8.85E-03	7.90E+00	1.13E+00	8.42E-01	1.23E+00	1.82E-01	1.15E-01
2002	1	2	3.30E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-04	2.04E-02	6.64E-01	4.75E-17	1.71E+00	2.07E-02	6.49E-01	2.80E-01	1.88E-02	5.95E-02
2002	1	3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.89E-02	4.91E-01	1.64E-16	2.64E+00	4.45E-03	5.43E-01	1.94E-01	0.00E+00	0.00E+00
2002	1	4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.42E-02	6.17E-01	3.83E-17	3.47E+00	1.68E-03	6.00E-01	2.75E-01	7.14E-03	0.00E+00
2002	1	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.34E-02	7.99E-01	1.07E-15	5.70E+00	2.16E-03	8.66E-01	2.62E-01	3.14E-02	0.00E+00
2002	1	6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.65E-04	0.00E+00	1.53E-03	3.28E-01	3.19E-18	9.69E-01	1.27E-01	4.24E-01	2.84E-01	0.00E+00	0.00E+00
2002	1	7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.45E-04	0.00E+00	4.59E-04	8.44E-01	0.00E+00	9.83E-01	2.77E-01	6.47E-04	2.92E-01	5.64E-02	0.00E+00
2002	1	8	1.38E-03	0.00E+00	0.00E+00	0.00E+00	2.70E-04	4.88E-05	3.58E-02	1.00E+00	2.44E-04	2.02E+00	6.37E-02	5.33E-01	3.42E-01	1.21E-02	5.84E-03
2002	1	9	2.91E-02	0.00E+00	2.23E-04	0.00E+00	0.00E+00	3.56E-03	5.65E-02	4.39E-01	1.00E-05	6.58E+00	4.19E-07	4.36E-01	1.21E+00	8.75E-02	7.70E-02
2002	1	10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.48E-02	3.10E-01	3.27E-15	1.80E+00	6.32E-03	4.83E-01	1.82E-01	2.93E-04	0.00E+00
2002	1	11	8.79E-02	8.67E-02	1.09E-02	1.93E-01	5.65E-01	2.69E-02	4.49E-01	1.19E+00	1.02E-01	7.94E+00	2.48E+00	2.79E+00	3.23E+00	1.81E-01	1.45E-01
2002	1	12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-03	0.00E+00	1.92E-02	2.53E-01	2.17E-17	1.03E+00	6.80E-02	1.73E-01	1.91E-01	0.00E+00	0.00E+00
2002	1	13	2.68E-02	5.25E-06	4.92E-04	1.41E-06	4.93E-06	1.77E-03	6.63E-02	9.32E-01	7.64E-02	3.07E+00	2.85E-04	9.90E-01	1.07E+00	3.15E-02	9.58E-02
2002	1	14	1.99E-01	1.16E-01	1.08E+00	1.08E-02	6.68E-02	6.71E-01	7.52E-02	8.07E-01	9.93E+00	4.65E+00	1.31E+00	8.53E-01	1.26E+00	1.42E-01	3.64E-01
2002	1	15	1.22E-01	3.49E-06	6.68E-03	9.76E-13	4.43E-10	3.45E-02	2.57E-01	1.45E+00	2.45E-01	9.13E+00	1.07E-04	3.79E+00	3.81E+00	1.59E-01	2.96E-01
2002	1	16	1.16E-02	0.00E+00	2.46E-03	0.00E+00	0.00E+00	1.36E-02	1.45E-01	1.36E+00	1.31E-03	9.82E+00	6.82E-05	1.51E+00	1.07E+00	2.20E-02	1.02E-02
2002	1	17	8.33E-04	3.46E-04	1.26E-04	3.51E-04	1.08E-03	1.68E-04	2.32E-01	1.67E+00	1.48E-03	1.12E+01	4.58E-02	2.57E+00	1.33E+00	5.12E-02	9.57E-04
2002	1	18	2.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-03	8.75E-02	9.92E-01	3.01E-05	4.82E+00	2.35E-03	6.72E-01	8.08E-01	4.99E-02	9.16E-03
2002	1	19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.12E-02	4.92E-01	1.47E-16	2.19E+00	5.40E-03	4.65E-01	2.07E-01	0.00E+00	0.00E+00
2002	1	20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E-10	0.00E+00	1.96E-02	4.30E-01	8.79E-18	1.54E+00	3.70E-02	3.47E-01	2.10E-01	0.00E+00	0.00E+00
2002	1	21	5.05E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.04E-05	3.48E-02	1.10E+00	1.42E-05	2.36E+00	1.71E-02	6.48E-01	2.13E-01	6.22E-03	7.73E-02
2002	1	22	1.73E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.06E-02	9.87E-01	8.18E-19	2.16E+00	3.29E-02	6.37E-01	3.12E-01	2.01E-02	7.04E-03
2002	1	23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.91E-02	5.94E-01	1.24E-17	2.64E+00	1.18E-02	4.53E-01	1.78E-01	1.14E-02	0.00E+00
2002	1	24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.77E-05	0.00E+00	1.71E-03	7.87E-02	5.02E-18	6.88E-01	9.96E-02	9.96E-02	1.85E-01	0.00E+00	0.00E+00
2002	1	25	2.67E-02	8.06E-01	2.02E-02	6.65E-02	3.83E-02	2.86E-02	2.92E-02	2.25E-01	2.69E-01	1.84E+00	6.54E-01	1.29E-01	3.06E-01	2.78E-02	3.16E-02
2002	1	26	1.33E-02	6.36E-03	1.24E-03	1.40E-02	1.72E-01	4.41E-03	1.46E-02	2.56E-01	2.53E-02	1.89E+00	2.62E+00	2.85E-02	1.89E-01	2.66E-02	2.73E-02
2002	1	27	1.66E-01	8.86E-01	1.53E-02	3.50E-01	4.74E-01	7.62E-02	6.21E-02	9.03E-01	1.22E+00	2.94E+00	6.07E+00	2.99E-01	4.21E-01	8.22E-02	2.54E-01
2002	1	28	2.90E-02	1.82E-02	4.77E-03	7.35E-03	1.49E-02	7.10E-03	2.02E-01	1.71E+00	1.61E-01	6.66E+00	6.65E-02	1.37E+00	1.03E+00	1.06E-01	4.59E-02
2002	1	29	8.13E-03	0.00E+00	1.02E-03	0.00E+00	0.00E+00	2.57E-03	8.29E-02	1.44E+00	1.12E-03	5.38E+00	3.34E-03	7.89E-01	5.34E-01	3.58E-02	2.69E-02
2002	1	30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.32E-02	1.41E+00	7.21E-17	2.45E+00	2.14E-03	9.33E-01	2.05E-01	1.37E-02	0.00E+00
2002	1	31	3.29E-02	0.00E+00	0.00E+00	0.00E+00	1.63E-06	5.00E-04	2.24E-02	3.59E-01	1.99E-05	2.01E+00	9.79E-02	3.03E-01	3.70E-01	5.80E-03	1.07E-01
2002	2	1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.47E-12	0.00E+00	4.79E-02	9.07E-01	1.98E-17	3.30E+00	2.14E-02	5.30E-01	2.75E-01	1.24E-03	0.00E+00
2002	2	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-02	6.73E-01	1.89E-16	1.61E+00	1.59E-02	5.11E-01	1.93E-01	0.00E+00	0.00E+00
2002	2	3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.03E-12	0.00E+00	1.88E-02	2.72E-01	2.89E-16	1.62E+00	3.90E-02	3.98E-01	1.76E-01	0.00E+00	0.00E+00
2002	2	4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.05E-02	5.56E-01	5.14E-13	3.61E+00	3.56E-03	4.37E-01	3.18E-01	4.09E-02	0.00E+00
2002	2	5	8.02E-04	0.00E+00	8.83E-05	0.00E+00	5.80E-03	6.62E-04	1.05E-02	2.55E-01	1.88E-03	1.22E+00	3.26E-01	2.05E-01	2.18E-01	1.17E-02	2.52E-03
2002	2	6	5.25E-02	1.87E-08	1.29E-04	3.37E-02	2.75E-01	2.08E-03	8.08E-03	3.61E-01	1.79E-03	1.86E+00	1.35E+00	3.39E-01	1.61E-01	1.65E-04	1.19E-01
2002	2	7	1.51E-01	1.35E-01	9.14E-03	2.27E-02	3.28E-02	1.19E-02	3.68E-04	2.54E-01	4.58E-01	1.29E+00	6.83E-01	3.55E-02	3.25E-01	2.10E-03	1.94E-01
2002	2	8	7.91E-01	4.93E-01	1.77E-01	1.80E-01	2.50E-01	2.58E-01	4.01E-01	1.09E+00	2.05E+00	2.93E+00	4.07E+00	1.28E+00	1.63E+00	5.08E-01	1.15E+00
2002	2	9	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.94E-02	1.32E+00	3.49E-16	5.05E+00	8.33E-03	1.16E+00	1.78E-01	2.78E-02	0.00E+00
2002	2	10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.42E-03	0.00E+00	1.56E-02	1.47E-01	1.01E-16	1.20E+00	1.05E-01	2.56E-01	2.18E-01	4.81E-02	0.00E+00
2002	2	11	6.33E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-02	4.39E-01	6.69E-14	3.40E+00	6.13E-04	4.40E-01	7.30E-01	5.48E-03	1.10E-02
2002	2	12	5.54E-02	2.83E-07	1.65E-02	0.00E+00	3.18E-08	8.56E-02	3.24E-02	6.15E-01	1.12E-03	4.88E+00	1.24E-03	3.68E-01	8.12E-01	1.86E-02	1.21E-01
2002	2	13	4.41E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-12	2.11E-02	4.77E-01	7.76E-06	2.45E+00	1.15E-02	4.51E-01	3.41E-01	1.32E-02	5.64E-03
2002	2	14	1.72E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.81E-02	5.97E-01	1.84E-07	3.38E+00	4.24E-05	5.32E-01	5.56E-01	1.08E-02	3.26E-05
2002	2	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.90E-02	1.03E+00	4.03E-17	4.04E+00	4.36E-03	6.79E-01	2.64E-01	3.52E-02	0.00E+00
2002	2	16	6.09E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.56E-02	1.17E+00	5.18E-18	3.57E+00	3.75E-02	6.53E-01	2.56E-01	5.65E-02	2.02E-02
2002	2	17	7.38E-02	0.00E+00	3.13E-03	0.00E+00	0.00E+00	1.28E-02	5.09E-02	9.25E-01	6.00E-03	4.35E+00	1.78E-02	9.84E-01	3.02E-01	4.13E-02	1.82E-01
2002	2	18	1.75E-02	0.00E+00	7.81E-05	0.00E+00	0.00E+00	2.72E-03	4.02E-02	1.52E+00	7.49E-17	2.57E+00	2.07E-02	7.95E-01	3.85E-01	2.63E-02	7.29E-02
2002	2	19	2.36E-02	0.00E+00	1.78E-05	1.19E-05	3.93E-02	1.26E-04	2.06E-02	8.54E-01	8.15E-05	1.78E+00	4.38E-01	3.34E-01	4.53E-01	3.66E-03	5.42E-02
2002	2	20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.93E-02	9.72E-01	6.37E-18	3.97E+00	3.48E-02	6.54E-01	3.36E-01	4.58E-03	0.00E+00
2002	2	21	0.00E+00	0.00E+00	0.00E+00	9.50E-02	9.52E-02	0.00E+00	3.24E-02	2.85E-01	0.00E+00	2.96E+00	8.19E-01	4.99E-01	3.11E-01	9.17E-04	0.00E+00
2002	2	22	1.72E-02	1.02E-05	3.99E-02	0.00E+00	4.55E-12	6.99E-02	1.65E-02	2.92E-02	9.42E-01	1.25E+00	4.57E-02	1.09E-01	4.38E-01	1.69E-02	2.46E-02
2002	2	23	0.00E+00	0.00E+00	3.40E-02	0.00E+00	0.00E+00	3.54E-02	0.00E+00	0.00E+00	2.20E+00	7.98E-04	0.00E+00	0.00E+00	9.09E-25	0.00E+00	0.00E+00
2002	2	24	7.40E-01	5.01E-07	7.94E-01	0.00E+00	9.23E-14	4.99E-01	1.41E-02	2.72E-01	2.70E+00	2.73E-03	1.18E-05	1.13E-03	3.85E-04	7.17E-02	1.11E+00
2002	2	25	6.06E-01	1.67E-05	2.66E-01	0.00E+00	0.00E+00	6.05E-01	2.21E-01	1.09E+00	1.12E+00	5.37E+00	2.14E-02	9.48E-01	1.40E+00	5.08E-01	7.29E-01
2002	2	26	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-02	7.65E-01	2.91E-12	2.72E+00	2.13E-03	6.74E-01	6.28E-01	1.25E-15	0.00E+00
2002	2	27	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.73E-02	7.57E-01	2.83E-16	4.56E+00	4.25E-03	9.92E-01	1.06E+00	2.85E-04	0.00E+00
2002	2	28	4.86E-01	2.65E-01	1.36E-01	3.31E-02	4.06E-02	2.27E-01	3.95E-02	6.92E-01	3.97E-01	1.08E+00	1.14E+00	3.46E-01	3.43E-01	3.65E-02	7.88E-01
2002	3	1	3.41E-01	2.68E-01	4.45E-01	7.12E-02	1.69E-01	5.85E-01	4.53E-02	4.51E-01	1.77E+00	1.54E+00	7.51E-01	4.39E-01	5.59E-01	8.61E-02	4.85E-01
2002	3	2	3.57E-02	0.00E+00	2.92E-05	0.00E+00	0.00E+00	5.89E-04	2.60E-01	1.23E+00	7.13E-03	4.69E+00	5.41E-06	1.76E+00	1.98E+00	1.10E-01	6.05E-02
2002	3	3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.70E-02	5.40E-01	4.83E-14	2.43E+00	3.54E-04	3.63E-01	2.75E-01	8.89E-04	0.00E+00
2002	3	4	7.43E-05	1.59E-01	7.85E-05	2.12E-02	9.02E-02	2.33E-03	5.37E-03	2.14E-01	6.94E-02	7.14E-01	9.97E-01	1.71E-01	8.26E-02	2.77E-04	8.32E-05
2002	3	5	1.28E-03	6.28E-03	9.31E-02	2.44E-03	1.86E-03	7.81E-02	2.29E-05	4.15E-05	1.85E+00	6.70E-04	1.64E-03	1.73E-04	3.35E-04	3.56E-05	9.00E-03
2002	3	6	0.00E+00	0.00E+00	5.34E-02	0.00E+00	0.00E+00	6.69E-02	0.00E+00	0.00E+00	3.33E+00	1.22E-04	0.00E+00	0.00E+00	3.17E-29	0.00E+00	0.00E+00
2002	3	7	9.74E-02	8.35E-03	4.21E-02	3.16E-05	3.19E-06	8.70E-02	0.00E+00	7.00E-03	5.19E+00	3.41E-05	2.38E-03	7.55E-10	4.69E-06	3.03E-03	1.71E-01
2002	3	8	4.87E-01	2.95E-01	1.00E-01	1.77E-01	3.69E-01	7.27E-02	3.13E-02	3.54E-01	2.57E+00	2.14E+00	1.01E+00	3.41E-01	2.21E-01	5.60E-02	9.46E-01
2002	3	9	1.15E-01	2.54E-01	5.68E-02	4.58E-02	7.67E-02	1.91E-01	4.42E-02	3.94E-01	2.40E-01	3.89E+00	9.15E-01	5.30E-01	1.25E-01	4.29E-02	2.37E-01
2002	3	10	1.42E-02	8.23E-02	1.84E-04	5.15E-02	1.63E-01	9.56E-04	2.12E-03	6.33E-01	2.74E-03	1.07E+00	1.58E+00	7.83E-02	2.63E-01	3.84E-02	2.28E-02
2002	3	11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-06	0.00E+00	3.71E-04	9.03E-03	1.03E-17	6.01E-01	7.01E-02	8.68E-02	1.82E-01	0.00E+00	0.00E+00
2002	3	12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-09	0.00E+00	5.68E-04	2.47E-01	2.00E-21	6.95E-01	5.68E-02	5.81E-02	2.34E-01	3.73E-03	0.00E+00
2002	3	13	1.19E-02	0.00E+00	3.08E-04	0.00E+00	2.46E-05	3.46E-03	1.10E-02	9.18E-01	2.15E-03	1.94E+00	1.37E-01	2.33E-01	3.66E-01	1.27E-02	3.66E-02
2002	3	14	1.10E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.13E-06	8.71E-02	1.31E+00	1.21E-03	5.99E+00	6.02E-03	8.99E-01	3.12E-01	2.06E-02	5.19E-04
2002	3	15	6.88E-03	5.05E-01	5.53E-04	6.42E-02	1.43E-01	2.39E-03	4.64E-04	5.57E-01	1.08E-02	1.04E+00	1.26E+00	5.39E-03	2.06E-01	4.39E-03	3.38E-02
2002	3	16	2.60E-02	3.64E-03	6.65E-02	0.00E+00	0.00E+00	1.22E-01	0.00E+00	0.00E+00	2.13E+00	7.20E-04	1.81E-16	0.00E+00	3.00E-19	0.00E+00	5.12E-02
2002	3	17	9.49E-03	1.01E-03	5.71E-02	7.87E-07	0.00E+00	1.15E-01	0.00E+00	0.00E+00	1.75E+00	2.49E-34	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.74E-02
2002	3	18	0.00E+00	4.13E-01	1.35E-02	1.32E-01	1.27E-01	7.26E-02	0.00E+00	0.00E+00	6.24E+00	3.69E-01	4.15E-01	5.52E-05	6.04E-03	0.00E+00	0.00E+00
2002	3	19	0.00E+00	0.00E+00	8.15E-02	0.00E+00	0.00E+00	1.05E-01	0.00E+00	0.00E+00	2.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2002	3	20	6.03E-01	0.00E+00	2.75E-01	0.00E+00	0.00E+00	1.91E-01	7.49E-05	1.84E-02	7.94E-01	7.17E-04	0.00E+00	6.07E-07	9.19E-08	1.22E-02	9.46E-01
2002	3	21	6.29E-01	1.10E-01	1.21E-01	3.94E-02	1.26E-01	1.13E-01	1.01E-01	6.37E-01	2.48E+00	4.64E+00	7.86E-01	1.01E+00	1.13E+00	9.22E-02	1.08E+00
2002	3	22	2.81E-01	7.62E-03	1.59E-01	1.09E-03	3.04E-03	1.77E-01	3.30E-01	1.16E+00	3.00E+00	8.42E+00	3.07E-02	1.72E+00	2.07E+00	2.58E-01	4.09E-01
2002	3	23	4.28E-01	1.39E-03	1.45E-01	6.32E-07	3.60E-06	9.69E-02	1.41E-03	8.57E-02	2.96E+00	1.17E-03	1.97E-03	1.02E-03	7.89E-04	3.72E-02	7.18E-01
2002	3	24	3.41E-01	1.87E+00	1.28E-01	6.98E-01	6.38E-01	1.78E-01	1.39E-01	1.11E+00	2.85E+00	7.62E+00	3.53E+00	1.30E+00	1.42E+00	1.57E-01	7.73E-01
2002	3	25	4.23E-03	5.72E-03	3.92E-05	5.04E-02	2.60E-01	8.86E-04	1.18E-01	1.42E+00	2.05E-02	7.72E+00	1.60E+00	9.71E-01	1.42E+00	5.58E-02	9.46E-03
2002	3	26	4.93E-03	0.00E+00	1.17E-03	0.00E+00	3.64E-06	2.43E-03	1.22E-02	2.40E-01	1.06E-03	1.73E+00	6.85E-02	3.21E-01	2.23E-01	1.37E-02	1.27E-02
2002	3	27	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.84E-02	6.33E-01	5.05E-17	1.92E+00	1.07E-02	3.82E-01	1.81E-01	0.00E+00	0.00E+00
2002	3	28	5.87E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-04	4.15E-02	7.19E-01	7.30E-07	2.32E+00	5.12E-03	2.97E-01	3.55E-01	2.79E-03	5.00E-03
2002	3	29	3.34E-02	4.70E-06	4.17E-03	5.06E-07	1.86E-06	4.46E-02	1.81E-02	3.40E-01	6.92E-02	5.93E+00	1.61E-02	3.85E-01	5.66E-01	1.72E-02	6.39E-02
2002	3	30	3.44E-02	0.00E+00	1.20E-03	0.00E+00	0.00E+00	6.42E-03	2.47E-02	2.57E-01	7.69E-02	7.39E+00	2.44E-02	5.48E-01	1.53E+00	6.54E-03	7.88E-02
2002	3	31	6.61E-03	0.00E+00	1.13E-04	0.00E+00	2.32E-07	3.05E-03	1.01E-02	1.72E-01	6.93E-01	1.18E+00	2.85E-02	3.59E-01	5.19E-01	1.49E-02	1.07E-02

Table C4 - Timeseries Data for PM10

Application

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	4	1	1.06E+00	9.78E-07	8.13E-01	0.00E+00	0.00E+00	1.47E+00	2.04E-01	2.13E+00	3.60E+00	4.84E-01	1.05E-05	1.78E-01	2.81E-01	2.51E+00	1.34E+00
2002	4	2	3.90E+00	5.35E-01	1.88E+00	2.02E-02	2.25E-02	4.38E+00	1.20E+00	5.65E+00	3.03E+00	7.57E-01	2.25E+00	9.36E-02	1.63E-01	5.78E+00	5.29E+00
2002	4	3	1.15E+00	1.09E-01	6.66E-01	4.79E-02	9.70E-02	4.40E+00	1.94E+00	5.95E+00	7.45E-01	7.82E+00	9.89E-01	1.17E+00	1.36E+00	4.21E+00	1.54E+00
2002	4	4	9.13E-01	6.84E-01	6.16E-01	4.01E-01	4.54E-01	2.85E+00	1.72E+00	4.16E+00	7.94E-01	6.60E+00	3.98E+00	7.12E-01	1.01E+00	3.34E+00	1.37E+00
2002	4	5	2.39E+00	1.33E+00	1.03E+00	3.72E-01	2.22E-01	2.23E+00	6.16E-01	3.50E+00	1.89E+00	1.41E+00	2.40E+00	3.51E-01	2.34E-01	3.93E+00	2.78E+00
2002	4	6	6.87E-02	1.89E-05	2.25E-02	2.36E-06	6.19E-04	5.58E-01	3.01E-01	1.21E+00	8.12E-04	2.17E+00	1.16E-01	4.39E-01	2.19E-01	6.38E-01	1.28E-01
2002	4	7	1.01E+00	4.33E-01	4.89E-01	1.18E-01	2.80E-01	1.13E+00	4.52E-01	2.08E+00	1.02E+00	2.29E+00	1.03E+00	3.12E-01	1.23E-01	2.00E+00	1.19E+00
2002	4	8	1.40E+00	3.74E-01	6.90E-01	5.02E-02	6.39E-02	2.78E+00	2.00E+00	5.46E+00	7.65E-01	5.52E+00	1.30E+00	1.20E+00	7.19E-01	3.75E+00	1.98E+00
2002	4	9	1.10E+00	3.78E-01	5.80E-01	4.14E-02	6.66E-02	2.03E+00	8.37E-01	3.23E+00	7.11E-01	5.28E-01	2.60E+00	1.25E-01	1.54E-01	3.33E+00	1.53E+00
2002	4	10	1.05E-01	2.15E-04	6.22E-02	2.33E-04	3.76E-04	1.01E+00	4.18E-01	1.91E+00	1.24E-02	1.53E+00	2.31E-02	5.42E-01	2.57E-01	1.14E+00	1.48E-01
2002	4	11	5.84E-02	0.00E+00	1.57E-02	0.00E+00	1.25E-05	5.54E-01	2.69E-01	1.42E+00	1.01E-16	1.09E+00	7.60E-02	2.63E-01	2.15E-01	6.47E-01	1.02E-01
2002	4	12	3.90E-02	0.00E+00	1.65E-02	0.00E+00	3.39E-05	5.03E-01	3.05E-01	1.19E+00	4.55E-18	1.11E+00	9.68E-02	2.91E-01	3.28E-01	6.28E-01	5.68E-02
2002	4	13	1.00E-01	0.00E+00	3.44E-02	0.00E+00	2.80E-04	9.48E-01	2.02E-01	1.47E+00	2.73E-02	7.84E-01	1.14E-01	4.97E-02	3.20E-01	8.01E-01	3.36E-01
2002	4	14	5.43E-01	5.81E-04	1.81E-01	5.45E-02	7.39E-02	1.66E+00	3.92E-01	2.28E+00	2.63E-02	9.65E-01	8.65E-01	1.32E-01	2.03E-01	1.33E+00	7.90E-01
2002	4	15	1.62E-01	0.00E+00	3.94E-02	0.00E+00	3.98E-06	7.64E-01	3.23E-01	1.23E+00	5.41E-03	1.15E+00	9.75E-02	2.16E-01	3.85E-01	7.64E-01	2.86E-01
2002	4	16	3.71E-01	1.12E-04	2.66E-01	1.27E-05	9.61E-03	2.84E+00	1.01E+00	5.09E+00	7.14E-02	3.10E+00	3.27E-01	4.62E-01	7.39E-01	2.94E+00	5.01E-01
2002	4	17	2.25E+00	3.98E-03	1.29E+00	3.54E-04	8.71E-04	4.18E+00	1.48E+00	5.45E+00	1.49E+00	4.47E+00	7.63E-03	7.14E-01	8.01E-01	4.58E+00	2.85E+00
2002	4	18	1.34E+00	1.23E-01	7.28E-01	4.77E-03	2.56E-03	1.47E+00	1.61E-01	2.47E+00	3.49E+00	2.70E-03	4.56E-03	2.47E-03	1.86E-03	3.10E+00	1.70E+00
2002	4	19	2.28E+00	6.46E-01	1.40E+00	2.42E-01	4.09E-01	4.00E+00	2.11E+00	6.28E+00	2.63E+00	6.65E+00	2.06E+00	1.21E+00	1.84E+00	5.96E+00	3.42E+00
2002	4	20	7.27E-01	4.91E-02	4.39E-01	4.37E-02	9.56E-02	4.95E+00	2.67E+00	8.34E+00	2.91E-01	1.53E+01	5.35E-01	3.08E+00	4.46E+00	6.37E+00	9.33E-01
2002	4	21	3.01E-01	1.17E-03	1.99E-01	2.33E-04	4.43E-04	2.23E+00	1.02E+00	3.27E+00	4.47E-02	3.91E+00	3.50E-02	6.70E-01	7.81E-01	2.36E+00	5.00E-01
2002	4	22	5.01E-01	0.00E+00	7.28E-02	0.00E+00	1.03E-05	9.77E-01	5.71E-01	1.43E+00	2.96E-01	2.52E+00	5.67E-02	4.56E-01	3.08E-01	1.14E+00	7.04E-01
2002	4	23	8.34E-01	3.17E-04	3.23E-01	1.11E-05	3.31E-04	2.46E+00	9.63E-01	5.43E+00	8.68E-02	6.98E+00	7.21E-02	1.08E+00	1.91E+00	3.77E+00	1.15E+00
2002	4	24	1.44E+00	7.58E-04	8.72E-01	5.83E-05	2.04E-04	3.42E+00	1.52E+00	5.15E+00	1.45E+00	9.58E+00	8.30E-03	1.13E+00	2.18E+00	4.36E+00	1.65E+00
2002	4	25	3.69E+00	3.40E-02	1.96E+00	8.84E-04	9.99E-04	4.09E+00	3.11E-01	5.05E+00	3.32E+00	9.28E-02	1.43E-02	7.58E-02	7.35E-02	6.16E+00	5.09E+00
2002	4	26	2.30E+00	8.13E-07	1.87E+00	0.00E+00	0.00E+00	2.69E+00	5.67E-03	1.77E+00	1.50E+00	1.23E-04	5.89E-05	1.61E-04	1.38E-04	2.12E+00	2.59E+00
2002	4	27	9.34E-01	1.20E-01	6.77E-01	4.14E-02	4.13E-02	2.82E+00	6.64E-01	3.87E+00	1.67E+00	1.55E+00	1.05E+00	2.60E-01	1.29E-01	3.66E+00	1.24E+00
2002	4	28	8.42E-01	3.70E-04	4.72E-01	3.07E-05	1.08E-04	2.17E+00	1.10E+00	4.43E+00	8.24E-02	5.58E+00	4.44E-03	6.79E-01	6.35E-01	3.46E+00	1.61E+00
2002	4	29	4.14E-01	3.00E-03	2.13E-01	1.36E-04	6.45E-04	2.11E+00	7.71E-01	4.00E+00	5.73E-01	6.47E+00	1.07E-02	8.15E-01	1.47E+00	3.53E+00	5.48E-01
2002	4	30	1.23E+00	3.28E-01	7.81E-01	6.52E-03	8.30E-03	1.56E+00	3.18E-01	2.25E+00	2.68E+00	2.09E-01	1.67E-01	4.70E-02	7.37E-02	3.12E+00	1.69E+00
2002	5	1	5.52E+00	3.41E-01	2.65E+00	1.10E-01	2.60E-01	1.18E+01	6.25E+00	1.39E+01	3.54E+00	1.32E+01	2.95E+00	1.58E+00	2.81E+00	1.19E+01	7.76E+00
2002	5	2	1.96E+00	0.00E+00	3.56E-01	0.00E+00	1.90E-05	3.99E+00	3.47E+00	6.01E+00	7.45E-01	3.44E+00	4.66E-01	4.01E-01	5.22E-01	4.65E+00	2.55E+00
2002	5	3	4.08E+00	1.26E-01	1.41E+00	8.96E-02	1.33E-01	4.95E+00	3.57E+00	1.09E+01	1.68E+00	3.94E+00	2.10E+00	1.44E-01	4.80E-01	1.37E+01	5.42E+00
2002	5	4	4.41E+00	6.54E-03	1.02E+00	8.59E-03	1.50E-01	6.30E+00	5.20E+00	1.14E+01	4.10E-01	3.90E+00	2.14E+00	4.25E-01	9.42E-01	1.01E+01	5.30E+00
2002	5	5	5.75E+00	1.91E-02	1.91E+00	2.90E-01	4.86E-01	1.89E+01	6.44E+00	2.07E+01	5.74E-01	3.50E+00	4.37E+00	4.14E-01	1.26E+00	1.78E+01	7.91E+00
2002	5	6	5.14E+00	1.37E-04	2.15E+00	0.00E+00	2.52E-05	1.24E+01	1.45E+00	1.33E+01	1.64E+00	2.60E+00	1.24E-02	5.50E-01	5.37E-01	9.60E+00	5.95E+00
2002	5	7	1.41E+01	3.43E-03	8.84E+00	1.87E-04	8.48E-04	2.19E+01	2.88E+00	2.53E+01	7.19E+00	5.35E-02	1.41E-02	9.40E-02	7.89E-02	2.29E+01	1.45E+01
2002	5	8	2.32E+00	2.25E-01	1.44E+00	1.73E-01	2.76E-01	2.14E+01	7.97E+00	2.63E+01	7.80E-01	1.79E+01	1.25E+00	4.87E+00	7.37E+00	2.74E+01	2.90E+00
2002	5	9	5.09E+00	1.36E+00	2.82E+00	3.19E-01	3.73E-01	2.38E+01	8.58E+00	2.92E+01	1.41E+00	1.62E+01	4.69E+00	1.77E+00	1.36E+00	2.83E+01	6.68E+00
2002	5	10	3.89E+00	4.21E-01	1.75E+00	9.92E-02	2.29E-01	2.38E+01	1.24E+01	2.84E+01	6.15E-01	2.30E+01	5.09E+00	5.12E+00	8.70E+00	2.34E+01	5.16E+00
2002	5	11	1.56E+00	3.98E-03	1.28E+00	4.61E-04	1.37E-03	1.93E+01	5.46E+00	2.45E+01	3.34E-01	1.27E+01	3.12E-02	2.01E+00	1.95E+00	2.02E+01	2.28E+00
2002	5	12	7.75E+00	6.90E-01	2.86E+00	1.63E-01	2.15E-01	2.32E+01	4.53E+00	3.12E+01	1.72E+00	5.60E+00	2.04E+00	9.63E-01	1.38E+00	2.34E+01	1.16E+01
2002	5	13	6.03E+00	9.28E-01	2.52E+00	3.11E-01	7.08E-01	2.16E+01	8.82E+00	2.07E+01	1.55E+00	1.14E+01	5.59E+00	9.11E-01	1.75E+00	1.62E+01	8.87E+00
2002	5	14	1.65E+00	1.31E-03	2.81E-01	6.71E-05	6.77E-04	4.83E+00	1.86E+00	5.75E+00	9.17E-02	3.91E+00	1.12E-01	4.60E-01	7.88E-01	4.64E+00	2.31E+00
2002	5	15	6.02E+00	2.29E-03	2.89E+00	4.15E-04	1.46E-03	1.65E+01	6.56E+00	2.00E+01	7.39E-01	1.49E+01	1.50E-01	1.03E+00	2.74E+00	2.18E+01	7.47E+00
2002	5	16	6.70E+00	6.77E-03	2.73E+00	1.02E-03	2.64E-03	1.99E+01	5.83E+00	1.97E+01	1.95E+00	1.06E+01	4.39E-01	1.01E+00	4.95E-01	2.71E+01	9.05E+00
2002	5	17	1.02E+01	1.06E+00	5.91E+00	1.26E-01	4.17E-01	2.63E+01	4.64E+00	2.25E+01	2.29E+00	6.49E+00	1.96E+00	5.82E-01	6.73E-01	2.72E+01	1.23E+01
2002	5	18	9.49E+00	2.68E-03	4.78E+00	5.76E-05	3.73E-04	1.74E+01	2.69E+00	1.89E+01	2.60E+00	3.13E+00	8.44E-03	7.74E-01	7.18E-01	2.53E+01	1.28E+01
2002	5	19	1.04E+01	2.77E-03	5.99E+00	1.29E-04	5.76E-04	1.26E+01	4.36E-02	9.62E+00	1.79E+00	1.99E-02	5.93E-03	2.82E-02	2.16E-02	1.39E+01	1.12E+01
2002	5	20	8.05E+00	5.41E-02	4.21E+00	8.26E-03	2.16E-02	1.45E+01	4.11E+00	2.21E+01	1.33E+00	5.38E+00	8.77E-02	6.05E-01	1.08E+00	2.27E+01	1.04E+01
2002	5	21	9.30E+00	2.34E-02	3.16E+00	2.40E-02	5.49E-02	1.22E+01	7.47E+00	1.79E+01	1.49E+00	1.44E+01	3.00E-01	1.82E+00	2.25E+00	1.96E+01	1.37E+01
2002	5	22	1.25E+01	2.65E-04	3.73E+00	1.01E-05	4.95E-05	9.93E+00	6.82E-02	1.32E+01	1.96E+00	3.82E-03	9.04E-04	8.37E-03	5.21E-03	8.44E+00	1.41E+01
2002	5	23	7.56E+00	8.17E-02	3.55E+00	1.69E-01	4.58E-01	1.47E+01	4.64E+00	1.91E+01	3.14E+00	1.09E+01	3.43E+00	1.12E+00	2.95E+00	1.45E+01	8.29E+00
2002	5	24	3.78E+00	2.84E-04	2.58E+00	2.82E-05	1.14E-04	1.57E+01	4.54E+00	1.95E+01	2.01E-01	1.21E+01	1.25E-02	1.51E+00	1.84E+00	1.87E+01	4.90E+00
2002	5	25	1.90E+00	2.42E-03	1.36E+00	6.58E-04	1.22E-03	1.72E+01	5.35E+00	2.16E+01	2.87E-01	1.11E+01	1.54E-01	1.38E+00	9.04E-01	1.93E+01	2.12E+00
2002	5	26	6.44E-01	2.87E-04	6.60E-01	1.09E-05	1.16E-04	1.52E+01	4.83E+00	1.92E+01	1.89E-01	1.12E+01	4.87E-02	1.00E+00	1.23E+00	1.84E+01	1.07E+00
2002	5	27	2.20E+00	8.05E-04	1.18E+00	4.92E-06	1.60E-04	1.39E+01	4.33E+00	1.86E+01	3.28E-01	5.74E+00	1.28E-01	8.19E-01	8.87E-01	1.58E+01	3.20E+00
2002	5	28	9.17E-01	2.07E-03	1.03E+00	3.01E-04	1.58E-03	1.30E+01	4.47E+00	1.20E+01	1.50E-01	6.94E+00	2.20E-01	8.71E-01	7.24E-01	1.74E+01	1.52E+00
2002	5	29	8.98E-01	0.00E+00	7.66E-02	0.00E+00	4.99E-07	4.22E+00	7.93E-01	1.61E+00	1.61E-02	1.83E+00	2.58E-01	1.67E-01	4.53E-01	2.59E+00	2.06E+00
2002	5	30	1.86E-01	0.00E+00	1.50E-02	0.00E+00	0.00E+00	3.42E+00	1.73E+00	4.45E+00	1.29E-04	5.32E+00	1.08E-01	6.22E-01	5.71E-01	3.17E+00	3.68E-01
2002	5	31	8.32E-01	1.46E-04	4.65E-01	8.96E-06	1.01E-03	1.03E+01	3.99E+00	1.53E+01	1.22E-01	9.99E+00	2.83E-01	1.51E+00	2.05E+00	1.29E+01	1.17E+00
2002	6	1	5.83E+00	6.86E-01	2.89E+00	1.38E-02	1.79E-02	1.37E+01	3.43E+00	2.14E+01	3.92E+00	8.28E-01	1.80E+00	4.83E-01	4.95E-01	2.10E+01	7.21E+00
2002	6	2	9.40E+00	8.46E-01	3.88E+00	1.95E-02	1.64E-02	1.82E+01	2.64E+00	1.78E+01	5.57E+00	5.10E-01	1.46E+00	2.14E-01	1.54E-01	1.95E+01	1.29E+01
2002	6	3	9.49E+00	7.56E-01	5.33E+00	1.62E-01	2.66E-01	2.30E+01	8.53E+00	2.97E+01	5.91E+00	2.07E+01	3.62E+00	3.37E+00	6.44E+00	2.61E+01	1.36E+01
2002	6	4	4.44E-01	1.57E-03	6.93E-01	4.54E-03	2.87E-02	1.73E+01	3.19E+00	1.56E+01	2.70E-01	7.30E+00	2.51E-01	7.44E-01	9.84E-01	1.54E+01	1.75E+00
2002	6	5	1.22E-01	1.62E-03	5.47E-01	1.56E-04	9.97E-04	9.46E+00	2.45E+00	1.11E+01	2.33E-01	1.74E+00	2.07E-01	2.29E-01	7.13E-01	8.61E+00	7.47E-01
2002	6	6	5.02E-01	0.00E+00	3.82E-01	0.00E+00	0.00E+00	6.66E+00	2.29E+00	9.70E+00	2.06E-02	4.43E+00	5.27E-02	5.14E-01	3.68E-01	8.07E+00	9.47E-01
2002	6	7	1.54E+00	2.49E-05	4.33E-01	1.53E-07	2.72E-03	1.85E+01	4.96E+00	1.98E+01	4.29E-01	8.25E+00	3.13E-01	1.19E+00	7.98E-01	1.49E+01	2.04E+00
2002	6	8	7.14E+00	2.01E-03	4.80E+00	1.47E-04	5.11E-04	1.61E+01	3.10E+00	1.78E+01	4.20E+00	7.23E-01	5.99E-03	2.81E-01	2.72E-01	1.50E+01	8.64E+00
2002	6	9	7.10E+00	4.56E-11	3.76E+00	0.00E+00	5.46E-16	1.39E+01	3.97E-03	1.31E+01	4.64E+00	6.05E-05	3.45E-07	6.35E-04	2.01E-04	1.32E+01	9.68E+00
2002	6	10	7.29E+00	2.36E-03	4.15E+00	7.80E-04	5.43E-03	1.64E+01	4.19E+00	1.92E+01	4.91E+00	6.88E+00	8.17E-02	1.03E+00	1.24E+00	1.56E+01	1.11E+01
2002	6	11	2.58E+00	5.96E-01	9.86E-01	1.00E-01	1.02E-01	1.60E+01	5.28E+00	2.53E+01	5.51E-01	1.40E+01	1.96E+00	2.35E+00	3.56E+00	1.64E+01	3.65E+00
2002	6	12	4.78E+00	5.18E-01	1.43E+00	2.93E-03	4.21E-03	1.79E+01	3.39E+00	2.25E+01	1.62E+00	3.82E+00	2.22E+00	1.02E+00	7.28E-01	1.73E+01	6.53E+00
2002	6	13	7.78E+00	1.70E+00	2.82E+00	3.07E-01	5.39E-01	2.12E+01	5.33E+00	2.45E+01	1.76E+00	4.01E+00	1.12E+01	5.56E-01	1.02E+00	1.78E+01	1.13E+01
2002	6	14	5.26E+00	1.21E+00	2.39E+00	1.94E-01	2.97E-01	2.02E+01	9.53E+00	2.15E+01	2.03E+00	1.06E+01	3.14E+00	1.77E+00	2.80E+00	2.23E+01	6.97E+00
2002	6	15	1.01E+01	1.52E+00	5.60E+00	2.71E-01	2.89E-01	1.99E+01	7.20E+00	2.64E+01	3.64E+00	1.14E+01	5.00E+00	2.04E+00	3.66E+00	2.61E+01	1.33E+01
2002	6	16	1.34E+00	2.96E-01	5.66E-01	1.23E-01	2.11E-01	1.30E+01	5.74E+00	1.31E+01	3.00E-01	5.68E+00	2.76E+00	1.08E+00	1.71E+00	1.23E+01	1.97E+00
2002	6	17	7.65E-01	0.00E+00	2.79E-01	0.00E+00	5.32E-09	6.73E+00	1.78E+00	7.99E+00	2.50E-02	3.50E+00	1.80E-01	4.90E-01	5.47E-01	5.69E+00	1.61E+00
2002	6	18	1.29E+00	3.95E-05	3.87E-01	4.03E-04	6.34E-03	1.12E+01	4.13E+00	1.48E+01	3.47E-01	9.42E+00	2.64E-01	9.34E-01	1.71E+00	1.12E+01	2.07E+00
2002	6	19	4.30E+00	3.23E-04	1.63E+00	3.11E-06	4.04E-05	1.25E+01	3.80E+00	2.42E+01	3.75E-01	1.11E+01	3.44E-02	8.44E-01	2.05E+00	1.65E+01	6.79E+00
2002	6	20	1.88E+00	3.75E-02	1.20E+00	1.63E-01	3.46E-01	1.97E+01	8.90E+00	2.34E+01	5.76E-01	2.46E+01	2.33E+00	2.68E+00	4.28E+00	2.10E+01	3.12E+00
2002	6	21	3.41E+00	4.64E-01	1.01E+00	1.98E-01	2.79E-01	2.35E+01	8.39E+00	2.71E+01	1.07E+00	1.74E+01	3.59E+00	4.45E+00	7.17E+00	1.93E+01	5.91E+00
2002	6	22	3.83E+00	5.60E-01	2.38E+00	6.48E-02	7.59E-02	1.43E+01	5.44E+00	1.93E+01	1.35E+00	1.19E+01	8.64E-01	2.45E+00	3.52E+00	2.10E+01	4.74E+00
2002	6	23	8.81E-01	1.53E-03	1.14E+00	1.68E-03	3.66E-03	1.70E+01	4.06E+00	2.13E+01	2.01E-01	9.09E+00	3.62E-01	9.38E-01	8.78E-01	1.96E+01	1.51E+00
2002	6	24	6.33E-01	4.25E-04	6.19E-01	1.04E-05	2.04E-04	8.34E+00	2.58E+00	1.28E+01	1.26E-01	4.63E+00	1.27E-01	4.47E-01	7.01E-01	9.51E+00	1.56E+00
2002	6	25	2.10E+00	3.80E-05	6.71E-01	6.98E-04	9.96E-03	1.83E+01	3.93E+00	2.18E+01	2.03E-01	1.26E+01	2.72E-01	1.40E+00	2.43E+00	1.65E+01	2.60E+00
2002	6	26	2.41E+00	2.27E-02	6.36E-01	1.28E-01	3.27E-01	1.75E+01	5.34E+00	2.28E+01	7.40E-01	1.63E+01	1.34E+00	2.00E+00	4.22E+00	1.52E+01	3.27E+00
2002	6	27	2.13E+00	1.57E-03	5.79E-01	4.57E-04	3.26E-02	1.71E+01	4.15E+00	1.56E+01	3.67E-01	6.04E+00	6.89E-01	8.39E-01	1.00E+00	1.45E+01	3.42E+00
2002	6	28	2.04E+00	2.02E-03	1.31E+00	3.16E-04	2.99E-03	1.09E+01	4.67E+00	1.31E+01	2.89E-01	4.70E+00	5.64E-01	3.21E-01	8.30E-01	1.04E+01	4.44E+00
2002	6	29	5.52E-01	0.00E+00	4.86E-02	0.00E+00	1.96E-04	3.35E+00	1.28E+00	3.87E+00	2.60E-03	2.03E+00	2.66E-01	2.80E-01	4.41E-01	3.16E+00	8.22E-01

Baseline

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	4	1	1.01E+00	9.78E-07	5.15E-01	0.00E+00	0.00E+00	1.30E+00	1.81E-01	2.01E+00	3.02E-03	9.27E-05	1.05E-05	8.40E-04	2.24E-04	2.49E+00	1.20E+00
2002	4	2	3.49E+00	1.29E-02	1.76E+00	3.54E-03	3.82E-03	4.27E+00	1.19E+00	5.46E+00	1.11E-01	2.18E-02	1.23E-02	4.31E-02	2.91E-02	5.76E+00	4.51E+00
2002	4	3	1.08E+00	9.41E-03	6.47E-01	3.08E-03	4.65E-03	4.37E+00	1.82E+00	4.66E+00	1.48E-01	4.00E-02	1.76E-02	7.90E-02	5.61E-02	4.11E+00	1.38E+00
2002	4	4	8.46E-01	3.45E-02	5.85E-01	2.77E-02	3.51E-02	2.80E+00	1.68E+00	3.72E+00	1.70E-01	7.06E-02	5.30E-02	1.12E-01	8.70E-02	3.26E+00	1.22E+00
2002	4	5	2.30E+00	2.50E-02	9.90E-01	1.13E-02	1.03E-02	2.14E+00	5.94E-01	3.13E+00	5.17E-02	2.34E-02	2.10E-02	2.73E-02	2.41E-02	3.91E+00	2.61E+00
2002	4	6	5.30E-02	1.89E-05	2.24E-02	2.36E-06	2.75E-04	5.58E-01	2.85E-01	7.39E-01	7.45E-04	7.78E-04	1.42E-03	8.51E-04	4.83E-04	6.35E-01	1.01E-01
2002	4	7	9.01E-01	9.90E-03	4.79E-01	7.57E-03	1.65E-02	1.12E+00	4.30E-01	1.81E+00	4.06E-02	3.06E-02	2.72E-02	2.02E-02	2.59E-02	1.99E+00	1.02E+00
2002	4	8	1.35E+00	7.43E-03	6.78E-01	2.10E-03	3.91E-03	2.76E+00	1.91E+00	4.46E+00	1.00E-01	3.17E-02	1.58E-02	6.12E-02	4.31E-02	3.71E+00	1.88E+00
2002	4	9	1.05E+00	8.27E-03	5.55E-01	1.40E-03	3.45E-03	1.99E+00	8.32E-01	3.06E+00	1.35E-01	4.21E-02	1.97E-02	7.23E-02	5.56E-02	3.31E+00	1.43E+00
2002	4	10	1.05E-01	2.13E-04	6.22E-02	2.17E-04	3.42E-04	1.01E+00	3.91E-01	1.41E+00	1.23E-02	2.92E-03	9.88E-04	6.70E-03	4.56E-03	1.12E+00	1.47E-01
2002	4	11	5.84E-02	0.00E+00	1.57E-02	0.00E+00	0.00E+00	5.54E-01	2.63E-01	8.80E-01	0.00E+00	0.00E+00	0.00E+00	5.37E-04	4.99E-06	6.46E-01	1.02E-01
2002	4	12	3.90E-02	0.00E+00	1.65E-02	0.00E+00	0.00E+00	5.03E-01	3.01E-01	7.43E-01	0.00E+00	0.00E+00	0.00E+00	4.30E-04	5.78E-06	6.28E-01	5.68E-02
2002	4	13	1.00E-01	0.00E+00	3.44E-02	0.00E+00	5.23E-09	9.48E-01	2.01E-01	9.14E-01	2.73E-02	2.45E-03	2.94E-05	6.20E-03	5.91E-03	7.94E-01	3.36E-01
2002	4	14	5.19E-01	5.72E-04	1.79E-01	5.19E-04	9.52E-04	1.66E+00	3.87E-01	1.64E+00	2.54E-02	5.41E-03	2.38E-03	1.29E-02	8.48E-03	1.29E+00	7.39E-01
2002	4	15	1.59E-01	0.00E+00	3.94E-02	0.00E+00	7.48E-08	7.64E-01	3.08E-01	9.72E-01	5.08E-03	5.00E-04	3.16E-05	7.19E-03	2.01E-03	7.33E-01	2.82E-01
2002	4	16	3.59E-01	9.41E-05	2.65E-01	1.26E-05	1.21E-04	2.84E+00	9.66E-01	4.17E+00	6.95E-02	1.10E-02	1.77E-03	2.80E-02	2.07E-02	2.86E+00	4.65E-01
2002	4	17	1.76E+00	1.07E-03	1.11E+00	1.19E-04	4.08E-04	3.97E+00	1.32E+00	4.81E+00	6.16E-02	1.10E-02	3.76E-03	2.73E-02	1.71E-02	4.41E+00	2.18E+00
2002	4	18	1.31E+00	6.42E-03	6.55E-01	1.90E-03	1.54E-03	1.39E+00	1.61E-01	2.47E+00	2.40E-02	1.72E-03	2.17E-03	2.32E-03	1.59E-03	3.10E+00	1.66E+00
2002	4	19	2.03E+00	2.00E-02	1.29E+00	1.03E-02	1.53E-02	3.86E+00	1.98E+00	5.74E+00	1.22E-01	4.82E-02	3.02E-02	8.49E-02	6.30E-02	5.82E+00	2.95E+00
2002	4	20	6.59E-01	5.91E-03	4.19E-01	2.93E-03	4.97E-03	4.92E+00	2.50E+00	6.67E+00	1.35E-01	3.66E-02	1.52E-02	9.52E-02	5.98E-02	6.17E+00	7.73E-01
2002	4	21	2.67E-01	1.17E-03	1.99E-01	2.33E-04	4.43E-04	2.23E+00	9.60E-01	2.43E+00	4.46E-02	6.63E-03	2.36E-03	2.39E-02	1.48E-02	2.34E+00	4.24E-01
2002	4	22	4.15E-01	0.00E+00	6.93E-02	0.00E+00	0.00E+00	9.48E-01	5.34E-01	1.17E+00	5.99E-03	4.30E-04	1.17E-05	2.19E-03	1.22E-03	1.11E+00	5.65E-01
2002	4	23	7.88E-01	3.09E-04	3.15E-01	1.11E-05	3.21E-04	2.42E+00	9.34E-01	5.04E+00	3.90E-02	6.99E-03	3.32E-03	1.01E-02	7.97E-03	3.72E+00	1.04E+00
2002	4	24	1.11E+00	4.03E-04	6.25E-01	5.83E-05	2.01E-04	3.18E+00	1.35E+00	4.20E+00	4.08E-02	7.58E-03	2.02E-03	2.57E-02	1.46E-02	4.13E+00	1.23E+00
2002	4	25	3.30E+00	4.20E-03	1.61E+00	6.07E-04	9.61E-04	3.76E+00	3.02E-01	4.77E+00	1.11E-01	1.71E-02	6.80E-03	3.21E-02	2.28E-02	6.08E+00	4.47E+00
2002	4	26	1.99E+00	8.13E-07	1.68E+00	0.00E+00	0.00E+00	2.52E+00	5.67E-03	1.77E+00	3.63E-03	1.23E-04	2.34E-05	1.61E-04	1.38E-04	2.12E+00	1.97E+00
2002	4	27	9.29E-01	6.16E-03	6.26E-01	2.60E-03	2.61E-03	2.73E+00	6.42E-01	3.44E+00	7.45E-02	1.44E-02	6.59E-03	2.65E-02	2.01E-02	3.62E+00	1.22E+00
2002	4	28	7.65E-01	1.20E-04	4.56E-01	1.01E-05	5.07E-05	2.12E+00	1.07E+00	4.06E+00	6.56E-02	9.28E-03	1.24E-03	3.04E-02	1.78E-02	3.45E+00	1.28E+00
2002	4	29	3.85E-01	1.44E-04	1.69E-01	2.30E-05	5.48E-05	2.06E+00	6.84E-01	3.03E+00	4.92E-02	4.86E-03	7.42E-04	2.62E-02	1.31E-02	3.48E+00	5.01E-01
2002	4	30	1.16E+00	1.02E-04	5.84E-01	2.53E-06	8.84E-06	1.37E+00	3.01E-01	2.21E+00	1.20E-02	9.34E-04	2.22E-04	3.90E-03	1.73E-03	3.08E+00	1.61E+00
2002	5	1	5.44E+00	1.75E-02	2.60E+00	2.34E-03	4.71E-03	1.17E+01	6.16E+00	1.35E+01	2.79E-01	6.50E-02	3.05E-02	1.09E-01	8.33E-02	1.18E+01	7.61E+00
2002	5	2	1.87E+00	0.00E+00	3.56E-01	0.00E+00	0.00E+00	3.99E+00	3.45E+00	5.85E+00	1.10E-01	1.09E-02	2.91E-04	3.55E-02	2.83E-02	4.57E+00	2.46E+00
2002	5	3	4.06E+00	1.75E-02	1.33E+00	1.04E-02	1.44E-02	4.89E+00	3.57E+00	1.07E+01	2.58E-01	7.10E-02	4.34E-02	5.67E-02	6.13E-02	1.36E+01	5.39E+00
2002	5	4	4.31E+00	6.45E-03	1.02E+00	7.80E-03	2.37E-02	6.29E+00	5.19E+00	1.10E+01	3.66E-01	8.45E-02	5.30E-02	9.38E-02	9.87E-02	1.01E+01	5.13E+00
2002	5	5	5.63E+00	1.74E-02	1.90E+00	1.48E-02	1.76E-02	1.88E+01	6.40E+00	1.99E+01	5.66E-01	1.33E-01	4.00E-02	2.31E-01	2.05E-01	1.78E+01	7.66E+00
2002	5	6	4.76E+00	1.37E-04	1.99E+00	0.00E+00	2.52E-05	1.23E+01	1.36E+00	1.26E+01	2.05E-01	2.34E-02	3.40E-03	6.42E-02	4.33E-02	9.41E+00	5.46E+00
2002	5	7	1.36E+01	2.58E-03	7.58E+00	1.86E-04	8.40E-04	2.09E+01	2.88E+00	2.51E+01	1.30E-01	1.60E-02	7.34E-03	3.90E-02	2.56E-02	2.29E+01	1.37E+01
2002	5	8	2.26E+00	1.45E-02	1.39E+00	6.60E-03	1.19E-02	2.13E+01	7.71E+00	2.49E+01	3.64E-01	9.75E-02	3.75E-02	2.82E-01	1.71E-01	2.72E+01	2.76E+00
2002	5	9	4.93E+00	4.11E-02	2.81E+00	1.77E-02	2.13E-02	2.38E+01	8.50E+00	2.79E+01	4.49E-01	1.09E-01	5.82E-02	2.41E-01	1.57E-01	2.82E+01	6.37E+00
2002	5	10	3.83E+00	9.77E-03	1.74E+00	2.87E-03	7.88E-03	2.38E+01	1.21E+01	2.70E+01	5.32E-01	1.38E-01	4.88E-02	3.50E-01	2.25E-01	2.32E+01	5.02E+00
2002	5	11	1.47E+00	3.93E-03	1.28E+00	4.59E-04	1.35E-03	1.93E+01	5.36E+00	2.34E+01	3.31E-01	5.79E-02	1.47E-02	1.62E-01	1.01E-01	2.02E+01	2.09E+00
2002	5	12	7.07E+00	2.02E-02	2.74E+00	9.56E-03	1.35E-02	2.30E+01	3.88E+00	2.98E+01	5.20E-01	8.86E-02	3.63E-02	1.69E-01	1.21E-01	2.26E+01	1.08E+01
2002	5	13	5.98E+00	6.71E-02	2.51E+00	3.19E-02	5.06E-02	2.16E+01	8.80E+00	1.99E+01	8.07E-01	2.77E-01	1.39E-01	4.41E-01	3.61E-01	1.60E+01	8.74E+00
2002	5	14	1.63E+00	1.24E-03	2.72E-01	6.47E-05	6.61E-04	4.81E+00	1.84E+00	5.31E+00	8.43E-02	2.48E-02	8.33E-03	5.07E-02	3.60E-02	4.63E+00	2.26E+00
2002	5	15	5.82E+00	2.19E-03	2.88E+00	4.13E-04	1.44E-03	1.65E+01	6.53E+00	1.95E+01	1.78E-01	3.11E-02	1.06E-02	6.80E-02	4.54E-02	2.17E+01	7.03E+00
2002	5	16	6.53E+00	2.95E-03	2.66E+00	3.93E-04	1.59E-03	1.98E+01	5.72E+00	1.88E+01	2.19E-01	3.58E-02	1.69E-02	9.20E-02	5.22E-02	2.68E+01	8.77E+00
2002	5	17	9.76E+00	2.58E-02	5.87E+00	6.83E-03	8.28E-03	2.62E+01	4.61E+00	2.19E+01	2.51E-01	5.77E-02	3.15E-02	1.63E-01	1.11E-01	2.72E+01	1.15E+01
2002	5	18	9.19E+00	2.68E-03	4.47E+00	5.76E-05	3.73E-04	1.71E+01	2.63E+00	1.84E+01	3.30E-01	3.60E-02	8.38E-03	1.22E-01	7.36E-02	2.52E+01	1.23E+01
2002	5	19	1.00E+01	2.77E-03	5.87E+00	1.29E-04	5.76E-04	1.25E+01	4.28E-02	9.59E+00	1.19E-01	1.60E-02	5.91E-03	2.79E-02	2.14E-02	1.38E+01	1.05E+01
2002	5	20	7.86E+00	3.69E-03	4.17E+00	9.55E-04	1.41E-03	1.44E+01	4.10E+00	2.18E+01	2.14E-01	2.45E-02	8.55E-03	6.32E-02	3.92E-02	2.27E+01	1.01E+01
2002	5	21	9.07E+00	4.13E-03	2.81E+00	1.06E-03	1.80E-03	1.19E+01	7.35E+00	1.72E+01	3.92E-01	6.63E-02	1.72E-02	1.48E-01	1.03E-01	1.95E+01	1.34E+01
2002	5	22	1.08E+01	2.65E-04	3.64E+00	1.01E-05	4.95E-05	9.83E+00	6.03E-02	1.24E+01	2.87E-02	3.17E-03	9.04E-04	8.34E-03	5.20E-03	7.65E+00	1.24E+01
2002	5	23	7.24E+00	3.70E-03	2.82E+00	4.77E-04	1.50E-03	1.41E+01	4.52E+00	1.83E+01	2.73E-01	5.19E-02	1.60E-02	9.65E-02	7.28E-02	1.44E+01	7.91E+00
2002	5	24	3.69E+00	2.42E-04	2.57E+00	2.59E-05	1.04E-04	1.56E+01	4.48E+00	1.85E+01	1.93E-01	2.03E-02	2.56E-03	9.49E-02	4.55E-02	1.87E+01	4.64E+00
2002	5	25	1.89E+00	2.41E-03	1.36E+00	6.56E-04	1.15E-03	1.72E+01	5.29E+00	2.06E+01	2.84E-01	3.78E-02	8.14E-03	1.54E-01	9.45E-02	1.92E+01	2.09E+00
2002	5	26	6.43E-01	2.82E-04	6.60E-01	1.08E-05	1.14E-04	1.52E+01	4.76E+00	1.80E+01	1.88E-01	1.69E-02	1.81E-03	9.32E-02	5.45E-02	1.84E+01	1.06E+00
2002	5	27	2.14E+00	7.66E-04	1.17E+00	2.16E-06	1.44E-04	1.39E+01	4.30E+00	1.77E+01	3.01E-01	5.34E-02	1.01E-02	8.97E-02	7.68E-02	1.57E+01	3.05E+00
2002	5	28	8.80E-01	2.07E-03	1.03E+00	3.01E-04	1.50E-03	1.30E+01	4.43E+00	1.12E+01	1.44E-01	3.11E-02	9.59E-03	9.01E-02	5.85E-02	1.74E+01	1.43E+00
2002	5	29	8.98E-01	0.00E+00	7.66E-02	0.00E+00	3.68E-07	4.22E+00	7.92E-01	1.54E+00	1.61E-02	4.01E-03	2.36E-04	1.83E-02	8.25E-03	2.59E+00	2.06E+00
2002	5	30	1.86E-01	0.00E+00	1.50E-02	0.00E+00	0.00E+00	3.42E+00	1.71E+00	4.12E+00	1.29E-04	8.22E-06	0.00E+00	2.06E-03	2.91E-04	3.17E+00	3.68E-01
2002	5	31	8.25E-01	1.46E-04	4.65E-01	8.96E-06	1.33E-04	1.03E+01	3.93E+00	1.48E+01	1.21E-01	1.78E-02	2.67E-03	6.29E-02	3.74E-02	1.28E+01	1.14E+00
2002	6	1	5.51E+00	2.96E-02	2.64E+00	4.96E-03	9.55E-03	1.32E+01	3.39E+00	2.10E+01	5.64E-01	1.20E-01	6.45E-02	1.59E-01	1.35E-01	2.09E+01	6.80E+00
2002	6	2	8.86E+00	5.58E-02	3.36E+00	1.45E-02	1.47E-02	1.75E+01	2.57E+00	1.70E+01	3.69E-01	1.33E-01	8.64E-02	1.67E-01	1.38E-01	1.91E+01	1.23E+01
2002	6	3	9.09E+00	5.60E-02	4.96E+00	1.60E-02	2.76E-02	2.26E+01	8.09E+00	2.89E+01	8.57E-01	2.27E-01	1.11E-01	3.42E-01	2.76E-01	2.56E+01	1.31E+01
2002	6	4	4.33E-01	1.56E-03	6.93E-01	8.61E-04	2.27E-03	1.73E+01	3.14E+00	1.45E+01	2.69E-01	4.65E-02	1.19E-02	1.26E-01	9.10E-02	1.53E+01	1.71E+00
2002	6	5	1.14E-01	1.62E-03	5.47E-01	1.56E-04	9.97E-04	9.46E+00	2.42E+00	1.06E+01	2.32E-01	4.78E-02	1.35E-02	7.66E-02	6.59E-02	8.57E+00	7.29E-01
2002	6	6	4.92E-01	0.00E+00	3.82E-01	0.00E+00	0.00E+00	6.66E+00	2.26E+00	9.19E+00	2.03E-02	7.19E-04	4.65E-05	6.20E-03	2.71E-03	8.06E+00	9.04E-01
2002	6	7	1.54E+00	2.49E-05	4.33E-01	1.53E-07	4.18E-05	1.85E+01	4.87E+00	1.85E+01	4.29E-01	5.24E-02	5.31E-03	1.76E-01	1.12E-01	1.48E+01	2.04E+00
2002	6	8	6.53E+00	1.96E-03	3.07E+00	1.47E-04	5.09E-04	1.48E+01	2.98E+00	1.72E+01	7.41E-02	1.57E-02	5.62E-03	3.08E-02	2.24E-02	1.45E+01	7.75E+00
2002	6	9	6.70E+00	0.00E+00	3.00E+00	0.00E+00	0.00E+00	1.28E+01	3.72E-03	1.30E+01	1.03E-02	5.99E-05	3.35E-07	6.23E-04	1.98E-04	1.31E+01	9.13E+00
2002	6	10	6.54E+00	3.25E-04	3.76E+00	8.06E-05	7.64E-04	1.56E+01	4.00E+00	1.86E+01	2.44E-01	4.68E-02	8.99E-03	1.40E-01	9.11E-02	1.52E+01	1.01E+01
2002	6	11	2.54E+00	1.15E-02	9.81E-01	4.51E-03	6.39E-03	1.60E+01	5.16E+00	2.43E+01	5.11E-01	7.97E-02	2.82E-02	2.05E-01	1.30E-01	1.63E+01	3.56E+00
2002	6	12	4.21E+00	2.93E-02	1.29E+00	3.13E-04	8.81E-04	1.77E+01	2.83E+00	2.10E+01	5.21E-01	1.10E-01	4.19E-02	2.26E-01	1.52E-01	1.67E+01	5.86E+00
2002	6	13	7.64E+00	8.93E-02	2.76E+00	3.67E-02	4.66E-02	2.11E+01	5.31E+00	2.40E+01	7.11E-01	2.23E-01	1.34E-01	3.04E-01	2.64E-01	1.76E+01	1.10E+01
2002	6	14	5.13E+00	7.85E-02	2.34E+00	2.81E-02	4.06E-02	2.01E+01	9.42E+00	2.07E+01	6.25E-01	1.98E-01	1.18E-01	3.34E-01	2.55E-01	2.20E+01	6.72E+00
2002	6	15	9.64E+00	1.27E-02	5.36E+00	2.68E-03	5.67E-03	1.96E+01	7.00E+00	2.56E+01	2.81E-01	5.99E-02	2.59E-02	1.45E-01	9.33E-02	2.59E+01	1.27E+01
2002	6	16	1.34E+00	9.88E-03	5.62E-01	3.80E-03	7.59E-03	1.30E+01	5.68E+00	1.22E+01	2.67E-01	6.13E-02	2.14E-02	2.11E-01	1.18E-01	1.23E+01	1.97E+00
2002	6	17	7.59E-01	0.00E+00	2.79E-01	0.00E+00	0.00E+00	6.73E+00	1.77E+00	7.41E+00	2.50E-02	1.38E-03	1.98E-05	2.95E-02	8.08E-03	5.68E+00	1.58E+00
2002	6	18	1.27E+00	3.91E-05	3.87E-01	5.64E-05	3.03E-04	1.12E+01	4.11E+00	1.40E+01	3.29E-01	3.68E-02	5.85E-03	8.87E-02	6.84E-02	1.11E+01	2.01E+00
2002	6	19	4.23E+00	1.82E-04	1.62E+00	0.00E+00	1.73E-05	1.25E+01	3.79E+00	2.39E+01	3.54E-01	3.10E-02	3.57E-03	1.03E-01	6.23E-02	1.64E+01	6.58E+00
2002	6	20	1.84E+00	1.35E-03	1.20E+00	2.35E-03	4.47E-03	1.97E+01	8.74E+00	2.23E+01	2.99E-01	3.51E-02	8.46E-03	1.76E-01	8.40E-02	2.08E+01	3.02E+00
2002	6	21	3.32E+00	3.28E-02	9.78E-01	8.95E-03	1.71E-02	2.35E+01	8.17E+00	2.59E+01	6.87E-01	1.77E-01	7.27E-02	3.39E-01	2.45E-01	1.91E+01	5.80E+00
2002	6	22	3.71E+00	2.98E-02	2.36E+00	7.48E-03	1.12E-02	1.43E+01	5.32E+00	1.84E+01	4.15E-01	1.02E-01	4.71E-02	1.97E-01	1.48E-01	2.09E+01	4.46E+00
2002	6	23	8.71E-01	1.53E-03	1.14E+00	1.67E-03	2.69E-03	1.70E+01	4.00E+00	2.03E+01	2.01E-01	3.29E-02	5.80E-03	7.28E-02	5.81E-02	1.95E+01	1.47E+00
2002	6	24	6.07E-01	3.87E-04	6.18E-01	3.97E-06	1.85E-04	8.34E+00	2.55E+00	1.23E+01	1.25E-01	2.65E-02	6.65E-03	3.89E-02	3.39E-02	9.46E+00	1.50E+00
2002	6	25	2.09E+00	3.77E-05	6.71E-01	4.69E-08	3.84E-05	1.83E+01	3.85E+00	2.06E+01	1.95E-01	2.15E-02	2.26E-03	1.28E-01	6.65E-02	1.64E+01	2.57E+00
2002	6	26	2.37E+00	9.09E-04	6.33E-01	1.30E-03	3.64E-03	1.75E+01	5.22E+00	2.13E+01	5.26E-01	7.97E-02	1.51E-02	2.36E-01	1.53E-01	1.51E+01	3.18E+00
2002	6	27	2.13E+00	1.57E-03	5.79E-01	4.48E-04	2.10E-03	1.71E+01	4.09E+00	1.43E+01	3.67E-01	7.28E-02	1.80E-02	2.00E-01	1.34E-01	1.44E+01	3.42E+00
2002	6	28	2.00E+00	1.97E-03	1.31E+00	3.08E-04	1.81E-03	1.09E+01	4.64E+00	1.27E+01	2.41E-01	3.86E-02	1.26E-02	9.45E-02	6.84E-02	1.04E+01	4.37E+00
2002	6	29	5.52E-01	0.00E+00	4.86E-02	0.00E+00	1.88E-06	3.35E+00	1.28E+00	3.67E+00	2.60E-03	9.73E-04	1.57E-04	3.43E-03	1.00E-03	3.14E+00	8.22E-01

Project

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	4	1	5.42E-02	0.00E+00	2.98E-01	0.00E+00	0.00E+00	1.71E-01	2.30E-02	1.20E-01	3.60E+00	4.83E-01	3.72E-08	1.77E-01	2.81E-01	1.76E-02	1.32E-01
2002	4	2	4.13E-01	5.22E-01	1.13E-01	1.67E-02	1.87E-02	1.05E-01	4.76E-03	1.93E-01	2.92E+00	7.35E-01	2.24E+00	5.05E-02	1.34E-01	2.36E-02	7.83E-01
2002	4	3	7.45E-02	9.98E-02	1.93E-02	4.48E-02	9.24E-02	2.98E-02	1.23E-01	1.29E+00	5.97E-01	7.78E+00	9.71E-01	1.09E+00	1.30E+00	9.97E-02	1.66E-01
2002	4	4	6.64E-02	6.50E-01	3.11E-02	3.73E-01	4.19E-01	4.65E-02	4.74E-02	4.32E-01	6.24E-01	6.53E+00	3.92E+00	6.00E-01	9.28E-01	8.51E-02	1.52E-01
2002	4	5	9.09E-02	1.31E+00	3.64E-02	3.60E-01	2.12E-01	9.19E-02	2.11E-02	3.69E-01	1.83E+00	1.39E+00	2.38E+00	3.24E-01	2.10E-01	2.43E-02	1.70E-01
2002	4	6	1.58E-02	0.00E+00	6.81E-05	0.00E+00	3.44E-04	2.30E-04	1.65E-02	4.75E-01	6.73E-05	2.17E+00	1.15E-01	4.39E-01	2.18E-01	3.55E-03	2.74E-02
2002	4	7	1.07E-01	4.23E-01	1.04E-02	1.10E-01	2.64E-01	1.02E-02	2.15E-02	2.75E-01	9.76E-01	2.26E+00	1.01E+00	2.92E-01	9.76E-02	4.77E-03	1.68E-01
2002	4	8	4.25E-02	3.67E-01	1.19E-02	4.81E-02	5.99E-02	2.61E-02	9.04E-02	1.01E+00	6.65E-01	5.49E+00	1.28E+00	1.14E+00	6.76E-01	3.84E-02	1.02E-01
2002	4	9	4.44E-02	3.70E-01	2.43E-02	4.00E-02	6.31E-02	3.61E-02	5.00E-03	1.66E-01	5.75E-01	4.86E-01	2.58E+00	5.29E-02	9.85E-02	2.01E-02	9.31E-02
2002	4	10	2.05E-04	1.86E-06	3.03E-06	1.61E-05	3.42E-05	2.23E-05	2.68E-02	5.01E-01	8.73E-05	1.53E+00	2.21E-02	5.35E-01	2.52E-01	2.25E-02	3.03E-04
2002	4	11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-05	0.00E+00	6.03E-03	5.44E-01	1.01E-16	1.09E+00	7.60E-02	2.63E-01	2.15E-01	1.14E-03	0.00E+00
2002	4	12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.39E-05	0.00E+00	3.91E-03	4.48E-01	4.55E-18	1.11E+00	9.68E-02	2.90E-01	3.28E-01	0.00E+00	0.00E+00
2002	4	13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-04	0.00E+00	1.23E-03	5.57E-01	9.94E-29	7.82E-01	1.14E-01	4.35E-02	3.14E-01	7.32E-03	0.00E+00
2002	4	14	2.41E-02	9.09E-06	1.77E-03	5.40E-02	7.29E-02	6.20E-03	5.01E-03	6.45E-01	8.61E-04	9.59E-01	8.63E-01	1.19E-01	1.94E-01	3.72E-02	5.04E-02
2002	4	15	2.28E-03	0.00E+00	0.00E+00	0.00E+00	3.90E-06	0.00E+00	1.49E-02	2.56E-01	3.27E-04	1.15E+00	9.75E-02	2.08E-01	3.83E-01	3.02E-02	4.45E-03
2002	4	16	1.19E-02	1.77E-05	1.03E-03	1.03E-07	9.49E-03	2.46E-03	4.31E-02	9.21E-01	1.88E-03	3.09E+00	3.25E-01	4.34E-01	7.18E-01	7.65E-02	3.62E-02
2002	4	17	4.90E-01	2.91E-03	1.79E-01	2.35E-04	4.63E-04	2.02E-01	1.59E-01	6.39E-01	1.43E+00	4.45E+00	3.87E-03	6.87E-01	7.84E-01	1.68E-01	6.70E-01
2002	4	18	2.17E-02	1.17E-01	7.26E-02	2.87E-03	1.02E-03	8.07E-02	3.98E-05	1.37E-04	3.46E+00	9.78E-04	2.39E-03	1.50E-04	2.65E-04	8.12E-05	3.37E-02
2002	4	19	2.49E-01	6.26E-01	1.09E-01	2.31E-01	3.94E-01	1.36E-01	1.28E-01	5.42E-01	2.51E+00	6.60E+00	2.03E+00	1.13E+00	1.77E+00	1.42E-01	4.73E-01
2002	4	20	6.77E-02	4.32E-02	1.99E-02	4.08E-02	9.07E-02	2.26E-02	1.68E-01	1.67E+00	1.57E-01	1.52E+01	5.20E-01	2.98E+00	4.40E+00	1.96E-01	1.60E-01
2002	4	21	3.37E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.85E-04	5.77E-02	8.44E-01	1.60E-04	3.90E+00	3.26E-02	6.46E-01	7.66E-01	2.33E-02	7.70E-02
2002	4	22	8.66E-02	0.00E+00	3.44E-03	0.00E+00	1.03E-05	2.94E-02	3.70E-02	2.59E-01	2.90E-01	2.52E+00	5.67E-02	4.54E-01	3.07E-01	3.06E-02	1.39E-01
2002	4	23	4.62E-02	8.52E-06	8.21E-03	0.00E+00	1.05E-05	3.43E-02	2.88E-02	3.90E-01	4.78E-02	6.97E+00	6.87E-02	1.07E+00	1.90E+00	4.53E-02	1.13E-01
2002	4	24	3.26E-01	3.55E-04	2.47E-01	6.09E-08	2.26E-06	2.40E-01	1.75E-01	9.52E-01	1.41E+00	9.57E+00	6.28E-03	1.10E+00	2.16E+00	2.26E-01	4.17E-01
2002	4	25	3.88E-01	2.98E-02	3.53E-01	2.77E-04	3.80E-05	3.31E-01	9.41E-03	2.86E-01	3.21E+00	7.57E-02	7.46E-03	4.37E-02	5.06E-02	8.56E-02	6.26E-01
2002	4	26	3.06E-01	0.00E+00	1.82E-01	0.00E+00	0.00E+00	1.75E-01	0.00E+00	1.19E-05	1.49E+00	0.00E+00	3.55E-05	0.00E+00	0.00E+00	3.52E-05	6.21E-01
2002	4	27	5.31E-03	1.14E-01	5.08E-02	3.88E-02	3.87E-02	9.29E-02	2.20E-02	4.37E-01	1.60E+00	1.53E+00	1.04E+00	2.34E-01	1.09E-01	3.17E-02	2.06E-02
2002	4	28	7.75E-02	2.50E-04	1.56E-02	2.06E-05	5.72E-05	5.27E-02	2.94E-02	3.79E-01	1.68E-02	5.57E+00	3.21E-03	6.48E-01	6.17E-01	9.23E-03	3.27E-01
2002	4	29	2.90E-02	2.85E-03	4.39E-02	1.13E-04	5.90E-04	4.90E-02	8.68E-02	9.67E-01	5.23E-01	6.46E+00	9.96E-03	7.89E-01	1.46E+00	5.37E-02	4.74E-02
2002	4	30	6.58E-02	3.28E-01	1.98E-01	6.52E-03	8.29E-03	1.83E-01	1.72E-02	3.63E-02	2.66E+00	2.09E-01	1.67E-01	4.31E-02	7.19E-02	3.41E-02	7.95E-02
2002	5	1	8.26E-02	3.24E-01	5.14E-02	1.07E-01	2.55E-01	6.51E-02	8.39E-02	3.74E-01	3.27E+00	1.31E+01	2.91E+00	1.47E+00	2.72E+00	5.56E-02	1.57E-01
2002	5	2	8.42E-02	0.00E+00	2.02E-06	0.00E+00	1.90E-05	3.30E-05	2.58E-02	1.56E-01	6.35E-01	3.43E+00	4.66E-01	3.66E-01	4.94E-01	8.94E-02	8.54E-02
2002	5	3	2.30E-02	1.08E-01	8.53E-02	7.93E-02	1.19E-01	6.07E-02	3.28E-04	1.44E-01	1.42E+00	3.87E+00	2.06E+00	8.77E-02	4.18E-01	1.59E-02	2.65E-02
2002	5	4	9.95E-02	8.54E-05	4.24E-04	7.92E-04	1.26E-01	1.20E-02	9.25E-03	3.28E-01	4.33E-02	3.82E+00	2.09E+00	3.31E-01	8.43E-01	2.56E-03	1.63E-01
2002	5	5	1.18E-01	1.77E-03	9.93E-03	2.75E-01	4.69E-01	2.60E-02	4.73E-02	8.79E-01	8.32E-03	3.37E+00	4.33E+00	1.83E-01	1.06E+00	3.38E-02	2.52E-01
2002	5	6	3.88E-01	0.00E+00	1.57E-01	0.00E+00	0.00E+00	1.87E-01	8.16E-02	6.58E-01	1.44E+00	2.58E+00	9.04E-03	4.86E-01	4.93E-01	1.84E-01	4.85E-01
2002	5	7	4.86E-01	8.54E-04	1.25E+00	3.73E-07	7.70E-06	9.74E-01	2.54E-03	1.85E-01	7.06E+00	3.75E-02	6.73E-03	5.50E-02	5.33E-02	5.43E-02	8.05E-01
2002	5	8	6.81E-02	2.10E-01	5.07E-02	1.67E-01	2.64E-01	3.94E-02	2.55E-01	1.43E+00	4.16E-01	1.78E+01	1.22E+00	4.59E+00	7.20E+00	2.01E-01	1.42E-01
2002	5	9	1.53E-01	1.31E+00	8.86E-03	3.01E-01	3.52E-01	1.81E-02	7.82E-02	1.21E+00	9.58E-01	1.61E+01	4.63E+00	1.53E+00	1.20E+00	9.07E-02	3.15E-01
2002	5	10	6.01E-02	4.12E-01	9.59E-03	9.64E-02	2.21E-01	2.18E-02	3.01E-01	1.43E+00	8.36E-02	2.28E+01	5.04E+00	4.77E+00	8.47E+00	1.59E-01	1.41E-01
2002	5	11	8.36E-02	4.24E-05	3.03E-04	2.00E-06	1.95E-05	8.56E-04	1.02E-01	1.10E+00	3.02E-03	1.27E+01	1.66E-02	1.85E+00	1.85E+00	6.60E-02	1.90E-01
2002	5	12	6.81E-01	6.70E-01	1.22E-01	1.53E-01	2.01E-01	2.14E-01	6.51E-01	1.34E+00	1.20E+00	5.51E+00	2.00E+00	7.94E-01	1.26E+00	8.27E-01	8.25E-01
2002	5	13	5.11E-02	8.61E-01	7.60E-03	2.79E-01	6.57E-01	1.71E-02	2.08E-02	8.93E-01	7.40E-01	1.11E+01	5.45E+00	4.69E-01	1.39E+00	1.27E-01	1.27E-01
2002	5	14	1.78E-02	7.39E-05	8.38E-03	2.38E-06	1.68E-05	2.30E-02	1.85E-02	4.34E-01	7.38E-03	3.89E+00	1.04E-01	4.09E-01	7.52E-01	6.02E-03	5.82E-02
2002	5	15	2.03E-01	9.57E-05	1.19E-02	2.02E-06	2.64E-05	4.19E-02	3.08E-02	5.80E-01	5.61E-01	1.49E+01	1.39E-01	9.62E-01	2.69E+00	3.36E-02	4.39E-01
2002	5	16	1.70E-01	3.82E-03	7.49E-02	6.26E-04	1.05E-03	9.31E-02	1.03E-01	9.36E-01	1.73E+00	1.05E+01	4.23E-01	9.17E-01	4.43E-01	2.24E-01	2.76E-01
2002	5	17	4.48E-01	1.03E+00	3.05E-02	1.19E-01	4.09E-01	3.01E-02	3.01E-02	6.51E-01	2.03E+00	6.43E+00	1.93E+00	4.20E-01	5.62E-01	6.90E-02	8.15E-01
2002	5	18	3.00E-01	3.17E-08	3.04E-01	0.00E+00	0.00E+00	2.35E-01	6.38E-02	4.83E-01	2.27E+00	3.09E+00	6.44E-05	6.52E-01	6.45E-01	1.00E-01	5.31E-01
2002	5	19	4.33E-01	5.66E-06	1.21E-01	1.09E-08	1.61E-07	6.69E-02	7.65E-04	2.78E-02	1.67E+00	3.89E-03	2.09E-05	2.49E-04	1.62E-04	3.00E-02	6.65E-01
2002	5	20	1.89E-01	5.04E-02	3.92E-02	7.31E-03	2.02E-02	4.33E-02	1.02E-02	3.01E-01	1.12E+00	5.36E+00	7.92E-02	5.42E-01	1.04E+00	2.74E-02	3.46E-01
2002	5	21	2.37E-01	1.92E-02	3.47E-01	2.29E-02	5.31E-02	3.43E-01	1.19E-01	6.90E-01	1.10E+00	1.44E+01	2.83E-01	1.67E+00	2.15E+00	1.62E-01	2.99E-01
2002	5	22	1.63E+00	0.00E+00	8.90E-02	0.00E+00	0.00E+00	1.03E-01	7.97E-03	8.41E-01	1.93E+00	6.42E-04	0.00E+00	2.60E-05	8.41E-06	7.86E-01	1.71E+00
2002	5	23	3.19E-01	7.80E-02	7.32E-01	1.68E-01	4.57E-01	6.08E-01	1.18E-01	7.70E-01	2.86E+00	1.09E+01	3.41E+00	1.02E+00	2.87E+00	1.32E-01	3.76E-01
2002	5	24	9.23E-02	4.19E-05	1.05E-02	2.31E-06	9.67E-06	2.29E-02	6.35E-02	1.02E+00	7.78E-03	1.21E+01	9.90E-03	1.42E+00	1.79E+00	4.29E-02	2.61E-01
2002	5	25	8.12E-03	1.06E-05	1.08E-03	1.92E-06	6.89E-05	6.63E-03	6.23E-02	9.93E-01	2.65E-03	1.11E+01	1.45E-01	1.22E+00	8.10E-01	8.31E-02	3.06E-02
2002	5	26	5.59E-04	5.01E-06	1.39E-04	8.15E-08	1.35E-06	4.48E-04	7.33E-02	1.19E+00	8.63E-04	1.12E+01	4.69E-02	9.11E-01	1.18E+00	7.73E-02	3.97E-03
2002	5	27	6.51E-02	3.84E-05	6.83E-03	2.76E-06	1.59E-05	1.95E-02	3.41E-02	8.78E-01	2.73E-02	5.68E+00	1.18E-01	7.29E-01	8.10E-01	3.49E-02	1.54E-01
2002	5	28	3.69E-02	0.00E+00	8.54E-07	0.00E+00	8.36E-05	3.45E-04	3.84E-02	7.77E-01	5.42E-03	6.91E+00	2.11E-01	7.81E-01	6.65E-01	7.48E-02	8.73E-02
2002	5	29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-07	0.00E+00	6.57E-04	7.02E-02	4.07E-17	1.82E+00	2.57E-01	1.48E-01	4.45E-01	0.00E+00	0.00E+00
2002	5	30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-02	3.32E-01	8.48E-17	5.32E+00	1.08E-01	6.20E-01	5.71E-01	0.00E+00	0.00E+00
2002	5	31	7.52E-03	0.00E+00	0.00E+00	0.00E+00	8.80E-04	1.49E-07	5.17E-02	4.70E-01	1.08E-03	9.97E+00	2.80E-01	1.45E+00	2.01E+00	1.02E-01	2.38E-02
2002	6	1	3.20E-01	6.56E-01	2.53E-01	8.81E-03	8.34E-03	5.00E-01	3.89E-02	3.89E-01	3.36E+00	7.08E-01	1.74E+00	3.24E-01	3.59E-01	1.02E-01	4.04E-01
2002	6	2	5.44E-01	7.90E-01	5.20E-01	5.06E-03	1.68E-03	6.94E-01	7.73E-02	7.09E-01	5.20E+00	3.78E-01	1.37E+00	4.73E-02	1.61E-02	3.99E-01	6.43E-01
2002	6	3	3.99E-01	7.00E-01	3.69E-01	1.46E-01	2.39E-01	4.15E-01	4.35E-01	8.15E-01	5.06E+00	2.05E+01	3.51E+00	3.03E+00	6.16E+00	4.72E-01	5.01E-01
2002	6	4	1.03E-02	6.74E-06	0.00E+00	3.67E-03	2.65E-02	2.11E-06	4.89E-02	1.10E+00	6.56E-04	7.26E+00	2.39E-01	6.18E-01	8.93E-01	5.10E-02	3.82E-02
2002	6	5	7.84E-03	0.00E+00	1.78E-04	0.00E+00	1.37E-07	6.20E-04	2.31E-02	5.75E-01	4.23E-04	1.69E+00	1.94E-01	1.52E-01	6.47E-01	3.87E-02	1.83E-02
2002	6	6	1.06E-02	0.00E+00	1.38E-04	0.00E+00	0.00E+00	8.84E-04	2.15E-02	5.05E-01	2.32E-04	4.43E+00	5.27E-02	5.07E-01	3.65E-01	1.50E-02	4.33E-02
2002	6	7	4.69E-04	0.00E+00	7.16E-05	0.00E+00	2.68E-03	2.05E-04	8.87E-02	1.30E+00	1.62E-04	8.20E+00	3.08E-01	1.01E+00	6.86E-01	4.82E-02	5.62E-04
2002	6	8	6.11E-01	4.36E-05	1.72E+00	8.73E-08	1.16E-06	1.39E+00	1.21E-01	5.38E-01	4.12E+00	7.07E-01	3.68E-04	2.50E-01	2.49E-01	4.40E-01	8.86E-01
2002	6	9	4.03E-01	4.56E-11	7.63E-01	0.00E+00	5.46E-16	1.06E+00	2.52E-04	1.55E-01	4.63E+00	6.19E-07	9.69E-09	1.20E-05	2.80E-06	1.07E-01	5.57E-01
2002	6	10	7.51E-01	2.03E-03	3.88E-01	7.00E-04	4.67E-03	8.01E-01	1.91E-01	5.56E-01	4.67E+00	6.84E+00	7.27E-02	8.85E-01	1.15E+00	4.47E-01	1.04E+00
2002	6	11	3.66E-02	5.84E-01	4.67E-03	9.57E-02	9.53E-02	9.36E-03	1.18E-01	1.00E+00	4.00E-02	1.39E+01	1.93E+00	2.14E+00	3.43E+00	7.56E-02	8.90E-02
2002	6	12	5.77E-01	4.89E-01	1.44E-01	2.61E-03	3.32E-03	2.00E-01	5.58E-01	1.44E+00	1.10E+00	3.71E+00	2.18E+00	7.93E-01	5.76E-01	6.27E-01	6.67E-01
2002	6	13	1.48E-01	1.61E+00	6.02E-02	2.70E-01	4.92E-01	8.14E-02	2.32E-02	4.44E-01	1.05E+00	3.79E+00	1.10E+01	2.52E-01	7.51E-01	1.33E-01	2.93E-01
2002	6	14	1.26E-01	1.13E+00	5.23E-02	1.66E-01	2.56E-01	6.46E-02	1.13E-01	8.38E-01	1.41E+00	1.04E+01	3.02E+00	1.43E+00	2.54E+00	2.54E-01	2.58E-01
2002	6	15	4.06E-01	1.50E+00	2.42E-01	2.68E-01	2.84E-01	2.33E-01	1.99E-01	7.50E-01	3.36E+00	1.13E+01	4.98E+00	1.89E+00	3.57E+00	2.42E-01	6.61E-01
2002	6	16	5.83E-03	2.86E-01	4.12E-03	1.19E-01	2.03E-01	5.85E-03	6.23E-02	9.01E-01	3.29E-02	5.62E+00	2.74E+00	8.72E-01	1.59E+00	6.09E-02	8.83E-03
2002	6	17	6.65E-03	0.00E+00	0.00E+00	0.00E+00	5.32E-09	0.00E+00	1.55E-02	5.83E-01	4.87E-22	3.50E+00	1.80E-01	4.60E-01	5.39E-01	1.10E-02	3.31E-02
2002	6	18	1.48E-02	3.41E-07	2.07E-04	3.47E-04	6.04E-03	8.43E-04	2.50E-02	7.11E-01	1.84E-02	9.39E+00	2.58E-01	8.45E-01	1.64E+00	8.66E-02	5.34E-02
2002	6	19	6.80E-02	1.40E-04	7.57E-03	3.11E-06	2.31E-05	3.10E-02	1.39E-02	3.48E-01	2.07E-02	1.11E+01	3.08E-02	7.41E-01	1.98E+00	3.76E-02	2.07E-01
2002	6	20	4.81E-02	3.61E-02	1.64E-03	1.61E-01	3.41E-01	5.56E-03	1.59E-01	1.14E+00	2.77E-01	2.46E+01	2.32E+00	2.50E+00	4.20E+00	1.51E-01	9.96E-02
2002	6	21	8.80E-02	4.31E-01	3.03E-02	1.89E-01	2.62E-01	4.89E-02	2.22E-01	1.13E+00	3.80E-01	1.72E+01	3.52E+00	4.11E+00	6.93E+00	1.96E-01	1.14E-01
2002	6	22	1.19E-01	5.30E-01	2.37E-02	5.73E-02	6.48E-02	4.10E-02	1.16E-01	9.56E-01	9.40E-01	1.18E+01	8.17E-01	2.26E+00	3.37E+00	9.55E-02	2.78E-01
2002	6	23	9.44E-03	2.97E-07	0.00E+00	1.01E-05	9.69E-04	0.00E+00	5.78E-02	1.06E+00	5.29E-09	9.06E+00	3.56E-01	8.65E-01	8.20E-01	9.11E-02	4.04E-02
2002	6	24	2.55E-02	3.77E-05	3.88E-04	6.43E-06	1.90E-05	1.06E-03	3.02E-02	4.29E-01	8.80E-04	4.61E+00	1.20E-01	4.08E-01	6.68E-01	4.26E-02	6.01E-02
2002	6	25	9.12E-03	3.34E-07	1.39E-09	6.98E-04	9.92E-03	4.63E-06	7.46E-02	1.22E+00	7.92E-03	1.25E+01	2.70E-01	1.27E+00	2.36E+00	9.58E-02	2.45E-02
2002	6	26	4.39E-02	2.18E-02	2.31E-03	1.27E-01	3.23E-01	7.28E-03	1.18E-01	1.42E+00	2.15E-01	1.62E+01	1.32E+00	1.77E+00	4.07E+00	1.10E-01	8.48E-02
2002	6	27	2.15E-04	0.00E+00	0.00E+00	8.66E-06	3.05E-02	0.00E+00	5.61E-02	1.34E+00	1.19E-04	5.97E+00	6.71E-01	6.38E-01	8.68E-01	5.17E-02	2.55E-03
2002	6	28	3.37E-02	4.93E-05	4.19E-03	7.50E-06	1.18E-03	1.52E-02	2.38E-02	4.00E-01	4.82E-02	4.66E+00	5.51E-01	2.27E-01	7.62E-01	3.75E-02	6.99E-02
2002	6	29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-04	0.00E+00	4.05E-03	1.96E-01	3.71E-25	2.03E+00	2.66E-01	2.76E-01	4.40E-01	1.65E-02	0.00E+00

Table C4 - Timeseries Data for PM10

Application

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	6	30	3.50E-01	0.00E+00	4.01E-02	0.00E+00	7.18E-05	4.13E+00	1.51E+00	4.73E+00	5.02E-05	4.21E+00	2.02E-01	5.00E-01	5.25E-01	3.84E+00	1.01E+00
2002	7	1	1.86E+00	3.07E-04	8.73E-01	5.18E-05	1.34E-04	8.52E+00	3.14E+00	1.02E+01	1.30E-01	6.38E+00	6.84E-02	7.80E-01	5.64E-01	1.00E+01	3.40E+00
2002	7	2	9.01E-01	1.01E-04	3.94E-01	0.00E+00	3.00E-05	8.82E+00	2.55E+00	9.16E+00	1.92E-01	3.96E+00	1.38E-01	7.89E-01	5.76E-01	8.47E+00	1.24E+00
2002	7	3	1.68E+00	5.38E-01	7.12E-01	2.90E-01	3.62E-01	1.90E+01	6.03E+00	2.00E+01	4.23E-01	1.61E+01	3.50E+00	1.98E+00	3.63E+00	1.91E+01	3.20E+00
2002	7	4	1.42E+00	1.92E-04	4.03E-01	5.54E-06	6.77E-04	4.14E+00	1.58E+00	6.86E+00	8.62E-02	2.49E+00	2.50E-01	2.23E-01	5.13E-01	4.05E+00	1.92E+00
2002	7	5	1.95E-01	1.09E-06	3.01E-01	0.00E+00	0.00E+00	7.00E+00	2.33E+00	9.99E+00	8.50E-02	4.50E+00	1.06E-01	6.05E-01	6.39E-01	7.76E+00	2.70E-01
2002	7	6	2.86E+00	3.80E-01	1.46E+00	1.83E-01	3.51E-01	2.51E+01	8.75E+00	3.15E+01	1.23E+00	2.03E+01	2.02E+00	2.25E+00	2.43E+00	2.40E+01	4.97E+00
2002	7	7	5.54E+00	2.27E-01	2.68E+00	8.79E-02	1.35E-01	1.95E+01	5.27E+00	2.50E+01	3.34E+00	8.75E+00	1.14E+00	9.84E-01	6.72E-01	2.13E+01	6.96E+00
2002	7	8	8.94E+00	1.98E-01	3.84E+00	4.65E-02	9.15E-02	1.09E+01	1.31E+00	9.90E+00	2.53E+00	2.07E+00	1.04E+00	2.04E-01	3.50E-01	1.29E+01	1.01E+01
2002	7	9	5.00E+00	4.32E-02	1.88E+00	2.13E-02	8.93E-02	8.15E+00	9.03E-01	9.60E+00	1.29E+00	4.73E+00	1.30E+00	2.99E-01	6.61E-01	9.35E+00	5.85E+00
2002	7	10	1.42E+01	5.91E-01	5.51E+00	5.94E-03	9.07E-03	2.17E+01	3.43E+00	2.98E+01	4.99E+00	9.35E-01	1.23E+00	2.31E-01	2.67E-01	2.85E+01	1.84E+01
2002	7	11	1.78E+00	1.01E-01	6.20E-01	4.86E-02	1.66E-01	2.00E+01	3.41E+00	1.60E+01	5.24E-01	7.45E+00	1.85E+00	6.05E-01	9.26E-01	1.19E+01	2.88E+00
2002	7	12	1.49E+00	5.30E-04	3.91E-01	4.52E-05	2.27E-04	1.94E+01	5.23E+00	2.56E+01	1.75E-01	1.10E+01	6.89E-02	1.51E+00	1.97E+00	1.84E+01	1.62E+00
2002	7	13	2.38E+00	2.70E-01	7.47E-01	2.10E-01	3.73E-01	1.70E+01	3.54E+00	2.08E+01	4.40E-01	6.29E+00	3.00E+00	2.96E+00	3.38E+00	1.63E+01	3.88E+00
2002	7	14	7.55E-01	0.00E+00	2.83E-01	0.00E+00	4.72E-03	9.01E+00	2.27E+00	1.12E+01	2.70E-01	2.86E+00	2.92E-01	3.71E-01	7.18E-01	9.15E+00	1.66E+00
2002	7	15	1.48E+00	1.12E-03	1.07E+00	1.75E-04	4.95E-03	1.97E+01	4.23E+00	1.33E+01	4.06E-01	1.14E+01	4.72E-01	1.37E+00	1.29E+00	1.61E+01	2.44E+00
2002	7	16	1.05E+00	1.08E-01	8.71E-01	1.19E-01	8.90E-02	2.03E+01	4.93E+00	2.32E+01	5.82E-01	1.25E+01	9.73E-01	1.81E+00	8.77E-01	1.86E+01	2.69E+00
2002	7	17	1.94E+00	3.37E-04	8.01E-01	5.85E-05	1.58E-02	1.94E+01	5.16E+00	1.66E+01	3.55E-01	9.61E+00	3.17E-01	1.27E+00	1.08E+00	1.86E+01	3.17E+00
2002	7	18	1.68E+00	1.03E-03	6.46E-01	1.10E-04	8.01E-03	1.74E+01	4.07E+00	1.86E+01	3.62E-01	8.06E+00	2.90E-01	1.02E+00	7.97E-01	1.56E+01	2.83E+00
2002	7	19	3.12E+00	5.50E-04	9.91E-01	5.51E-04	3.34E-02	1.17E+01	4.00E+00	1.44E+01	3.26E-01	7.82E+00	4.67E-01	7.79E-01	9.82E-01	1.15E+01	4.75E+00
2002	7	20	5.43E+00	5.45E-01	3.93E+00	1.03E-01	7.08E-02	8.29E+00	3.25E+00	1.28E+01	5.06E+00	2.35E+00	1.69E-01	3.62E-01	5.48E-01	1.71E+01	6.65E+00
2002	7	21	7.99E+00	9.07E-04	4.25E+00	3.15E-07	4.69E-07	9.04E+00	9.42E-02	1.12E+01	2.91E+00	8.72E-04	5.33E-05	2.41E-03	1.67E-03	1.45E+01	9.04E+00
2002	7	22	1.47E+01	1.07E-03	7.24E+00	7.08E-05	1.79E-04	2.06E+01	5.72E-01	1.81E+01	4.04E+00	1.13E-02	3.59E-03	3.07E-02	1.73E-02	2.57E+01	1.76E+01
2002	7	23	4.11E+00	4.90E-01	1.90E+00	9.10E-02	1.63E-01	2.34E+01	8.07E+00	2.63E+01	1.04E+00	2.11E+01	2.61E+00	2.87E+00	4.64E+00	1.85E+01	5.11E+00
2002	7	24	4.21E-01	8.49E-04	8.53E-01	3.24E-05	2.26E-04	2.23E+01	3.56E+00	2.02E+01	5.25E-01	9.28E+00	4.20E-02	1.30E+00	9.02E-01	1.68E+01	7.81E-01
2002	7	25	2.03E+00	1.56E-07	1.08E+00	0.00E+00	4.72E-06	1.83E+01	4.46E+00	1.46E+01	2.53E-01	1.13E+01	1.20E-01	1.32E+00	8.66E-01	1.39E+01	2.56E+00
2002	7	26	5.92E+00	5.14E-04	2.81E+00	1.86E-05	2.43E-04	1.44E+01	5.47E+00	1.74E+01	3.29E-01	9.87E+00	8.04E-02	8.73E-01	9.83E-01	1.64E+01	8.88E+00
2002	7	27	1.42E+00	2.29E-03	9.71E-01	7.01E-05	2.64E-03	1.82E+01	4.04E+00	1.79E+01	4.50E-01	7.68E+00	2.03E-01	2.00E+00	2.50E+00	1.65E+01	2.72E+00
2002	7	28	1.21E+00	4.14E-04	1.06E+00	5.95E-05	1.39E-04	1.36E+01	3.04E+00	1.40E+01	4.42E-02	7.36E+00	5.73E-02	1.41E+00	1.97E+00	9.97E+00	1.97E+00
2002	7	29	4.38E+00	3.87E-04	2.22E+00	9.25E-06	1.72E-04	1.28E+01	5.02E+00	1.67E+01	1.51E-01	6.82E+00	1.17E-01	6.14E-01	1.45E+00	1.73E+01	6.17E+00
2002	7	30	3.34E+00	6.40E-04	2.15E+00	3.09E-05	2.25E-04	9.86E+00	3.01E+00	1.31E+01	2.97E-01	5.20E+00	1.19E-01	5.95E-01	8.27E-01	1.03E+01	3.93E+00
2002	7	31	3.05E+00	1.65E-01	1.92E+00	5.22E-02	1.41E-01	5.21E+00	5.23E-01	9.10E+00	3.01E+00	3.61E+00	6.17E-01	2.59E-01	6.79E-01	1.12E+01	3.83E+00
2002	8	1	3.34E+00	1.24E-01	1.97E+00	7.85E-03	1.36E-03	4.42E+00	2.97E-01	7.24E+00	1.42E+00	1.14E-03	2.20E-03	8.40E-04	8.81E-04	1.36E+01	4.35E+00
2002	8	2	5.26E+00	3.31E-01	2.23E+00	3.07E-01	2.61E-01	6.08E+00	5.84E-01	8.16E+00	4.85E+00	1.40E+00	1.55E+00	1.02E-01	2.10E-01	1.32E+01	6.44E+00
2002	8	3	2.55E+00	1.11E-02	1.73E+00	5.32E-04	1.18E-04	4.08E+00	2.17E+00	8.41E+00	1.82E+00	3.95E-03	9.73E-04	1.42E-02	6.87E-03	1.24E+01	3.27E+00
2002	8	4	1.02E+01	9.81E-01	4.20E+00	5.54E-02	6.48E-02	1.23E+01	2.45E+00	1.72E+01	3.78E+00	7.70E-01	1.86E+00	7.56E-02	1.06E-01	1.83E+01	1.23E+01
2002	8	5	2.54E+00	4.01E-01	1.03E+00	3.41E-01	5.46E-01	1.71E+01	9.15E+00	2.17E+01	8.51E-01	1.06E+01	4.82E+00	8.90E-01	1.45E+00	1.77E+01	4.12E+00
2002	8	6	3.69E+00	5.98E-02	1.39E+00	2.25E-01	5.62E-01	1.93E+01	7.08E+00	2.18E+01	9.34E-01	1.15E+01	5.14E+00	1.54E+00	2.09E+00	1.69E+01	5.12E+00
2002	8	7	6.76E+00	1.17E-01	4.24E+00	9.88E-02	1.69E-01	2.48E+01	5.23E+00	2.39E+01	2.65E+00	1.82E+01	5.94E-01	1.62E+00	2.42E+00	1.92E+01	8.04E+00
2002	8	8	8.72E+00	1.14E+00	3.72E+00	1.72E-01	3.97E-01	2.56E+01	8.88E+00	2.78E+01	4.26E+00	1.40E+01	7.76E+00	2.02E+00	3.25E+00	2.67E+01	1.14E+01
2002	8	9	7.41E-01	2.87E-04	3.06E-01	2.50E-05	1.12E-04	1.26E+01	2.29E+00	1.70E+01	5.79E-02	7.49E+00	2.95E-02	1.68E+00	3.06E+00	9.36E+00	9.46E-01
2002	8	10	4.50E+00	2.87E-01	2.08E+00	6.83E-02	1.69E-01	1.89E+01	8.14E+00	2.35E+01	1.72E+00	1.98E+01	1.17E+00	3.57E+00	7.03E+00	2.91E+01	6.52E+00
2002	8	11	8.59E+00	5.75E-01	4.52E+00	1.35E-02	1.63E-02	1.09E+01	4.77E+00	1.77E+01	6.89E+00	1.03E+00	2.45E+00	1.88E-01	2.00E-01	1.89E+01	1.03E+01
2002	8	12	7.02E+00	8.13E-01	3.66E+00	1.49E-01	2.75E-01	2.76E+01	1.08E+01	2.86E+01	2.66E+00	1.38E+01	6.28E+00	1.55E+00	3.28E+00	2.99E+01	9.30E+00
2002	8	13	2.02E+00	2.24E-01	9.87E-01	4.08E-02	8.60E-02	1.14E+01	6.02E+00	1.87E+01	7.15E-01	1.25E+01	8.16E-01	3.08E+00	2.61E+00	1.48E+01	2.82E+00
2002	8	14	6.65E+00	1.29E-02	3.45E+00	2.54E-03	5.94E-03	9.08E+00	3.34E+00	1.83E+01	4.11E+00	1.22E+01	1.69E-01	2.17E+00	4.04E+00	1.83E+01	8.69E+00
2002	8	15	7.77E+00	1.32E+00	4.18E+00	3.59E-01	6.02E-01	1.45E+01	5.04E+00	1.44E+01	2.52E+00	9.50E+00	4.60E+00	8.99E-01	1.71E+00	1.78E+01	1.07E+01
2002	8	16	9.17E+00	4.86E-01	5.21E+00	1.45E-02	2.36E-02	1.46E+01	2.40E+00	1.64E+01	6.12E+00	7.37E+00	4.01E+00	9.41E-01	2.35E+00	2.02E+01	1.20E+01
2002	8	17	5.05E+00	1.66E-01	1.79E+00	1.63E-01	3.24E-01	2.22E+01	7.36E+00	1.95E+01	8.28E-01	1.56E+01	1.92E+00	1.23E+00	1.98E+00	2.10E+01	6.88E+00
2002	8	18	6.16E+00	4.57E-02	2.67E+00	8.95E-03	2.70E-02	1.74E+01	2.80E+00	1.79E+01	3.00E+00	6.79E+00	3.75E-01	7.71E-01	1.95E+00	1.78E+01	7.93E+00
2002	8	19	1.46E+00	1.82E-03	7.71E-01	1.12E-03	5.12E-02	1.98E+01	6.28E+00	2.53E+01	1.69E-01	1.38E+01	1.12E+00	1.79E+00	1.82E+00	2.09E+01	2.95E+00
2002	8	20	1.44E+01	1.86E-02	6.80E+00	2.97E-04	8.40E-04	2.09E+01	8.95E-01	2.50E+01	6.85E+00	1.09E-01	1.80E-02	1.11E-01	7.23E-02	2.58E+01	1.77E+01
2002	8	21	4.98E+00	2.02E+00	2.68E+00	2.11E-01	3.83E-01	1.77E+01	4.63E+00	2.06E+01	1.65E+00	6.19E+00	3.18E+00	8.59E-01	7.47E-01	2.09E+01	6.69E+00
2002	8	22	2.06E+00	2.77E-01	8.71E-01	6.12E-02	9.26E-02	2.51E+01	5.60E+00	2.49E+01	5.61E-01	1.39E+01	1.20E+00	1.64E+00	1.63E+00	2.73E+01	3.01E+00
2002	8	23	4.12E+00	7.36E-01	1.35E+00	8.81E-02	5.22E-02	1.98E+01	4.27E+00	2.42E+01	8.68E-01	8.63E+00	2.87E+00	1.54E+00	2.08E+00	1.96E+01	5.36E+00
2002	8	24	2.07E+00	5.00E-01	8.89E-01	4.04E-02	1.02E-01	2.30E+01	5.95E+00	2.52E+01	6.92E-01	1.04E+01	8.05E-01	1.49E+00	1.93E+00	2.33E+01	3.39E+00
2002	8	25	1.86E+00	1.62E-01	6.96E-01	4.97E-02	9.67E-02	2.03E+01	6.00E+00	2.61E+01	8.19E-01	1.77E+01	8.17E-01	2.87E+00	3.96E+00	2.47E+01	2.59E+00
2002	8	26	8.47E+00	1.06E-01	2.82E+00	8.03E-03	1.39E-02	2.36E+01	7.64E+00	2.91E+01	5.20E+00	6.80E+00	3.18E-01	2.36E+00	2.63E+00	2.81E+01	1.09E+01
2002	8	27	1.34E+01	3.90E-01	6.19E+00	1.78E-03	4.14E-03	1.88E+01	2.14E+00	2.26E+01	4.68E+00	3.56E-01	1.06E+00	2.55E-01	1.83E-01	2.01E+01	1.66E+01
2002	8	28	6.11E+00	9.69E-01	3.19E+00	1.27E-01	2.44E-01	2.67E+01	1.47E+01	3.33E+01	2.49E+00	2.00E+01	3.64E+00	3.41E+00	4.61E+00	3.18E+01	9.31E+00
2002	8	29	3.41E+00	7.17E-02	1.20E+00	1.39E-01	2.79E-01	2.19E+01	5.25E+00	2.72E+01	4.96E-01	1.24E+01	2.28E+00	1.18E+00	1.93E+00	2.06E+01	5.02E+00
2002	8	30	4.71E+00	8.61E-03	4.18E+00	2.84E-04	2.31E-03	2.52E+01	6.41E+00	2.34E+01	2.53E+00	1.71E+01	3.89E-01	2.43E+00	2.90E+00	2.40E+01	5.88E+00
2002	8	31	4.94E+00	5.53E-01	3.28E+00	1.73E-01	2.95E-01	1.65E+01	1.07E+01	2.39E+01	2.81E+00	1.79E+01	2.89E+00	2.60E+00	3.63E+00	1.93E+01	7.83E+00
2002	9	1	3.91E-01	0.00E+00	7.07E-02	0.00E+00	0.00E+00	3.92E+00	1.89E+00	5.04E+00	8.52E-03	4.10E+00	8.84E-02	4.16E-01	5.06E-01	3.52E+00	7.40E-01
2002	9	2	6.46E-01	8.94E-04	9.12E-01	7.88E-05	5.33E-04	1.76E+01	5.63E+00	1.44E+01	2.52E-01	8.81E+00	2.03E-01	1.05E+00	7.61E-01	1.59E+01	2.47E+00
2002	9	3	2.07E+00	1.21E-05	5.85E-01	3.13E-07	2.03E-02	1.52E+01	4.50E+00	1.35E+01	1.91E-01	4.36E+00	5.33E-01	6.90E-01	6.41E-01	1.19E+01	3.72E+00
2002	9	4	1.09E+01	3.11E-01	6.99E+00	2.50E-01	3.68E-01	1.42E+01	8.65E+00	2.00E+01	4.96E+00	1.15E+01	2.61E+00	1.81E+00	2.99E+00	2.08E+01	1.39E+01
2002	9	5	1.29E+01	1.39E+00	4.97E+00	8.87E-01	1.97E+00	1.74E+01	7.52E+00	2.44E+01	1.64E+00	1.93E+00	1.21E+01	2.72E-01	2.21E-01	2.58E+01	1.71E+01
2002	9	6	7.26E+00	1.56E+00	4.17E+00	1.42E-01	1.95E-01	1.83E+01	8.09E+00	2.44E+01	2.34E+00	1.49E+01	4.00E+00	1.38E+00	1.17E+00	2.37E+01	9.61E+00
2002	9	7	8.08E+00	7.84E-01	4.27E+00	9.11E-02	1.71E-01	2.46E+01	1.19E+01	2.79E+01	3.18E+00	1.35E+01	2.52E+00	1.62E+00	2.50E+00	2.21E+01	1.08E+01
2002	9	8	1.17E+00	7.33E-06	4.67E-01	2.06E-08	1.00E-04	6.44E+00	2.86E+00	8.27E+00	5.25E-02	4.37E+00	2.70E-01	7.20E-01	6.62E-01	7.99E+00	1.95E+00
2002	9	9	9.27E-01	9.99E-07	6.02E-01	0.00E+00	1.23E-07	8.33E+00	3.79E+00	1.44E+01	1.36E-01	6.51E+00	8.53E-02	1.01E+00	6.27E-01	1.01E+01	1.38E+00
2002	9	10	1.62E+00	6.04E-04	2.16E+00	4.30E-03	5.00E-02	2.35E+01	9.23E+00	2.54E+01	3.68E-01	1.69E+01	3.26E-01	1.94E+00	1.35E+00	2.62E+01	2.80E+00
2002	9	11	1.26E+00	1.48E-01	1.47E+00	1.73E-01	3.53E-01	2.55E+01	9.76E+00	2.90E+01	6.86E-01	1.62E+01	2.26E+00	2.31E+00	1.10E+00	2.72E+01	1.68E+00
2002	9	12	1.38E+00	2.89E-04	1.04E+00	6.02E-05	8.35E-03	1.87E+01	7.56E+00	2.04E+01	2.12E-01	1.41E+01	4.24E-01	1.44E+00	1.34E+00	2.09E+01	2.91E+00
2002	9	13	7.49E+00	2.34E-01	4.29E+00	6.45E-02	4.54E-02	1.90E+01	4.21E+00	1.92E+01	1.93E+00	6.61E+00	7.62E-02	1.33E+00	1.70E+00	2.44E+01	8.91E+00
2002	9	14	8.76E+00	4.50E-01	4.36E+00	5.49E-02	4.05E-01	2.57E+01	8.90E+00	2.38E+01	3.16E+00	1.05E+01	3.81E+00	1.05E+00	1.65E+00	2.58E+01	1.16E+01
2002	9	15	5.16E+00	4.62E-03	2.27E+00	1.03E-01	3.34E-01	1.68E+01	5.79E+00	2.18E+01	3.20E-01	6.64E+00	1.78E+00	4.89E-01	1.53E+00	2.77E+01	8.66E+00
2002	9	16	3.12E+00	1.97E-04	7.00E-01	6.48E-05	1.23E-02	8.82E+00	4.63E+00	7.91E+00	1.08E-01	6.52E+00	3.57E-01	8.78E-01	6.25E-01	1.00E+01	4.22E+00
2002	9	17	4.68E+00	8.08E-01	1.91E+00	3.26E-01	3.76E-01	2.06E+01	1.07E+01	2.90E+01	1.40E+00	1.73E+01	4.55E+00	2.50E+00	1.91E+00	3.13E+01	5.81E+00
2002	9	18	1.04E+00	1.65E-04	5.77E-01	3.79E-06	3.94E-05	1.22E+01	4.47E+00	1.89E+01	1.67E-01	7.79E+00	3.44E-02	3.54E+00	3.68E+00	1.40E+01	3.00E+00
2002	9	19	2.16E-01	0.00E+00	1.10E-01	0.00E+00	8.97E-09	2.76E+00	1.91E+00	3.38E+00	1.67E-02	5.20E+00	9.98E-02	4.66E-01	4.98E-01	2.64E+00	4.85E-01
2002	9	20	3.60E+00	7.28E-05	1.15E+00	7.77E-06	6.89E-05	1.60E+01	3.80E+00	2.19E+01	2.50E-01	9.77E+00	5.71E-03	1.38E+00	2.09E+00	1.59E+01	4.64E+00
2002	9	21	2.01E+00	1.40E-03	1.13E+00	1.40E-04	4.69E-03	2.06E+01	8.52E+00	3.62E+01	3.79E-01	1.56E+01	1.79E-01	4.40E+00	5.09E+00	2.72E+01	3.44E+00
2002	9	22	4.33E+00	2.10E-05	2.39E+00	2.72E-07	3.27E-06	5.93E+00	1.05E+00	8.75E+00	2.52E+00	7.92E+00	6.87E-04	7.09E-01	1.55E+00	9.72E+00	5.86E+00
2002	9	23	9.35E+00	5.81E-01	4.75E+00	1.14E-01	1.97E-01	2.34E+01	6.55E+00	1.99E+01	3.45E+00	4.75E+00	4.25E+00	9.50E-01	1.37E+00	2.02E+01	1.28E+01
2002	9	24	1.24E+01	7.16E-03	5.76E+00	1.56E-03	1.68E-03	1.20E+01	5.40E-01	1.18E+01	9.40E+00	3.15E-02	4.25E-03	2.93E-02	1.37E-02	2.02E+01	1.56E+01
2002	9	25	1.04E+01	5.06E-01	5.04E+00	5.64E-02	9.13E-02	2.37E+01	8.26E+00	3.05E+01	3.56E+00	1.31E+01	1.80E+00	1.75E+00	2.45E+00	2.36E+01	1.24E+01
2002	9	26	7.23E+00	8.11E-02	3.29E+00	1.32E-02	5.61E-02	2.04E+01	5.14E+00	3.01E+01	3.77E+00	1.12E+01	4.10E-01	2.17E+00	3.30E+00	2.21E+01	9.00E+00
2002	9	27	1.32E+01	6.56E-01	6.63E+00	9.37E-02	1.42E-01	2.04E+01	3.52E+00	1.81E+01	5.68E+00	7.48E-01	3.57E+00	2.51E-01	3.29E-01	1.91E+01	1.67E+01

Baseline

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	6	30	3.50E-01	0.00E+00	4.01E-02	0.00E+00	0.00E+00	4.13E+00	1.49E+00	4.49E+00	5.02E-05	1.08E-06	0.00E+00	6.09E-03	1.27E-04	3.79E+00	1.01E+00
2002	7	1	1.80E+00	1.99E-04	8.70E-01	4.75E-05	1.13E-04	8.51E+00	3.12E+00	9.95E+00	1.24E-01	2.45E-02	4.14E-03	4.25E-02	3.64E-02	9.98E+00	3.26E+00
2002	7	2	8.97E-01	1.01E-04	3.94E-01	0.00E+00	1.84E-05	8.82E+00	2.52E+00	8.32E+00	1.91E-01	2.30E-02	3.26E-03	6.59E-02	4.64E-02	8.46E+00	1.23E+00
2002	7	3	1.65E+00	2.05E-02	7.10E-01	1.43E-02	2.08E-02	1.90E+01	5.97E+00	1.89E+01	2.74E-01	7.60E-02	3.81E-02	1.98E-01	1.23E-01	1.90E+01	3.14E+00
2002	7	4	1.35E+00	1.91E-04	4.01E-01	5.54E-06	1.27E-04	4.14E+00	1.58E+00	6.72E+00	4.54E-02	1.17E-02	3.05E-03	1.67E-02	1.15E-02	4.04E+00	1.83E+00
2002	7	5	1.95E-01	1.09E-06	3.01E-01	0.00E+00	0.00E+00	7.00E+00	2.30E+00	9.51E+00	8.50E-02	1.14E-02	1.74E-03	3.83E-02	2.15E-02	7.75E+00	2.67E-01
2002	7	6	2.73E+00	2.24E-02	1.42E+00	8.80E-03	1.62E-02	2.50E+01	8.65E+00	3.00E+01	5.45E-01	1.24E-01	5.71E-02	2.56E-01	1.77E-01	2.38E+01	4.67E+00
2002	7	7	5.45E+00	9.71E-03	2.56E+00	2.94E-03	4.05E-03	1.94E+01	5.21E+00	2.42E+01	3.97E-01	6.20E-02	1.98E-02	1.63E-01	1.02E-01	2.12E+01	6.74E+00
2002	7	8	8.81E+00	1.28E-02	3.76E+00	3.92E-03	5.16E-03	1.08E+01	1.30E+00	9.70E+00	1.63E-01	2.60E-02	1.53E-02	3.77E-02	2.81E-02	1.28E+01	9.88E+00
2002	7	9	4.86E+00	5.29E-03	1.86E+00	1.80E-03	2.92E-03	8.14E+00	8.85E-01	9.31E+00	5.26E-02	1.00E-02	8.51E-03	1.43E-02	1.14E-02	9.32E+00	5.59E+00
2002	7	10	1.39E+01	2.55E-02	5.36E+00	2.76E-03	5.89E-03	2.15E+01	3.42E+00	2.96E+01	6.05E-01	1.07E-01	4.80E-02	1.80E-01	1.37E-01	2.84E+01	1.78E+01
2002	7	11	1.78E+00	1.03E-02	6.19E-01	4.33E-03	1.02E-02	2.00E+01	3.38E+00	1.47E+01	5.20E-01	1.21E-01	4.31E-02	2.56E-01	1.83E-01	1.18E+01	2.87E+00
2002	7	12	1.49E+00	5.30E-04	3.91E-01	4.52E-05	2.27E-04	1.94E+01	5.13E+00	2.43E+01	1.75E-01	2.30E-02	4.10E-03	1.26E-01	6.04E-02	1.83E+01	1.62E+00
2002	7	13	2.30E+00	1.14E-02	7.46E-01	5.63E-03	7.46E-03	1.70E+01	3.15E+00	1.97E+01	3.13E-01	5.45E-02	1.50E-02	1.93E-01	1.18E-01	1.61E+01	3.76E+00
2002	7	14	7.55E-01	0.00E+00	2.83E-01	0.00E+00	1.40E-05	9.01E+00	2.24E+00	1.04E+01	2.70E-01	3.42E-02	2.95E-03	9.11E-02	7.77E-02	9.13E+00	1.66E+00
2002	7	15	1.39E+00	1.12E-03	1.07E+00	1.75E-04	5.53E-04	1.97E+01	4.17E+00	1.21E+01	4.06E-01	3.89E-02	5.73E-03	1.55E-01	9.37E-02	1.60E+01	2.25E+00
2002	7	16	1.04E+00	7.58E-03	8.71E-01	2.47E-03	2.34E-03	2.03E+01	4.84E+00	2.17E+01	5.75E-01	6.85E-02	1.17E-02	1.97E-01	1.25E-01	1.85E+01	2.65E+00
2002	7	17	1.94E+00	3.37E-04	8.01E-01	1.97E-05	1.97E-04	1.94E+01	5.07E+00	1.54E+01	3.55E-01	4.79E-02	6.84E-03	1.77E-01	1.03E-01	1.85E+01	3.17E+00
2002	7	18	1.67E+00	1.03E-03	6.46E-01	1.10E-04	6.13E-04	1.74E+01	4.00E+00	1.76E+01	3.62E-01	4.75E-02	9.74E-03	1.48E-01	9.36E-02	1.56E+01	2.82E+00
2002	7	19	3.10E+00	5.49E-04	9.91E-01	2.39E-05	8.05E-04	1.17E+01	3.98E+00	1.38E+01	3.18E-01	5.51E-02	1.08E-02	1.20E-01	9.54E-02	1.15E+01	4.70E+00
2002	7	20	5.36E+00	1.29E-02	3.57E+00	6.52E-03	5.48E-03	8.02E+00	3.23E+00	1.28E+01	2.73E-02	6.49E-03	7.20E-03	9.47E-03	7.00E-03	1.70E+01	6.52E+00
2002	7	21	7.84E+00	2.36E-05	4.00E+00	0.00E+00	0.00E+00	8.86E+00	9.39E-02	1.12E+01	3.70E-02	8.60E-04	5.14E-05	2.31E-03	1.61E-03	1.45E+01	8.74E+00
2002	7	22	1.41E+01	1.04E-03	7.18E+00	7.08E-05	1.79E-04	2.05E+01	5.72E-01	1.80E+01	1.42E-01	1.02E-02	2.97E-03	3.03E-02	1.68E-02	2.56E+01	1.66E+01
2002	7	23	3.98E+00	4.60E-02	1.87E+00	1.41E-02	2.41E-02	2.34E+01	7.87E+00	2.47E+01	4.91E-01	1.58E-01	8.61E-02	2.80E-01	1.98E-01	1.83E+01	4.93E+00
2002	7	24	4.20E-01	8.49E-04	8.53E-01	3.24E-05	2.26E-04	2.23E+01	3.50E+00	1.88E+01	5.25E-01	4.55E-02	5.75E-03	1.53E-01	9.68E-02	1.67E+01	7.76E-01
2002	7	25	1.99E+00	1.56E-07	1.08E+00	0.00E+00	4.72E-06	1.83E+01	4.39E+00	1.35E+01	2.53E-01	3.01E-02	2.52E-03	1.39E-01	7.23E-02	1.38E+01	2.45E+00
2002	7	26	5.79E+00	4.14E-04	2.79E+00	6.04E-06	1.94E-04	1.44E+01	5.45E+00	1.71E+01	2.94E-01	4.71E-02	6.85E-03	1.24E-01	8.33E-02	1.64E+01	8.56E+00
2002	7	27	1.27E+00	6.91E-05	9.60E-01	1.94E-05	7.56E-05	1.82E+01	3.52E+00	1.68E+01	8.99E-02	2.84E-03	5.27E-04	4.12E-02	1.15E-02	1.62E+01	2.47E+00
2002	7	28	1.14E+00	4.12E-04	1.06E+00	5.95E-05	1.39E-04	1.35E+01	2.99E+00	1.34E+01	4.35E-02	4.14E-03	1.05E-03	2.05E-02	9.48E-03	9.92E+00	1.81E+00
2002	7	29	4.25E+00	2.64E-04	2.20E+00	9.72E-07	4.60E-05	1.27E+01	5.01E+00	1.63E+01	1.37E-01	1.83E-02	3.33E-03	4.89E-02	3.17E-02	1.72E+01	5.85E+00
2002	7	30	3.20E+00	6.08E-04	2.12E+00	3.09E-05	2.19E-04	9.83E+00	2.98E+00	1.27E+01	1.55E-01	2.35E-02	4.92E-03	8.08E-02	4.63E-02	1.02E+01	3.70E+00
2002	7	31	2.97E+00	3.73E-03	1.48E+00	1.15E-03	3.20E-03	4.93E+00	5.03E-01	9.06E+00	3.09E-02	1.90E-02	1.09E-02	2.56E-02	2.22E-02	1.12E+01	3.68E+00
2002	8	1	3.34E+00	6.64E-03	1.89E+00	1.11E-03	6.80E-04	4.38E+00	2.97E-01	7.24E+00	5.59E-03	3.06E-04	1.33E-03	4.20E-05	6.81E-05	1.36E+01	4.34E+00
2002	8	2	5.15E+00	1.78E-02	2.02E+00	1.10E-02	1.14E-02	5.84E+00	5.63E-01	8.11E+00	4.69E-02	2.20E-02	2.07E-02	2.33E-02	2.05E-02	1.31E+01	6.31E+00
2002	8	3	2.51E+00	6.39E-04	1.47E+00	6.28E-05	1.61E-05	3.88E+00	2.15E+00	8.38E+00	3.03E-02	4.15E-04	3.21E-05	5.65E-03	1.28E-03	1.23E+01	3.23E+00
2002	8	4	9.87E+00	2.08E-02	4.16E+00	9.56E-04	2.11E-03	1.22E+01	2.45E+00	1.72E+01	1.96E-01	3.43E-02	2.15E-02	5.62E-02	3.94E-02	1.83E+01	1.17E+01
2002	8	5	2.46E+00	2.75E-02	1.02E+00	1.26E-02	1.91E-02	1.71E+01	9.12E+00	2.09E+01	3.40E-01	1.07E-01	4.95E-02	2.97E-01	1.65E-01	1.77E+01	3.91E+00
2002	8	6	3.57E+00	1.83E-02	1.36E+00	1.19E-02	1.88E-02	1.92E+01	7.00E+00	2.09E+01	6.53E-01	1.36E-01	5.75E-02	2.33E-01	1.82E-01	1.68E+01	4.91E+00
2002	8	7	6.55E+00	5.34E-03	4.12E+00	5.22E-03	7.42E-03	2.47E+01	5.14E+00	2.27E+01	4.37E-01	7.06E-02	1.91E-02	1.60E-01	1.11E-01	1.90E+01	7.68E+00
2002	8	8	8.38E+00	4.29E-02	3.58E+00	9.57E-03	1.86E-02	2.54E+01	8.73E+00	2.71E+01	7.77E-01	2.07E-01	9.68E-02	3.82E-01	2.81E-01	2.65E+01	1.08E+01
2002	8	9	7.31E-01	2.81E-04	3.06E-01	2.41E-05	1.09E-04	1.26E+01	2.25E+00	1.63E+01	5.76E-02	7.10E-03	1.56E-03	2.70E-02	1.49E-02	9.29E+00	9.19E-01
2002	8	10	4.21E+00	1.35E-02	1.98E+00	5.24E-03	1.02E-02	1.87E+01	7.75E+00	2.20E+01	2.92E-01	6.44E-02	3.17E-02	1.50E-01	9.40E-02	2.88E+01	6.14E+00
2002	8	11	8.57E+00	1.98E-02	3.68E+00	3.19E-03	5.97E-03	1.05E+01	4.77E+00	1.74E+01	2.66E-01	7.01E-02	3.39E-02	1.59E-01	1.04E-01	1.89E+01	1.03E+01
2002	8	12	6.68E+00	5.83E-02	3.50E+00	2.40E-02	3.51E-02	2.74E+01	1.07E+01	2.76E+01	7.17E-01	2.19E-01	1.11E-01	3.78E-01	2.88E-01	2.98E+01	8.77E+00
2002	8	13	1.65E+00	2.40E-02	9.70E-01	8.68E-03	1.57E-02	1.14E+01	5.01E+00	1.72E+01	2.81E-01	9.29E-02	4.98E-02	1.87E-01	1.27E-01	1.41E+01	2.24E+00
2002	8	14	6.42E+00	1.06E-03	3.15E+00	1.98E-04	5.07E-04	8.64E+00	3.19E+00	1.82E+01	9.06E-02	1.22E-02	3.60E-03	4.55E-02	2.56E-02	1.82E+01	8.30E+00
2002	8	15	7.73E+00	3.12E-02	4.06E+00	1.14E-02	1.98E-02	1.44E+01	5.02E+00	1.41E+01	3.47E-01	8.76E-02	5.01E-02	1.62E-01	1.18E-01	1.77E+01	1.06E+01
2002	8	16	8.87E+00	4.64E-03	4.33E+00	1.13E-04	9.54E-04	1.36E+01	2.31E+00	1.62E+01	1.60E-01	3.39E-02	1.23E-02	7.67E-02	4.89E-02	2.01E+01	1.15E+01
2002	8	17	4.96E+00	4.01E-02	1.78E+00	1.24E-02	2.39E-02	2.22E+01	7.31E+00	1.86E+01	5.54E-01	1.69E-01	8.75E-02	2.86E-01	2.21E-01	2.09E+01	6.73E+00
2002	8	18	5.32E+00	3.01E-03	2.57E+00	2.81E-04	9.99E-04	1.71E+01	2.56E+00	1.63E+01	3.47E-01	6.04E-02	1.49E-02	1.36E-01	1.02E-01	1.70E+01	6.94E+00
2002	8	19	1.46E+00	1.76E-03	7.71E-01	9.68E-04	2.06E-03	1.98E+01	6.19E+00	2.38E+01	1.67E-01	1.57E-02	2.98E-03	1.53E-01	5.74E-02	2.08E+01	2.95E+00
2002	8	20	1.42E+01	6.42E-03	5.99E+00	2.89E-04	8.35E-04	1.96E+01	8.74E-01	2.48E+01	3.76E-01	3.99E-02	1.44E-02	7.70E-02	5.47E-02	2.57E+01	1.73E+01
2002	8	21	4.88E+00	4.44E-02	2.65E+00	1.38E-02	2.58E-02	1.77E+01	4.59E+00	1.97E+01	5.74E-01	1.67E-01	7.62E-02	3.16E-01	2.32E-01	2.08E+01	6.43E+00
2002	8	22	2.05E+00	4.36E-03	8.69E-01	2.43E-03	4.27E-03	2.51E+01	5.51E+00	2.29E+01	5.24E-01	8.19E-02	1.56E-02	2.98E-01	1.85E-01	2.72E+01	3.00E+00
2002	8	23	4.05E+00	3.39E-02	1.33E+00	7.65E-03	9.62E-03	1.98E+01	4.18E+00	2.31E+01	5.65E-01	1.67E-01	7.07E-02	3.00E-01	2.24E-01	1.95E+01	5.21E+00
2002	8	24	2.05E+00	7.53E-03	8.73E-01	4.99E-03	7.32E-03	2.30E+01	5.84E+00	2.33E+01	4.94E-01	1.03E-01	3.43E-02	2.54E-01	1.76E-01	2.32E+01	3.36E+00
2002	8	25	1.76E+00	3.21E-03	6.29E-01	1.07E-03	2.37E-03	2.02E+01	5.73E+00	2.45E+01	3.35E-01	5.17E-02	1.39E-02	1.66E-01	1.01E-01	2.45E+01	2.45E+00
2002	8	26	6.77E+00	6.18E-03	2.43E+00	9.03E-04	1.93E-03	2.31E+01	6.72E+00	2.68E+01	3.37E-01	5.48E-02	1.54E-02	1.57E-01	9.87E-02	2.67E+01	9.05E+00
2002	8	27	1.25E+01	3.16E-02	6.09E+00	1.76E-03	4.07E-03	1.87E+01	2.13E+00	2.23E+01	5.64E-01	1.34E-01	5.76E-02	2.50E-01	1.79E-01	1.99E+01	1.55E+01
2002	8	28	5.89E+00	9.39E-02	3.07E+00	2.63E-02	4.31E-02	2.65E+01	1.45E+01	3.20E+01	1.09E+00	3.28E-01	1.69E-01	5.93E-01	4.27E-01	3.16E+01	8.87E+00
2002	8	29	3.34E+00	5.18E-03	1.19E+00	3.10E-03	7.27E-03	2.18E+01	5.19E+00	2.58E+01	4.87E-01	1.05E-01	2.88E-02	2.04E-01	1.60E-01	2.04E+01	4.81E+00
2002	8	30	4.53E+00	1.48E-03	4.14E+00	7.60E-05	2.76E-04	2.51E+01	6.23E+00	2.23E+01	3.18E-01	4.16E-02	8.79E-03	1.25E-01	7.62E-02	2.38E+01	5.58E+00
2002	8	31	4.55E+00	8.05E-02	3.03E+00	2.70E-02	4.27E-02	1.62E+01	1.04E+01	2.29E+01	7.33E-01	2.48E-01	1.36E-01	4.37E-01	3.27E-01	1.89E+01	7.24E+00
2002	9	1	3.91E-01	0.00E+00	7.07E-02	0.00E+00	0.00E+00	3.92E+00	1.87E+00	4.80E+00	8.52E-03	5.70E-04	0.00E+00	2.22E-02	6.76E-03	3.52E+00	7.40E-01
2002	9	2	6.06E-01	8.94E-04	9.12E-01	7.88E-05	5.33E-04	1.76E+01	5.57E+00	1.34E+01	2.50E-01	3.60E-02	8.71E-03	1.17E-01	6.59E-02	1.59E+01	2.36E+00
2002	9	3	2.06E+00	1.21E-05	5.84E-01	3.13E-07	1.19E-04	1.52E+01	4.46E+00	1.25E+01	1.91E-01	2.19E-02	1.97E-03	5.80E-02	5.10E-02	1.18E+01	3.67E+00
2002	9	4	1.09E+01	2.76E-02	6.89E+00	1.13E-02	1.37E-02	1.41E+01	8.56E+00	1.97E+01	2.84E-01	6.28E-02	3.57E-02	1.06E-01	7.82E-02	2.07E+01	1.37E+01
2002	9	5	1.26E+01	7.88E-02	4.95E+00	4.08E-02	5.44E-02	1.73E+01	7.52E+00	2.43E+01	7.29E-01	1.82E-01	1.11E-01	2.64E-01	2.05E-01	2.57E+01	1.65E+01
2002	9	6	7.23E+00	7.50E-02	4.15E+00	1.75E-02	2.69E-02	1.83E+01	8.05E+00	2.41E+01	6.50E-01	2.01E-01	1.09E-01	3.05E-01	2.47E-01	2.36E+01	9.55E+00
2002	9	7	7.79E+00	4.80E-02	4.06E+00	1.14E-02	1.94E-02	2.44E+01	1.16E+01	2.66E+01	8.04E-01	1.91E-01	8.35E-02	3.33E-01	2.68E-01	2.17E+01	1.04E+01
2002	9	8	1.12E+00	7.33E-06	4.67E-01	2.06E-08	1.02E-06	6.44E+00	2.85E+00	7.92E+00	4.73E-02	6.17E-03	1.76E-04	6.67E-02	2.89E-02	7.99E+00	1.84E+00
2002	9	9	8.94E-01	9.99E-07	6.01E-01	0.00E+00	1.23E-07	8.32E+00	3.76E+00	1.38E+01	1.33E-01	8.30E-03	2.03E-04	6.31E-02	3.31E-02	1.01E+01	1.26E+00
2002	9	10	1.55E+00	5.99E-04	2.15E+00	1.62E-05	3.60E-04	2.35E+01	9.15E+00	2.41E+01	3.51E-01	5.33E-02	1.09E-02	1.84E-01	1.09E-01	2.61E+01	2.66E+00
2002	9	11	1.26E+00	1.63E-02	1.47E+00	9.60E-03	1.34E-02	2.55E+01	9.62E+00	2.70E+01	6.73E-01	1.27E-01	4.25E-02	3.19E-01	2.14E-01	2.71E+01	1.68E+00
2002	9	12	1.36E+00	2.89E-04	1.04E+00	1.87E-05	1.36E-04	1.87E+01	7.44E+00	1.92E+01	2.06E-01	3.20E-02	4.30E-03	1.26E-01	7.01E-02	2.08E+01	2.84E+00
2002	9	13	7.33E+00	1.53E-02	4.24E+00	6.64E-03	5.44E-03	1.89E+01	4.10E+00	1.84E+01	1.18E-01	1.54E-02	9.37E-03	3.78E-02	2.29E-02	2.43E+01	8.60E+00
2002	9	14	8.58E+00	3.44E-02	4.33E+00	1.09E-02	2.17E-02	2.57E+01	8.86E+00	2.29E+01	7.39E-01	1.83E-01	8.36E-02	3.31E-01	2.51E-01	2.57E+01	1.12E+01
2002	9	15	5.07E+00	3.29E-03	2.25E+00	2.65E-03	9.51E-03	1.67E+01	5.77E+00	2.13E+01	2.98E-01	8.14E-02	2.75E-02	1.86E-01	1.44E-01	2.76E+01	8.36E+00
2002	9	16	3.08E+00	1.92E-04	6.95E-01	6.31E-05	5.02E-04	8.80E+00	4.59E+00	7.44E+00	6.93E-02	1.53E-02	2.94E-03	3.12E-02	2.13E-02	9.98E+00	4.08E+00
2002	9	17	4.16E+00	2.67E-02	1.72E+00	9.42E-03	1.50E-02	2.03E+01	1.03E+01	2.75E+01	4.04E-01	1.08E-01	5.44E-02	1.81E-01	1.39E-01	3.07E+01	5.19E+00
2002	9	18	1.03E+00	1.65E-04	5.77E-01	3.79E-06	3.94E-05	1.22E+01	4.33E+00	1.81E+01	1.67E-01	1.85E-02	2.28E-03	7.17E-02	3.99E-02	1.40E+01	2.96E+00
2002	9	19	2.16E-01	0.00E+00	1.10E-01	0.00E+00	0.00E+00	2.76E+00	1.89E+00	3.24E+00	1.51E-02	4.28E-04	1.28E-05	6.02E-03	1.71E-03	2.64E+00	4.85E-01
2002	9	20	3.51E+00	7.28E-05	1.15E+00	7.77E-06	6.89E-05	1.60E+01	3.75E+00	2.10E+01	2.46E-01	2.44E-02	3.77E-03	1.12E-01	5.94E-02	1.59E+01	4.36E+00
2002	9	21	1.92E+00	6.86E-04	1.13E+00	4.87E-05	4.74E-04	2.06E+01	8.26E+00	3.52E+01	2.75E-01	4.57E-02	9.61E-03	1.28E-01	8.12E-02	2.70E+01	3.22E+00
2002	9	22	4.30E+00	2.02E-05	2.31E+00	2.68E-07	3.21E-06	5.81E+00	1.00E+00	8.63E+00	1.81E-02	3.97E-03	4.07E-04	8.78E-03	6.98E-03	9.69E+00	5.83E+00
2002	9	23	9.09E+00	3.65E-02	4.72E+00	1.14E-02	1.82E-02	2.34E+01	6.47E+00	1.92E+01	4.15E-01	1.21E-01	6.53E-02	2.10E-01	1.56E-01	2.01E+01	1.24E+01
2002	9	24	1.23E+01	4.04E-03	5.47E+00	7.17E-04	7.87E-04	1.18E+01	5.33E-01	1.17E+01	6.00E-02	3.65E-03	2.24E-03	4.93E-03	4.12E-03	2.02E+01	1.53E+01
2002	9	25	1.03E+01	2.86E-02	5.00E+00	9.21E-03	1.58E-02	2.37E+01	8.20E+00	2.95E+01	6.25E-01	1.49E-01	6.24E-02	3.40E-01	2.26E-01	2.36E+01	1.21E+01
2002	9	26	7.01E+00	6.14E-03	2.94E+00	9.45E-04	3.04E-03	2.01E+01	5.02E+00	2.94E+01	1.82E-01	4.26E-02	1.75E-02	1.08E-01	6.76E-02	2.20E+01	8.69E+00
2002	9	27	1.30E+01	3.22E-02	6.45E+00	1.32E-02	1.94E-02	2.02E+01	3.51E+00	1.78E+01	5.50E-01	1.63E-01	7.51E-02	2.45E-01	2.08E-01	1.91E+01	1.64E+01

Project

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	6	30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.18E-05	0.00E+00	1.71E-02	2.42E-01	7.69E-23	4.21E+00	2.02E-01	4.93E-01	5.25E-01	5.71E-02	0.00E+00
2002	7	1	5.66E-02	1.09E-04	3.23E-03	4.23E-06	2.15E-05	1.22E-02	2.16E-02	2.69E-01	5.60E-03	6.36E+00	6.43E-02	7.38E-01	5.28E-01	3.32E-02	1.40E-01
2002	7	2	3.57E-03	0.00E+00	0.00E+00	0.00E+00	1.15E-05	1.32E-04	3.82E-02	8.36E-01	1.06E-03	3.93E+00	1.35E-01	7.23E-01	5.30E-01	1.43E-02	7.67E-03
2002	7	3	2.49E-02	5.18E-01	1.63E-03	2.75E-01	3.41E-01	3.85E-03	5.36E-02	1.04E+00	1.49E-01	1.60E+01	3.46E+00	1.78E+00	3.51E+00	7.91E-02	5.80E-02
2002	7	4	6.79E-02	6.44E-07	2.09E-03	0.00E+00	5.49E-04	5.59E-03	3.81E-03	1.41E-01	4.08E-02	2.48E+00	2.47E-01	2.06E-01	5.02E-01	1.24E-02	8.91E-02
2002	7	5	1.39E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.73E-02	4.73E-01	8.37E-22	4.49E+00	1.04E-01	5.66E-01	6.17E-01	1.56E-02	2.96E-03
2002	7	6	1.25E-01	3.58E-01	4.10E-02	1.74E-01	3.34E-01	6.04E-02	9.97E-02	1.49E+00	6.83E-01	2.01E+01	1.96E+00	2.00E+00	2.25E+00	1.31E-01	3.02E-01
2002	7	7	8.99E-02	2.17E-01	1.23E-01	8.49E-02	1.31E-01	9.48E-02	6.28E-02	8.24E-01	2.94E+00	8.69E+00	1.12E+00	8.21E-01	5.71E-01	1.24E-01	2.25E-01
2002	7	8	1.32E-01	1.85E-01	8.30E-02	4.26E-02	8.63E-02	5.37E-02	3.82E-03	1.93E-01	2.36E+00	2.05E+00	1.02E+00	1.67E-01	3.22E-01	2.65E-02	1.90E-01
2002	7	9	1.40E-01	3.80E-02	1.63E-02	1.95E-02	8.64E-02	1.60E-02	1.77E-02	2.93E-01	1.24E+00	4.72E+00	1.30E+00	2.85E-01	6.49E-01	2.88E-02	2.55E-01
2002	7	10	3.17E-01	5.66E-01	1.53E-01	3.18E-03	3.18E-03	1.67E-01	8.04E-03	2.15E-01	4.38E+00	8.28E-01	1.18E+00	5.06E-02	1.30E-01	7.52E-02	6.32E-01
2002	7	11	2.17E-03	9.10E-02	2.79E-04	4.43E-02	1.56E-01	5.44E-04	2.80E-02	1.35E+00	3.73E-03	7.33E+00	1.81E+00	3.50E-01	7.43E-01	1.03E-01	3.29E-03
2002	7	12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-01	1.32E+00	7.44E-28	1.09E+01	6.48E-02	1.39E+00	1.91E+00	1.11E-01	2.80E-04
2002	7	13	7.93E-02	2.59E-01	7.37E-04	2.04E-01	3.66E-01	3.41E-03	3.88E-01	1.18E+00	1.28E-01	6.23E+00	2.98E+00	2.76E+00	3.26E+00	2.15E-01	1.21E-01
2002	7	14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.70E-03	0.00E+00	2.74E-02	8.15E-01	1.36E-24	2.83E+00	2.89E-01	2.80E-01	6.41E-01	1.93E-02	8.24E-06
2002	7	15	8.69E-02	0.00E+00	0.00E+00	0.00E+00	4.40E-03	1.14E-04	6.49E-02	1.16E+00	9.40E-06	1.14E+01	4.66E-01	1.22E+00	1.20E+00	4.98E-02	1.90E-01
2002	7	16	8.41E-03	1.00E-01	5.52E-05	1.16E-01	8.67E-02	3.71E-04	8.99E-02	1.54E+00	6.81E-03	1.24E+01	9.62E-01	1.61E+00	7.52E-01	5.61E-02	3.95E-02
2002	7	17	4.21E-05	0.00E+00	0.00E+00	3.87E-05	1.57E-02	0.00E+00	9.14E-02	1.16E+00	7.96E-06	9.56E+00	3.10E-01	1.09E+00	9.78E-01	6.88E-02	2.96E-03
2002	7	18	1.79E-03	0.00E+00	0.00E+00	0.00E+00	7.39E-03	0.00E+00	6.94E-02	1.03E+00	0.00E+00	8.01E+00	2.80E-01	8.70E-01	7.04E-01	8.11E-02	7.42E-03
2002	7	19	1.74E-02	1.22E-06	1.56E-04	5.27E-04	3.26E-02	9.08E-04	2.68E-02	6.39E-01	7.90E-03	7.76E+00	4.56E-01	6.59E-01	8.87E-01	2.63E-02	4.34E-02
2002	7	20	6.68E-02	5.32E-01	3.58E-01	9.68E-02	6.53E-02	2.64E-01	2.13E-02	8.91E-02	5.03E+00	2.35E+00	1.62E-01	3.53E-01	5.41E-01	1.84E-02	1.23E-01
2002	7	21	1.54E-01	8.83E-04	2.54E-01	3.15E-07	4.69E-07	1.78E-01	3.23E-04	2.86E-02	2.88E+00	1.28E-05	1.94E-06	1.03E-04	6.81E-05	2.55E-02	3.02E-01
2002	7	22	5.45E-01	2.57E-05	6.14E-02	0.00E+00	0.00E+00	4.09E-02	3.04E-04	7.15E-02	3.90E+00	1.04E-03	6.18E-04	3.98E-04	4.66E-04	2.12E-02	1.01E+00
2002	7	23	1.28E-01	4.44E-01	3.40E-02	7.69E-02	1.39E-01	5.87E-02	2.03E-01	1.56E+00	5.49E-01	2.09E+01	2.53E+00	2.59E+00	4.44E+00	2.64E-01	1.78E-01
2002	7	24	8.87E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.28E-02	1.40E+00	4.44E-18	9.24E+00	3.62E-02	1.15E+00	8.05E-01	7.29E-02	5.26E-03
2002	7	25	3.74E-02	0.00E+00	4.80E-04	0.00E+00	0.00E+00	2.20E-03	7.13E-02	1.05E+00	2.90E-05	1.12E+01	1.18E-01	1.18E+00	7.93E-01	6.30E-02	1.09E-01
2002	7	26	1.23E-01	1.01E-04	1.70E-02	1.26E-05	4.83E-05	5.30E-02	1.74E-02	2.63E-01	3.45E-02	9.82E+00	7.36E-02	7.49E-01	9.00E-01	4.43E-02	3.23E-01
2002	7	27	1.47E-01	2.22E-03	1.13E-02	5.07E-05	2.57E-03	3.39E-02	5.21E-01	1.05E+00	3.60E-01	7.68E+00	2.03E-01	1.96E+00	2.49E+00	2.90E-01	2.54E-01
2002	7	28	6.86E-02	1.71E-06	4.35E-03	1.17E-10	2.17E-07	1.20E-02	5.07E-02	6.00E-01	7.10E-04	7.35E+00	5.62E-02	1.39E+00	1.96E+00	4.90E-02	1.64E-01
2002	7	29	1.29E-01	1.23E-04	1.44E-02	8.27E-06	1.27E-04	4.18E-02	9.38E-03	3.30E-01	1.38E-02	6.80E+00	1.14E-01	5.65E-01	1.42E+00	1.53E-02	3.22E-01
2002	7	30	1.34E-01	3.14E-05	2.77E-02	8.62E-08	6.72E-06	2.82E-02	2.99E-02	3.86E-01	1.42E-01	5.18E+00	1.14E-01	5.14E-01	7.81E-01	3.65E-02	2.26E-01
2002	7	31	8.67E-02	1.62E-01	4.41E-01	5.10E-02	1.37E-01	2.75E-01	2.04E-02	4.28E-02	2.98E+00	3.59E+00	6.06E-01	2.34E-01	6.57E-01	2.46E-02	1.45E-01
2002	8	1	1.28E-03	1.17E-01	8.12E-02	6.74E-03	6.81E-04	3.75E-02	6.66E-04	9.03E-04	1.41E+00	8.35E-04	8.76E-04	7.98E-04	8.13E-04	8.93E-04	7.17E-03
2002	8	2	1.04E-01	3.13E-01	2.09E-01	2.96E-01	2.50E-01	2.34E-01	2.12E-02	5.08E-02	4.80E+00	1.38E+00	1.53E+00	7.82E-02	1.89E-01	3.38E-02	1.29E-01
2002	8	3	3.52E-02	1.05E-02	2.66E-01	4.69E-04	1.02E-04	1.93E-01	2.03E-02	2.71E-02	1.79E+00	3.54E-03	9.40E-04	8.58E-03	5.59E-03	2.82E-02	3.67E-02
2002	8	4	2.99E-01	9.60E-01	3.79E-02	5.44E-02	6.27E-02	5.48E-02	3.72E-05	4.49E-03	3.58E+00	7.36E-01	1.84E+00	1.94E-02	6.64E-02	2.86E-03	5.73E-01
2002	8	5	8.39E-02	3.74E-01	1.09E-02	3.28E-01	5.27E-01	1.38E-02	2.96E-02	8.42E-01	5.12E-01	1.05E+01	4.77E+00	5.93E-01	1.29E+00	3.45E-02	2.14E-01
2002	8	6	1.18E-01	4.16E-02	2.62E-02	2.13E-01	5.43E-01	3.66E-02	8.64E-02	9.05E-01	2.80E-01	1.13E+01	5.08E+00	1.30E+00	1.90E+00	6.86E-02	2.15E-01
2002	8	7	2.13E-01	1.12E-01	1.15E-01	9.36E-02	1.61E-01	1.05E-01	8.60E-02	1.22E+00	2.22E+00	1.81E+01	5.75E-01	1.46E+00	2.31E+00	1.26E-01	3.57E-01
2002	8	8	3.42E-01	1.09E+00	1.36E-01	1.63E-01	3.78E-01	1.84E-01	1.50E-01	7.25E-01	3.48E+00	1.37E+01	7.66E+00	1.64E+00	2.97E+00	1.76E-01	6.21E-01
2002	8	9	1.03E-02	5.53E-06	1.65E-04	8.47E-07	3.46E-06	6.46E-04	4.26E-02	7.89E-01	2.83E-04	7.48E+00	2.79E-02	1.65E+00	3.05E+00	7.35E-02	2.72E-02
2002	8	10	2.95E-01	2.73E-01	9.82E-02	6.31E-02	1.59E-01	1.79E-01	3.88E-01	1.46E+00	1.43E+00	1.97E+01	1.14E+00	3.42E+00	6.94E+00	3.40E-01	3.87E-01
2002	8	11	1.48E-02	5.56E-01	8.41E-01	1.03E-02	1.03E-02	4.49E-01	5.47E-03	2.36E-01	6.62E+00	9.57E-01	2.42E+00	2.86E-02	9.61E-02	1.62E-02	4.13E-02
2002	8	12	3.36E-01	7.55E-01	1.60E-01	1.25E-01	2.40E-01	1.96E-01	1.05E-01	9.55E-01	1.94E+00	1.35E+01	6.16E+00	1.17E+00	2.99E+00	1.76E-01	5.25E-01
2002	8	13	3.66E-01	2.00E-01	1.71E-02	3.21E-02	7.03E-02	2.86E-02	1.01E+00	1.51E+00	4.34E-01	1.24E+01	7.66E-01	2.89E+00	2.49E+00	7.00E-01	5.81E-01
2002	8	14	2.26E-01	1.19E-02	3.06E-01	2.34E-03	5.43E-03	4.40E-01	1.52E-01	1.86E-01	4.02E+00	1.22E+01	1.65E-01	2.12E+00	4.01E+00	9.48E-02	3.91E-01
2002	8	15	4.14E-02	1.29E+00	1.16E-01	3.48E-01	5.82E-01	1.22E-01	2.80E-02	3.06E-01	2.17E+00	9.42E+00	4.55E+00	7.37E-01	1.59E+00	3.87E-02	5.93E-02
2002	8	16	3.04E-01	4.81E-01	8.80E-01	1.44E-02	2.26E-02	1.07E+00	8.62E-02	2.25E-01	5.96E+00	7.34E+00	4.00E+00	8.64E-01	2.30E+00	1.68E-01	4.48E-01
2002	8	17	8.65E-02	1.26E-01	4.53E-03	1.50E-01	3.00E-01	8.76E-03	4.76E-02	9.05E-01	2.74E-01	1.54E+01	1.84E+00	9.41E-01	1.76E+00	1.10E-01	1.50E-01
2002	8	18	8.44E-01	4.26E-02	1.03E-01	8.67E-03	2.60E-02	2.22E-01	2.36E-01	1.60E+00	2.65E+00	6.73E+00	3.60E-01	6.35E-01	1.85E+00	7.34E-01	9.94E-01
2002	8	19	6.58E-04	5.97E-05	6.43E-05	1.52E-04	4.92E-02	5.60E-04	8.91E-02	1.56E+00	2.34E-03	1.38E+01	1.12E+00	1.64E+00	1.76E+00	7.96E-02	2.54E-03
2002	8	20	2.48E-01	1.22E-02	8.09E-01	8.17E-06	4.96E-06	1.29E+00	2.16E-02	1.09E-01	6.47E+00	6.95E-02	3.61E-03	3.42E-02	1.76E-02	6.57E-02	3.97E-01
2002	8	21	9.99E-02	1.97E+00	3.22E-02	1.97E-01	3.57E-01	3.30E-02	3.33E-02	8.58E-01	1.07E+00	6.02E+00	3.10E+00	5.43E-01	5.15E-01	5.01E-02	2.53E-01
2002	8	22	1.38E-03	2.73E-01	1.67E-03	5.88E-02	8.83E-02	2.15E-03	9.47E-02	1.99E+00	3.72E-02	1.39E+01	1.19E+00	1.34E+00	1.44E+00	1.40E-01	2.33E-03
2002	8	23	7.38E-02	7.02E-01	1.97E-02	8.05E-02	4.26E-02	2.79E-02	9.23E-02	1.08E+00	3.02E-01	8.47E+00	2.80E+00	1.24E+00	1.86E+00	1.11E-01	1.53E-01
2002	8	24	1.49E-02	4.93E-01	1.56E-02	3.54E-02	9.44E-02	1.79E-02	1.03E-01	1.82E+00	1.98E-01	1.03E+01	7.71E-01	1.24E+00	1.76E+00	1.28E-01	3.16E-02
2002	8	25	1.05E-01	1.59E-01	6.66E-02	4.86E-02	9.44E-02	9.08E-02	2.69E-01	1.57E+00	4.84E-01	1.76E+01	8.03E-01	2.71E+00	3.86E+00	1.64E-01	1.42E-01
2002	8	26	1.70E+00	9.99E-02	3.83E-01	7.13E-03	1.20E-02	5.59E-01	9.20E-01	2.29E+00	4.87E+00	6.75E+00	3.02E-01	2.21E+00	2.53E+00	1.38E+00	1.87E+00
2002	8	27	9.32E-01	3.59E-01	1.00E-01	2.52E-05	6.55E-05	1.46E-01	4.31E-03	3.06E-01	4.12E+00	2.22E-01	1.01E+00	4.90E-03	3.87E-03	2.32E-01	1.17E+00
2002	8	28	2.23E-01	8.75E-01	1.12E-01	1.01E-01	2.01E-01	1.38E-01	1.93E-01	1.28E+00	1.41E+00	1.97E+01	3.47E+00	2.82E+00	4.18E+00	1.94E-01	4.47E-01
2002	8	29	6.97E-02	6.65E-02	3.83E-03	1.36E-01	2.72E-01	1.52E-02	6.07E-02	1.31E+00	9.04E-03	1.23E+01	2.25E+00	9.75E-01	1.77E+00	1.56E-01	2.15E-01
2002	8	30	1.75E-01	7.14E-03	3.89E-02	2.08E-04	2.03E-03	7.90E-02	1.77E-01	1.14E+00	2.21E+00	1.70E+01	3.80E-01	2.31E+00	2.82E+00	2.09E-01	2.96E-01
2002	8	31	3.85E-01	4.73E-01	2.51E-01	1.46E-01	2.53E-01	2.83E-01	3.30E-01	9.42E-01	2.07E+00	1.77E+01	2.76E+00	2.16E+00	3.30E+00	3.35E-01	5.91E-01
2002	9	1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	2.35E-01	9.88E-16	4.10E+00	8.84E-02	3.94E-01	4.99E-01	0.00E+00	0.00E+00
2002	9	2	4.02E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.50E-08	6.46E-02	9.26E-01	1.38E-03	8.78E+00	1.94E-01	9.37E-01	6.95E-01	5.23E-02	1.09E-01
2002	9	3	1.40E-02	0.00E+00	2.07E-04	0.00E+00	2.02E-02	3.61E-03	4.65E-02	9.79E-01	1.27E-05	4.34E+00	5.31E-01	6.32E-01	5.90E-01	3.26E-02	5.01E-02
2002	9	4	7.64E-02	2.84E-01	1.05E-01	2.39E-01	3.54E-01	1.64E-01	8.90E-02	2.56E-01	4.67E+00	1.14E+01	2.57E+00	1.70E+00	2.91E+00	3.96E-02	1.67E-01
2002	9	5	3.06E-01	1.31E+00	2.13E-02	8.46E-01	1.92E+00	4.50E-02	9.06E-04	1.33E-01	9.07E-01	1.75E+00	1.19E+01	8.43E-03	1.68E-02	2.61E-02	5.40E-01
2002	9	6	2.34E-02	1.49E+00	1.68E-02	1.25E-01	1.68E-01	2.35E-02	4.55E-02	3.43E-01	1.69E+00	1.47E+01	3.89E+00	1.08E+00	9.23E-01	1.30E-01	5.64E-02
2002	9	7	2.84E-01	7.36E-01	2.10E-01	7.97E-02	1.51E-01	2.51E-01	2.79E-01	1.35E+00	2.38E+00	1.33E+01	2.44E+00	1.29E+00	2.24E+00	3.23E-01	4.11E-01
2002	9	8	5.02E-02	0.00E+00	2.45E-04	0.00E+00	9.94E-05	1.51E-03	1.35E-02	3.53E-01	5.12E-03	4.36E+00	2.69E-01	6.53E-01	6.34E-01	2.01E-03	1.13E-01
2002	9	9	3.24E-02	0.00E+00	5.00E-04	0.00E+00	0.00E+00	6.36E-03	2.98E-02	5.82E-01	3.23E-03	6.50E+00	8.51E-02	9.51E-01	5.93E-01	7.54E-03	1.18E-01
2002	9	10	6.84E-02	5.13E-06	1.24E-03	4.28E-03	4.97E-02	4.48E-03	8.63E-02	1.28E+00	1.75E-02	1.69E+01	3.15E-01	1.75E+00	1.24E+00	6.44E-02	1.42E-01
2002	9	11	1.29E-03	1.32E-01	3.80E-05	1.64E-01	3.40E-01	4.80E-04	1.40E-01	1.95E+00	1.28E-02	1.61E+01	2.21E+00	1.99E+00	8.90E-01	9.79E-02	7.45E-03
2002	9	12	2.30E-02	0.00E+00	7.12E-04	4.15E-05	8.21E-03	2.12E-03	1.13E-01	1.23E+00	5.95E-03	1.41E+01	4.19E-01	1.31E+00	1.27E+00	1.01E-01	6.98E-02
2002	9	13	1.58E-01	2.18E-01	5.02E-02	5.79E-02	4.00E-02	6.99E-02	1.06E-01	8.52E-01	1.81E+00	6.60E+00	6.68E-02	1.29E+00	1.67E+00	1.46E-01	3.13E-01
2002	9	14	1.75E-01	4.16E-01	3.24E-02	4.40E-02	3.83E-01	2.95E-02	4.34E-02	9.10E-01	2.42E+00	1.03E+01	3.73E+00	7.15E-01	1.40E+00	1.33E-01	4.31E-01
2002	9	15	9.15E-02	1.33E-03	1.60E-02	1.00E-01	3.24E-01	5.12E-02	2.38E-02	5.12E-01	2.23E-02	6.55E+00	1.75E+00	3.03E-01	1.39E+00	6.64E-02	2.95E-01
2002	9	16	4.34E-02	4.82E-06	4.91E-03	1.75E-06	1.18E-02	2.07E-02	3.65E-02	4.69E-01	3.82E-02	6.50E+00	3.54E-01	8.46E-01	6.04E-01	3.71E-02	1.36E-01
2002	9	17	5.14E-01	7.81E-01	1.91E-01	3.16E-01	3.61E-01	2.81E-01	4.01E-01	1.45E+00	9.99E-01	1.72E+01	4.49E+00	2.32E+00	1.77E+00	5.60E-01	6.21E-01
2002	9	18	9.49E-03	2.70E-09	2.82E-05	0.00E+00	2.33E-08	9.12E-05	1.48E-01	8.25E-01	1.17E-04	7.77E+00	3.22E-02	3.46E+00	3.64E+00	6.36E-02	3.60E-02
2002	9	19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.97E-09	1.23E-05	1.79E-02	1.44E-01	1.57E-03	5.20E+00	9.97E-02	4.60E-01	4.97E-01	4.60E-07	2.17E-07
2002	9	20	9.31E-02	0.00E+00	2.38E-03	0.00E+00	0.00E+00	1.97E-02	5.55E-02	8.62E-01	3.48E-03	9.74E+00	1.94E-03	1.27E+00	2.03E+00	3.54E-02	2.82E-01
2002	9	21	8.48E-02	7.19E-04	2.06E-03	9.15E-05	4.21E-03	6.70E-03	2.63E-01	1.03E+00	1.03E-01	1.56E+01	1.70E-01	4.27E+00	5.01E+00	1.54E-01	2.17E-01
2002	9	22	2.53E-02	7.88E-07	8.43E-02	4.67E-09	6.50E-08	1.14E-01	4.52E-02	1.18E-01	2.50E+00	7.92E+00	2.79E-04	7.00E-01	1.55E+00	3.62E-02	2.99E-02
2002	9	23	2.66E-01	5.45E-01	3.26E-02	1.03E-01	1.79E-01	7.94E-02	8.43E-02	7.53E-01	3.04E+00	4.63E+00	4.18E+00	7.40E-01	1.21E+00	1.50E-01	4.32E-01
2002	9	24	1.50E-01	3.12E-03	2.88E-01	8.40E-04	8.89E-04	1.85E-01	7.38E-03	2.58E-02	9.34E+00	2.78E-02	2.01E-03	2.43E-02	9.62E-03	1.75E-02	2.16E-01
2002	9	25	1.39E-01	4.77E-01	3.76E-02	4.72E-02	7.55E-02	5.55E-02	6.20E-02	9.92E-01	2.94E+00	1.30E+01	1.74E+00	1.41E+00	2.23E+00	3.38E-02	2.56E-01
2002	9	26	2.14E-01	7.49E-02	3.45E-01	1.23E-02	5.30E-02	3.13E-01	1.25E-01	7.18E-01	3.59E+00	1.11E+01	3.93E-01	2.06E+00	3.23E+00	1.41E-01	3.08E-01
2002	9	27	1.50E-01	6.24E-01	1.73E-01	8.05E-02	1.22E-01	1.42E-01	7.05E-03	2.70E-01	5.13E+00	5.85E-01	3.50E+00	6.18E-03	1.22E-01	3.37E-02	2.92E-01

Table C4 - Timeseries Data for PM10

Application

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	9	28	5.57E-01	6.17E-04	7.18E-01	4.59E-05	4.11E-04	9.37E+00	3.67E+00	1.10E+01	2.54E-01	4.49E+00	6.28E-02	9.33E-01	7.56E-01	1.20E+01	1.39E+00
2002	9	29	4.00E+00	4.19E-04	7.84E-01	3.46E-04	3.87E-02	1.07E+01	4.64E+00	1.43E+01	3.59E-01	4.41E+00	8.10E-01	5.85E-01	8.70E-01	1.66E+01	6.66E+00
2002	9	30	1.28E+01	2.35E-03	7.07E+00	1.31E-04	6.17E-04	2.45E+01	5.60E+00	3.53E+01	6.57E+00	4.92E+00	3.46E-02	2.12E+00	2.10E+00	2.88E+01	1.77E+01
2002	10	1	1.68E+00	1.88E-01	1.41E+00	6.03E-02	1.56E-01	5.20E+00	2.07E+00	6.57E+00	2.83E+00	1.03E+01	1.25E+00	1.34E+00	1.92E+00	5.27E+00	2.36E+00
2002	10	2	2.82E-01	1.20E-04	1.13E-01	8.57E-06	4.55E-05	9.87E-01	4.90E-01	2.19E+00	2.41E-02	2.89E+00	1.22E-02	5.29E-01	1.89E-01	1.23E+00	5.02E-01
2002	10	3	2.19E+00	3.39E-03	1.25E+00	7.09E-06	2.15E-05	2.03E+00	9.65E-01	2.39E+00	4.35E+00	3.63E+00	2.48E-02	4.71E-01	4.65E-01	3.34E+00	2.98E+00
2002	10	4	2.78E+00	2.78E-01	1.82E+00	3.78E-02	1.37E-01	4.44E+00	1.65E+00	6.37E+00	4.53E+00	8.01E+00	1.20E+00	1.21E+00	1.70E+00	5.92E+00	3.73E+00
2002	10	5	6.86E-01	2.02E-04	2.81E-01	4.10E-05	1.07E-04	2.75E+00	1.13E+00	5.62E+00	6.57E-02	7.88E+00	1.81E-03	1.16E+00	1.39E+00	4.56E+00	1.10E+00
2002	10	6	3.65E-01	0.00E+00	2.17E-02	0.00E+00	1.10E-07	1.20E+00	8.82E-01	2.98E+00	1.24E-02	4.27E+00	3.65E-03	1.06E+00	1.82E-01	1.93E+00	4.52E-01
2002	10	7	7.08E-01	4.47E-06	2.40E-01	6.47E-09	1.50E-07	1.54E+00	1.10E+00	3.27E+00	2.10E-01	6.23E+00	2.20E-04	1.07E+00	1.26E+00	2.38E+00	9.42E-01
2002	10	8	9.99E-01	8.95E-02	6.53E-01	2.75E-02	5.77E-02	4.36E+00	2.14E+00	6.98E+00	7.71E-01	5.43E+00	6.06E-01	1.04E+00	8.81E-01	5.98E+00	1.60E+00
2002	10	9	3.81E-02	4.64E-05	1.50E-01	1.24E-06	1.52E-04	1.73E+00	9.08E-01	3.30E+00	2.44E-02	4.01E+00	7.62E-02	8.02E-01	3.02E-01	2.44E+00	9.48E-02
2002	10	10	7.57E-01	3.10E-04	2.87E-01	1.97E-04	8.73E-03	1.80E+00	1.06E+00	2.71E+00	8.73E-02	5.29E+00	5.59E-01	6.83E-01	6.07E-01	2.51E+00	1.29E+00
2002	10	11	1.76E+00	5.14E-02	5.93E-01	1.89E-02	4.43E-02	4.66E+00	2.57E+00	8.62E+00	8.42E-01	1.03E+01	3.18E-01	1.95E+00	2.29E+00	6.44E+00	2.31E+00
2002	10	12	3.72E-01	4.03E-04	1.47E-01	2.89E-05	1.15E-04	2.52E+00	1.12E+00	5.35E+00	4.23E-02	5.71E+00	6.77E-03	7.45E-01	4.48E-01	3.30E+00	5.52E-01
2002	10	13	3.08E-01	6.36E-07	1.02E-01	0.00E+00	0.00E+00	1.45E+00	4.76E-01	2.45E+00	9.77E-04	3.07E+00	1.15E-02	6.06E-01	5.64E-01	1.49E+00	3.97E-01
2002	10	14	4.89E-01	3.07E-03	2.59E-01	1.21E-03	6.50E-03	4.53E+00	1.64E+00	7.39E+00	4.25E-01	7.95E+00	1.86E-01	2.18E+00	2.72E+00	5.09E+00	9.23E-01
2002	10	15	1.73E+00	2.14E-02	6.13E-01	3.16E-03	8.00E-03	4.29E+00	1.64E+00	6.35E+00	1.28E+00	1.02E+01	1.48E-01	1.25E+00	1.94E+00	4.95E+00	2.09E+00
2002	10	16	1.27E+00	3.28E-02	1.08E+00	8.71E-03	1.63E-02	4.99E+00	2.40E+00	7.76E+00	1.53E+00	1.14E+01	1.69E-01	1.59E+00	2.19E+00	7.56E+00	1.79E+00
2002	10	17	3.19E-01	0.00E+00	1.79E-01	0.00E+00	0.00E+00	2.12E+00	8.92E-01	3.60E+00	4.54E-02	5.84E+00	3.13E-05	9.29E-01	6.41E-01	2.11E+00	4.25E-01
2002	10	18	8.90E-01	1.38E-03	2.83E-01	4.80E-03	3.31E-02	3.45E+00	2.59E+00	7.21E+00	3.08E-01	1.47E+01	4.81E-01	2.91E+00	4.03E+00	6.15E+00	1.28E+00
2002	10	19	1.30E+00	3.17E-04	5.35E-01	2.55E-05	2.60E-04	3.70E+00	1.70E+00	5.52E+00	6.98E-02	9.15E+00	6.50E-03	1.39E+00	4.35E-01	5.14E+00	1.64E+00
2002	10	20	6.28E-01	1.15E-01	2.70E-01	3.70E-02	8.60E-02	4.38E+00	3.33E+00	8.93E+00	6.14E-01	1.28E+01	1.52E+00	3.87E+00	4.56E+00	7.13E+00	9.35E-01
2002	10	21	5.44E-01	7.73E-03	2.65E-01	7.50E-05	3.04E-04	2.73E+00	1.54E+00	5.03E+00	8.73E-01	7.48E+00	9.44E-03	1.29E+00	2.27E+00	4.39E+00	6.55E-01
2002	10	22	1.67E+00	0.00E+00	1.06E+00	0.00E+00	0.00E+00	1.28E+00	6.28E-03	1.77E+00	3.93E+00	5.03E-08	5.16E-05	0.00E+00	0.00E+00	2.42E+00	1.86E+00
2002	10	23	4.30E+00	2.22E-01	2.63E+00	2.86E-03	8.27E-03	6.25E+00	1.31E+00	8.08E+00	3.32E+00	2.61E+00	7.02E-01	5.50E-01	6.66E-01	7.82E+00	5.64E+00
2002	10	24	1.04E+00	2.99E-02	6.87E-01	8.85E-03	3.79E-02	5.22E+00	2.31E+00	8.21E+00	1.21E+00	6.98E+00	7.51E-01	1.84E+00	1.58E+00	6.94E+00	1.43E+00
2002	10	25	9.96E-01	1.24E-02	4.26E-01	1.43E-01	1.59E-01	5.35E+00	2.91E+00	9.04E+00	1.32E-01	1.18E+01	1.80E+00	2.58E+00	2.85E+00	6.61E+00	1.40E+00
2002	10	26	1.61E+00	5.84E-01	6.86E-01	4.71E-01	6.01E-01	2.53E+00	1.66E+00	4.10E+00	3.17E+00	6.86E+00	3.26E+00	1.47E+00	2.10E+00	3.88E+00	2.14E+00
2002	10	27	1.86E-01	3.68E-04	1.79E-01	3.17E-05	1.20E-04	2.33E+00	9.62E-01	4.62E+00	6.99E-02	4.07E+00	1.39E-02	1.04E+00	3.04E-01	2.92E+00	4.38E-01
2002	10	28	1.30E+00	1.84E-04	7.88E-01	3.75E-06	4.91E-05	2.59E+00	1.07E+00	5.15E+00	1.32E+00	6.13E+00	2.16E-03	1.01E+00	6.97E-01	5.13E+00	1.84E+00
2002	10	29	1.82E+00	0.00E+00	7.46E-01	0.00E+00	0.00E+00	2.16E+00	3.52E-04	1.52E+00	9.62E-01	2.81E-06	1.32E-07	1.62E-05	6.23E-06	1.46E+00	2.16E+00
2002	10	30	3.15E+00	5.55E-02	1.53E+00	6.29E-03	1.52E-02	5.02E+00	1.42E+00	5.52E+00	1.38E+00	4.58E+00	2.83E-01	5.81E-01	6.25E-01	4.71E+00	3.92E+00
2002	10	31	4.91E-01	8.74E-03	1.64E-01	2.60E-03	1.09E-02	4.76E+00	1.89E+00	9.47E+00	1.77E-01	1.11E+01	3.15E-01	2.24E+00	2.64E+00	5.75E+00	6.71E-01
2002	11	1	3.66E-01	3.68E-05	1.32E-01	0.00E+00	4.03E-07	3.64E+00	1.26E+00	6.61E+00	4.55E-02	9.36E+00	1.46E-02	1.44E+00	1.63E+00	4.47E+00	5.26E-01
2002	11	2	3.98E-01	9.04E-04	2.79E-01	4.94E-02	2.13E-01	5.72E+00	1.84E+00	7.51E+00	9.17E-02	1.02E+01	6.35E-01	3.21E+00	4.26E+00	5.92E+00	4.89E-01
2002	11	3	1.26E+00	4.72E-04	4.42E-01	3.77E-05	1.43E-04	2.37E+00	8.54E-01	3.30E+00	9.55E-02	5.79E+00	8.22E-03	8.24E-01	2.96E-01	2.70E+00	1.89E+00
2002	11	4	4.29E-01	5.62E-05	3.75E-01	1.93E-07	1.22E-05	2.66E+00	8.27E-01	4.56E+00	3.38E-02	6.05E+00	9.41E-04	9.09E-01	3.38E-01	3.48E+00	7.79E-01
2002	11	5	1.73E-01	4.22E-06	6.71E-02	0.00E+00	2.07E-06	1.28E+00	4.05E-01	2.32E+00	3.90E-02	2.78E+00	1.42E-02	5.12E-01	3.00E-01	1.04E+00	3.32E-01
2002	11	6	6.76E-02	0.00E+00	2.83E-03	0.00E+00	1.01E-09	4.17E-01	3.68E-01	1.05E+00	4.56E-04	1.75E+00	4.11E-02	5.37E-01	1.96E-01	6.68E-01	1.40E-01
2002	11	7	6.13E-02	0.00E+00	2.57E-02	0.00E+00	9.75E-06	8.18E-01	3.92E-01	1.72E+00	4.04E-04	3.05E+00	6.41E-02	4.00E-01	2.84E-01	8.67E-01	9.16E-02
2002	11	8	1.47E+00	4.19E-01	5.85E-01	9.83E-02	1.66E-01	3.49E+00	1.08E+00	4.94E+00	3.09E-01	2.02E+00	5.19E+00	1.84E-01	5.43E-01	2.36E+00	2.32E+00
2002	11	9	1.60E+00	3.44E-05	3.51E-01	2.41E-08	1.52E-05	1.86E+00	6.32E-01	4.25E+00	9.88E-02	2.20E+00	3.76E-02	3.99E-01	6.49E-01	3.01E+00	2.57E+00
2002	11	10	5.38E-01	3.06E-05	3.22E-01	1.59E-07	3.28E-05	2.75E+00	9.97E-01	4.61E+00	4.16E-02	2.83E+00	7.36E-02	5.18E-01	3.75E-01	2.92E+00	9.10E-01
2002	11	11	8.00E-02	0.00E+00	7.84E-03	0.00E+00	0.00E+00	5.49E-01	4.49E-01	1.50E+00	1.20E-03	2.59E+00	7.67E-03	7.16E-01	2.32E-01	8.34E-01	1.29E-01
2002	11	12	3.01E-02	0.00E+00	3.37E-03	0.00E+00	0.00E+00	3.91E-01	2.67E-01	1.04E+00	3.09E-17	9.33E-01	5.17E-02	4.19E-01	1.77E-01	4.79E-01	5.18E-02
2002	11	13	6.46E-02	0.00E+00	1.32E-03	0.00E+00	0.00E+00	5.18E-01	4.02E-01	1.39E+00	7.19E-17	2.39E+00	4.07E-03	6.41E-01	2.02E-01	7.79E-01	1.15E-01
2002	11	14	7.93E-02	0.00E+00	7.01E-04	0.00E+00	0.00E+00	4.93E-01	3.41E-01	1.39E+00	3.40E-15	3.32E+00	3.53E-03	4.28E-01	2.86E-01	7.41E-01	1.17E-01
2002	11	15	1.35E-01	0.00E+00	9.28E-03	0.00E+00	2.11E-06	7.94E-01	5.23E-01	2.15E+00	5.86E-03	3.62E+00	4.45E-02	5.58E-01	2.53E-01	1.12E+00	1.92E-01
2002	11	16	1.01E-01	0.00E+00	1.32E-02	0.00E+00	6.63E-05	7.32E-01	2.83E-01	9.75E-01	9.77E-03	1.52E+00	7.41E-02	3.76E-01	2.46E-01	6.20E-01	2.26E-01
2002	11	17	1.04E-02	0.00E+00	5.52E-03	0.00E+00	0.00E+00	3.95E-01	1.76E-01	5.53E-01	1.33E-18	7.57E-01	2.14E-02	1.81E-01	1.68E-01	3.41E-01	1.58E-02
2002	11	18	1.21E-02	0.00E+00	7.25E-03	0.00E+00	0.00E+00	4.89E-01	1.53E-01	5.71E-01	1.16E-32	5.78E-01	4.06E-02	9.01E-02	1.62E-01	3.59E-01	4.62E-02
2002	11	19	5.56E-02	0.00E+00	2.55E-03	0.00E+00	0.00E+00	3.64E-01	3.51E-01	9.34E-01	7.46E-18	1.37E+00	2.24E-02	5.43E-01	2.12E-01	6.08E-01	9.44E-02
2002	11	20	9.40E-02	0.00E+00	1.65E-03	0.00E+00	0.00E+00	4.51E-01	5.02E-01	1.15E+00	2.26E-17	2.35E+00	4.60E-02	7.42E-01	2.49E-01	8.85E-01	1.50E-01
2002	11	21	7.23E-02	0.00E+00	1.43E-03	0.00E+00	0.00E+00	4.34E-01	4.53E-01	1.21E+00	1.42E-16	3.23E+00	1.10E-02	7.34E-01	2.39E-01	7.95E-01	1.05E-01
2002	11	22	1.42E+00	5.64E-03	9.45E-01	4.07E-06	4.34E-05	2.07E+00	7.48E-01	2.78E+00	3.63E+00	4.52E+00	3.98E-02	5.94E-01	7.52E-01	3.07E+00	1.84E+00
2002	11	23	2.32E+00	3.02E-04	1.29E+00	4.24E-06	2.08E-05	2.14E+00	4.58E-01	2.33E+00	3.23E+00	8.89E-03	1.45E-03	1.43E-02	8.93E-03	3.37E+00	2.90E+00
2002	11	24	1.20E+00	5.51E-02	6.41E-01	1.00E-02	1.86E-02	4.03E+00	2.85E+00	6.92E+00	8.91E-01	1.18E+01	1.86E-01	1.46E+00	1.38E+00	5.79E+00	1.66E+00
2002	11	25	8.70E-01	6.51E-05	3.58E-01	9.15E-07	5.36E-06	1.81E+00	8.34E-01	3.17E+00	8.34E-03	5.31E+00	2.40E-04	1.09E+00	1.19E+00	2.18E+00	1.13E+00
2002	11	26	7.11E-02	0.00E+00	6.61E-04	0.00E+00	0.00E+00	4.71E-01	5.76E-01	1.65E+00	1.96E-14	9.96E+00	2.32E-15	8.58E-01	1.79E+00	9.92E-01	1.13E-01
2002	11	27	1.27E-01	0.00E+00	3.84E-02	0.00E+00	0.00E+00	5.61E-01	6.68E-01	1.38E+00	4.08E-03	7.87E+00	2.79E-04	9.12E-01	7.08E-01	9.40E-01	2.71E-01
2002	11	28	6.36E-01	5.61E-06	2.01E-01	3.61E-08	1.66E-06	1.14E+00	6.24E-01	2.49E+00	3.17E-02	4.53E+00	5.50E-03	4.94E-01	4.22E-01	1.60E+00	8.37E-01
2002	11	29	2.32E+00	4.81E-01	1.15E+00	9.37E-02	1.82E-01	5.29E+00	2.05E+00	8.39E+00	3.11E+00	7.54E+00	1.62E+00	1.60E+00	1.53E+00	7.06E+00	3.37E+00
2002	11	30	5.86E-01	5.43E-04	5.52E-01	4.32E-05	1.42E-04	5.56E+00	2.59E+00	7.27E+00	7.32E-02	1.04E+01	2.29E-03	3.50E+00	3.37E+00	7.34E+00	8.62E-01
2002	12	1	3.38E-01	8.73E-05	4.19E-01	3.66E-06	1.62E-05	4.35E+00	1.71E+00	6.89E+00	8.35E-02	9.19E+00	7.39E-04	1.53E+00	2.29E-01	4.67E+00	6.87E-01
2002	12	2	1.01E+00	4.23E-01	5.67E-01	3.67E-02	4.00E-02	2.37E+00	2.17E+00	6.26E+00	1.10E+00	1.19E+01	3.82E-01	1.54E+00	1.68E+00	5.45E+00	1.25E+00
2002	12	3	2.30E+00	1.46E-01	1.26E+00	4.53E-04	1.38E-03	2.72E+00	1.01E+00	4.42E+00	3.08E+00	4.42E-01	2.63E-01	1.38E-01	1.69E-01	3.66E+00	3.29E+00
2002	12	4	1.71E+00	2.25E-01	1.42E+00	1.73E-02	2.91E-02	5.26E+00	3.02E+00	8.34E+00	1.10E+00	1.43E+01	6.34E-01	3.79E+00	6.22E+00	6.74E+00	2.59E+00
2002	12	5	7.68E-02	0.00E+00	3.65E-03	0.00E+00	0.00E+00	3.83E-01	3.25E-01	1.15E+00	9.77E-05	4.07E+00	4.88E-04	3.60E-01	2.44E-01	6.74E-01	1.30E-01
2002	12	6	6.95E-02	0.00E+00	1.70E-04	0.00E+00	0.00E+00	3.87E-01	3.34E-01	1.40E+00	1.48E-13	6.50E+00	1.38E-13	2.92E-01	5.09E-01	7.42E-01	1.09E-01
2002	12	7	8.08E-02	0.00E+00	2.40E-04	0.00E+00	0.00E+00	4.80E-01	5.22E-01	1.67E+00	5.02E-17	7.66E+00	1.47E-08	4.26E-01	3.72E-01	9.53E-01	1.32E-01
2002	12	8	1.34E-01	0.00E+00	2.60E-03	0.00E+00	0.00E+00	6.70E-01	6.32E-01	1.97E+00	7.24E-17	5.14E+00	1.86E-03	9.48E-01	2.07E-01	1.05E+00	2.00E-01
2002	12	9	4.60E-01	0.00E+00	1.93E-01	0.00E+00	0.00E+00	1.39E+00	7.21E-01	3.18E+00	1.24E-02	3.23E+00	2.27E-02	6.63E-01	3.63E-01	1.78E+00	6.87E-01
2002	12	10	7.92E-02	0.00E+00	1.52E-02	0.00E+00	1.13E-08	6.14E-01	2.92E-01	1.29E+00	6.59E-04	1.11E+00	7.73E-02	2.36E-01	2.86E-01	5.86E-01	1.26E-01
2002	12	11	8.56E-02	0.00E+00	1.04E-02	0.00E+00	0.00E+00	5.37E-01	4.61E-01	1.55E+00	9.09E-17	1.29E+00	3.07E-02	6.81E-01	2.26E-01	9.06E-01	1.17E-01
2002	12	12	4.61E-02	0.00E+00	9.87E-03	0.00E+00	1.54E-04	3.98E-01	3.44E-01	1.04E+00	5.68E-04	9.43E-01	8.52E-02	4.38E-01	2.64E-01	6.08E-01	8.79E-02
2002	12	13	6.18E-02	0.00E+00	3.29E-02	0.00E+00	2.26E-02	7.32E-01	6.11E-01	1.86E+00	4.99E-03	1.76E+00	3.56E-01	5.62E-01	5.55E-01	9.29E-01	1.99E-01
2002	12	14	2.55E-01	1.54E-07	5.50E-02	1.79E-05	1.73E-01	1.77E+00	4.44E-01	1.89E+00	2.81E-02	1.07E+00	4.98E-01	2.92E-01	3.33E-01	1.23E+00	5.08E-01
2002	12	15	8.84E-02	0.00E+00	4.54E-02	6.42E-02	1.00E-01	7.62E-01	4.99E-01	1.08E+00	1.17E-02	1.21E+00	1.81E+00	5.65E-02	6.36E-01	7.78E-01	2.98E-01
2002	12	16	1.36E+00	3.76E-01	3.68E-01	4.39E-01	3.13E-01	1.92E+00	1.19E+00	3.27E+00	1.19E-01	2.19E+00	5.59E+00	2.89E-01	5.24E-01	1.91E+00	1.73E+00
2002	12	17	1.21E-01	0.00E+00	8.95E-02	0.00E+00	0.00E+00	1.37E+00	8.16E-01	2.87E+00	4.76E-03	6.01E+00	3.38E-03	1.03E+00	2.97E-01	1.86E+00	2.48E-01
2002	12	18	3.31E-01	3.84E-04	4.62E-01	7.33E-05	1.47E-04	3.65E+00	1.73E+00	7.29E+00	7.08E-02	8.16E+00	4.53E-03	1.62E+00	2.31E-01	5.52E+00	5.34E-01
2002	12	19	5.92E-01	3.90E-02	4.38E-01	6.75E-03	1.43E-02	2.35E+00	2.33E+00	5.50E+00	4.47E-01	1.06E+01	3.58E-01	1.80E+00	1.69E+00	4.05E+00	9.42E-01
2002	12	20	6.97E+00	2.03E-01	3.71E+00	3.25E-02	5.25E-02	6.71E+00	1.21E+00	7.96E+00	7.66E+00	3.13E+00	5.35E-01	4.86E-01	5.95E-01	8.71E+00	8.84E+00
2002	12	21	6.12E+00	5.01E-01	3.48E+00	6.58E-03	1.16E-02	7.68E+00	1.89E+00	9.62E+00	7.77E+00	1.10E+00	8.29E-01	3.39E-01	3.97E-01	9.68E+00	8.23E+00
2002	12	22	6.76E-01	3.14E-01	5.35E-01	2.89E-02	5.00E-02	5.56E+00	3.10E+00	9.90E+00	6.11E-01	1.28E+01	1.27E+00	3.62E+00	4.75E+00	7.64E+00	9.20E-01
2002	12	23	4.57E-01	1.31E-05	8.39E-02	5.06E-08	4.10E-06	3.41E+00	1.45E+00	5.59E+00	3.14E-02	9.77E+00	2.41E-04	1.17E+00	1.94E+00	3.91E+00	5.56E-01
2002	12	24	1.40E-01	0.00E+00	8.04E-03	0.00E+00	0.00E+00	5.09E-01	3.49E-01	1.44E+00	8.04E-16	5.24E+00	5.77E-04	3.65E-01	4.57E-01	9.31E-01	2.66E-01
2002	12	25	6.31E-02	0.00E+00	2.36E-03	0.00E+00	0.00E+00	3.42E-01	3.27E-01	9.98E-01	2.92E-16	1.34E+00	1.97E-02	5.46E-01	1.62E-01	5.83E-01	8.66E-02
2002	12	26	1.81E-01	0.00E+00	4.04E-02	0.00E+00	2.12E-04	8.86E-01	3.49E-01	1.42E+00	7.54E-03	1.60E+00	1.22E-01	2.89E-01	2.72E-01	8.58E-01	4.17E-01

Baseline

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	9	28	5.27E-01	5.86E-04	7.17E-01	4.57E-05	4.08E-04	9.36E+00	3.63E+00	1.02E+01	2.45E-01	3.67E-02	5.73E-03	9.83E-02	7.80E-02	1.20E+01	1.31E+00
2002	9	29	3.98E+00	4.19E-04	7.84E-01	3.43E-04	3.22E-03	1.07E+01	4.61E+00	1.38E+01	3.58E-01	6.51E-02	1.42E-02	1.01E-01	1.07E-01	1.66E+01	6.60E+00
2002	9	30	1.23E+01	2.32E-03	6.30E+00	1.31E-04	6.17E-04	2.38E+01	5.30E+00	3.40E+01	5.75E-01	8.36E-02	1.72E-02	1.32E-01	1.13E-01	2.82E+01	1.69E+01
2002	10	1	1.42E+00	2.81E-03	1.26E+00	8.95E-04	1.61E-03	5.09E+00	1.95E+00	5.51E+00	1.23E-01	2.30E-02	7.28E-03	6.20E-02	3.97E-02	5.18E+00	1.86E+00
2002	10	2	2.61E-01	1.17E-04	1.03E-01	8.57E-06	4.55E-05	9.56E-01	4.65E-01	1.71E+00	2.00E-02	4.36E-03	7.80E-04	1.15E-02	7.83E-03	1.23E+00	4.40E-01
2002	10	3	2.06E+00	4.58E-04	1.17E+00	6.76E-06	1.69E-05	1.92E+00	9.13E-01	2.23E+00	2.16E-02	1.89E-03	7.21E-04	4.42E-03	2.62E-03	3.27E+00	2.73E+00
2002	10	4	2.27E+00	5.19E-03	1.61E+00	8.73E-04	2.15E-03	4.24E+00	1.47E+00	5.61E+00	1.17E-01	3.12E-02	1.33E-02	5.26E-02	4.12E-02	5.73E+00	2.90E+00
2002	10	5	5.95E-01	1.86E-04	2.78E-01	4.04E-05	1.03E-04	2.73E+00	1.04E+00	4.48E+00	2.92E-02	3.22E-03	6.37E-04	1.70E-02	7.65E-03	4.51E+00	9.09E-01
2002	10	6	3.65E-01	0.00E+00	2.17E-02	0.00E+00	1.10E-07	1.20E+00	7.98E-01	1.95E+00	1.24E-02	8.08E-04	5.63E-05	8.83E-03	3.07E-03	1.91E+00	4.52E-01
2002	10	7	6.83E-01	2.72E-06	2.40E-01	6.25E-09	1.30E-07	1.54E+00	1.03E+00	2.75E+00	6.99E-03	6.11E-04	7.40E-05	2.51E-03	1.32E-03	2.35E+00	8.93E-01
2002	10	8	7.79E-01	4.86E-03	6.03E-01	1.39E-03	2.70E-03	4.30E+00	2.05E+00	5.74E+00	1.15E-01	2.64E-02	1.11E-02	6.02E-02	4.01E-02	5.85E+00	1.09E+00
2002	10	9	3.72E-02	4.64E-05	1.50E-01	1.24E-06	9.47E-06	1.73E+00	8.68E-01	2.39E+00	2.44E-02	3.42E-03	6.28E-04	1.03E-02	6.04E-03	2.42E+00	8.97E-02
2002	10	10	7.00E-01	2.99E-04	2.85E-01	1.89E-04	1.36E-03	1.79E+00	1.03E+00	2.40E+00	7.21E-02	1.01E-02	2.97E-03	3.12E-02	2.14E-02	2.49E+00	1.14E+00
2002	10	11	1.54E+00	1.29E-03	5.69E-01	3.26E-04	1.00E-03	4.58E+00	2.15E+00	7.10E+00	6.80E-02	1.29E-02	4.61E-03	3.58E-02	2.15E-02	6.14E+00	2.02E+00
2002	10	12	3.60E-01	4.03E-04	1.46E-01	2.89E-05	1.15E-04	2.51E+00	1.02E+00	4.12E+00	4.11E-02	5.40E-03	1.44E-03	2.33E-02	1.22E-02	3.25E+00	4.83E-01
2002	10	13	2.54E-01	1.71E-07	9.93E-02	0.00E+00	0.00E+00	1.45E+00	4.29E-01	1.81E+00	5.40E-04	3.26E-05	2.66E-06	1.71E-04	7.80E-05	1.47E+00	2.88E-01
2002	10	14	4.56E-01	1.12E-03	2.58E-01	3.67E-04	8.58E-04	4.53E+00	1.49E+00	6.19E+00	7.63E-02	1.33E-02	4.16E-03	3.75E-02	2.24E-02	4.98E+00	8.54E-01
2002	10	15	1.60E+00	9.34E-04	5.56E-01	3.47E-04	9.93E-04	4.22E+00	1.56E+00	5.46E+00	5.87E-02	1.22E-02	3.81E-03	4.58E-02	2.36E-02	4.84E+00	1.85E+00
2002	10	16	1.09E+00	6.86E-03	1.01E+00	1.88E-03	3.71E-03	4.91E+00	2.28E+00	6.75E+00	1.34E-01	3.19E-02	1.41E-02	7.64E-02	4.97E-02	7.38E+00	1.42E+00
2002	10	17	2.97E-01	0.00E+00	1.79E-01	0.00E+00	0.00E+00	2.11E+00	8.35E-01	2.91E+00	4.40E-02	6.01E-04	7.25E-06	9.72E-03	2.93E-03	2.09E+00	3.57E-01
2002	10	18	8.59E-01	3.25E-04	2.73E-01	1.25E-04	3.75E-04	3.41E+00	2.31E+00	5.58E+00	6.16E-02	6.60E-03	1.62E-03	3.87E-02	1.94E-02	6.05E+00	1.21E+00
2002	10	19	1.23E+00	3.07E-04	5.12E-01	2.55E-05	2.54E-04	3.65E+00	1.60E+00	4.10E+00	6.39E-02	1.12E-02	2.37E-03	4.84E-02	2.42E-02	5.08E+00	1.40E+00
2002	10	20	4.64E-01	1.16E-03	2.39E-01	4.16E-04	1.15E-03	4.32E+00	2.74E+00	6.83E+00	1.08E-01	1.97E-02	4.70E-03	8.50E-02	4.61E-02	6.82E+00	7.36E-01
2002	10	21	5.18E-01	1.79E-04	2.36E-01	4.44E-05	1.40E-04	2.69E+00	1.42E+00	3.79E+00	4.78E-02	6.23E-03	1.16E-03	4.25E-02	1.98E-02	4.27E+00	6.23E-01
2002	10	22	1.65E+00	0.00E+00	9.94E-01	0.00E+00	0.00E+00	1.23E+00	6.28E-03	1.77E+00	1.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E+00	1.77E+00
2002	10	23	3.75E+00	4.07E-03	2.35E+00	6.87E-04	1.66E-03	5.99E+00	1.27E+00	7.55E+00	1.42E-01	2.90E-02	1.06E-02	6.72E-02	4.44E-02	7.66E+00	4.71E+00
2002	10	24	5.69E-01	7.21E-03	4.62E-01	2.42E-03	4.61E-03	4.94E+00	1.81E+00	6.28E+00	9.77E-02	3.02E-02	1.52E-02	6.44E-02	4.36E-02	6.34E+00	8.70E-01
2002	10	25	9.19E-01	5.93E-04	4.19E-01	1.17E-04	4.34E-04	5.33E+00	2.50E+00	7.13E+00	5.77E-02	1.08E-02	2.84E-03	4.32E-02	2.21E-02	6.34E+00	1.24E+00
2002	10	26	1.42E+00	2.13E-02	5.52E-01	1.49E-02	2.28E-02	2.32E+00	1.41E+00	3.58E+00	1.17E-01	5.38E-02	3.96E-02	6.76E-02	5.91E-02	3.67E+00	1.91E+00
2002	10	27	1.44E-01	3.68E-04	1.79E-01	3.17E-05	1.20E-04	2.33E+00	8.67E-01	3.40E+00	6.97E-02	9.48E-03	1.94E-03	2.98E-02	1.86E-02	2.88E+00	2.99E-01
2002	10	28	1.10E+00	1.72E-04	5.03E-01	3.49E-06	4.60E-05	2.31E+00	9.64E-01	4.57E+00	3.65E-02	7.55E-03	1.66E-03	1.88E-02	1.23E-02	4.97E+00	1.52E+00
2002	10	29	1.31E+00	0.00E+00	5.41E-01	0.00E+00	0.00E+00	2.00E+00	3.52E-04	1.52E+00	7.71E-04	2.81E-06	1.32E-07	1.62E-05	6.23E-06	1.46E+00	1.25E+00
2002	10	30	2.15E+00	4.00E-03	1.34E+00	1.04E-03	2.02E-03	4.95E+00	1.38E+00	4.94E+00	7.48E-02	1.94E-02	8.81E-03	4.16E-02	2.85E-02	4.67E+00	2.30E+00
2002	10	31	4.46E-01	2.04E-03	1.62E-01	7.23E-04	1.40E-03	4.76E+00	1.58E+00	7.06E+00	8.17E-02	1.46E-02	5.04E-03	5.53E-02	3.06E-02	5.56E+00	5.95E-01
2002	11	1	3.57E-01	3.68E-05	1.32E-01	0.00E+00	4.03E-07	3.64E+00	1.11E+00	4.72E+00	4.55E-02	2.61E-03	1.90E-04	3.27E-02	1.21E-02	4.43E+00	4.84E-01
2002	11	2	3.77E-01	7.40E-04	2.79E-01	1.01E-04	3.43E-04	5.72E+00	1.54E+00	5.63E+00	7.86E-02	1.08E-02	2.82E-03	4.03E-02	2.27E-02	5.77E+00	4.35E-01
2002	11	3	1.17E+00	4.54E-04	4.07E-01	3.77E-05	1.39E-04	2.20E+00	8.20E-01	3.15E+00	8.07E-02	1.42E-02	2.46E-03	3.32E-02	2.48E-02	2.66E+00	1.59E+00
2002	11	4	3.43E-01	3.39E-05	3.57E-01	1.93E-07	9.13E-06	2.58E+00	7.84E-01	3.83E+00	2.77E-02	3.43E-03	3.80E-04	1.45E-02	8.21E-03	3.44E+00	5.68E-01
2002	11	5	1.44E-01	0.00E+00	6.51E-02	0.00E+00	0.00E+00	1.27E+00	3.73E-01	1.60E+00	3.72E-02	2.74E-03	5.19E-05	3.60E-03	7.32E-03	1.03E+00	2.61E-01
2002	11	6	6.76E-02	0.00E+00	2.83E-03	0.00E+00	0.00E+00	4.17E-01	3.36E-01	7.52E-01	4.56E-04	1.95E-05	0.00E+00	5.05E-04	2.89E-04	6.67E-01	1.40E-01
2002	11	7	6.13E-02	0.00E+00	2.57E-02	0.00E+00	0.00E+00	8.18E-01	3.66E-01	1.28E+00	4.04E-04	3.29E-06	0.00E+00	5.64E-03	7.01E-04	8.36E-01	9.16E-02
2002	11	8	1.47E+00	1.58E-02	5.80E-01	5.42E-03	8.49E-03	3.48E+00	1.07E+00	4.18E+00	2.53E-01	5.72E-02	2.86E-02	8.98E-02	7.88E-02	2.33E+00	2.30E+00
2002	11	9	1.57E+00	3.24E-05	3.46E-01	0.00E+00	1.45E-05	1.83E+00	6.21E-01	3.55E+00	9.34E-02	1.79E-02	1.29E-03	3.02E-02	3.33E-02	3.00E+00	2.46E+00
2002	11	10	4.86E-01	3.06E-05	3.20E-01	1.59E-07	3.13E-05	2.74E+00	9.53E-01	3.79E+00	4.07E-02	4.12E-03	7.32E-04	1.81E-02	1.07E-02	2.89E+00	7.46E-01
2002	11	11	7.35E-02	0.00E+00	7.82E-03	0.00E+00	0.00E+00	5.48E-01	4.11E-01	8.28E-01	1.20E-03	2.94E-05	0.00E+00	9.87E-04	2.68E-04	8.28E-01	1.17E-01
2002	11	12	3.01E-02	0.00E+00	3.37E-03	0.00E+00	0.00E+00	3.91E-01	2.59E-01	6.02E-01	0.00E+00	0.00E+00	0.00E+00	3.93E-06	0.00E+00	4.79E-01	5.18E-02
2002	11	13	6.46E-02	0.00E+00	1.32E-03	0.00E+00	0.00E+00	5.18E-01	3.61E-01	7.11E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.78E-01	1.15E-01
2002	11	14	7.93E-02	0.00E+00	7.01E-04	0.00E+00	0.00E+00	4.93E-01	3.01E-01	7.87E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.41E-01	1.17E-01
2002	11	15	1.35E-01	0.00E+00	9.28E-03	0.00E+00	6.61E-08	7.94E-01	4.86E-01	1.43E+00	5.86E-03	8.95E-04	2.05E-05	2.15E-03	1.92E-03	1.10E+00	1.92E-01
2002	11	16	1.01E-01	0.00E+00	1.32E-02	0.00E+00	0.00E+00	7.32E-01	2.72E-01	6.76E-01	9.77E-03	1.30E-03	7.79E-06	4.85E-03	2.90E-03	6.20E-01	2.26E-01
2002	11	17	1.04E-02	0.00E+00	5.52E-03	0.00E+00	0.00E+00	3.95E-01	1.75E-01	5.00E-01	0.00E+00	0.00E+00	0.00E+00	6.15E-05	0.00E+00	3.41E-01	1.58E-02
2002	11	18	1.21E-02	0.00E+00	7.25E-03	0.00E+00	0.00E+00	4.89E-01	1.52E-01	5.11E-01	0.00E+00	0.00E+00	0.00E+00	8.40E-04	4.47E-06	3.59E-01	4.62E-02
2002	11	19	5.56E-02	0.00E+00	2.55E-03	0.00E+00	0.00E+00	3.64E-01	3.31E-01	5.43E-01	0.00E+00	0.00E+00	0.00E+00	4.29E-05	0.00E+00	6.08E-01	9.44E-02
2002	11	20	9.40E-02	0.00E+00	1.65E-03	0.00E+00	0.00E+00	4.51E-01	4.54E-01	7.22E-01	0.00E+00	0.00E+00	0.00E+00	3.40E-05	1.24E-08	8.74E-01	1.50E-01
2002	11	21	7.23E-02	0.00E+00	1.43E-03	0.00E+00	0.00E+00	4.34E-01	4.14E-01	7.62E-01	0.00E+00	0.00E+00	0.00E+00	6.12E-05	0.00E+00	7.44E-01	1.05E-01
2002	11	22	1.37E+00	6.17E-05	7.66E-01	1.44E-06	8.16E-06	1.90E+00	6.61E-01	2.38E+00	8.07E-03	8.49E-04	2.15E-04	2.19E-03	1.34E-03	3.01E+00	1.79E+00
2002	11	23	2.25E+00	2.62E-04	1.21E+00	4.18E-06	1.99E-05	2.08E+00	4.56E-01	2.26E+00	3.28E-02	3.23E-03	7.79E-04	9.43E-03	5.43E-03	3.36E+00	2.76E+00
2002	11	24	1.13E+00	9.88E-03	6.07E-01	3.22E-03	5.95E-03	3.98E+00	2.71E+00	5.71E+00	1.32E-01	4.39E-02	2.11E-02	9.11E-02	6.23E-02	5.67E+00	1.49E+00
2002	11	25	7.93E-01	6.51E-05	3.42E-01	9.15E-07	5.36E-06	1.74E+00	6.11E-01	2.75E+00	6.60E-03	1.12E-03	1.50E-04	5.29E-03	2.64E-03	2.06E+00	9.61E-01
2002	11	26	7.11E-02	0.00E+00	6.61E-04	0.00E+00	0.00E+00	4.71E-01	5.07E-01	1.05E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.90E-01	1.13E-01
2002	11	27	1.19E-01	0.00E+00	3.84E-02	0.00E+00	0.00E+00	5.61E-01	6.05E-01	1.02E+00	2.76E-03	1.90E-04	1.94E-07	1.49E-03	6.86E-04	9.36E-01	2.66E-01
2002	11	28	5.32E-01	4.79E-06	2.00E-01	3.61E-08	1.51E-06	1.14E+00	5.83E-01	2.13E+00	2.83E-02	2.50E-03	1.78E-04	8.54E-03	7.18E-03	1.59E+00	6.73E-01
2002	11	29	2.06E+00	1.03E-02	8.66E-01	2.08E-03	3.86E-03	5.04E+00	1.91E+00	7.02E+00	1.78E-01	4.44E-02	1.93E-02	1.07E-01	6.80E-02	6.92E+00	2.90E+00
2002	11	30	5.33E-01	5.42E-04	5.39E-01	4.32E-05	1.41E-04	5.52E+00	1.94E+00	5.59E+00	6.69E-02	8.98E-03	2.02E-03	3.04E-02	1.77E-02	7.21E+00	7.31E-01
2002	12	1	2.76E-01	1.95E-05	4.14E-01	2.51E-06	4.58E-06	4.33E+00	1.57E+00	5.50E+00	7.93E-02	5.91E-03	3.93E-04	3.25E-02	1.69E-02	4.57E+00	5.29E-01
2002	12	2	9.35E-01	4.32E-03	4.74E-01	1.00E-03	1.43E-03	2.26E+00	1.93E+00	4.84E+00	3.18E-02	9.28E-03	4.99E-03	2.68E-02	1.51E-02	5.33E+00	1.17E+00
2002	12	3	2.24E+00	3.34E-03	1.22E+00	3.59E-04	9.86E-04	2.66E+00	1.01E+00	4.30E+00	6.77E-02	1.68E-02	7.51E-03	3.44E-02	2.37E-02	3.65E+00	3.13E+00
2002	12	4	1.53E+00	1.64E-02	1.37E+00	6.09E-03	9.58E-03	5.12E+00	2.81E+00	6.92E+00	1.42E-01	5.04E-02	2.78E-02	9.26E-02	6.77E-02	6.52E+00	2.09E+00
2002	12	5	7.35E-02	0.00E+00	3.19E-03	0.00E+00	0.00E+00	3.83E-01	2.75E-01	7.96E-01	7.99E-05	3.67E-06	0.00E+00	4.90E-05	1.38E-05	6.62E-01	1.27E-01
2002	12	6	6.95E-02	0.00E+00	1.70E-04	0.00E+00	0.00E+00	3.87E-01	2.68E-01	7.75E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.42E-01	1.09E-01
2002	12	7	8.08E-02	0.00E+00	2.40E-04	0.00E+00	0.00E+00	4.80E-01	4.37E-01	9.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.51E-01	1.32E-01
2002	12	8	1.34E-01	0.00E+00	2.60E-03	0.00E+00	0.00E+00	6.70E-01	5.56E-01	1.41E+00	0.00E+00	0.00E+00	0.00E+00	5.58E-08	0.00E+00	1.04E+00	2.00E-01
2002	12	9	4.51E-01	0.00E+00	1.93E-01	0.00E+00	0.00E+00	1.38E+00	7.03E-01	2.71E+00	1.24E-02	6.41E-04	4.22E-07	8.63E-03	4.02E-03	1.75E+00	6.60E-01
2002	12	10	7.92E-02	0.00E+00	1.52E-02	0.00E+00	0.00E+00	6.14E-01	2.84E-01	8.31E-01	6.59E-04	1.16E-05	0.00E+00	3.15E-03	7.89E-04	5.86E-01	1.26E-01
2002	12	11	8.56E-02	0.00E+00	1.04E-02	0.00E+00	0.00E+00	5.37E-01	4.34E-01	8.43E-01	0.00E+00	0.00E+00	0.00E+00	8.28E-04	0.00E+00	9.01E-01	1.17E-01
2002	12	12	4.61E-02	0.00E+00	9.87E-03	0.00E+00	0.00E+00	3.98E-01	3.30E-01	6.28E-01	5.68E-04	1.90E-04	0.00E+00	1.73E-03	1.88E-03	6.07E-01	8.79E-02
2002	12	13	6.18E-02	0.00E+00	3.29E-02	0.00E+00	3.57E-05	7.32E-01	5.88E-01	1.16E+00	4.99E-03	1.59E-03	1.11E-04	1.56E-02	9.56E-03	9.27E-01	1.99E-01
2002	12	14	2.55E-01	1.54E-07	5.50E-02	2.18E-06	1.55E-04	1.77E+00	4.42E-01	1.41E+00	2.78E-02	5.94E-03	3.97E-04	1.14E-02	1.18E-02	1.13E+00	5.08E-01
2002	12	15	8.84E-02	0.00E+00	4.54E-02	3.09E-04	1.33E-03	7.62E-01	4.95E-01	1.01E+00	8.36E-03	3.77E-03	4.33E-04	2.33E-02	1.30E-02	7.45E-01	2.98E-01
2002	12	16	1.30E+00	8.89E-03	3.61E-01	1.13E-02	1.63E-02	1.89E+00	1.18E+00	2.55E+00	1.05E-01	3.38E-02	2.14E-02	6.14E-02	4.73E-02	1.90E+00	1.63E+00
2002	12	17	1.06E-01	0.00E+00	8.93E-02	0.00E+00	0.00E+00	1.36E+00	7.50E-01	2.21E+00	4.76E-03	2.21E-04	4.00E-06	2.81E-03	1.09E-03	1.85E+00	2.02E-01
2002	12	18	2.81E-01	7.11E-05	4.55E-01	9.66E-06	2.64E-05	3.63E+00	1.63E+00	5.34E+00	6.27E-02	8.49E-03	9.96E-04	2.44E-02	1.60E-02	5.46E+00	3.87E-01
2002	12	19	5.50E-01	4.61E-03	4.27E-01	9.80E-04	1.69E-03	2.34E+00	2.15E+00	4.25E+00	8.39E-02	1.74E-02	8.19E-03	3.81E-02	2.38E-02	4.01E+00	8.59E-01
2002	12	20	6.15E+00	1.33E-02	3.54E+00	3.70E-03	6.26E-03	6.55E+00	1.18E+00	7.63E+00	1.72E-01	4.62E-02	2.33E-02	9.21E-02	6.39E-02	8.66E+00	7.43E+00
2002	12	21	5.35E+00	1.59E-02	3.24E+00	4.58E-03	7.67E-03	7.45E+00	1.87E+00	8.84E+00	2.31E-01	5.98E-02	2.91E-02	1.12E-01	8.01E-02	9.42E+00	6.78E+00
2002	12	22	6.39E-01	1.29E-02	5.22E-01	5.10E-03	7.97E-03	5.54E+00	2.92E+00	7.77E+00	1.47E-01	4.55E-02	2.35E-02	9.82E-02	6.61E-02	7.48E+00	8.30E-01
2002	12	23	4.49E-01	1.31E-05	8.39E-02	5.06E-08	4.10E-06	3.41E+00	1.28E+00	3.98E+00	3.14E-02	2.30E-03	2.41E-04	2.18E-02	7.86E-03	3.82E+00	5.33E-01
2002	12	24	1.40E-01	0.00E+00	8.04E-03	0.00E+00	0.00E+00	5.09E-01	3.03E-01	1.04E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.16E-01	2.66E-01
2002	12	25	6.31E-02	0.00E+00	2.36E-03	0.00E+00	0.00E+00	3.42E-01	3.14E-01	5.78E-01	0.00E+00	0.00E+00	0.00E+00	1.10E-04	0.00E+00	5.82E-01	8.66E-02
2002	12	26	1.81E-01	0.00E+00	4.02E-02	0.00E+00	2.66E-06	8.84E-01	3.24E-01	8.93E-01	7.54E-03	1.71E-03	1.06E-04	5.52E-03	3.01E-03	8.58E-01	4.16E-01

Project

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	9	28	3.02E-02	3.02E-05	1.07E-03	1.85E-07	3.27E-06	4.24E-03	3.48E-02	8.07E-01	8.45E-03	4.46E+00	5.71E-02	8.35E-01	6.78E-01	1.13E-02	8.00E-02
2002	9	29	1.71E-02	0.00E+00	5.70E-06	3.76E-06	3.54E-02	2.18E-04	2.77E-02	5.51E-01	4.57E-04	4.34E+00	7.95E-01	4.84E-01	7.63E-01	3.10E-02	5.90E-02
2002	9	30	5.37E-01	3.46E-05	7.70E-01	0.00E+00	5.98E-07	6.93E-01	3.02E-01	1.27E+00	6.00E+00	4.83E+00	1.74E-02	1.99E+00	1.99E+00	6.14E-01	7.86E-01
2002	10	1	2.67E-01	1.85E-01	1.49E-01	5.94E-02	1.54E-01	1.04E-01	1.14E-01	1.05E+00	2.70E+00	1.03E+01	1.24E+00	1.27E+00	1.88E+00	9.58E-02	4.92E-01
2002	10	2	2.06E-02	3.53E-06	1.02E-02	0.00E+00	0.00E+00	3.09E-02	2.43E-02	4.89E-01	4.08E-03	2.89E+00	1.15E-02	5.18E-01	1.81E-01	1.93E-03	6.19E-02
2002	10	3	1.29E-01	2.94E-03	7.74E-02	3.31E-07	4.63E-06	1.03E-01	5.20E-02	1.63E-01	4.33E+00	3.63E+00	2.41E-02	4.67E-01	4.63E-01	6.15E-02	2.57E-01
2002	10	4	5.05E-01	2.73E-01	2.06E-01	3.69E-02	1.34E-01	2.01E-01	1.81E-01	7.54E-01	4.41E+00	7.98E+00	1.18E+00	1.16E+00	1.66E+00	1.88E-01	8.28E-01
2002	10	5	9.12E-02	1.67E-05	3.49E-03	6.01E-07	4.39E-06	1.94E-02	8.38E-02	1.14E+00	3.64E-02	7.87E+00	1.17E-03	1.14E+00	1.38E+00	5.08E-02	1.93E-01
2002	10	6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.37E-02	1.03E+00	2.43E-18	4.27E+00	3.59E-03	1.06E+00	1.79E-01	2.34E-02	0.00E+00
2002	10	7	2.43E-02	1.75E-06	7.75E-04	2.29E-10	1.97E-08	1.91E-03	7.64E-02	5.19E-01	2.03E-01	6.23E+00	1.47E-04	1.07E+00	1.26E+00	2.67E-02	4.88E-02
2002	10	8	2.20E-01	8.46E-02	5.06E-02	2.61E-02	5.49E-02	6.01E-02	8.35E-02	1.23E+00	6.56E-01	5.40E+00	5.95E-01	9.83E-01	8.41E-01	1.32E-01	5.05E-01
2002	10	9	9.11E-04	0.00E+00	0.00E+00	0.00E+00	1.43E-04	0.00E+00	4.05E-02	9.17E-01	4.70E-19	4.00E+00	7.56E-02	7.91E-01	2.96E-01	2.72E-02	5.13E-03
2002	10	10	5.70E-02	1.10E-05	1.65E-03	7.59E-06	7.36E-03	1.12E-02	3.00E-02	3.06E-01	1.52E-02	5.28E+00	5.56E-01	6.52E-01	5.86E-01	1.49E-02	1.50E-01
2002	10	11	2.25E-01	5.01E-02	2.39E-02	1.86E-02	4.33E-02	7.83E-02	4.21E-01	1.53E+00	7.74E-01	1.03E+01	3.13E-01	1.91E+00	2.27E+00	3.01E-01	2.94E-01
2002	10	12	1.20E-02	0.00E+00	4.14E-04	0.00E+00	0.00E+00	7.13E-03	9.47E-02	1.24E+00	1.18E-03	5.71E+00	5.33E-03	7.22E-01	4.35E-01	4.71E-02	6.91E-02
2002	10	13	5.37E-02	4.64E-07	2.20E-03	0.00E+00	0.00E+00	4.83E-03	4.66E-02	6.41E-01	4.38E-04	3.07E+00	1.15E-02	6.06E-01	5.64E-01	2.40E-02	1.08E-01
2002	10	14	3.38E-02	1.95E-03	1.44E-03	8.41E-04	5.65E-03	3.65E-03	1.51E-01	1.20E+00	3.49E-01	7.93E+00	1.82E-01	2.15E+00	2.70E+00	1.04E-01	6.96E-02
2002	10	15	1.34E-01	2.04E-02	5.69E-02	2.81E-03	7.01E-03	6.84E-02	8.19E-02	8.87E-01	1.22E+00	1.02E+01	1.44E-01	1.20E+00	1.92E+00	1.03E-01	2.35E-01
2002	10	16	1.75E-01	2.59E-02	7.68E-02	6.83E-03	1.26E-02	8.17E-02	1.22E-01	1.01E+00	1.40E+00	1.13E+01	1.55E-01	1.52E+00	2.14E+00	1.77E-01	3.76E-01
2002	10	17	2.24E-02	0.00E+00	4.65E-04	0.00E+00	0.00E+00	6.79E-03	5.73E-02	6.92E-01	1.41E-03	5.84E+00	2.40E-05	9.19E-01	6.38E-01	1.84E-02	6.80E-02
2002	10	18	3.09E-02	1.06E-03	1.01E-02	4.67E-03	3.28E-02	3.71E-02	2.81E-01	1.63E+00	2.47E-01	1.47E+01	4.79E-01	2.87E+00	4.01E+00	9.29E-02	6.55E-02
2002	10	19	7.38E-02	1.08E-05	2.29E-02	0.00E+00	5.12E-06	5.44E-02	1.06E-01	1.42E+00	5.85E-03	9.14E+00	4.13E-03	1.34E+00	4.11E-01	5.83E-02	2.34E-01
2002	10	20	1.63E-01	1.13E-01	3.17E-02	3.66E-02	8.48E-02	5.68E-02	5.85E-01	2.10E+00	5.06E-01	1.28E+01	1.52E+00	3.79E+00	4.51E+00	3.09E-01	1.99E-01
2002	10	21	2.56E-02	7.55E-03	2.89E-02	3.06E-05	1.64E-04	3.80E-02	1.23E-01	1.24E+00	8.25E-01	7.48E+00	8.28E-03	1.25E+00	2.25E+00	1.18E-01	3.19E-02
2002	10	22	2.05E-02	0.00E+00	6.19E-02	0.00E+00	0.00E+00	5.62E-02	0.00E+00	0.00E+00	3.93E+00	5.03E-08	5.16E-05	0.00E+00	0.00E+00	0.00E+00	8.75E-02
2002	10	23	5.55E-01	2.18E-01	2.76E-01	2.17E-03	6.61E-03	2.63E-01	4.22E-02	5.37E-01	3.18E+00	2.58E+00	6.91E-01	4.82E-01	6.21E-01	1.66E-01	9.28E-01
2002	10	24	4.68E-01	2.27E-02	2.24E-01	6.43E-03	3.33E-02	2.85E-01	4.99E-01	1.93E+00	1.11E+00	6.95E+00	7.36E-01	1.78E+00	1.54E+00	6.02E-01	5.59E-01
2002	10	25	7.71E-02	1.18E-02	6.74E-03	1.43E-01	1.58E-01	1.96E-02	4.10E-01	1.90E+00	7.43E-02	1.18E+01	1.79E+00	2.53E+00	2.83E+00	2.61E-01	1.56E-01
2002	10	26	1.90E-01	5.63E-01	1.34E-01	4.56E-01	5.78E-01	2.11E-01	2.54E-01	5.17E-01	3.06E+00	6.80E+00	3.22E+00	1.40E+00	2.04E+00	2.17E-01	2.28E-01
2002	10	27	4.17E-02	0.00E+00	1.38E-05	0.00E+00	0.00E+00	7.27E-05	9.46E-02	1.22E+00	2.05E-04	4.06E+00	1.20E-02	1.01E+00	2.86E-01	3.87E-02	1.40E-01
2002	10	28	2.02E-01	1.18E-05	2.85E-01	2.57E-07	3.07E-06	2.83E-01	1.09E-01	5.87E-01	1.28E+00	6.12E+00	5.01E-04	9.88E-01	6.85E-01	1.67E-01	3.22E-01
2002	10	29	5.09E-01	0.00E+00	2.05E-01	0.00E+00	0.00E+00	1.65E-01	0.00E+00	2.21E-06	9.61E-01	1.44E-14	0.00E+00	0.00E+00	8.55E-19	2.69E-05	9.14E-01
2002	10	30	1.00E+00	5.15E-02	1.89E-01	5.24E-03	1.32E-02	6.81E-02	3.38E-02	5.81E-01	1.30E+00	4.56E+00	2.74E-01	5.39E-01	5.96E-01	4.35E-02	1.61E+00
2002	10	31	4.50E-02	6.70E-03	1.75E-03	1.88E-03	9.49E-03	3.27E-03	3.07E-01	2.41E+00	9.49E-02	1.11E+01	3.10E-01	2.18E+00	2.61E+00	1.84E-01	7.60E-02
2002	11	1	9.08E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E-01	1.89E+00	4.40E-07	9.36E+00	1.44E-02	1.41E+00	1.61E+00	3.99E-02	4.28E-02
2002	11	2	2.06E-02	1.64E-04	0.00E+00	4.93E-02	2.13E-01	1.27E-07	2.95E-01	1.88E+00	1.31E-02	1.02E+01	6.33E-01	3.17E+00	4.24E+00	1.48E-01	5.43E-02
2002	11	3	9.35E-02	1.88E-05	3.52E-02	0.00E+00	3.95E-06	1.66E-01	3.36E-02	1.45E-01	1.48E-02	5.77E+00	5.76E-03	7.91E-01	2.71E-01	3.84E-02	3.02E-01
2002	11	4	8.61E-02	2.23E-05	1.85E-02	0.00E+00	3.06E-06	7.71E-02	4.23E-02	7.28E-01	6.09E-03	6.05E+00	5.61E-04	8.95E-01	3.30E-01	3.85E-02	2.11E-01
2002	11	5	2.89E-02	4.22E-06	2.02E-03	0.00E+00	2.07E-06	4.98E-03	3.23E-02	7.29E-01	1.76E-03	2.78E+00	1.41E-02	5.09E-01	2.93E-01	1.61E-02	7.08E-02
2002	11	6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-09	0.00E+00	3.19E-02	2.98E-01	1.05E-16	1.75E+00	4.11E-02	5.37E-01	1.96E-01	1.70E-03	0.00E+00
2002	11	7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.75E-06	0.00E+00	2.53E-02	4.38E-01	3.14E-22	3.05E+00	6.41E-02	3.94E-01	2.84E-01	3.08E-02	0.00E+00
2002	11	8	4.40E-03	4.03E-01	4.45E-03	9.29E-02	1.58E-01	1.34E-02	9.64E-03	7.64E-01	5.67E-02	1.96E+00	5.17E+00	9.46E-02	4.64E-01	2.77E-02	1.83E-02
2002	11	9	2.41E-02	1.99E-06	5.05E-03	2.41E-08	7.13E-07	3.15E-02	1.13E-02	7.07E-01	5.40E-03	2.18E+00	3.63E-02	3.69E-01	6.15E-01	9.42E-03	1.08E-01
2002	11	10	5.18E-02	0.00E+00	2.65E-03	0.00E+00	1.48E-06	7.72E-03	4.42E-02	8.21E-01	9.21E-04	2.83E+00	7.29E-02	5.00E-01	3.64E-01	2.58E-02	1.63E-01
2002	11	11	6.43E-03	0.00E+00	2.62E-05	0.00E+00	0.00E+00	8.35E-04	3.82E-02	6.67E-01	1.76E-16	2.59E+00	7.67E-03	7.15E-01	2.31E-01	6.07E-03	1.23E-02
2002	11	12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.89E-03	4.41E-01	3.09E-17	9.33E-01	5.17E-02	4.19E-01	1.77E-01	0.00E+00	0.00E+00
2002	11	13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.04E-02	6.75E-01	7.19E-17	2.39E+00	4.07E-03	6.41E-01	2.02E-01	7.41E-04	0.00E+00
2002	11	14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.08E-02	6.00E-01	3.40E-15	3.32E+00	3.53E-03	4.28E-01	2.86E-01	0.00E+00	0.00E+00
2002	11	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-06	0.00E+00	3.61E-02	7.18E-01	2.16E-17	3.62E+00	4.44E-02	5.55E-01	2.51E-01	2.08E-02	0.00E+00
2002	11	16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.63E-05	0.00E+00	1.10E-02	3.00E-01	8.51E-21	1.52E+00	7.41E-02	3.71E-01	2.43E-01	4.30E-04	0.00E+00
2002	11	17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.90E-04	5.35E-02	1.33E-18	7.57E-01	2.14E-02	1.81E-01	1.68E-01	0.00E+00	0.00E+00
2002	11	18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.97E-04	5.95E-02	1.16E-32	5.78E-01	4.06E-02	8.92E-02	1.62E-01	0.00E+00	0.00E+00
2002	11	19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-02	3.92E-01	7.46E-18	1.37E+00	2.24E-02	5.43E-01	2.12E-01	0.00E+00	0.00E+00
2002	11	20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.79E-02	4.25E-01	2.26E-17	2.35E+00	4.60E-02	7.42E-01	2.49E-01	1.05E-02	0.00E+00
2002	11	21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.93E-02	4.44E-01	1.42E-16	3.23E+00	1.10E-02	7.34E-01	2.39E-01	5.09E-02	0.00E+00
2002	11	22	4.86E-02	5.58E-03	1.79E-01	2.63E-06	3.52E-05	1.75E-01	8.76E-02	4.00E-01	3.62E+00	4.52E+00	3.95E-02	5.92E-01	7.50E-01	5.16E-02	5.23E-02
2002	11	23	7.05E-02	4.02E-05	7.99E-02	5.49E-08	9.46E-07	6.70E-02	1.53E-03	6.99E-02	3.19E+00	5.67E-03	6.76E-04	4.83E-03	3.49E-03	9.86E-03	1.39E-01
2002	11	24	6.54E-02	4.52E-02	3.43E-02	6.82E-03	1.27E-02	4.92E-02	1.36E-01	1.21E+00	7.59E-01	1.17E+01	1.65E-01	1.36E+00	1.32E+00	1.27E-01	1.69E-01
2002	11	25	7.70E-02	0.00E+00	1.56E-02	0.00E+00	0.00E+00	6.95E-02	2.23E-01	4.20E-01	1.74E-03	5.31E+00	8.91E-05	1.08E+00	1.18E+00	1.24E-01	1.69E-01
2002	11	26	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.97E-02	6.07E-01	1.96E-14	9.96E+00	2.32E-15	8.58E-01	1.79E+00	2.33E-03	0.00E+00
2002	11	27	7.63E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.27E-02	3.64E-01	1.32E-03	7.87E+00	2.79E-04	9.10E-01	7.07E-01	4.62E-03	5.14E-03
2002	11	28	1.04E-01	8.21E-07	1.04E-03	0.00E+00	1.51E-07	3.29E-03	4.15E-02	3.59E-01	3.45E-03	4.52E+00	5.32E-03	4.86E-01	4.15E-01	1.05E-02	1.64E-01
2002	11	29	2.62E-01	4.71E-01	2.82E-01	9.17E-02	1.78E-01	2.54E-01	1.35E-01	1.37E+00	2.94E+00	7.49E+00	1.60E+00	1.49E+00	1.46E+00	1.37E-01	4.74E-01
2002	11	30	5.29E-02	8.62E-07	1.26E-02	0.00E+00	7.37E-07	3.33E-02	6.49E-01	1.67E+00	6.32E-03	1.04E+01	2.69E-04	3.47E+00	3.35E+00	1.28E-01	1.31E-01
2002	12	1	6.25E-02	6.78E-05	5.17E-03	1.15E-06	1.16E-05	1.73E-02	1.35E-01	1.39E+00	4.17E-03	9.18E+00	3.45E-04	1.50E+00	2.12E-01	1.02E-01	1.57E-01
2002	12	2	7.16E-02	4.19E-01	9.37E-02	3.57E-02	3.86E-02	1.04E-01	2.43E-01	1.42E+00	1.06E+00	1.19E+01	3.77E-01	1.51E+00	1.67E+00	1.27E-01	7.81E-02
2002	12	3	6.02E-02	1.43E-01	3.63E-02	9.40E-05	3.90E-04	6.29E-02	3.29E-03	1.20E-01	3.01E+00	4.25E-01	2.56E-01	1.04E-01	1.45E-01	8.93E-03	1.62E-01
2002	12	4	1.78E-01	2.08E-01	5.22E-02	1.13E-02	1.96E-02	1.44E-01	2.04E-01	1.41E+00	9.63E-01	1.43E+01	6.06E-01	3.69E+00	6.15E+00	2.19E-01	5.04E-01
2002	12	5	3.24E-03	0.00E+00	4.56E-04	0.00E+00	0.00E+00	5.86E-04	5.00E-02	3.51E-01	1.78E-05	4.07E+00	4.88E-04	3.60E-01	2.44E-01	1.16E-02	3.16E-03
2002	12	6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.60E-02	6.22E-01	1.48E-13	6.50E+00	1.38E-13	2.92E-01	5.09E-01	0.00E+00	0.00E+00
2002	12	7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.43E-02	7.40E-01	5.02E-17	7.66E+00	1.47E-08	4.26E-01	3.72E-01	1.26E-03	0.00E+00
2002	12	8	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.53E-02	5.65E-01	7.24E-17	5.14E+00	1.86E-03	9.48E-01	2.07E-01	6.16E-03	0.00E+00
2002	12	9	9.49E-03	0.00E+00	3.59E-05	0.00E+00	0.00E+00	7.32E-03	1.89E-02	4.76E-01	1.13E-06	3.23E+00	2.27E-02	6.54E-01	3.59E-01	3.53E-02	2.66E-02
2002	12	10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-08	0.00E+00	7.59E-03	4.61E-01	9.95E-21	1.11E+00	7.73E-02	2.33E-01	2.85E-01	7.61E-05	0.00E+00
2002	12	11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.75E-02	7.02E-01	9.09E-17	1.29E+00	3.07E-02	6.81E-01	2.26E-01	5.67E-03	0.00E+00
2002	12	12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E-04	0.00E+00	1.30E-02	4.12E-01	1.71E-17	9.43E-01	8.52E-02	4.36E-01	2.62E-01	9.05E-04	0.00E+00
2002	12	13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-02	0.00E+00	2.30E-02	7.01E-01	3.87E-18	1.76E+00	3.55E-01	5.46E-01	5.46E-01	2.12E-03	0.00E+00
2002	12	14	0.00E+00	0.00E+00	0.00E+00	1.57E-05	1.73E-01	0.00E+00	2.20E-03	4.79E-01	3.11E-04	1.07E+00	4.97E-01	2.80E-01	3.21E-01	1.05E-01	0.00E+00
2002	12	15	0.00E+00	0.00E+00	0.00E+00	6.39E-02	9.92E-02	0.00E+00	4.09E-03	6.51E-02	3.31E-03	1.21E+00	1.81E+00	3.32E-02	6.23E-01	3.32E-02	0.00E+00
2002	12	16	6.00E-02	3.67E-01	6.71E-03	4.28E-01	2.97E-01	2.76E-02	1.30E-02	7.20E-01	1.41E-02	2.16E+00	5.57E+00	2.27E-01	4.76E-01	1.39E-02	1.00E-01
2002	12	17	1.48E-02	0.00E+00	1.94E-04	0.00E+00	0.00E+00	3.35E-03	6.59E-02	6.61E-01	5.37E-18	6.01E+00	3.37E-03	1.03E+00	2.96E-01	8.14E-03	4.65E-02
2002	12	18	4.99E-02	3.13E-04	7.51E-03	6.36E-05	1.21E-04	1.72E-02	9.38E-02	1.95E+00	8.14E-03	8.15E+00	3.53E-03	1.59E+00	2.15E-01	6.31E-02	1.48E-01
2002	12	19	4.23E-02	3.44E-02	1.08E-02	5.77E-03	1.26E-02	1.61E-02	1.79E-01	1.25E+00	3.63E-01	1.06E+01	3.50E-01	1.76E+00	1.66E+00	3.75E-02	8.29E-02
2002	12	20	8.23E-01	1.90E-01	1.76E-01	2.88E-02	4.62E-02	1.58E-01	3.04E-02	3.25E-01	7.49E+00	3.08E+00	5.12E-01	3.94E-01	5.32E-01	5.60E-02	1.41E+00
2002	12	21	7.65E-01	4.85E-01	2.36E-01	2.00E-03	3.94E-03	2.23E-01	1.63E-02	7.82E-01	7.54E+00	1.04E+00	8.00E-01	2.28E-01	3.17E-01	2.63E-01	1.46E+00
2002	12	22	3.77E-02	3.01E-01	1.26E-02	2.38E-02	4.20E-02	1.35E-02	1.81E-01	2.14E+00	4.64E-01	1.27E+01	1.24E+00	3.52E+00	4.69E+00	1.51E-01	9.07E-02
2002	12	23	8.17E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E-01	1.61E+00	0.00E+00	9.77E+00	0.00E+00	1.15E+00	1.93E+00	8.33E-02	2.32E-02
2002	12	24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.68E-02	4.08E-01	8.04E-16	5.24E+00	5.77E-04	3.65E-01	4.57E-01	1.44E-02	0.00E+00
2002	12	25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E-02	4.19E-01	2.92E-16	1.34E+00	1.97E-02	5.46E-01	1.62E-01	1.10E-03	0.00E+00
2002	12	26	2.80E-04	0.00E+00	2.27E-04	0.00E+00	2.10E-04	1.91E-03	2.54E-02	5.26E-01	3.40E-06	1.59E+00	1.22E-01	2.84E-01	2.69E-01	7.81E-05	3.59E-04

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	12	27	1.04E+00	1.75E-01	3.53E-01	2.32E-02	3.93E-02	2.14E+00	1.14E+00	4.56E+00	9.79E-01	6.84E+00	3.40E-01	9.55E-01	8.20E-01	3.06E+00	1.47E+00
2002	12	28	6.40E-01	3.72E-02	3.00E-01	1.86E-02	3.41E-02	1.34E+00	2.72E-01	1.90E+00	1.33E+00	2.11E+00	1.93E-01	1.42E-01	3.23E-01	1.32E+00	9.05E-01
2002	12	29	1.81E+00	1.62E-03	1.08E+00	3.37E-04	9.56E-04	3.42E+00	8.05E-01	4.01E+00	9.51E-01	3.44E+00	1.60E-02	6.84E-01	3.34E-01	3.49E+00	2.27E+00
2002	12	30	1.07E-01	0.00E+00	6.45E-02	0.00E+00	2.35E-06	1.59E+00	4.89E-01	2.05E+00	9.98E-03	2.35E+00	5.02E-02	5.19E-01	2.86E-01	1.11E+00	2.22E-01
2002	12	31	3.53E+00	1.05E-03	2.60E+00	8.23E-05	6.00E-04	5.07E+00	1.23E+00	5.92E+00	3.13E+00	4.81E+00	7.31E-02	1.10E+00	1.40E+00	5.20E+00	4.55E+00
2003	1	1	7.88E-02	0.00E+00	1.82E-02	0.00E+00	3.31E-10	6.17E-01	2.93E-01	1.26E+00	4.04E-03	2.20E+00	5.42E-02	2.48E-01	2.59E-01	6.63E-01	1.70E-01
2003	1	2	2.45E-01	1.48E-07	6.55E-02	4.40E-08	6.04E-04	1.08E+00	2.77E-01	1.19E+00	3.23E-02	1.10E+00	1.75E-01	2.91E-01	3.03E-01	7.49E-01	3.95E-01
2003	1	3	1.84E-01	0.00E+00	3.62E-02	0.00E+00	1.14E-04	9.24E-01	3.05E-01	1.50E+00	9.45E-03	1.16E+00	9.80E-02	2.63E-01	2.78E-01	9.08E-01	3.26E-01
2003	1	4	4.29E-02	0.00E+00	2.01E-03	0.00E+00	0.00E+00	3.54E-01	3.63E-01	1.12E+00	1.64E-16	1.97E+00	1.86E-02	6.28E-01	2.03E-01	6.01E-01	6.60E-02
2003	1	5	6.51E-02	0.00E+00	3.09E-04	0.00E+00	0.00E+00	4.75E-01	4.33E-01	1.55E+00	1.66E-14	6.07E+00	4.19E-05	6.02E-01	1.30E+00	9.35E-01	9.99E-02
2003	1	6	5.07E-02	0.00E+00	3.45E-02	0.00E+00	0.00E+00	6.00E-01	3.68E-01	1.32E+00	1.70E-03	2.73E+00	3.87E-03	4.82E-01	2.08E-01	8.84E-01	1.54E-01
2003	1	7	4.16E-02	0.00E+00	3.43E-02	0.00E+00	0.00E+00	1.07E+00	2.87E-01	1.93E+00	1.89E-02	2.39E+00	4.87E-03	3.98E-01	1.63E-01	1.11E+00	4.92E-02
2003	1	8	5.66E-01	0.00E+00	4.67E-01	0.00E+00	0.00E+00	9.30E-01	2.53E-01	2.11E+00	1.75E+00	2.20E+00	1.18E-04	7.21E-01	5.47E-01	1.63E+00	6.64E-01
2003	1	9	4.08E+00	3.36E-01	2.55E+00	2.64E-02	4.27E-02	5.37E+00	1.66E+00	6.45E+00	3.27E+00	5.12E+00	1.24E+00	7.34E-01	1.05E+00	6.43E+00	4.91E+00
2003	1	10	2.60E+00	1.00E-01	2.47E+00	6.70E-02	1.28E-01	6.55E+00	1.81E+00	7.48E+00	4.16E+00	8.93E+00	5.86E-01	1.59E+00	1.12E+00	5.85E+00	3.40E+00
2003	1	11	1.97E-01	5.72E-05	1.78E-01	5.10E-07	1.04E-05	3.03E+00	6.78E-01	3.64E+00	3.67E-02	3.02E+00	1.06E-02	8.71E-01	2.19E-01	2.55E+00	2.95E-01
2003	1	12	1.23E+00	1.23E-03	2.48E-01	5.02E-04	7.95E-03	1.34E+00	1.61E+00	2.94E+00	9.80E-02	3.19E+00	5.43E-01	2.80E-01	3.60E-01	2.13E+00	1.82E+00
2003	1	13	1.82E+00	2.58E-03	1.29E+00	8.39E-04	1.00E-02	3.14E+00	2.41E+00	4.86E+00	9.71E-01	1.06E+01	5.33E-02	9.72E-01	9.58E-01	4.24E+00	2.37E+00
2003	1	14	3.62E+00	1.98E+00	2.18E+00	3.33E-01	4.47E-01	5.26E+00	2.76E+00	7.73E+00	4.26E+00	1.16E+01	3.23E+00	1.53E+00	1.51E+00	7.80E+00	4.45E+00
2003	1	15	5.27E-01	4.21E-05	1.74E-01	4.98E-09	1.37E-05	2.30E+00	1.29E+00	5.87E+00	7.18E-02	9.62E+00	1.23E-03	1.13E+00	1.65E+00	3.38E+00	7.57E-01
2003	1	16	6.20E-01	0.00E+00	2.49E-01	0.00E+00	0.00E+00	1.08E+00	7.37E-01	2.55E+00	3.08E-03	7.39E+00	3.27E-05	6.23E-01	1.35E+00	1.45E+00	7.53E-01
2003	1	17	1.14E+00	8.89E-05	8.22E-01	3.93E-06	2.26E-05	2.83E+00	1.09E+00	3.95E+00	1.43E-02	6.47E+00	4.79E-03	2.19E+00	2.48E+00	2.81E+00	1.61E+00
2003	1	18	3.26E-01	0.00E+00	9.24E-02	0.00E+00	0.00E+00	1.06E+00	4.74E-01	2.55E+00	1.62E-03	4.58E+00	1.31E-03	6.01E-01	2.94E-01	1.89E+00	6.04E-01
2003	1	19	5.05E-02	0.00E+00	2.58E-03	0.00E+00	0.00E+00	3.73E-01	2.94E-01	8.12E-01	1.10E-03	2.40E+00	4.40E-03	4.50E-01	2.09E-01	5.84E-01	9.44E-02
2003	1	20	5.58E-01	4.71E-01	2.75E-01	2.09E-01	4.88E-01	1.95E+00	1.19E+00	3.43E+00	1.18E-01	5.36E+00	5.23E+00	7.69E-01	3.02E-01	2.33E+00	9.03E-01
2003	1	21	9.09E-01	5.04E-02	5.30E-01	2.60E-02	1.25E-02	1.11E+00	6.26E-02	1.48E+00	1.64E+00	2.92E-03	5.84E-03	1.43E-03	1.92E-03	1.80E+00	1.15E+00
2003	1	22	4.07E+00	6.82E-01	2.14E+00	2.11E-03	2.12E-03	4.34E+00	6.11E-01	4.71E+00	4.67E+00	1.66E-01	8.91E-01	4.38E-02	5.36E-02	4.82E+00	5.55E+00
2003	1	23	3.73E-01	1.17E-01	1.67E-01	2.51E-02	4.62E-02	1.39E+00	7.21E-01	2.13E+00	1.21E-01	1.01E+00	6.83E-01	3.21E-01	4.46E-01	1.13E+00	5.29E-01
2003	1	24	3.56E-01	6.94E-05	1.01E-01	7.26E-07	2.38E-04	9.16E-01	5.28E-01	1.90E+00	2.90E-02	1.94E+00	2.72E-01	3.68E-01	2.64E-01	1.43E+00	5.41E-01
2003	1	25	8.20E-01	1.40E-01	1.46E-01	5.65E-01	1.62E+00	1.51E+00	1.31E+00	3.19E+00	1.40E-01	1.67E+00	9.37E+00	1.45E-01	2.83E-01	2.01E+00	1.24E+00
2003	1	26	6.69E-02	0.00E+00	1.69E-02	0.00E+00	0.00E+00	6.02E-01	2.13E-01	9.01E-01	9.75E-04	8.12E-01	8.42E-02	1.31E-01	3.20E-01	4.88E-01	1.49E-01
2003	1	27	2.37E-01	8.51E-04	2.98E-01	6.21E-05	2.89E-04	3.13E+00	7.64E-01	3.88E+00	8.39E-02	2.91E+00	2.15E-02	7.42E-01	4.94E-01	2.41E+00	6.82E-01
2003	1	28	1.97E+00	1.49E-03	1.15E+00	4.34E-04	1.75E-03	5.74E+00	2.51E+00	8.19E+00	2.81E-01	1.42E+01	1.58E-02	1.72E+00	7.98E-01	6.91E+00	3.03E+00
2003	1	29	1.12E-01	6.98E-08	1.36E-03	6.20E-08	3.90E-07	4.63E-01	4.38E-01	1.43E+00	2.49E-04	3.35E+00	9.31E-03	4.88E-01	2.14E-01	7.76E-01	1.80E-01
2003	1	30	4.26E-02	0.00E+00	6.46E-03	0.00E+00	5.38E-05	4.41E-01	3.23E-01	9.99E-01	2.58E-17	1.43E+00	3.83E-02	3.69E-01	2.36E-01	5.41E-01	6.48E-02
2003	1	31	7.78E-01	3.28E-07	2.05E-01	4.09E-06	2.74E-02	2.28E+00	3.85E-01	1.98E+00	8.11E-02	1.32E+00	4.27E-01	8.48E-02	4.65E-01	1.54E+00	1.30E+00
2003	2	1	4.83E-01	1.29E-02	2.05E-01	2.72E-04	6.17E-04	2.51E+00	1.13E+00	4.37E+00	3.55E-01	5.26E+00	2.59E-02	1.29E+00	8.78E-01	2.73E+00	7.72E-01
2003	2	2	1.23E+00	5.28E-01	6.79E-01	9.82E-02	1.25E-01	4.28E+00	1.86E+00	5.43E+00	3.79E-01	7.05E+00	1.63E+00	1.26E+00	9.48E-01	5.35E+00	1.73E+00
2003	2	3	2.26E+00	3.73E-04	1.68E+00	2.18E-05	8.08E-05	3.83E+00	1.14E+00	4.02E+00	2.56E+00	4.88E+00	3.51E-03	1.87E+00	1.64E+00	3.57E+00	2.77E+00
2003	2	4	1.31E+00	2.27E-03	7.33E-01	3.19E-04	1.10E-03	4.48E+00	2.25E+00	8.26E+00	1.54E-01	9.69E+00	7.61E-03	1.84E+00	2.40E+00	5.43E+00	1.75E+00
2003	2	5	2.48E+00	8.45E-04	1.69E+00	4.96E-05	1.53E-04	3.75E+00	7.63E-01	5.40E+00	4.26E+00	1.72E+00	6.51E-03	1.11E+00	7.08E-01	4.59E+00	3.23E+00
2003	2	6	1.00E+00	4.30E-05	5.08E-01	1.65E-06	7.04E-06	3.90E+00	1.14E+00	6.41E+00	3.88E-02	6.77E+00	2.13E-03	2.23E+00	2.09E+00	5.14E+00	1.48E+00
2003	2	7	1.88E+00	1.10E-01	9.03E-01	4.30E-02	9.81E-02	3.23E+00	2.72E+00	6.33E+00	1.19E+00	9.77E+00	8.91E-01	2.28E+00	2.56E+00	4.24E+00	2.55E+00
2003	2	8	2.82E+00	7.15E-02	1.17E+00	7.26E-03	3.70E-02	4.05E+00	9.29E-01	5.23E+00	3.52E+00	4.57E+00	4.81E-01	9.83E-01	7.61E-01	4.85E+00	3.51E+00
2003	2	9	1.16E-01	0.00E+00	4.46E-03	0.00E+00	0.00E+00	5.69E-01	6.83E-01	2.56E+00	4.38E-04	5.54E+00	2.16E-03	8.17E-01	7.55E-01	1.14E+00	1.76E-01
2003	2	10	6.29E-01	1.96E-03	2.43E-01	1.12E-04	1.21E-03	3.01E+00	2.50E+00	7.67E+00	5.52E-01	7.86E+00	3.24E-02	1.98E+00	1.15E+00	4.87E+00	9.62E-01
2003	2	11	9.34E-01	1.08E-04	4.33E-01	3.94E-07	7.04E-06	2.08E+00	1.19E+00	4.79E+00	6.15E-02	8.96E+00	1.65E-03	1.26E+00	4.52E-01	3.26E+00	1.35E+00
2003	2	12	7.43E-01	5.49E-05	4.54E-01	3.60E-08	2.21E-06	2.26E+00	1.04E+00	3.85E+00	2.89E-02	8.75E+00	1.07E-03	1.08E+00	3.64E-01	2.80E+00	1.46E+00
2003	2	13	2.12E+00	4.69E-02	1.68E+00	7.16E-04	4.57E-03	4.54E+00	1.24E+00	7.10E+00	1.84E+00	8.42E+00	1.51E-01	1.31E+00	7.28E-01	5.43E+00	2.75E+00
2003	2	14	9.92E-01	4.66E-01	4.50E-01	8.24E-01	9.41E-01	2.69E+00	1.20E+00	4.03E+00	4.64E-01	1.07E+00	2.61E+00	1.46E-01	3.49E-01	3.03E+00	1.64E+00
2003	2	15	1.41E-01	2.02E-05	4.69E-02	0.00E+00	5.34E-07	1.04E+00	6.05E-01	2.69E+00	1.53E-02	3.33E+00	2.31E-02	8.62E-01	2.93E-01	1.35E+00	1.91E-01
2003	2	16	6.93E-01	2.68E-04	1.38E-01	7.82E-02	5.04E-01	1.91E+00	5.96E-01	2.58E+00	8.13E-02	2.77E+00	1.86E+00	2.07E-01	8.02E-01	1.84E+00	1.22E+00
2003	2	17	1.53E-01	0.00E+00	6.44E-03	0.00E+00	0.00E+00	6.66E-01	5.86E-01	2.18E+00	1.02E-17	3.56E+00	2.14E-02	8.41E-01	5.81E-01	1.04E+00	2.22E-01
2003	2	18	1.10E-01	0.00E+00	1.67E-03	0.00E+00	0.00E+00	6.19E-01	6.46E-01	2.06E+00	3.01E-18	5.07E+00	5.31E-03	7.94E-01	5.38E-01	1.22E+00	1.62E-01
2003	2	19	8.11E-03	0.00E+00	1.56E-02	0.00E+00	0.00E+00	4.55E-01	2.37E-01	7.61E-01	7.62E-18	9.93E-01	5.37E-02	1.98E-01	2.65E-01	4.40E-01	1.51E-02
2003	2	20	3.40E-01	1.28E-01	8.67E-02	1.16E-01	2.73E-01	1.11E+00	3.57E-01	2.20E+00	3.21E-02	9.92E-01	1.57E+00	1.33E-01	2.69E-01	1.12E+00	5.83E-01
2003	2	21	1.66E+00	2.75E+00	4.58E-01	4.20E-01	4.64E-01	1.69E+00	1.23E+00	2.98E+00	3.61E-01	1.72E+00	3.53E+00	7.65E-02	3.67E-01	2.77E+00	2.21E+00
2003	2	22	1.00E+00	1.15E+00	9.90E-01	2.94E-01	2.21E-01	1.35E+00	1.58E-01	1.15E+00	1.61E+00	3.44E-01	3.81E-01	1.97E-01	2.48E-01	2.21E+00	1.25E+00
2003	2	23	3.80E+00	7.77E-03	1.94E+00	1.98E-04	2.93E-03	5.09E+00	1.12E+00	5.75E+00	6.61E+00	3.52E+00	2.51E-01	6.98E-01	4.54E-01	4.68E+00	4.54E+00
2003	2	24	4.55E-01	0.00E+00	1.38E-01	0.00E+00	0.00E+00	2.46E+00	1.01E+00	4.62E+00	1.37E-02	6.49E+00	5.07E-04	9.89E-01	3.82E-01	3.52E+00	6.91E-01
2003	2	25	5.85E-01	1.90E-05	2.63E-01	0.00E+00	9.66E-07	1.67E+00	6.81E-01	3.30E+00	3.68E-02	4.36E+00	2.20E-03	1.01E+00	2.07E-01	3.35E+00	9.50E-01
2003	2	26	7.52E-01	8.28E-05	3.71E-01	1.59E-06	3.97E-05	2.90E+00	1.64E+00	4.27E+00	6.30E-02	6.54E+00	2.81E-02	9.94E-01	5.90E-01	3.87E+00	1.08E+00
2003	2	27	1.68E+00	6.89E-01	9.88E-01	4.48E-02	6.98E-02	2.25E+00	1.24E+00	3.63E+00	2.66E+00	2.66E+00	3.39E+00	4.97E-01	6.85E-01	3.46E+00	2.45E+00
2003	2	28	5.81E-01	1.23E-03	4.95E-01	2.38E-08	5.18E-06	9.43E-01	4.44E-01	1.26E+00	2.12E+00	1.93E+00	7.19E-02	5.28E-01	3.03E-01	1.51E+00	7.90E-01
2003	3	1	7.72E-01	2.07E-01	3.37E-01	1.58E-01	1.61E-01	1.21E+00	5.65E-01	2.37E+00	5.05E-01	7.03E-01	4.94E-01	2.91E-01	1.17E-01	2.48E+00	1.08E+00
2003	3	2	7.33E-01	1.24E-03	4.05E-01	4.17E-04	3.62E-03	1.21E+00	7.05E-01	2.13E+00	6.64E-01	2.70E+00	1.77E-02	8.00E-01	4.43E-01	1.43E+00	8.72E-01
2003	3	3	8.10E-01	1.15E-01	7.53E-01	3.55E-02	4.13E-02	1.26E+00	1.84E-01	1.98E+00	1.03E+00	6.14E-02	6.53E-02	4.70E-02	5.24E-02	1.97E+00	1.08E+00
2003	3	4	3.68E+00	1.53E-01	2.15E+00	1.57E-01	3.33E-01	4.11E+00	7.95E-01	5.52E+00	3.67E+00	1.10E+00	4.93E-01	3.73E-01	6.10E-01	5.02E+00	4.68E+00
2003	3	5	1.72E-01	4.16E-02	1.18E-01	2.50E-02	2.88E-02	4.95E-01	1.23E-01	7.84E-01	3.18E-01	4.65E-01	2.21E-01	7.20E-02	1.29E-01	8.23E-01	2.28E-01
2003	3	6	6.10E-01	2.38E-01	4.01E-01	2.15E-01	2.41E-01	9.16E-01	2.53E-02	5.01E-01	9.38E-01	3.18E-02	1.75E-01	1.09E-02	1.15E-02	1.74E+00	7.82E-01
2003	3	7	1.42E+00	1.75E-02	8.80E-01	2.78E-03	1.66E-03	1.72E+00	1.78E-02	5.98E-01	2.87E+00	1.47E-03	3.07E-03	1.44E-04	3.80E-04	2.06E+00	1.68E+00
2003	3	8	1.24E+00	3.70E-01	6.49E-01	4.42E-01	5.41E-01	1.39E+00	2.23E-01	2.27E+00	1.81E+00	1.59E-01	7.38E-01	2.33E-02	5.04E-02	2.46E+00	1.67E+00
2003	3	9	3.13E+00	4.33E-01	1.86E+00	1.19E-01	1.26E-01	4.05E+00	4.16E-01	3.97E+00	2.98E+00	4.75E-01	8.24E-01	5.75E-02	1.43E-01	4.16E+00	3.79E+00
2003	3	10	6.65E-02	5.75E-07	1.95E-02	9.67E-05	2.32E-03	5.46E-01	2.02E-01	5.10E-01	1.71E-02	9.33E-01	1.81E-01	6.64E-02	1.99E-01	4.72E-01	1.23E-01
2003	3	11	4.10E-01	4.63E-01	7.97E-02	3.67E-01	4.22E-01	6.63E-01	3.78E-01	1.29E+00	7.05E-02	9.50E-01	1.17E+00	2.27E-02	1.35E-01	1.33E+00	6.64E-01
2003	3	12	2.75E-01	0.00E+00	4.73E-02	0.00E+00	2.00E-03	7.79E-01	1.62E-01	6.90E-01	2.13E-02	8.28E-01	1.66E-01	4.74E-02	3.28E-01	6.34E-01	4.20E-01
2003	3	13	8.75E-02	0.00E+00	1.46E-02	0.00E+00	2.03E-03	6.77E-01	1.41E-01	3.71E-01	1.12E-03	6.68E-01	1.99E-01	7.40E-02	2.30E-01	4.42E-01	2.28E-01
2003	3	14	7.68E-02	0.00E+00	4.07E-02	0.00E+00	2.77E-02	5.97E-01	4.57E-01	1.57E+00	1.62E-04	1.16E+00	2.22E-01	5.89E-01	4.59E-01	9.59E-01	1.82E-01
2003	3	15	1.77E+00	4.83E-01	8.12E-01	1.28E-01	1.47E-01	4.62E+00	2.09E+00	6.96E+00	1.49E+00	4.91E+00	3.50E+00	8.67E-01	8.67E-01	5.64E+00	2.50E+00
2003	3	16	6.00E-01	8.33E-04	3.80E-01	5.14E-04	6.80E-03	4.10E+00	1.97E+00	5.51E+00	1.41E-01	5.17E+00	3.92E-02	1.58E+00	6.02E-01	4.45E+00	8.26E-01
2003	3	17	4.23E-01	9.61E-05	4.16E-01	2.37E-06	7.06E-05	3.87E+00	1.98E+00	6.05E+00	1.06E-01	7.31E+00	2.64E-02	1.78E+00	8.98E-01	3.96E+00	5.84E-01
2003	3	18	4.00E-01	8.46E-04	2.94E-01	1.73E-04	5.97E-04	3.02E+00	1.69E+00	4.97E+00	9.95E-02	5.27E+00	7.68E-02	1.39E+00	7.25E-01	3.45E+00	6.89E-01
2003	3	19	7.18E-01	2.15E-01	2.24E-01	7.86E-02	1.47E-01	2.08E+00	1.06E+00	3.30E+00	1.54E-01	3.46E+00	4.94E+00	6.82E-01	5.67E-01	1.74E+00	1.09E+00
2003	3	20	5.13E-01	4.05E-02	1.58E-01	6.96E-02	1.26E-01	2.42E+00	8.92E-01	4.32E+00	1.08E-01	1.61E+00	1.66E+00	2.44E-01	4.84E-01	2.10E+00	6.45E-01
2003	3	21	8.04E-02	0.00E+00	1.33E-02	0.00E+00	2.94E-09	6.27E-01	2.59E-01	1.23E+00	2.38E-04	9.09E-01	9.21E-02	1.65E-01	2.79E-01	6.27E-01	1.54E-01
2003	3	22	2.89E-01	1.12E-08	4.12E-02	1.60E-08	5.83E-03	1.09E+00	2.05E-01	8.06E-01	2.08E-02	1.04E+00	3.25E-01	3.98E-02	3.13E-01	8.12E-01	5.51E-01
2003	3	23	3.89E-02	0.00E+00	1.45E-02	0.00E+00	0.00E+00	6.53E-01	2.41E-01	8.54E-01	4.04E-05	8.90E-01	6.27E-02	1.80E-01	2.69E-01	5.55E-01	1.12E-01
2003	3	24	8.50E-01	5.85E-05	3.66E-01	0.00E+00	1.39E-05	2.52E+00	1.27E+00	3.56E+00	8.11E-02	5.86E+00	3.38E-02	1.22E+00	9.98E-01	2.52E+00	1.18E+00
2003	3	25	1.43E-01	7.98E-06	9.60E-02	3.18E-08	1.06E-06	1.52E+00	5.28E-01	2.19E+00	9.55E-03	1.52E+00	8.50E-02	6.81E-01	3.10E-01	1.20E+00	3.09E-01
2003	3	26	3.33E+00	9.12E-03	1.72E+00	5.69E-04	8.31E-04	4.20E+00	1.32E+00	5.92E+00	5.40E+00	7.44E+00	1.55E-02	1.19E+00	1.42E+00	5.42E+00	4.17E+00

Year	Month	Day	Baseline														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	12	27	8.67E-01	2.29E-03	2.72E-01	8.09E-04	1.36E-03	2.06E+00	1.04E+00	3.61E+00	4.80E-02	8.88E-03	3.52E-03	2.36E-02	1.99E-02	2.92E+00	1.20E+00
2002	12	28	6.40E-01	8.80E-04	2.79E-01	1.12E-04	2.07E-04	1.30E+00	2.63E-01	1.32E+00	2.43E-03	1.48E-03	1.03E-03	5.83E-03	2.86E-03	1.32E+00	9.05E-01
2002	12	29	1.46E+00	1.14E-03	9.99E-01	2.82E-04	6.48E-04	3.35E+00	7.39E-01	2.83E+00	3.56E-02	7.95E-03	3.08E-03	2.27E-02	1.32E-02	3.43E+00	1.79E+00
2002	12	30	1.07E-01	0.00E+00	6.45E-02	0.00E+00	8.37E-08	1.59E+00	4.63E-01	1.37E+00	9.98E-03	8.19E-04	6.37E-05	7.41E-03	2.28E-03	1.09E+00	2.22E-01
2002	12	31	2.70E+00	6.65E-04	1.51E+00	1.43E-05	5.30E-05	4.22E+00	1.04E+00	5.20E+00	7.15E-02	9.28E-03	1.81E-03	2.76E-02	1.71E-02	4.92E+00	3.33E+00
2003	1	1	7.53E-02	0.00E+00	1.73E-02	0.00E+00	0.00E+00	6.16E-01	2.65E-01	8.75E-01	3.98E-03	3.13E-04	4.01E-07	1.71E-03	1.11E-03	6.41E-01	1.66E-01
2003	1	2	2.45E-01	1.48E-07	6.55E-02	4.40E-08	1.02E-04	1.07E+00	2.69E-01	8.42E-01	2.89E-02	5.58E-03	1.05E-03	1.34E-02	9.99E-03	7.48E-01	3.95E-01
2003	1	3	1.84E-01	0.00E+00	3.62E-02	0.00E+00	0.00E+00	9.24E-01	2.97E-01	9.49E-01	9.45E-03	1.26E-03	2.26E-05	7.38E-03	2.81E-03	9.08E-01	3.26E-01
2003	1	4	4.29E-02	0.00E+00	2.01E-03	0.00E+00	0.00E+00	3.54E-01	3.49E-01	6.36E-01	0.00E+00	0.00E+00	0.00E+00	1.78E-04	5.64E-06	6.00E-01	6.60E-02
2003	1	5	6.51E-02	0.00E+00	3.09E-04	0.00E+00	0.00E+00	4.75E-01	3.66E-01	8.81E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.35E-01	9.99E-02
2003	1	6	3.46E-02	0.00E+00	3.45E-02	0.00E+00	0.00E+00	6.00E-01	3.36E-01	9.46E-01	1.70E-03	5.53E-05	0.00E+00	7.07E-04	3.21E-04	8.73E-01	9.65E-02
2003	1	7	4.16E-02	0.00E+00	3.43E-02	0.00E+00	0.00E+00	1.07E+00	2.52E-01	1.54E+00	1.89E-02	1.93E-04	0.00E+00	6.67E-03	2.42E-03	1.08E+00	4.92E-02
2003	1	8	5.22E-01	0.00E+00	3.57E-01	0.00E+00	0.00E+00	8.41E-01	1.82E-01	1.63E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E+00	6.27E-01
2003	1	9	3.52E+00	1.20E-02	2.25E+00	3.27E-03	5.68E-03	5.17E+00	1.62E+00	5.90E+00	1.80E-01	4.42E-02	2.23E-02	7.92E-02	5.80E-02	6.35E+00	3.96E+00
2003	1	10	2.00E+00	7.58E-03	1.31E+00	3.44E-03	5.92E-03	5.59E+00	1.64E+00	5.84E+00	1.72E-01	3.82E-02	1.72E-02	6.81E-02	5.28E-02	5.60E+00	2.34E+00
2003	1	11	1.77E-01	5.72E-05	1.78E-01	5.10E-07	1.04E-05	3.03E+00	6.15E-01	2.42E+00	3.67E-02	4.13E-03	5.82E-04	1.34E-02	8.20E-03	2.44E+00	2.53E-01
2003	1	12	1.22E+00	1.13E-03	2.46E-01	4.74E-04	5.14E-03	1.32E+00	1.60E+00	2.71E+00	7.90E-02	4.45E-02	2.29E-02	1.05E-02	2.68E-02	2.13E+00	1.80E+00
2003	1	13	1.59E+00	2.30E-03	1.26E+00	4.41E-04	8.51E-04	3.08E+00	2.36E+00	4.14E+00	6.47E-02	1.11E-02	4.59E-03	2.38E-02	1.71E-02	4.19E+00	1.92E+00
2003	1	14	3.53E+00	2.71E-02	2.05E+00	1.23E-02	1.67E-02	5.12E+00	2.67E+00	6.60E+00	1.43E-01	5.51E-02	3.57E-02	9.33E-02	6.86E-02	7.60E+00	4.20E+00
2003	1	15	4.93E-01	4.13E-05	1.71E-01	4.98E-09	1.36E-05	2.29E+00	1.18E+00	4.52E+00	7.05E-02	8.73E-03	1.18E-03	2.92E-02	1.67E-02	3.36E+00	6.85E-01
2003	1	16	6.15E-01	0.00E+00	2.38E-01	0.00E+00	0.00E+00	1.02E+00	6.84E-01	1.88E+00	1.07E-03	1.27E-06	3.84E-09	8.86E-05	1.91E-05	1.44E+00	7.36E-01
2003	1	17	9.31E-01	8.84E-05	7.92E-01	3.93E-06	2.24E-05	2.75E+00	8.43E-01	3.36E+00	8.61E-03	1.63E-03	4.04E-04	5.29E-03	3.03E-03	2.74E+00	1.17E+00
2003	1	18	3.05E-01	0.00E+00	9.19E-02	0.00E+00	0.00E+00	1.05E+00	4.31E-01	2.08E+00	1.57E-03	2.81E-05	0.00E+00	5.23E-04	1.17E-04	1.82E+00	5.69E-01
2003	1	19	5.05E-02	0.00E+00	2.58E-03	0.00E+00	0.00E+00	3.73E-01	2.73E-01	3.97E-01	1.10E-03	0.00E+00	0.00E+00	1.60E-03	5.88E-04	5.84E-01	9.44E-02
2003	1	20	4.85E-01	6.61E-03	2.71E-01	4.44E-03	9.60E-03	1.91E+00	1.18E+00	3.07E+00	8.83E-02	4.71E-02	2.25E-02	6.55E-02	5.26E-02	2.31E+00	7.31E-01
2003	1	21	9.06E-01	4.89E-03	4.87E-01	3.90E-03	4.18E-03	1.04E+00	6.20E-02	1.48E+00	1.36E-03	1.52E-03	2.84E-03	6.86E-04	9.60E-04	1.79E+00	1.15E+00
2003	1	22	3.86E+00	7.95E-03	2.07E+00	8.66E-04	1.24E-03	4.15E+00	6.09E-01	4.64E+00	9.09E-02	1.42E-02	7.66E-03	2.25E-02	1.70E-02	4.80E+00	5.04E+00
2003	1	23	3.64E-01	3.06E-03	1.62E-01	5.20E-04	1.23E-03	1.38E+00	6.98E-01	1.52E+00	5.55E-02	1.48E-02	6.72E-03	3.00E-02	2.21E-02	1.12E+00	5.13E-01
2003	1	24	3.56E-01	6.94E-05	1.01E-01	7.26E-07	2.38E-04	9.01E-01	5.09E-01	1.48E+00	2.26E-02	1.20E-02	9.29E-03	5.42E-03	5.81E-03	1.39E+00	5.39E-01
2003	1	25	8.14E-01	3.86E-03	1.46E-01	2.10E-02	4.65E-02	1.51E+00	1.30E+00	2.61E+00	1.20E-01	7.28E-02	4.79E-02	6.61E-02	6.41E-02	2.00E+00	1.22E+00
2003	1	26	6.69E-02	0.00E+00	1.69E-02	0.00E+00	0.00E+00	6.02E-01	2.12E-01	6.98E-01	9.75E-04	1.87E-05	0.00E+00	9.37E-03	1.76E-03	4.88E-01	1.49E-01
2003	1	27	1.77E-01	8.51E-04	2.96E-01	6.21E-05	2.89E-04	3.13E+00	7.36E-01	3.07E+00	8.25E-02	1.65E-02	4.73E-03	3.18E-02	2.47E-02	2.38E+00	4.63E-01
2003	1	28	1.79E+00	1.29E-03	1.12E+00	1.90E-04	8.15E-04	5.61E+00	2.41E+00	6.88E+00	1.55E-01	2.92E-02	8.25E-03	6.38E-02	4.47E-02	6.78E+00	2.56E+00
2003	1	29	1.12E-01	6.98E-08	1.36E-03	5.70E-08	3.70E-07	4.63E-01	3.82E-01	8.01E-01	2.49E-04	4.42E-05	1.71E-06	5.02E-04	2.29E-04	7.75E-01	1.80E-01
2003	1	30	4.26E-02	0.00E+00	6.46E-03	0.00E+00	0.00E+00	4.41E-01	3.03E-01	7.71E-01	0.00E+00	0.00E+00	0.00E+00	2.39E-04	0.00E+00	5.41E-01	6.48E-02
2003	1	31	7.43E-01	3.28E-07	2.04E-01	4.09E-06	3.02E-04	2.27E+00	3.84E-01	1.69E+00	7.64E-02	1.47E-02	2.53E-03	2.75E-02	2.09E-02	1.54E+00	1.21E+00
2003	2	1	4.38E-01	1.60E-03	1.98E-01	2.49E-04	5.24E-04	2.50E+00	1.06E+00	3.40E+00	5.34E-02	1.04E-02	3.93E-03	2.22E-02	1.55E-02	2.71E+00	6.36E-01
2003	2	2	1.16E+00	1.94E-02	6.30E-01	9.27E-03	9.14E-03	4.22E+00	1.75E+00	4.05E+00	8.86E-02	2.45E-02	1.64E-02	4.62E-02	3.22E-02	5.20E+00	1.60E+00
2003	2	3	2.07E+00	3.73E-04	1.20E+00	2.18E-05	8.08E-05	3.26E+00	1.00E+00	3.67E+00	9.32E-02	1.43E-02	2.21E-03	4.14E-02	2.81E-02	3.49E+00	2.48E+00
2003	2	4	1.26E+00	2.20E-03	7.17E-01	3.13E-04	1.08E-03	4.43E+00	2.14E+00	6.98E+00	1.17E-01	1.77E-02	6.28E-03	4.61E-02	2.90E-02	5.32E+00	1.60E+00
2003	2	5	2.07E+00	6.97E-04	1.06E+00	4.56E-05	1.35E-04	3.17E+00	5.37E-01	4.38E+00	3.49E-02	6.13E-03	1.92E-03	2.05E-02	1.12E-02	4.19E+00	2.71E+00
2003	2	6	9.46E-01	4.22E-05	4.87E-01	1.51E-06	6.27E-06	3.81E+00	1.04E+00	5.17E+00	3.70E-02	4.10E-03	6.54E-04	2.44E-02	1.06E-02	5.11E+00	1.32E+00
2003	2	7	1.37E+00	7.71E-03	7.01E-01	2.71E-03	5.56E-03	2.95E+00	2.22E+00	4.86E+00	1.04E-01	3.48E-02	1.67E-02	7.92E-02	5.20E-02	3.74E+00	1.80E+00
2003	2	8	2.29E+00	2.50E-03	9.84E-01	5.51E-04	1.16E-03	3.91E+00	8.13E-01	4.22E+00	7.86E-02	1.59E-02	6.09E-03	3.48E-02	2.39E-02	4.73E+00	2.64E+00
2003	2	9	1.11E-01	0.00E+00	4.39E-03	0.00E+00	0.00E+00	5.68E-01	6.02E-01	1.20E+00	3.50E-05	5.84E-08	0.00E+00	2.37E-05	1.01E-06	1.14E+00	1.70E-01
2003	2	10	5.16E-01	2.04E-04	2.25E-01	2.38E-05	1.41E-04	2.97E+00	2.14E+00	5.61E+00	5.70E-02	1.11E-02	2.38E-03	4.22E-02	2.35E-02	4.67E+00	7.91E-01
2003	2	11	8.15E-01	1.02E-04	4.25E-01	3.94E-07	6.84E-06	2.06E+00	1.11E+00	3.32E+00	5.55E-02	7.45E-03	1.04E-03	2.58E-02	1.38E-02	3.23E+00	1.08E+00
2003	2	12	6.34E-01	5.42E-05	4.47E-01	3.60E-08	2.21E-06	2.21E+00	9.53E-01	2.89E+00	2.57E-02	4.09E-03	7.60E-04	1.18E-02	7.17E-03	2.78E+00	1.20E+00
2003	2	13	1.80E+00	2.99E-04	1.42E+00	6.52E-06	3.50E-05	4.31E+00	1.11E+00	5.95E+00	8.21E-02	7.80E-03	1.28E-03	2.89E-02	1.68E-02	5.27E+00	2.06E+00
2003	2	14	8.88E-01	8.23E-03	4.28E-01	7.30E-03	1.08E-02	2.65E+00	1.20E+00	3.71E+00	1.22E-01	4.24E-02	1.96E-02	6.24E-02	5.70E-02	3.01E+00	1.39E+00
2003	2	15	1.40E-01	1.92E-05	4.62E-02	0.00E+00	2.63E-07	1.04E+00	5.60E-01	1.65E+00	1.47E-02	1.02E-03	1.93E-04	6.24E-03	2.63E-03	1.33E+00	1.90E-01
2003	2	16	6.87E-01	2.68E-04	1.37E-01	2.06E-03	3.53E-03	1.91E+00	5.88E-01	2.03E+00	7.50E-02	2.77E-02	5.85E-03	3.36E-02	3.65E-02	1.81E+00	1.20E+00
2003	2	17	1.53E-01	0.00E+00	6.44E-03	0.00E+00	0.00E+00	6.66E-01	5.40E-01	1.21E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-04	2.86E-06	1.04E+00	2.22E-01
2003	2	18	1.10E-01	0.00E+00	1.67E-03	0.00E+00	0.00E+00	6.19E-01	5.78E-01	1.29E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E+00	1.62E-01
2003	2	19	8.11E-03	0.00E+00	1.56E-02	0.00E+00	0.00E+00	4.55E-01	2.36E-01	5.61E-01	0.00E+00	0.00E+00	0.00E+00	1.11E-04	0.00E+00	4.40E-01	1.51E-02
2003	2	20	3.06E-01	4.44E-03	8.39E-02	3.96E-03	7.07E-03	1.11E+00	3.54E-01	1.93E+00	2.56E-02	5.98E-03	1.14E-02	7.92E-03	5.27E-03	1.12E+00	5.11E-01
2003	2	21	1.66E+00	2.09E-02	4.47E-01	7.71E-03	1.13E-02	1.61E+00	1.23E+00	2.98E+00	1.51E-01	6.72E-02	3.64E-02	6.30E-02	6.65E-02	2.77E+00	2.21E+00
2003	2	22	8.92E-01	7.98E-03	5.11E-01	8.16E-03	1.18E-02	1.04E+00	7.03E-02	1.03E+00	3.42E-02	1.81E-02	1.43E-02	2.00E-02	2.01E-02	2.12E+00	1.09E+00
2003	2	23	2.69E+00	7.58E-04	1.45E+00	1.12E-05	1.57E-04	4.54E+00	1.04E+00	4.68E+00	9.32E-02	1.39E-02	3.73E-03	3.43E-02	2.24E-02	4.39E+00	3.26E+00
2003	2	24	4.19E-01	0.00E+00	1.30E-01	0.00E+00	0.00E+00	2.41E+00	9.02E-01	3.22E+00	1.26E-02	5.99E-04	4.07E-05	1.06E-02	2.66E-03	3.50E+00	6.06E-01
2003	2	25	5.28E-01	1.90E-05	2.54E-01	0.00E+00	9.66E-07	1.61E+00	6.48E-01	2.76E+00	3.28E-02	1.63E-03	1.03E-04	1.41E-02	6.08E-03	3.34E+00	8.04E-01
2003	2	26	7.17E-01	4.50E-05	3.66E-01	8.91E-07	2.70E-05	2.88E+00	1.58E+00	3.23E+00	4.68E-02	1.72E-02	2.96E-03	3.10E-02	2.19E-02	3.81E+00	9.72E-01
2003	2	27	1.62E+00	1.33E-02	8.56E-01	1.93E-03	3.37E-03	2.10E+00	1.19E+00	3.48E+00	1.41E-01	4.39E-02	2.36E-02	6.44E-02	5.08E-02	3.42E+00	2.37E+00
2003	2	28	5.58E-01	7.28E-06	3.34E-01	0.00E+00	0.00E+00	8.14E-01	4.16E-01	9.44E-01	6.62E-03	3.56E-04	3.27E-05	1.56E-03	7.26E-04	1.49E+00	7.67E-01
2003	3	1	7.68E-01	4.37E-03	3.28E-01	3.54E-03	5.13E-03	1.19E+00	5.60E-01	2.13E+00	1.88E-02	7.28E-03	6.56E-03	8.16E-03	7.49E-03	2.48E+00	1.06E+00
2003	3	2	5.28E-01	1.36E-07	2.70E-01	0.00E+00	1.37E-07	1.13E+00	5.50E-01	1.46E+00	9.30E-05	4.37E-05	9.53E-06	1.94E-04	1.04E-04	1.33E+00	5.98E-01
2003	3	3	7.47E-01	4.40E-03	4.13E-01	2.19E-03	2.96E-03	1.03E+00	1.53E-01	1.93E+00	1.01E-02	4.55E-03	4.51E-03	3.56E-03	3.95E-03	1.93E+00	1.01E+00
2003	3	4	3.24E+00	4.28E-03	1.48E+00	3.13E-03	6.78E-03	3.55E+00	6.96E-01	5.21E+00	1.14E-01	2.78E-02	1.21E-02	4.66E-02	3.64E-02	4.90E+00	4.02E+00
2003	3	5	1.72E-01	5.83E-04	1.13E-01	1.16E-03	2.03E-03	4.79E-01	1.22E-01	7.11E-01	1.95E-03	2.96E-03	2.56E-03	9.09E-04	1.24E-03	8.23E-01	2.28E-01
2003	3	6	6.10E-01	1.05E-02	3.72E-01	1.55E-02	1.87E-02	8.58E-01	2.53E-02	5.01E-01	7.67E-03	9.28E-03	1.22E-02	9.93E-03	9.30E-03	1.74E+00	7.82E-01
2003	3	7	1.36E+00	9.59E-03	8.13E-01	2.42E-03	1.56E-03	1.59E+00	1.78E-02	5.98E-01	1.13E-03	1.06E-03	2.71E-03	1.43E-04	3.78E-04	2.06E+00	1.59E+00
2003	3	8	1.22E+00	6.12E-03	6.14E-01	5.33E-03	8.19E-03	1.35E+00	2.23E-01	2.27E+00	1.45E-02	8.91E-03	7.77E-03	1.37E-02	1.05E-02	2.46E+00	1.62E+00
2003	3	9	2.68E+00	1.09E-02	1.80E+00	1.10E-02	1.17E-02	3.99E+00	4.13E-01	3.68E+00	1.03E-01	2.77E-02	1.63E-02	3.77E-02	3.28E-02	4.12E+00	2.96E+00
2003	3	10	6.65E-02	5.75E-07	1.95E-02	5.90E-05	4.99E-04	5.46E-01	2.02E-01	5.08E-01	1.52E-02	4.96E-03	4.78E-03	2.18E-03	2.22E-03	4.72E-01	1.23E-01
2003	3	11	4.10E-01	1.89E-03	7.97E-02	8.86E-03	1.87E-02	6.63E-01	3.78E-01	1.29E+00	5.84E-02	2.87E-02	2.07E-02	1.75E-02	2.47E-02	1.33E+00	6.64E-01
2003	3	12	2.75E-01	0.00E+00	4.72E-02	0.00E+00	0.00E+00	7.62E-01	1.62E-01	6.85E-01	1.76E-02	4.92E-03	1.70E-04	8.24E-03	6.19E-03	6.34E-01	4.20E-01
2003	3	13	8.75E-02	0.00E+00	1.46E-02	0.00E+00	3.34E-06	6.77E-01	1.39E-01	3.41E-01	1.12E-03	4.59E-04	9.71E-05	6.52E-03	3.99E-03	4.42E-01	2.28E-01
2003	3	14	7.68E-02	0.00E+00	4.07E-02	0.00E+00	0.00E+00	5.97E-01	4.39E-01	1.15E+00	1.62E-04	4.72E-05	0.00E+00	1.54E-02	3.83E-03	8.89E-01	1.82E-01
2003	3	15	1.63E+00	1.88E-02	8.02E-01	3.61E-03	7.32E-03	4.60E+00	2.04E+00	5.64E+00	2.36E-01	7.36E-02	3.64E-02	1.17E-01	9.31E-02	5.48E+00	2.12E+00
2003	3	16	6.00E-01	8.33E-04	3.80E-01	1.36E-04	5.28E-04	4.10E+00	1.89E+00	4.11E+00	1.38E-01	2.51E-02	5.05E-03	7.83E-02	5.05E-02	4.38E+00	8.26E-01
2003	3	17	3.89E-01	9.61E-05	4.16E-01	2.37E-06	7.06E-05	3.87E+00	1.89E+00	4.15E+00	1.06E-01	1.60E-02	2.29E-03	5.19E-02	3.37E-02	3.88E+00	4.88E-01
2003	3	18	3.82E-01	8.46E-04	2.94E-01	1.73E-04	5.97E-04	3.02E+00	1.59E+00	3.58E+00	9.80E-02	1.92E-02	4.26E-03	7.13E-02	4.05E-02	3.38E+00	6.42E-01
2003	3	19	6.90E-01	1.42E-02	2.23E-01	2.83E-03	4.36E-03	2.08E+00	1.03E+00	2.48E+00	1.33E-01	4.07E-02	2.22E-02	5.29E-02	4.56E-02	1.73E+00	1.01E+00
2003	3	20	5.01E-01	5.32E-03	1.57E-01	4.15E-03	5.98E-03	2.42E+00	8.56E-01	2.98E+00	1.00E-01	3.45E-02	1.49E-02	5.80E-02	4.92E-02	2.02E+00	5.96E-01
2003	3	21	8.04E-02	0.00E+00	1.33E-02	0.00E+00	0.00E+00	6.27E-01	2.57E-01	7.90E-01	2.38E-04	8.37E-07	0.00E+00	8.21E-04	5.19E-04	6.27E-01	1.54E-01
2003	3	22	2.89E-01	1.12E-08	4.12E-02	1.60E-08	3.06E-05	1.09E+00	2.05E-01	7.11E-01	2.08E-02	2.79E-03	3.40E-04	5.53E-03	5.27E-03	8.12E-01	5.51E-01
2003	3	23	3.89E-02	0.00E+00	1.45E-02	0.00E+00	0.00E+00	6.53E-01	2.39E-01	5.44E-01	4.04E-05	0.00E+00	0.00E+00	4.47E-03	2.47E-04	5.55E-01	1.12E-01
2003	3	24	8.34E-01	5.85E-05	3.65E-01	0.00E+00	1.39E-05	2.51E+00	1.23E+00	2.98E+00	6.39E-02	8.42E-03	1.25E-03	3.49E-02	1.86E-02	2.52E+00	1.14E+00
2003	3	25	1.41E-01	7.98E-06	9.60E-02	3.18E-08	1.06E-06	1.52E+00	5.01E-01	1.41E+00	9.55E-03	1.42E-03	1.57E-04	6.12E-03	3.20E-03	1.18E+00	2.98E-01
2003	3	26	3.10E+00	6.46E-04	1.63E+00	3.37E-06	1.99E-05	4.08E+00	1.15E+00	5.20E+00	1.04E-01	1.20E-02	3.05E-03	3.17E-02	1.93E-02	5.24E+00	3.80E+00

Year	Month	Day	Project														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2002	12	27	1.73E-01	1.73E-01	8.08E-02	2.24E-02	3.79E-02	8.35E-02	1.07E-01	9.53E-01	9.31E-01	6.83E+00	3.37E-01	9.31E-01	8.00E-01	1.34E-01	2.73E-01
2002	12	28	6.28E-05	3.63E-02	2.14E-02	1.84E-02	3.39E-02	4.48E-02	8.48E-03	5.76E-01	1.33E+00	2.11E+00	1.92E-01	1.36E-01	3.20E-01	2.04E-04	8.67E-05
2002	12	29	3.49E-01	4.78E-04	7.81E-02	5.42E-05	3.08E-04	7.30E-02	6.57E-02	1.18E+00	9.15E-01	3.43E+00	1.29E-02	6.61E-01	3.21E-01	6.76E-02	4.80E-01
2002	12	30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-06	0.00E+00	2.59E-02	6.82E-01	1.23E-16	2.35E+00	5.02E-02	5.12E-01	2.84E-01	2.16E-02	0.00E+00
2002	12	31	8.28E-01	3.87E-04	1.09E+00	6.79E-05	5.47E-04	8.49E-01	1.91E-01	7.25E-01	3.06E+00	4.80E+00	7.13E-02	1.07E+00	1.39E+00	2.71E-01	1.23E+00
2003	1	1	3.51E-03	0.00E+00	9.69E-04	0.00E+00	3.31E-10	1.38E-03	2.73E-02	3.83E-01	6.38E-05	2.20E+00	5.42E-02	2.46E-01	2.58E-01	2.13E-02	4.31E-03
2003	1	2	0.00E+00	0.00E+00	7.31E-06	0.00E+00	5.02E-04	4.42E-03	8.37E-03	3.51E-01	3.38E-03	1.09E+00	1.74E-01	2.77E-01	2.93E-01	2.21E-04	0.00E+00
2003	1	3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-04	0.00E+00	8.58E-03	5.54E-01	1.77E-17	1.16E+00	9.80E-02	2.56E-01	2.75E-01	3.72E-04	0.00E+00
2003	1	4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.42E-02	4.83E-01	1.64E-16	1.97E+00	1.86E-02	6.28E-01	2.03E-01	6.83E-04	0.00E+00
2003	1	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.69E-02	6.66E-01	1.66E-14	6.07E+00	4.19E-05	6.02E-01	1.30E+00	0.00E+00	0.00E+00
2003	1	6	1.61E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.21E-02	3.70E-01	4.12E-15	2.73E+00	3.87E-03	4.82E-01	2.07E-01	1.06E-02	5.73E-02
2003	1	7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.46E-02	3.91E-01	5.49E-16	2.39E+00	4.87E-03	3.91E-01	1.61E-01	3.00E-02	9.01E-06
2003	1	8	4.43E-02	0.00E+00	1.09E-01	0.00E+00	0.00E+00	8.89E-02	7.18E-02	4.79E-01	1.75E+00	2.20E+00	1.18E-04	7.21E-01	5.47E-01	9.74E-02	3.70E-02
2003	1	9	5.60E-01	3.24E-01	2.98E-01	2.31E-02	3.70E-02	2.01E-01	4.04E-02	5.48E-01	3.09E+00	5.07E+00	1.22E+00	6.55E-01	9.90E-01	7.95E-02	9.52E-01
2003	1	10	6.03E-01	9.27E-02	1.16E+00	6.36E-02	1.22E-01	9.65E-01	1.67E-01	1.64E+00	3.98E+00	8.90E+00	5.69E-01	1.52E+00	1.06E+00	2.46E-01	1.06E+00
2003	1	11	2.02E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.25E-08	6.27E-02	1.22E+00	2.77E-16	3.02E+00	1.01E-02	8.58E-01	2.11E-01	1.08E-01	4.16E-02
2003	1	12	1.02E-02	1.01E-04	1.35E-03	2.80E-05	2.80E-03	1.93E-02	8.46E-03	2.31E-01	1.90E-02	3.14E+00	5.20E-01	2.70E-01	3.33E-01	2.83E-04	1.69E-02
2003	1	13	2.23E-01	2.82E-04	2.19E-02	3.98E-04	9.19E-03	6.46E-02	5.18E-02	7.19E-01	9.06E-01	1.06E+01	4.87E-02	9.48E-01	9.41E-01	4.46E-02	4.52E-01
2003	1	14	9.78E-02	1.96E+00	1.33E-01	3.21E-01	4.31E-01	1.34E-01	9.14E-02	1.14E+00	4.12E+00	1.15E+01	3.19E+00	1.43E+00	1.44E+00	1.96E-01	2.51E-01
2003	1	15	3.38E-02	7.66E-07	3.02E-03	0.00E+00	4.14E-08	7.06E-03	1.15E-01	1.36E+00	1.31E-03	9.61E+00	5.78E-05	1.10E+00	1.63E+00	2.74E-02	7.30E-02
2003	1	16	4.49E-03	0.00E+00	1.09E-02	0.00E+00	0.00E+00	6.76E-02	5.33E-02	6.66E-01	2.01E-03	7.39E+00	3.27E-05	6.23E-01	1.35E+00	2.69E-03	1.79E-02
2003	1	17	2.10E-01	4.64E-07	2.94E-02	0.00E+00	1.94E-07	8.30E-02	2.49E-01	5.93E-01	5.66E-03	6.47E+00	4.38E-03	2.19E+00	2.48E+00	7.21E-02	4.42E-01
2003	1	18	2.05E-02	0.00E+00	4.71E-04	0.00E+00	0.00E+00	1.09E-02	4.30E-02	4.75E-01	4.88E-05	4.58E+00	1.31E-03	6.01E-01	2.94E-01	7.07E-02	3.56E-02
2003	1	19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.14E-02	4.15E-01	1.08E-15	2.40E+00	4.40E-03	4.48E-01	2.09E-01	0.00E+00	0.00E+00
2003	1	20	7.36E-02	4.64E-01	4.50E-03	2.05E-01	4.79E-01	3.99E-02	1.61E-02	3.60E-01	2.93E-02	5.32E+00	5.21E+00	7.03E-01	2.49E-01	1.60E-02	1.72E-01
2003	1	21	2.99E-03	4.55E-02	4.26E-02	2.21E-02	8.34E-03	6.30E-02	6.39E-04	1.65E-03	1.64E+00	1.40E-03	2.99E-03	7.48E-04	9.58E-04	1.74E-03	2.72E-03
2003	1	22	2.07E-01	6.74E-01	7.41E-02	1.24E-03	8.77E-04	1.89E-01	2.04E-03	7.11E-02	4.58E+00	1.52E-01	8.83E-01	2.12E-02	3.66E-02	1.93E-02	5.04E-01
2003	1	23	9.30E-03	1.14E-01	5.74E-03	2.46E-02	4.50E-02	1.30E-02	2.30E-02	6.15E-01	6.55E-02	9.95E-01	6.77E-01	2.91E-01	4.24E-01	5.60E-03	1.58E-02
2003	1	24	2.72E-04	0.00E+00	5.28E-06	0.00E+00	4.67E-07	1.50E-02	1.97E-02	4.11E-01	6.48E-03	1.93E+00	2.63E-01	3.62E-01	2.58E-01	3.40E-02	1.88E-03
2003	1	25	5.81E-03	1.36E-01	3.47E-06	5.44E-01	1.58E+00	1.60E-04	6.60E-03	5.79E-01	1.97E-02	1.59E+00	9.32E+00	7.85E-02	2.19E-01	1.55E-02	1.63E-02
2003	1	26	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.09E-04	2.03E-01	3.87E-18	8.12E-01	8.42E-02	1.21E-01	3.18E-01	0.00E+00	0.00E+00
2003	1	27	6.07E-02	0.00E+00	1.52E-03	0.00E+00	0.00E+00	2.35E-03	2.79E-02	8.12E-01	1.42E-03	2.89E+00	1.67E-02	7.10E-01	4.70E-01	2.91E-02	2.19E-01
2003	1	28	1.81E-01	2.05E-04	3.46E-02	2.44E-04	9.35E-04	1.27E-01	1.00E-01	1.31E+00	1.25E-01	1.42E+01	7.51E-03	1.66E+00	7.54E-01	1.38E-01	4.73E-01
2003	1	29	8.84E-09	0.00E+00	0.00E+00	4.95E-09	2.03E-08	0.00E+00	5.59E-02	6.29E-01	9.22E-09	3.35E+00	9.31E-03	4.88E-01	2.14E-01	1.22E-03	1.01E-08
2003	1	30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.38E-05	0.00E+00	1.99E-02	2.28E-01	2.58E-17	1.43E+00	3.83E-02	3.69E-01	2.36E-01	0.00E+00	0.00E+00
2003	1	31	3.50E-02	0.00E+00	5.82E-04	0.00E+00	2.71E-02	3.92E-03	1.06E-03	2.86E-01	4.72E-03	1.31E+00	4.24E-01	5.73E-02	4.44E-01	9.85E-05	9.09E-02
2003	2	1	4.47E-02	1.13E-02	7.44E-03	2.29E-05	9.25E-05	9.83E-03	7.17E-02	9.75E-01	3.02E-01	5.25E+00	2.19E-02	1.27E+00	8.63E-01	1.57E-02	1.36E-01
2003	2	2	6.40E-02	5.08E-01	4.97E-02	8.89E-02	1.16E-01	6.52E-02	1.14E-01	1.38E+00	2.90E-01	7.02E+00	1.61E+00	1.22E+00	9.16E-01	1.47E-01	1.29E-01
2003	2	3	1.89E-01	0.00E+00	4.80E-01	0.00E+00	0.00E+00	5.69E-01	1.42E-01	3.55E-01	2.46E+00	4.86E+00	1.31E-03	1.83E+00	1.61E+00	7.98E-02	2.96E-01
2003	2	4	4.77E-02	7.02E-05	1.58E-02	6.04E-06	2.02E-05	5.64E-02	1.10E-01	1.27E+00	3.77E-02	9.68E+00	1.33E-03	1.79E+00	2.37E+00	1.11E-01	1.43E-01
2003	2	5	4.09E-01	1.48E-04	6.34E-01	3.98E-06	1.82E-05	5.83E-01	2.26E-01	1.02E+00	4.23E+00	1.72E+00	4.59E-03	1.09E+00	6.97E-01	3.93E-01	5.15E-01
2003	2	6	5.45E-02	7.44E-07	2.09E-02	1.40E-07	7.70E-07	8.75E-02	1.05E-01	1.25E+00	1.76E-03	6.77E+00	1.47E-03	2.20E+00	2.08E+00	3.90E-02	1.62E-01
2003	2	7	5.14E-01	1.02E-01	2.02E-01	4.03E-02	9.26E-02	2.79E-01	5.04E-01	1.48E+00	1.09E+00	9.74E+00	8.74E-01	2.21E+00	2.50E+00	4.97E-01	7.48E-01
2003	2	8	5.30E-01	6.90E-02	1.91E-01	6.71E-03	3.59E-02	1.37E-01	1.16E-01	1.02E+00	3.44E+00	4.56E+00	4.75E-01	9.49E-01	7.37E-01	1.17E-01	8.66E-01
2003	2	9	5.70E-03	0.00E+00	7.35E-05	0.00E+00	0.00E+00	8.08E-04	8.17E-02	1.35E+00	4.03E-04	5.54E+00	2.16E-03	8.17E-01	7.55E-01	6.26E-03	6.66E-03
2003	2	10	1.13E-01	1.75E-03	1.85E-02	8.80E-05	1.07E-03	4.74E-02	3.52E-01	2.07E+00	4.95E-01	7.85E+00	3.00E-02	1.93E+00	1.13E+00	2.01E-01	1.71E-01
2003	2	11	1.19E-01	5.77E-06	8.54E-03	0.00E+00	2.01E-07	1.91E-02	8.59E-02	1.47E+00	6.07E-03	8.95E+00	6.04E-04	1.23E+00	4.38E-01	2.86E-02	2.67E-01
2003	2	12	1.09E-01	6.75E-07	7.52E-03	0.00E+00	0.00E+00	5.50E-02	8.55E-02	9.63E-01	3.28E-03	8.75E+00	3.13E-04	1.07E+00	3.57E-01	1.84E-02	2.58E-01
2003	2	13	3.22E-01	4.66E-02	2.64E-01	7.09E-04	4.53E-03	2.32E-01	1.25E-01	1.15E+00	1.76E+00	8.41E+00	1.49E-01	1.28E+00	7.11E-01	1.65E-01	6.89E-01
2003	2	14	1.04E-01	4.58E-01	2.21E-02	8.16E-01	9.31E-01	4.20E-02	6.28E-03	3.19E-01	3.41E-01	1.02E+00	2.59E+00	8.38E-02	2.91E-01	2.22E-02	2.52E-01
2003	2	15	7.75E-04	9.67E-07	6.55E-04	0.00E+00	2.70E-07	1.19E-03	4.49E-02	1.04E+00	6.00E-04	3.33E+00	2.29E-02	8.55E-01	2.91E-01	2.06E-02	8.75E-04
2003	2	16	5.94E-03	0.00E+00	1.08E-03	7.61E-02	5.00E-01	5.84E-03	8.51E-03	5.50E-01	6.27E-03	2.74E+00	1.85E+00	1.73E-01	7.65E-01	2.38E-02	1.77E-02
2003	2	17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.63E-02	9.63E-01	1.02E-17	3.56E+00	2.14E-02	8.41E-01	5.81E-01	0.00E+00	0.00E+00
2003	2	18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.84E-02	7.70E-01	3.01E-18	5.07E+00	5.31E-03	7.94E-01	5.38E-01	3.70E-02	0.00E+00
2003	2	19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.74E-04	2.00E-01	7.62E-18	9.93E-01	5.37E-02	1.98E-01	2.65E-01	0.00E+00	0.00E+00
2003	2	20	3.39E-02	1.24E-01	2.81E-03	1.12E-01	2.66E-01	6.44E-03	3.06E-03	2.75E-01	6.53E-03	9.86E-01	1.56E+00	1.25E-01	2.64E-01	5.70E-03	7.23E-02
2003	2	21	6.33E-04	2.73E+00	1.09E-02	4.12E-01	4.52E-01	8.15E-02	3.18E-04	7.42E-04	2.10E-01	1.66E+00	3.49E+00	1.35E-02	3.00E-01	4.27E-04	2.02E-03
2003	2	22	1.09E-01	1.14E+00	4.79E-01	2.86E-01	2.09E-01	3.10E-01	8.79E-02	1.24E-01	1.57E+00	3.26E-01	3.67E-01	1.77E-01	2.28E-01	9.05E-02	1.61E-01
2003	2	23	1.11E+00	7.02E-03	4.88E-01	1.87E-04	2.77E-03	5.49E-01	8.09E-02	1.08E+00	6.52E+00	3.51E+00	2.48E-01	6.64E-01	4.32E-01	2.85E-01	1.28E+00
2003	2	24	3.64E-02	0.00E+00	7.81E-03	0.00E+00	0.00E+00	4.65E-02	1.04E-01	1.40E+00	1.08E-03	6.49E+00	4.67E-04	9.78E-01	3.79E-01	2.10E-02	8.56E-02
2003	2	25	5.71E-02	0.00E+00	9.35E-03	0.00E+00	0.00E+00	5.88E-02	3.23E-02	5.33E-01	4.04E-03	4.36E+00	2.10E-03	9.96E-01	2.00E-01	5.98E-03	1.46E-01
2003	2	26	3.45E-02	3.78E-05	5.61E-03	7.01E-07	1.27E-05	2.06E-02	5.99E-02	1.04E+00	1.62E-02	6.52E+00	2.52E-02	9.63E-01	5.68E-01	6.30E-02	1.11E-01
2003	2	27	6.20E-02	6.76E-01	1.32E-01	4.29E-02	6.65E-02	1.52E-01	4.38E-02	1.49E-01	2.51E+00	2.61E+00	3.37E+00	4.32E-01	6.34E-01	4.69E-02	8.01E-02
2003	2	28	2.29E-02	1.22E-03	1.60E-01	2.38E-08	5.18E-06	1.28E-01	2.81E-02	3.15E-01	2.12E+00	1.93E+00	7.19E-02	5.26E-01	3.02E-01	1.67E-02	2.30E-02
2003	3	1	4.05E-03	2.03E-01	8.76E-03	1.55E-01	1.55E-01	2.38E-02	4.80E-03	2.43E-01	4.86E-01	6.96E-01	4.87E-01	2.83E-01	1.09E-01	8.29E-05	2.33E-02
2003	3	2	2.04E-01	1.24E-03	1.36E-01	4.17E-04	3.62E-03	7.77E-02	1.55E-01	6.73E-01	6.64E-01	2.70E+00	1.77E-02	8.00E-01	4.43E-01	1.06E-01	2.74E-01
2003	3	3	6.37E-02	1.10E-01	3.40E-01	3.33E-02	3.84E-02	2.37E-01	3.11E-02	4.50E-02	1.02E+00	5.69E-02	6.08E-02	4.34E-02	4.85E-02	4.46E-02	6.41E-02
2003	3	4	4.45E-01	1.49E-01	6.77E-01	1.54E-01	3.26E-01	5.60E-01	9.96E-02	3.15E-01	3.56E+00	1.07E+00	4.81E-01	3.26E-01	5.73E-01	1.20E-01	6.62E-01
2003	3	5	0.00E+00	4.10E-02	4.86E-03	2.39E-02	2.68E-02	1.59E-02	1.01E-03	7.31E-02	3.16E-01	4.62E-01	2.18E-01	7.11E-02	1.28E-01	0.00E+00	0.00E+00
2003	3	6	0.00E+00	2.28E-01	2.85E-02	2.00E-01	2.22E-01	5.79E-02	0.00E+00	0.00E+00	9.31E-01	2.25E-02	1.63E-01	9.64E-04	2.22E-03	0.00E+00	0.00E+00
2003	3	7	6.28E-02	7.87E-03	6.64E-02	3.64E-04	9.88E-05	1.32E-01	0.00E+00	0.00E+00	2.87E+00	4.12E-04	3.67E-04	1.03E-07	2.05E-06	0.00E+00	9.24E-02
2003	3	8	2.59E-02	3.64E-01	3.53E-02	4.37E-01	5.32E-01	3.50E-02	2.17E-05	1.60E-03	1.79E+00	1.50E-01	7.30E-01	9.56E-03	3.99E-02	3.23E-04	5.32E-02
2003	3	9	4.52E-01	4.22E-01	6.40E-02	1.08E-01	1.14E-01	6.37E-02	3.44E-03	2.95E-01	2.88E+00	4.47E-01	8.07E-01	1.98E-02	1.10E-01	3.98E-02	8.37E-01
2003	3	10	0.00E+00	0.00E+00	0.00E+00	3.77E-05	1.82E-03	0.00E+00	5.10E-05	2.15E-03	1.88E-03	9.28E-01	1.76E-01	6.42E-02	1.97E-01	0.00E+00	0.00E+00
2003	3	11	0.00E+00	4.61E-01	0.00E+00	3.58E-01	4.04E-01	0.00E+00	0.00E+00	0.00E+00	1.20E-02	9.21E-01	1.15E+00	5.24E-03	1.10E-01	0.00E+00	0.00E+00
2003	3	12	2.71E-06	0.00E+00	1.18E-04	0.00E+00	2.00E-03	1.69E-02	1.09E-04	4.28E-03	3.66E-03	8.23E-01	1.66E-01	3.91E-02	3.22E-01	0.00E+00	1.76E-05
2003	3	13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-03	0.00E+00	2.16E-03	2.94E-02	0.00E+00	6.68E-01	1.99E-01	6.75E-02	2.26E-01	0.00E+00	0.00E+00
2003	3	14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.77E-02	0.00E+00	1.80E-02	4.27E-01	3.88E-35	1.16E+00	2.22E-01	5.74E-01	4.55E-01	7.08E-02	0.00E+00
2003	3	15	1.38E-01	4.65E-01	1.05E-02	1.24E-01	1.40E-01	2.33E-02	5.18E-02	1.33E+00	1.26E+00	4.83E+00	3.46E+00	7.50E-01	7.74E-01	1.61E-01	3.78E-01
2003	3	16	1.69E-10	0.00E+00	0.00E+00	3.78E-04	6.27E-03	2.47E-04	8.69E-02	1.40E+00	2.71E-03	5.15E+00	3.42E-02	1.50E+00	5.52E-01	7.29E-02	7.28E-06
2003	3	17	3.32E-02	0.00E+00	3.88E-04	0.00E+00	0.00E+00	2.70E-03	9.48E-02	1.91E+00	8.40E-06	7.29E+00	2.41E-02	1.73E+00	8.65E-01	7.82E-02	9.65E-02
2003	3	18	1.85E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-01	1.39E+00	1.54E-03	5.25E+00	7.25E-02	1.32E+00	6.84E-01	6.18E-02	4.70E-02
2003	3	19	2.79E-02	2.00E-01	1.52E-03	7.58E-02	1.42E-01	5.80E-03	2.69E-02	8.25E-01	2.11E-02	3.42E+00	4.92E+00	6.29E-01	5.22E-01	9.76E-03	7.90E-02
2003	3	20	1.14E-02	3.52E-02	3.67E-04	6.54E-02	1.21E-01	1.96E-03	3.61E-02	1.34E+00	8.11E-03	1.57E+00	1.64E+00	1.86E-01	4.35E-01	7.55E-02	4.87E-02
2003	3	21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.94E-09	0.00E+00	1.46E-03	4.44E-01	1.57E-34	9.09E-01	9.21E-02	1.64E-01	2.79E-01	0.00E+00	0.00E+00
2003	3	22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-03	0.00E+00	1.61E-04	9.50E-02	2.80E-39	1.04E+00	3.25E-01	3.43E-02	3.08E-01	0.00E+00	3.53E-04
2003	3	23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-03	3.10E-01	1.63E-25	8.90E-01	6.27E-02	1.75E-01	2.69E-01	0.00E+00	0.00E+00
2003	3	24	1.61E-02	0.00E+00	1.15E-03	0.00E+00	2.51E-11	9.32E-03	4.14E-02	5.81E-01	1.72E-02	5.85E+00	3.25E-02	1.18E+00	9.79E-01	6.28E-03	3.60E-02
2003	3	25	2.39E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.71E-02	7.79E-01	1.29E-18	1.52E+00	8.48E-02	6.75E-01	3.07E-01	1.92E-02	1.17E-02
2003	3	26	2.27E-01	8.47E-03	8.35E-02	5.65E-04	8.11E-04	1.20E-01	1.69E-01	7.14E-01	5.29E+00	7.43E+00	1.25E-02	1.16E+00	1.40E+00	1.78E-01	3.67E-01

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2003	3	27	4.59E+00	3.42E-01	2.77E+00	2.31E-02	3.70E-02	5.69E+00	2.20E+00	7.70E+00	1.05E+01	1.54E+00	8.42E-01	6.02E-01	5.97E-01	7.49E+00	6.27E+00
2003	3	28	1.38E+00	3.06E-01	5.21E-01	4.08E-02	5.39E-02	4.22E+00	1.55E+00	6.84E+00	4.48E-01	2.77E+00	1.49E+00	6.61E-01	5.17E-01	3.82E+00	2.01E+00
2003	3	29	3.33E-01	1.99E-04	1.56E-01	2.14E-05	1.34E-04	1.62E+00	5.77E-01	2.98E+00	4.29E-02	1.41E+00	4.52E-02	3.63E-01	3.61E-01	1.56E+00	4.47E-01
2003	3	30	7.59E-02	0.00E+00	1.93E-02	0.00E+00	0.00E+00	1.03E+00	2.38E-01	7.42E-01	7.61E-03	7.68E-01	5.02E-02	2.81E-01	2.37E-01	5.98E-01	1.46E-01
2003	3	31	5.38E-01	4.28E-07	1.12E-01	6.17E-09	1.35E-04	2.18E+00	3.79E-01	1.94E+00	8.50E-02	1.32E+00	1.21E-01	1.25E-01	6.45E-01	1.70E+00	1.03E+00
2003	4	1	9.33E-01	7.47E-03	4.47E-01	9.32E-02	1.87E-01	4.14E+00	1.25E+00	5.11E+00	1.95E-01	4.83E+00	1.59E+00	4.88E-01	6.93E-01	4.06E+00	1.37E+00
2003	4	2	5.30E-01	1.10E-01	3.62E-01	1.53E-02	4.08E-02	5.85E-01	4.83E-02	1.49E+00	1.55E+00	2.35E-02	1.44E-01	1.56E-03	1.67E-03	1.79E+00	6.42E-01
2003	4	3	1.05E+00	4.92E-01	2.72E-01	6.09E-02	6.40E-02	2.32E+00	8.78E-01	2.47E+00	1.48E-01	1.91E+00	1.47E+00	6.04E-02	3.89E-01	2.03E+00	1.62E+00
2003	4	4	1.08E+00	3.02E-03	3.22E-01	6.91E-02	1.78E-01	3.30E+00	5.12E-01	4.07E+00	1.43E-01	2.40E+00	1.62E+00	1.09E-01	4.82E-01	3.13E+00	1.66E+00
2003	4	5	8.66E-01	1.95E-03	2.87E-01	9.64E-04	5.00E-02	2.82E+00	4.90E-01	3.28E+00	1.38E-01	2.04E+00	7.25E-01	5.81E-02	6.07E-01	2.38E+00	1.45E+00
2003	4	6	3.44E-01	2.52E-04	1.95E-01	2.44E-05	3.28E-04	3.76E+00	7.17E-01	4.84E+00	1.88E-01	2.63E+00	1.39E-01	3.26E-01	9.72E-01	2.91E+00	8.41E-01
2003	4	7	1.82E-01	4.41E-05	5.49E-02	3.43E-06	1.05E-04	1.05E+00	2.32E-01	1.30E+00	3.16E-02	9.56E-01	1.04E-01	8.03E-02	3.38E-01	6.37E-01	2.84E-01
2003	4	8	5.27E-01	7.36E-04	1.24E-01	1.08E-03	1.01E-01	1.28E+00	2.96E-01	1.37E+00	2.82E-02	1.10E+00	7.01E-01	8.91E-02	2.13E-01	9.28E-01	7.65E-01
2003	4	9	3.25E-01	1.22E-04	1.18E-01	1.61E-05	6.17E-04	1.51E+00	4.92E-01	1.83E+00	6.25E-02	9.98E-01	9.26E-02	1.57E-01	7.80E-01	1.25E+00	6.56E-01
2003	4	10	9.51E-01	4.04E-01	3.65E-01	6.35E-02	1.26E-01	3.39E+00	1.32E+00	5.53E+00	3.23E-01	2.71E+00	2.00E+00	3.66E-01	7.56E-01	2.80E+00	1.58E+00
2003	4	11	9.49E-01	8.54E-04	3.88E-01	6.85E-04	2.43E-03	3.25E+00	1.18E+00	4.76E+00	2.14E-01	3.21E+00	1.97E-01	6.99E-01	8.86E-01	3.07E+00	1.59E+00
2003	4	12	1.48E+00	1.06E-03	8.16E-01	5.80E-07	9.92E-06	3.33E+00	3.84E-01	3.50E+00	1.92E+00	1.27E+00	4.94E-04	4.36E-01	2.88E-01	3.72E+00	2.05E+00
2003	4	13	2.86E+00	7.94E-02	1.32E+00	9.28E-02	2.42E-01	2.86E+00	7.52E-01	3.12E+00	1.84E+00	3.22E+00	2.85E+00	9.20E-02	3.38E-01	3.01E+00	3.49E+00
2003	4	14	4.78E-01	1.85E-01	2.54E-01	7.96E-02	1.58E-01	1.22E+00	1.30E-01	1.32E+00	9.94E-01	8.05E-01	8.67E-01	2.42E-02	1.62E-01	1.43E+00	6.39E-01
2003	4	15	2.12E-01	0.00E+00	1.19E-01	0.00E+00	6.60E-07	1.94E+00	2.95E-01	2.47E+00	5.19E-02	1.25E+00	6.53E-02	1.10E-01	4.79E-01	1.22E+00	3.88E-01
2003	4	16	1.21E-01	1.85E-05	2.88E-02	1.47E-07	1.31E-04	1.09E+00	2.59E-01	2.00E+00	4.54E-02	1.21E+00	1.16E-01	1.72E-01	4.08E-01	7.39E-01	2.69E-01
2003	4	17	1.90E-01	6.59E-07	5.01E-02	1.35E-02	6.36E-02	1.51E+00	3.96E-01	2.26E+00	1.87E-02	1.81E+00	5.01E-01	2.70E-01	4.22E-01	1.17E+00	3.13E-01
2003	4	18	5.08E-01	2.18E-04	2.75E-01	4.95E-06	8.35E-05	2.51E+00	7.83E-01	4.04E+00	2.03E-01	3.76E+00	2.69E-02	8.12E-01	5.99E-01	2.36E+00	8.46E-01
2003	4	19	1.66E+00	3.16E-01	1.03E+00	1.52E-02	3.74E-02	4.00E+00	1.28E+00	5.49E+00	1.04E+00	3.17E+00	1.62E+00	3.67E-01	8.70E-01	3.18E+00	2.27E+00
2003	4	20	1.78E+00	8.66E-02	7.31E-01	3.47E-02	9.31E-02	4.39E+00	7.57E-01	4.80E+00	1.24E+00	3.53E+00	7.16E-01	3.89E-01	5.03E-01	4.24E+00	2.82E+00
2003	4	21	3.68E+00	4.94E-01	1.41E+00	1.15E-02	1.93E-02	5.00E+00	1.29E+00	5.84E+00	3.27E+00	2.85E+00	1.13E+00	3.06E-01	4.54E-01	6.02E+00	5.21E+00
2003	4	22	1.89E+00	5.36E-01	8.98E-01	9.60E-02	1.46E-01	5.47E+00	2.54E+00	8.86E+00	1.98E+00	1.03E+01	2.96E+00	1.64E+00	2.22E+00	6.88E+00	2.60E+00
2003	4	23	5.56E-01	4.73E-02	3.91E-01	5.34E-02	1.12E-01	4.80E+00	1.51E+00	5.82E+00	2.01E-01	8.22E+00	9.47E-01	1.50E+00	1.28E+00	4.08E+00	8.12E-01
2003	4	24	2.14E+00	8.03E-02	9.84E-01	5.48E-05	6.35E-05	4.14E+00	6.28E-01	5.99E+00	2.62E+00	1.54E+00	7.42E-04	5.79E-01	3.92E-01	4.25E+00	2.82E+00
2003	4	25	1.07E+00	1.71E-01	5.03E-01	2.26E-02	4.54E-02	1.31E+00	5.86E-01	2.42E+00	8.70E-01	1.45E+00	4.41E-01	5.14E-01	2.99E-01	1.50E+00	1.37E+00
2003	4	26	1.59E+00	4.86E-01	7.77E-01	4.38E-03	1.86E-02	2.03E+00	3.35E-01	2.82E+00	2.78E+00	2.40E+00	4.66E-01	4.00E-01	3.06E-01	3.06E+00	2.09E+00
2003	4	27	1.26E+00	4.14E-01	4.61E-01	2.44E-01	7.37E-01	2.85E+00	6.47E-01	2.54E+00	1.21E+00	2.07E+00	3.79E+00	1.17E-01	3.11E-01	2.54E+00	1.67E+00
2003	4	28	1.30E+00	0.00E+00	6.54E-01	0.00E+00	0.00E+00	1.35E+00	6.57E-03	1.29E+00	3.57E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.62E+00	1.57E+00
2003	4	29	4.34E+00	1.32E-03	2.26E+00	7.10E-05	1.25E-04	3.66E+00	2.54E-02	3.31E+00	8.04E+00	5.62E-03	2.02E-03	9.43E-03	7.27E-03	4.53E+00	5.15E+00
2003	4	30	4.16E+00	1.57E+00	2.28E+00	3.00E-01	4.25E-01	5.51E+00	1.59E+00	7.47E+00	4.54E+00	5.11E+00	3.59E+00	4.57E-01	8.88E-01	7.92E+00	6.14E+00
2003	5	1	1.81E+00	2.89E-01	1.07E+00	4.19E-02	9.04E-02	2.18E+01	5.47E+00	1.97E+01	6.90E-01	9.42E+00	2.32E+00	8.97E-01	1.59E+00	1.43E+01	3.73E+00
2003	5	2	1.63E+00	1.31E-02	4.79E-01	2.73E-02	6.25E-02	1.25E+01	1.44E+00	9.40E+00	4.68E-01	2.24E+00	1.14E+00	1.92E-01	6.52E-01	6.83E+00	3.43E+00
2003	5	3	8.88E+00	1.80E-01	5.25E+00	2.50E-01	1.25E+00	1.02E+01	7.92E-01	9.95E+00	5.50E+00	4.66E-01	5.51E+00	3.99E-02	2.60E-02	1.29E+01	9.53E+00
2003	5	4	5.08E+00	2.06E+00	2.32E+00	1.80E-01	1.66E-01	6.67E+00	1.55E+00	9.52E+00	3.53E+00	5.66E-01	2.75E+00	7.34E-02	1.66E-01	1.60E+01	7.36E+00
2003	5	5	5.01E+00	1.39E+00	1.68E+00	4.53E-01	6.22E-01	1.03E+01	5.39E+00	1.68E+01	7.02E-01	6.76E+00	5.77E+00	6.87E-01	8.69E-01	1.48E+01	7.81E+00
2003	5	6	3.33E+00	8.95E-01	5.32E-01	4.41E-01	1.02E+00	4.70E+00	1.63E+00	1.11E+01	2.28E-01	1.78E+00	2.37E+00	4.38E-02	8.77E-02	9.44E+00	4.38E+00
2003	5	7	6.39E+00	2.24E-01	1.67E+00	4.16E-01	2.74E-01	9.02E+00	3.13E+00	1.59E+01	6.62E-01	6.89E+00	4.52E+00	2.30E+00	3.34E+00	1.16E+01	8.56E+00
2003	5	8	1.06E+01	1.85E-03	8.04E+00	4.52E-04	6.49E-04	1.38E+01	1.07E+00	1.11E+01	4.87E+00	2.88E-03	1.88E-03	4.08E-03	3.03E-03	1.74E+01	1.17E+01
2003	5	9	8.78E+00	2.32E-05	6.69E+00	0.00E+00	2.35E-07	1.12E+01	7.24E-03	1.37E+01	3.95E+00	1.63E-04	3.08E-05	3.41E-04	1.84E-04	1.44E+01	9.74E+00
2003	5	10	1.06E+01	9.24E-01	5.99E+00	1.26E-01	1.94E-01	1.88E+01	8.35E+00	2.50E+01	4.89E+00	1.50E+01	3.39E+00	4.47E+00	6.10E+00	2.63E+01	1.39E+01
2003	5	11	1.53E+00	9.51E-03	1.03E+00	4.91E-02	6.70E-02	2.58E+01	6.01E+00	1.89E+01	5.43E-01	5.22E+00	4.29E-01	6.24E-01	2.22E+00	1.65E+01	4.15E+00
2003	5	12	1.10E+00	2.35E-05	4.46E-01	7.84E-07	4.32E-04	1.48E+01	3.69E+00	1.46E+01	3.08E-01	4.93E+00	1.71E-01	5.61E-01	1.15E+00	9.45E+00	1.80E+00
2003	5	13	6.17E-01	0.00E+00	1.82E-01	0.00E+00	6.91E-11	6.74E+00	1.44E+00	6.25E+00	9.39E-02	2.61E+00	2.15E-01	3.29E-01	6.47E-01	4.60E+00	1.44E+00
2003	5	14	6.16E-01	2.65E-06	5.95E-02	7.02E-06	1.64E-02	3.74E+00	9.84E-01	2.27E+00	8.88E-03	2.16E+00	4.94E-01	1.80E-01	4.59E-01	2.59E+00	1.34E+00
2003	5	15	4.91E-01	6.27E-07	6.99E-02	9.04E-07	1.68E-03	4.43E+00	8.31E-01	2.26E+00	1.75E-02	2.18E+00	4.06E-01	8.04E-02	5.44E-01	2.48E+00	1.18E+00
2003	5	16	1.85E-01	0.00E+00	6.88E-02	0.00E+00	7.48E-07	4.28E+00	9.64E-01	4.52E+00	4.28E-04	1.85E+00	2.24E-01	2.21E-01	4.95E-01	2.92E+00	5.49E-01
2003	5	17	6.83E-01	0.00E+00	1.01E-01	0.00E+00	0.00E+00	4.73E+00	1.94E+00	6.63E+00	1.98E-05	5.36E+00	6.66E-02	5.93E-01	8.47E-01	4.42E+00	1.01E+00
2003	5	18	8.21E+00	4.85E-01	3.43E+00	2.72E-03	1.58E-02	1.65E+01	2.00E+00	1.40E+01	6.35E+00	4.51E-01	1.83E+00	6.25E-02	7.10E-02	1.45E+01	9.83E+00
2003	5	19	4.18E+00	7.81E-01	1.68E+00	2.09E-01	3.46E-01	2.38E+01	7.11E+00	2.41E+01	1.45E+00	9.82E+00	3.93E+00	1.60E+00	2.06E+00	1.67E+01	7.36E+00
2003	5	20	1.03E+00	1.11E-03	3.72E-01	6.17E-04	1.76E-02	1.47E+01	3.40E+00	1.21E+01	2.95E-01	2.95E+00	4.27E-01	4.21E-01	9.10E-01	8.56E+00	2.19E+00
2003	5	21	2.57E+00	4.85E-05	9.48E-01	1.22E-07	8.02E-05	1.27E+01	1.99E+00	1.20E+01	3.26E-01	2.79E+00	2.27E-01	2.04E-01	9.12E-01	8.95E+00	5.90E+00
2003	5	22	1.33E+00	3.11E-06	4.20E-01	5.98E-06	9.07E-04	6.80E+00	1.57E+00	7.05E+00	2.08E-01	2.21E+00	2.38E-01	3.69E-01	6.57E-01	5.17E+00	2.28E+00
2003	5	23	3.98E+00	5.49E-01	1.76E+00	8.44E-02	1.44E-01	1.71E+01	5.39E+00	1.86E+01	9.07E-01	9.03E+00	1.38E+00	9.80E-01	1.76E+00	1.29E+01	6.09E+00
2003	5	24	6.55E+00	3.66E-01	3.60E+00	8.83E-02	1.40E-01	2.34E+01	4.84E+00	2.34E+01	1.92E+00	5.78E+00	8.65E-01	6.83E-01	1.17E+00	2.56E+01	8.94E+00
2003	5	25	2.42E+00	1.40E-01	8.80E-01	9.51E-02	2.50E-01	1.01E+01	2.06E+00	7.89E+00	3.22E-01	3.97E+00	1.34E+00	3.97E-01	5.86E-01	6.11E+00	3.55E+00
2003	5	26	1.37E-01	0.00E+00	3.52E-02	0.00E+00	0.00E+00	3.37E+00	1.09E+00	3.28E+00	7.79E-05	2.03E+00	2.21E-01	2.77E-01	4.77E-01	2.28E+00	1.91E-01
2003	5	27	2.37E+00	1.04E-03	7.42E-01	9.16E-04	7.44E-03	1.46E+01	4.83E+00	1.19E+01	3.81E-01	3.08E+00	2.74E-01	5.48E-01	1.35E+00	9.08E+00	3.89E+00
2003	5	28	2.91E+00	3.01E-01	1.24E+00	1.16E-01	3.54E-01	1.41E+01	5.08E+00	1.43E+01	8.42E-01	5.95E+00	2.75E+00	3.94E-01	1.10E+00	1.09E+01	4.73E+00
2003	5	29	1.30E+00	0.00E+00	3.47E-01	0.00E+00	0.00E+00	8.19E+00	2.40E+00	8.69E+00	7.84E-01	7.28E+00	2.16E-02	1.14E+00	1.45E+00	6.19E+00	2.48E+00
2003	5	30	1.04E+01	5.72E-04	4.72E+00	0.00E+00	0.00E+00	1.37E+01	3.50E-01	8.84E+00	1.70E+00	9.31E-02	8.42E-03	6.20E-03	4.79E-03	1.26E+01	1.24E+01
2003	5	31	9.50E+00	1.37E-01	2.86E+00	6.13E-02	9.75E-02	1.35E+01	1.19E+00	1.21E+01	5.32E+00	1.82E+00	6.75E-01	2.15E-01	3.90E-01	2.19E+01	1.46E+01
2003	6	1	1.03E+00	0.00E+00	2.25E-01	0.00E+00	0.00E+00	6.40E+00	1.25E+00	4.36E+00	6.57E-02	2.18E+00	7.87E-02	4.05E-01	5.79E-01	4.04E+00	1.68E+00
2003	6	2	7.26E-01	0.00E+00	2.95E-01	0.00E+00	2.46E-10	7.48E+00	2.33E+00	1.06E+01	4.73E-02	7.31E+00	8.99E-02	9.08E-01	1.61E+00	6.99E+00	1.40E+00
2003	6	3	9.76E-01	1.43E-05	2.88E-01	7.67E-07	2.88E-06	1.61E+01	3.43E+00	2.33E+01	1.87E-01	1.26E+01	6.64E-03	2.20E+00	3.61E+00	1.46E+01	2.40E+00
2003	6	4	8.32E+00	1.21E-03	3.60E+00	9.37E-05	5.75E-04	2.12E+01	3.52E+00	2.74E+01	4.30E+00	2.57E+00	2.09E-02	1.74E+00	1.53E+00	2.29E+01	1.14E+01
2003	6	5	8.16E+00	7.93E-01	3.49E+00	1.96E-01	3.92E-01	2.03E+01	5.33E+00	1.96E+01	5.02E+00	9.27E+00	7.08E+00	1.24E+00	2.16E+00	1.99E+01	1.09E+01
2003	6	6	1.10E+01	3.65E-02	4.77E+00	1.07E-04	3.50E-04	1.53E+01	6.66E-01	1.21E+01	5.15E+00	6.17E-02	2.99E-02	1.05E-01	7.39E-02	1.71E+01	1.38E+01
2003	6	7	3.77E+00	8.03E-01	1.28E+00	2.76E-01	2.47E-01	1.91E+01	5.01E+00	1.38E+01	9.57E-01	3.82E+00	7.41E+00	5.77E-01	1.19E+00	1.09E+01	5.46E+00
2003	6	8	4.86E+00	2.69E-04	2.65E+00	1.85E-05	1.04E-04	1.77E+01	1.25E+00	9.47E+00	1.95E+00	2.28E+00	2.39E-01	2.14E-01	6.22E-01	8.10E+00	6.08E+00
2003	6	9	9.06E+00	1.02E-03	8.32E+00	1.02E-06	5.33E-06	1.25E+01	4.10E-02	9.79E+00	4.27E+00	1.79E-02	2.38E-03	9.45E-03	8.16E-03	1.42E+01	9.96E+00
2003	6	10	1.03E+01	5.87E-01	4.71E+00	7.36E-02	1.62E-01	1.89E+01	3.76E+00	1.51E+01	4.34E+00	6.38E+00	1.87E+00	5.63E-01	8.15E-01	1.63E+01	1.32E+01
2003	6	11	1.05E+00	3.58E-04	7.06E-01	3.54E-05	2.17E-04	1.82E+01	4.04E+00	1.91E+01	1.64E-01	1.41E+01	2.34E-02	1.72E+00	2.29E+00	1.77E+01	1.77E+00
2003	6	12	1.30E+00	5.15E-04	6.89E-01	4.21E-05	1.86E-03	1.71E+01	4.85E+00	1.83E+01	4.70E-01	8.47E+00	3.75E-01	1.01E+00	1.07E+00	1.47E+01	2.28E+00
2003	6	13	1.40E+00	9.16E-03	3.40E-01	1.06E-01	3.46E-01	1.16E+01	3.32E+00	1.11E+01	4.42E-01	3.77E+00	2.94E+00	2.73E-01	7.32E-01	8.26E+00	2.57E+00
2003	6	14	7.53E-01	0.00E+00	2.73E-01	0.00E+00	4.71E-07	8.56E+00	1.83E+00	7.48E+00	1.84E-01	2.26E+00	1.69E-01	3.60E-01	7.07E-01	6.24E+00	1.37E+00
2003	6	15	8.96E-01	2.38E-04	6.62E-01	2.32E-06	1.23E-04	2.04E+01	2.63E+00	1.57E+01	4.77E-01	3.42E+00	1.29E-01	5.39E-01	1.00E+00	1.00E+01	2.40E+00
2003	6	16	5.86E+00	1.51E-02	2.37E+00	5.38E-03	9.25E-03	2.40E+01	3.15E+00	2.21E+01	4.70E+00	8.80E+00	8.55E-02	1.28E+00	2.26E+00	1.88E+01	8.23E+00
2003	6	17	7.57E+00	1.59E-01	3.30E+00	3.93E-02	8.22E-02	1.79E+01	3.82E+00	1.96E+01	3.49E+00	5.29E+00	4.03E-01	1.03E+00	1.44E+00	2.00E+01	9.38E+00
2003	6	18	9.26E+00	1.46E+00	2.85E+00	5.24E-01	4.59E-01	1.97E+01	5.04E+00	1.73E+01	2.26E+00	2.09E+00	7.06E+00	2.21E-01	2.07E-01	1.90E+01	1.29E+01
2003	6	19	4.16E+00	4.28E-01	1.38E+00	3.22E-01	3.07E-01	1.03E+01	3.54E+00	1.45E+01	3.27E-01	4.71E+00	6.47E+00	4.49E-01	8.74E-01	1.51E+01	4.97E+00
2003	6	20	1.32E+00	1.77E-02	3.33E-01	1.29E-01	1.48E-01	9.83E+00	2.13E+00	8.78E+00	2.28E-01	2.30E+00	1.90E+00	2.55E-01	9.87E-01	5.77E+00	2.45E+00
2003	6	21	1.03E-01	0.00E+00	3.14E-02	0.00E+00	0.00E+00	3.10E+00	6.98E-01	2.89E+00	8.37E-15	1.21E+00	1.60E-01	1.80E-01	3.39E-01	1.98E+00	2.50E-01
2003	6	22	4.07E-01	0.00E+00	1.72E-01	0.00E+00	0.00E+00	3.93E+00	9.38E-01	4.01E+00	2.14E-02	1.69E+00	1.98E-01	2.20E-01	5.09E-01	2.86E+00	7.96E-01
2003	6	23	6.81E+00	1.53E-01	2.00E+00	4.63E-02	4.23E-02	1.19E+01	2.31E+00	1.31E+01	2.93E+00	2.56E+00	1.98E-01	3.82E-01	6.43E-01	1.70E+01	9.74E+00
2003	6	24	1.03E+01	1.73E+00	4.43E+00	5.57E-02	4.25E-02	1.64E+01	3.32E+00	2.32E+01	5.16E+00	9.15E-01	2.93E+00	3.94E-01	3.58E-01	2.18E+01	1.39E+01

Year	Month	Day	Baseline														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2003	3	27	4.04E+00	2.86E-02	2.56E+00	7.24E-03	1.11E-02	5.46E+00	2.11E+00	7.21E+00	3.25E-01	8.09E-02	4.33E-02	1.39E-01	1.04E-01	7.34E+00	5.17E+00
2003	3	28	1.34E+00	1.08E-02	5.14E-01	3.40E-03	6.07E-03	4.20E+00	1.51E+00	5.38E+00	1.52E-01	4.38E-02	2.18E-02	9.91E-02	6.65E-02	3.72E+00	1.90E+00
2003	3	29	2.33E-01	1.99E-04	1.56E-01	2.14E-05	1.34E-04	1.62E+00	5.37E-01	2.16E+00	4.29E-02	6.86E-03	1.47E-03	2.16E-02	1.39E-02	1.53E+00	2.96E-01
2003	3	30	7.59E-02	0.00E+00	1.93E-02	0.00E+00	0.00E+00	1.03E+00	2.32E-01	5.49E-01	7.61E-03	2.12E-04	2.52E-07	5.36E-03	2.04E-03	5.97E-01	1.46E-01
2003	3	31	5.38E-01	4.28E-07	1.12E-01	6.17E-09	6.92E-06	2.18E+00	3.72E-01	1.85E+00	7.86E-02	1.30E-02	7.19E-04	3.15E-02	2.47E-02	1.69E+00	1.03E+00
2003	4	1	8.69E-01	5.58E-03	4.46E-01	2.82E-03	5.24E-03	4.14E+00	1.20E+00	4.31E+00	1.44E-01	3.55E-02	1.93E-02	6.38E-02	4.83E-02	3.98E+00	1.24E+00
2003	4	2	5.30E-01	4.42E-03	3.40E-01	1.66E-03	2.34E-03	5.53E-01	4.83E-02	1.49E+00	1.81E-03	9.52E-04	2.23E-03	1.45E-03	1.23E-03	1.79E+00	6.42E-01
2003	4	3	1.04E+00	6.26E-03	2.69E-01	2.80E-03	5.09E-03	2.29E+00	8.76E-01	2.27E+00	1.22E-01	2.74E-02	1.87E-02	3.33E-02	2.93E-02	2.02E+00	1.55E+00
2003	4	4	1.04E+00	2.64E-03	3.14E-01	1.87E-03	4.76E-03	3.26E+00	5.06E-01	3.70E+00	1.17E-01	3.19E-02	1.78E-02	3.01E-02	3.08E-02	3.12E+00	1.56E+00
2003	4	5	7.91E-01	1.74E-03	2.81E-01	9.13E-04	3.42E-03	2.81E+00	4.82E-01	2.67E+00	1.20E-01	2.94E-02	1.18E-02	3.83E-02	3.50E-02	2.34E+00	1.29E+00
2003	4	6	3.44E-01	2.52E-04	1.95E-01	2.44E-05	3.09E-04	3.76E+00	6.97E-01	3.88E+00	1.87E-01	3.11E-02	5.89E-03	5.96E-02	5.32E-02	2.85E+00	8.41E-01
2003	4	7	1.79E-01	4.41E-05	5.48E-02	3.43E-06	4.79E-05	1.05E+00	2.28E-01	8.67E-01	3.16E-02	7.25E-03	1.19E-03	1.90E-02	1.32E-02	6.33E-01	2.70E-01
2003	4	8	4.95E-01	6.37E-04	1.16E-01	9.52E-04	2.57E-03	1.25E+00	2.95E-01	1.20E+00	2.38E-02	6.24E-03	5.31E-03	5.89E-03	6.68E-03	9.28E-01	6.70E-01
2003	4	9	3.16E-01	1.08E-04	1.18E-01	1.57E-05	2.64E-04	1.51E+00	4.83E-01	1.61E+00	5.69E-02	1.23E-02	3.03E-03	2.87E-02	2.03E-02	1.24E+00	6.14E-01
2003	4	10	9.46E-01	1.21E-02	3.64E-01	3.40E-03	4.97E-03	3.39E+00	1.28E+00	4.12E+00	2.24E-01	5.55E-02	2.18E-02	1.05E-01	8.14E-02	2.76E+00	1.56E+00
2003	4	11	9.27E-01	7.70E-04	3.84E-01	3.09E-04	2.02E-03	3.23E+00	1.14E+00	4.03E+00	1.93E-01	4.69E-02	1.57E-02	6.46E-02	5.74E-02	3.03E+00	1.55E+00
2003	4	12	1.38E+00	2.60E-05	7.34E-01	5.80E-07	9.78E-06	3.17E+00	3.41E-01	3.09E+00	3.93E-02	4.94E-03	4.79E-04	2.02E-02	1.24E-02	3.66E+00	1.90E+00
2003	4	13	2.54E+00	3.34E-03	1.21E+00	3.00E-03	7.55E-03	2.80E+00	7.48E-01	2.89E+00	5.02E-02	2.89E-02	1.61E-02	4.52E-02	3.37E-02	2.99E+00	2.95E+00
2003	4	14	4.78E-01	3.33E-03	2.31E-01	3.41E-03	4.17E-03	1.19E+00	1.30E-01	1.02E+00	1.93E-02	7.67E-03	4.95E-03	1.35E-02	1.04E-02	1.43E+00	6.39E-01
2003	4	15	2.09E-01	0.00E+00	1.19E-01	0.00E+00	0.00E+00	1.94E+00	2.88E-01	1.95E+00	5.19E-02	2.75E-03	6.12E-05	2.01E-02	1.26E-02	1.17E+00	3.74E-01
2003	4	16	1.21E-01	1.85E-05	2.88E-02	1.47E-07	5.77E-06	1.09E+00	2.54E-01	1.44E+00	4.54E-02	5.41E-03	5.05E-04	1.27E-02	9.32E-03	7.34E-01	2.68E-01
2003	4	17	1.90E-01	6.59E-07	5.01E-02	1.03E-05	5.05E-05	1.51E+00	3.79E-01	1.56E+00	1.87E-02	1.95E-03	1.26E-04	1.09E-02	5.34E-03	1.15E+00	3.13E-01
2003	4	18	4.95E-01	2.18E-04	2.67E-01	4.95E-06	8.35E-05	2.47E+00	7.59E-01	3.07E+00	8.49E-02	1.53E-02	3.11E-03	3.58E-02	2.66E-02	2.32E+00	8.09E-01
2003	4	19	1.58E+00	5.78E-03	1.01E+00	1.68E-03	2.99E-03	3.97E+00	1.26E+00	4.47E+00	1.41E-01	2.91E-02	1.18E-02	6.54E-02	4.48E-02	3.15E+00	2.11E+00
2003	4	20	1.73E+00	7.39E-03	7.21E-01	2.96E-03	4.32E-03	4.38E+00	7.12E-01	3.85E+00	1.40E-01	2.98E-02	1.34E-02	5.69E-02	4.27E-02	4.16E+00	2.69E+00
2003	4	21	3.37E+00	1.43E-02	1.38E+00	3.86E-03	6.18E-03	4.96E+00	1.28E+00	5.63E+00	1.80E-01	4.44E-02	2.26E-02	7.79E-02	5.84E-02	5.99E+00	4.60E+00
2003	4	22	1.71E+00	2.26E-02	8.13E-01	8.17E-03	1.07E-02	5.35E+00	2.40E+00	7.57E+00	2.23E-01	6.60E-02	3.53E-02	1.15E-01	8.65E-02	6.64E+00	2.30E+00
2003	4	23	5.42E-01	3.03E-03	3.84E-01	1.83E-03	2.85E-03	4.79E+00	1.39E+00	4.28E+00	1.58E-01	3.93E-02	1.11E-02	8.75E-02	6.29E-02	3.96E+00	7.95E-01
2003	4	24	1.79E+00	2.40E-04	7.91E-01	5.47E-05	6.31E-05	3.83E+00	5.35E-01	4.99E+00	1.18E-01	5.08E-03	5.30E-04	2.65E-02	1.27E-02	4.10E+00	2.43E+00
2003	4	25	9.93E-01	4.31E-03	4.88E-01	1.12E-03	1.65E-03	1.30E+00	5.70E-01	1.97E+00	9.03E-02	1.52E-02	6.99E-03	2.14E-02	1.78E-02	1.49E+00	1.24E+00
2003	4	26	1.28E+00	3.28E-03	7.63E-01	4.82E-04	1.86E-03	2.02E+00	2.94E-01	2.63E+00	3.40E-02	1.80E-02	9.57E-03	1.63E-02	1.92E-02	3.04E+00	1.50E+00
2003	4	27	1.20E+00	2.13E-02	4.46E-01	1.37E-02	2.71E-02	2.83E+00	6.42E-01	2.45E+00	1.65E-01	6.62E-02	4.43E-02	1.01E-01	8.05E-02	2.53E+00	1.57E+00
2003	4	28	1.22E+00	0.00E+00	6.09E-01	0.00E+00	0.00E+00	1.28E+00	6.57E-03	1.29E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.62E+00	1.44E+00
2003	4	29	3.77E+00	1.29E-03	2.14E+00	7.10E-05	1.25E-04	3.55E+00	2.45E-02	3.28E+00	4.65E-02	5.37E-03	1.95E-03	8.85E-03	6.89E-03	4.51E+00	4.07E+00
2003	4	30	3.71E+00	3.72E-02	2.23E+00	8.09E-03	1.17E-02	5.44E+00	1.56E+00	7.12E+00	3.17E-01	8.92E-02	4.96E-02	1.42E-01	1.09E-01	7.82E+00	5.06E+00
2003	5	1	1.80E+00	2.50E-02	1.07E+00	8.37E-03	1.27E-02	2.18E+01	5.41E+00	1.83E+01	6.67E-01	1.33E-01	4.88E-02	2.73E-01	2.13E-01	1.42E+01	3.70E+00
2003	5	2	1.63E+00	1.29E-02	4.79E-01	4.50E-03	7.21E-03	1.25E+01	1.44E+00	8.64E+00	4.65E-01	7.91E-02	2.56E-02	1.35E-01	1.28E-01	6.80E+00	3.43E+00
2003	5	3	8.64E+00	5.11E-02	5.20E+00	4.81E-02	3.58E-02	1.01E+01	7.92E-01	9.95E+00	5.35E-02	1.89E-02	2.85E-02	3.99E-02	2.60E-02	1.29E+01	9.11E+00
2003	5	4	5.08E+00	4.28E-02	2.30E+00	1.10E-02	1.34E-02	6.63E+00	1.55E+00	9.52E+00	2.16E-01	8.15E-02	5.11E-02	7.23E-02	8.01E-02	1.60E+01	7.36E+00
2003	5	5	4.95E+00	5.01E-02	1.68E+00	3.03E-02	4.50E-02	1.03E+01	5.37E+00	1.63E+01	4.08E-01	1.38E-01	8.62E-02	2.13E-01	1.71E-01	1.48E+01	7.67E+00
2003	5	6	3.28E+00	4.77E-02	5.28E-01	4.50E-02	6.49E-02	4.69E+00	1.63E+00	1.11E+01	1.72E-01	9.40E-02	8.00E-02	4.00E-02	4.54E-02	9.44E+00	4.21E+00
2003	5	7	6.36E+00	5.62E-02	1.66E+00	3.12E-02	3.77E-02	8.97E+00	3.08E+00	1.58E+01	1.60E-01	5.20E-02	4.60E-02	6.57E-02	5.36E-02	1.15E+01	8.48E+00
2003	5	8	1.04E+01	9.29E-04	7.07E+00	1.49E-04	2.13E-04	1.33E+01	1.07E+00	1.11E+01	3.07E-02	1.48E-03	7.75E-04	2.61E-03	1.59E-03	1.74E+01	1.13E+01
2003	5	9	8.45E+00	1.23E-05	5.64E+00	0.00E+00	2.35E-07	1.07E+01	7.18E-03	1.37E+01	1.68E-02	7.94E-05	1.04E-05	3.21E-04	1.45E-04	1.43E+01	9.06E+00
2003	5	10	9.70E+00	5.50E-02	5.29E+00	1.28E-02	2.22E-02	1.82E+01	7.09E+00	2.35E+01	7.21E-01	2.05E-01	1.01E-01	3.94E-01	2.81E-01	2.53E+01	1.25E+01
2003	5	11	1.53E+00	9.14E-03	1.03E+00	7.93E-03	1.32E-02	2.58E+01	5.97E+00	1.78E+01	5.41E-01	1.08E-01	3.33E-02	2.95E-01	1.99E-01	1.64E+01	4.14E+00
2003	5	12	1.10E+00	2.35E-05	4.46E-01	7.84E-07	2.89E-04	1.48E+01	3.64E+00	1.35E+01	3.08E-01	4.90E-02	7.00E-03	1.21E-01	8.85E-02	9.41E+00	1.79E+00
2003	5	13	5.76E-01	0.00E+00	1.82E-01	0.00E+00	0.00E+00	6.74E+00	1.44E+00	5.98E+00	9.25E-02	4.06E-03	1.72E-05	3.38E-02	2.56E-02	4.59E+00	1.32E+00
2003	5	14	6.16E-01	2.65E-06	5.95E-02	7.02E-06	2.35E-04	3.74E+00	9.83E-01	2.08E+00	8.78E-03	2.72E-03	6.80E-04	2.96E-02	9.43E-03	2.59E+00	1.34E+00
2003	5	15	4.91E-01	6.27E-07	6.99E-02	9.04E-07	1.09E-04	4.43E+00	8.31E-01	2.23E+00	1.75E-02	2.58E-03	4.79E-04	2.71E-02	1.83E-02	2.48E+00	1.18E+00
2003	5	16	1.85E-01	0.00E+00	6.88E-02	0.00E+00	0.00E+00	4.28E+00	9.60E-01	4.38E+00	4.28E-04	2.54E-05	0.00E+00	7.42E-03	5.50E-04	2.91E+00	5.49E-01
2003	5	17	6.82E-01	0.00E+00	1.01E-01	0.00E+00	0.00E+00	4.73E+00	1.91E+00	6.30E+00	1.98E-05	0.00E+00	0.00E+00	9.84E-03	4.10E-04	4.41E+00	1.01E+00
2003	5	18	7.51E+00	5.54E-04	2.74E+00	1.16E-06	9.46E-05	1.60E+01	1.97E+00	1.36E+01	9.93E-02	1.64E-02	3.93E-03	4.12E-02	2.78E-02	1.42E+01	8.90E+00
2003	5	19	4.12E+00	5.76E-02	1.61E+00	2.38E-02	3.63E-02	2.38E+01	7.05E+00	2.32E+01	9.00E-01	2.64E-01	1.32E-01	4.34E-01	3.32E-01	1.66E+01	7.24E+00
2003	5	20	1.03E+00	1.11E-03	3.72E-01	6.12E-04	3.20E-03	1.47E+01	3.37E+00	1.11E+01	2.95E-01	5.98E-02	1.53E-02	1.48E-01	1.04E-01	8.48E+00	2.19E+00
2003	5	21	2.54E+00	2.54E-05	9.40E-01	0.00E+00	7.21E-05	1.27E+01	1.98E+00	1.18E+01	3.04E-01	6.01E-02	8.52E-03	8.72E-02	7.31E-02	8.93E+00	5.80E+00
2003	5	22	1.33E+00	2.37E-06	4.19E-01	5.98E-06	8.78E-04	6.79E+00	1.56E+00	6.75E+00	2.05E-01	3.00E-02	7.49E-03	5.77E-02	5.94E-02	5.11E+00	2.26E+00
2003	5	23	3.93E+00	3.75E-02	1.76E+00	5.20E-03	9.62E-03	1.71E+01	5.36E+00	1.77E+01	6.23E-01	1.47E-01	6.65E-02	3.02E-01	2.09E-01	1.29E+01	5.98E+00
2003	5	24	6.45E+00	2.68E-02	3.58E+00	1.37E-02	2.26E-02	2.34E+01	4.79E+00	2.25E+01	3.58E-01	1.28E-01	6.01E-02	2.34E-01	1.82E-01	2.55E+01	8.74E+00
2003	5	25	2.40E+00	3.09E-03	8.77E-01	4.25E-03	7.49E-03	1.01E+01	2.04E+00	7.66E+00	2.09E-01	3.18E-02	1.13E-02	7.76E-02	4.17E-02	6.08E+00	3.51E+00
2003	5	26	1.37E-01	0.00E+00	3.52E-02	0.00E+00	0.00E+00	3.37E+00	1.09E+00	3.13E+00	7.79E-05	2.57E-06	0.00E+00	1.13E-03	1.14E-04	2.28E+00	1.91E-01
2003	5	27	2.36E+00	1.04E-03	7.41E-01	9.09E-04	4.61E-03	1.46E+01	4.82E+00	1.10E+01	3.64E-01	8.28E-02	2.62E-02	1.65E-01	1.31E-01	9.00E+00	3.88E+00
2003	5	28	2.76E+00	2.01E-02	1.23E+00	1.13E-02	2.18E-02	1.41E+01	5.07E+00	1.38E+01	4.24E-01	1.42E-01	6.30E-02	2.39E-01	1.96E-01	1.08E+01	4.44E+00
2003	5	29	1.23E+00	0.00E+00	2.94E-01	0.00E+00	0.00E+00	8.15E+00	2.31E+00	8.42E+00	6.17E-02	4.04E-03	0.00E+00	3.31E-02	1.38E-02	6.10E+00	2.40E+00
2003	5	30	1.02E+01	4.38E-04	4.66E+00	0.00E+00	0.00E+00	1.37E+01	3.49E-01	8.71E+00	6.95E-02	3.86E-03	7.79E-04	6.19E-03	4.66E-03	1.26E+01	1.19E+01
2003	5	31	9.35E+00	8.06E-03	2.74E+00	4.42E-03	5.71E-03	1.34E+01	1.18E+00	1.19E+01	3.51E-01	3.20E-02	1.34E-02	4.62E-02	3.63E-02	2.18E+01	1.42E+01
2003	6	1	1.03E+00	0.00E+00	2.24E-01	0.00E+00	0.00E+00	6.39E+00	1.24E+00	4.06E+00	6.32E-02	3.66E-03	3.39E-05	2.47E-02	1.32E-02	4.04E+00	1.67E+00
2003	6	2	7.23E-01	0.00E+00	2.95E-01	0.00E+00	0.00E+00	7.47E+00	2.30E+00	1.01E+01	4.59E-02	2.15E-03	1.96E-05	1.18E-02	7.26E-03	6.98E+00	1.38E+00
2003	6	3	9.62E-01	3.12E-07	2.87E-01	0.00E+00	0.00E+00	1.61E+01	3.08E+00	2.19E+01	1.67E-01	1.41E-02	1.06E-03	1.00E-01	4.59E-02	1.44E+01	2.38E+00
2003	6	4	7.91E+00	1.21E-03	3.21E+00	9.37E-05	5.75E-04	2.09E+01	3.27E+00	2.66E+01	3.27E-01	5.06E-02	1.20E-02	1.36E-01	8.36E-02	2.26E+01	1.07E+01
2003	6	5	7.93E+00	6.50E-02	3.13E+00	2.45E-02	4.36E-02	2.01E+01	5.22E+00	1.88E+01	7.48E-01	2.50E-01	1.32E-01	4.21E-01	3.29E-01	1.97E+01	1.05E+01
2003	6	6	1.04E+01	1.11E-02	3.98E+00	1.07E-04	3.50E-04	1.46E+01	6.65E-01	1.21E+01	4.08E-01	5.70E-02	2.07E-02	1.03E-01	7.19E-02	1.71E+01	1.28E+01
2003	6	7	3.70E+00	8.33E-02	1.27E+00	3.01E-02	4.28E-02	1.91E+01	4.99E+00	1.30E+01	9.42E-01	2.79E-01	1.41E-01	4.66E-01	3.74E-01	1.08E+01	5.26E+00
2003	6	8	4.43E+00	2.69E-04	2.46E+00	1.85E-05	1.04E-04	1.70E+01	1.22E+00	8.93E+00	2.18E-01	2.40E-02	3.68E-03	6.69E-02	4.97E-02	8.03E+00	5.36E+00
2003	6	9	8.61E+00	9.07E-04	6.89E+00	0.00E+00	9.70E-08	1.12E+01	4.07E-02	9.78E+00	1.05E-01	6.80E-03	2.14E-03	8.86E-03	7.48E-03	1.42E+01	9.10E+00
2003	6	10	1.02E+01	1.19E-02	4.69E+00	2.70E-03	4.94E-03	1.88E+01	3.74E+00	1.48E+01	1.65E-01	3.43E-02	1.82E-02	7.45E-02	5.09E-02	1.63E+01	1.29E+01
2003	6	11	1.02E+00	3.58E-04	7.06E-01	3.54E-05	2.17E-04	1.82E+01	3.99E+00	1.80E+01	1.63E-01	1.71E-02	3.42E-03	6.33E-02	3.80E-02	1.75E+01	1.69E+00
2003	6	12	1.30E+00	5.15E-04	6.89E-01	4.21E-05	6.97E-04	1.71E+01	4.80E+00	1.73E+01	4.69E-01	7.64E-02	1.41E-02	1.65E-01	1.28E-01	1.47E+01	2.27E+00
2003	6	13	1.39E+00	9.13E-03	3.40E-01	7.60E-03	1.65E-02	1.16E+01	3.30E+00	1.02E+01	4.37E-01	1.03E-01	4.18E-02	1.68E-01	1.35E-01	8.18E+00	2.57E+00
2003	6	14	7.51E-01	0.00E+00	2.73E-01	0.00E+00	4.71E-07	8.56E+00	1.82E+00	7.03E+00	1.83E-01	2.22E-02	2.73E-03	5.08E-02	3.74E-02	6.23E+00	1.37E+00
2003	6	15	8.96E-01	2.38E-04	6.62E-01	2.32E-06	1.23E-04	2.04E+01	2.60E+00	1.46E+01	4.77E-01	6.47E-02	1.01E-02	1.68E-01	1.19E-01	9.96E+00	2.40E+00
2003	6	16	5.76E+00	3.39E-03	2.29E+00	2.30E-04	1.16E-03	2.39E+01	3.05E+00	2.10E+01	4.46E-01	7.48E-02	1.60E-02	1.87E-01	1.34E-01	1.86E+01	8.05E+00
2003	6	17	7.09E+00	1.64E-02	3.19E+00	4.62E-03	1.02E-02	1.77E+01	3.60E+00	1.86E+01	4.10E-01	9.79E-02	4.22E-02	1.68E-01	1.29E-01	1.97E+01	8.66E+00
2003	6	18	9.11E+00	6.57E-02	2.84E+00	3.70E-02	4.79E-02	1.96E+01	5.03E+00	1.71E+01	5.60E-01	1.66E-01	1.05E-01	2.11E-01	1.82E-01	1.89E+01	1.26E+01
2003	6	19	4.10E+00	5.87E-02	1.38E+00	3.14E-02	3.51E-02	1.03E+01	3.53E+00	1.40E+01	3.03E-01	1.25E-01	8.27E-02	1.65E-01	1.41E-01	1.51E+01	4.83E+00
2003	6	20	1.31E+00	8.15E-03	3.33E-01	7.49E-03	9.11E-03	9.83E+00	2.12E+00	8.44E+00	2.26E-01	4.65E-02	1.38E-02	1.03E-01	8.68E-02	5.76E+00	2.40E+00
2003	6	21	1.03E-01	0.00E+00	3.14E-02	0.00E+00	0.00E+00	3.10E+00	6.96E-01	2.65E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.32E-05	1.98E+00	2.50E-01
2003	6	22	4.02E-01	0.00E+00	1.72E-01	0.00E+00	0.00E+00	3.93E+00	9.35E-01	3.78E+00	2.14E-02	1.33E-03	0.00E+00	8.20E-03	8.06E-03	2.86E+00	7.59E-01
2003	6	23	6.72E+00	4.96E-02	1.94E+00	9.12E-03	1.04E-02	1.18E+01	2.30E+00	1.28E+01	4.87E-01	1.44E-01	6.94E-02	2.43E-01	1.82E-01	1.70E+01	9.53E+00
2003	6	24	1.02E+01	8.24E-02	4.34E+00	7.10E-03	1.30E-02	1.63E+01	3.31E+00	2.29E+01	8.11E-01	2.48E-01	1.26E-01	3.57E-01	2.89E-01	2.17E+01	1.37E+01

Year	Month	Day	Project														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2003	3	27	5.47E-01	3.13E-01	2.10E-01	1.59E-02	2.58E-02	2.30E-01	8.94E-02	4.96E-01	1.01E+01	1.46E+00	7.99E-01	4.63E-01	4.93E-01	1.46E-01	1.10E+00
2003	3	28	4.47E-02	2.95E-01	6.79E-03	3.74E-02	4.78E-02	2.20E-02	4.33E-02	1.46E+00	2.95E-01	2.73E+00	1.47E+00	5.62E-01	4.51E-01	9.70E-02	1.13E-01
2003	3	29	1.01E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.68E-05	3.93E-02	8.15E-01	5.00E-05	1.41E+00	4.38E-02	3.42E-01	3.47E-01	2.55E-02	1.51E-01
2003	3	30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.40E-03	1.93E-01	2.04E-18	7.68E-01	5.02E-02	2.76E-01	2.35E-01	8.15E-04	0.00E+00
2003	3	31	1.86E-04	0.00E+00	0.00E+00	0.00E+00	1.28E-04	7.24E-06	6.95E-03	9.41E-02	6.37E-03	1.31E+00	1.20E-01	9.33E-02	6.20E-01	4.44E-03	7.35E-03
2003	4	1	6.38E-02	1.88E-03	2.02E-04	9.03E-02	1.82E-01	2.30E-03	5.08E-02	8.01E-01	5.15E-02	4.80E+00	1.57E+00	4.24E-01	6.44E-01	8.47E-02	1.37E-01
2003	4	2	2.48E-06	1.06E-01	2.25E-02	1.36E-02	3.84E-02	3.17E-02	2.71E-06	2.85E-06	1.55E+00	2.26E-02	1.42E-01	1.09E-04	4.42E-04	2.35E-06	8.97E-04
2003	4	3	1.71E-02	4.86E-01	3.28E-03	5.81E-02	5.89E-02	2.66E-02	2.66E-03	1.99E-01	2.67E-02	1.88E+00	1.45E+00	2.71E-02	3.60E-01	7.37E-03	7.41E-02
2003	4	4	4.02E-02	3.82E-04	8.35E-03	6.72E-02	1.73E-01	3.67E-02	5.19E-03	3.73E-01	2.56E-02	2.36E+00	1.60E+00	7.92E-02	4.51E-01	5.98E-03	1.03E-01
2003	4	5	7.44E-02	2.14E-04	6.41E-03	5.10E-05	4.66E-02	1.25E-02	8.00E-03	6.08E-01	1.88E-02	2.01E+00	7.13E-01	1.97E-02	5.72E-01	4.64E-02	1.57E-01
2003	4	6	5.51E-11	0.00E+00	0.00E+00	0.00E+00	1.81E-05	0.00E+00	2.08E-02	9.66E-01	7.91E-04	2.60E+00	1.33E-01	2.66E-01	9.19E-01	5.37E-02	3.45E-06
2003	4	7	2.09E-03	0.00E+00	4.77E-05	0.00E+00	5.70E-05	1.35E-03	3.69E-03	4.36E-01	9.90E-06	9.48E-01	1.03E-01	6.13E-02	3.24E-01	3.88E-03	1.39E-02
2003	4	8	3.22E-02	9.86E-05	7.55E-03	1.26E-04	9.85E-02	3.08E-02	1.26E-03	1.73E-01	4.39E-03	1.10E+00	6.95E-01	8.32E-02	2.06E-01	1.59E-04	9.49E-02
2003	4	9	9.94E-03	1.37E-05	2.27E-04	3.62E-07	3.53E-04	1.59E-03	8.66E-03	2.26E-01	5.52E-03	9.85E-01	8.96E-02	1.29E-01	7.59E-01	1.38E-02	4.16E-02
2003	4	10	5.01E-03	3.92E-01	6.60E-04	6.02E-02	1.21E-01	1.99E-03	3.64E-02	1.41E+00	9.93E-02	2.66E+00	1.98E+00	2.61E-01	6.74E-01	4.20E-02	1.79E-02
2003	4	11	2.23E-02	8.32E-05	4.33E-03	3.76E-04	4.15E-04	1.84E-02	3.68E-02	7.30E-01	2.14E-02	3.16E+00	1.81E-01	6.35E-01	8.28E-01	3.78E-02	3.85E-02
2003	4	12	1.08E-01	1.03E-03	8.15E-02	0.00E+00	1.39E-07	1.68E-01	4.32E-02	4.16E-01	1.88E+00	1.27E+00	1.50E-05	4.16E-01	2.76E-01	5.73E-02	1.48E-01
2003	4	13	3.20E-01	7.60E-02	1.11E-01	8.98E-02	2.34E-01	6.25E-02	3.64E-03	2.22E-01	1.79E+00	3.19E+00	2.84E+00	4.68E-02	3.04E-01	2.70E-02	5.45E-01
2003	4	14	1.61E-05	1.81E-01	2.34E-02	7.62E-02	1.54E-01	3.76E-02	5.79E-04	2.93E-01	9.75E-01	7.97E-01	8.62E-01	1.07E-02	1.51E-01	3.73E-03	6.84E-05
2003	4	15	3.05E-03	0.00E+00	0.00E+00	0.00E+00	6.60E-07	0.00E+00	7.20E-03	5.27E-01	2.89E-18	1.25E+00	6.53E-02	8.97E-02	4.66E-01	4.20E-02	1.40E-02
2003	4	16	1.36E-04	0.00E+00	0.00E+00	0.00E+00	1.25E-04	0.00E+00	4.81E-03	5.60E-01	4.50E-18	1.20E+00	1.15E-01	1.59E-01	3.99E-01	5.39E-03	4.11E-04
2003	4	17	3.53E-05	0.00E+00	0.00E+00	1.35E-02	6.36E-02	0.00E+00	1.63E-02	6.98E-01	5.33E-17	1.80E+00	5.01E-01	2.59E-01	4.16E-01	1.31E-02	6.34E-05
2003	4	18	1.31E-02	0.00E+00	7.81E-03	0.00E+00	0.00E+00	3.81E-02	2.34E-02	9.69E-01	1.18E-01	3.75E+00	2.38E-02	7.76E-01	5.73E-01	4.36E-02	3.71E-02
2003	4	19	7.82E-02	3.10E-01	1.64E-02	1.35E-02	3.44E-02	3.40E-02	2.75E-02	1.03E+00	8.94E-01	3.14E+00	1.61E+00	3.02E-01	8.25E-01	3.66E-02	1.60E-01
2003	4	20	4.29E-02	7.92E-02	1.00E-02	3.17E-02	8.87E-02	1.90E-02	4.52E-02	9.45E-01	1.10E+00	3.50E+00	7.02E-01	3.32E-01	4.61E-01	8.41E-02	1.23E-01
2003	4	21	3.10E-01	4.80E-01	2.83E-02	7.62E-03	1.31E-02	4.68E-02	6.53E-03	2.07E-01	3.09E+00	2.80E+00	1.11E+00	2.28E-01	3.96E-01	2.97E-02	6.15E-01
2003	4	22	1.82E-01	5.13E-01	8.47E-02	8.79E-02	1.35E-01	1.21E-01	1.40E-01	1.29E+00	1.76E+00	1.02E+01	2.92E+00	1.53E+00	2.14E+00	2.40E-01	2.94E-01
2003	4	23	1.39E-02	4.43E-02	6.65E-03	5.16E-02	1.09E-01	1.01E-02	1.14E-01	1.54E+00	4.30E-02	8.18E+00	9.36E-01	1.41E+00	1.22E+00	1.18E-01	1.78E-02
2003	4	24	3.46E-01	8.00E-02	1.93E-01	1.08E-07	3.41E-07	3.13E-01	9.30E-02	9.92E-01	2.51E+00	1.54E+00	2.12E-04	5.52E-01	3.79E-01	1.55E-01	3.83E-01
2003	4	25	8.12E-02	1.66E-01	1.41E-02	2.15E-02	4.38E-02	1.84E-02	1.63E-02	4.48E-01	7.79E-01	1.44E+00	4.34E-01	4.93E-01	2.81E-01	4.63E-03	1.26E-01
2003	4	26	3.15E-01	4.83E-01	1.41E-02	3.89E-03	1.68E-02	1.44E-02	4.08E-02	1.91E-01	2.75E+00	2.39E+00	4.56E-01	3.83E-01	2.87E-01	1.86E-02	5.95E-01
2003	4	27	5.38E-02	3.92E-01	1.48E-02	2.30E-01	7.10E-01	1.99E-02	4.61E-03	8.43E-02	1.05E+00	2.01E+00	3.74E+00	1.61E-02	2.30E-01	1.25E-02	1.03E-01
2003	4	28	8.27E-02	0.00E+00	4.55E-02	0.00E+00	0.00E+00	7.23E-02	0.00E+00	0.00E+00	3.57E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.32E-01
2003	4	29	5.77E-01	3.72E-05	1.18E-01	4.00E-09	7.00E-08	1.11E-01	9.69E-04	3.16E-02	8.00E+00	2.53E-04	6.74E-05	5.82E-04	3.75E-04	1.38E-02	1.08E+00
2003	4	30	4.52E-01	1.54E+00	4.88E-02	2.92E-01	4.14E-01	7.34E-02	3.37E-02	3.51E-01	4.22E+00	5.02E+00	3.54E+00	3.14E-01	7.79E-01	9.61E-02	1.07E+00
2003	5	1	1.11E-02	2.64E-01	1.35E-03	3.35E-02	7.77E-02	3.59E-03	5.94E-02	1.38E+00	2.20E-02	9.29E+00	2.27E+00	6.24E-01	1.38E+00	1.02E-01	2.61E-02
2003	5	2	0.00E+00	2.24E-04	0.00E+00	2.28E-02	5.53E-02	0.00E+00	3.32E-03	7.65E-01	3.20E-03	2.16E+00	1.12E+00	5.71E-02	5.23E-01	2.88E-02	0.00E+00
2003	5	3	2.45E-01	1.29E-01	4.51E-02	2.02E-01	1.22E+00	5.86E-02	0.00E+00	2.36E-04	5.44E+00	4.47E-01	5.48E+00	0.00E+00	0.00E+00	1.04E-04	4.20E-01
2003	5	4	0.00E+00	2.02E+00	2.02E-02	1.69E-01	1.53E-01	4.76E-02	0.00E+00	0.00E+00	3.31E+00	4.85E-01	2.70E+00	1.11E-03	8.60E-02	0.00E+00	0.00E+00
2003	5	5	5.95E-02	1.34E+00	1.48E-03	4.23E-01	5.77E-01	4.37E-03	1.92E-02	4.85E-01	2.94E-01	6.62E+00	5.68E+00	4.74E-01	6.99E-01	4.28E-02	1.47E-01
2003	5	6	4.17E-02	8.47E-01	4.03E-03	3.96E-01	9.51E-01	1.75E-02	1.29E-03	3.66E-02	5.66E-02	1.69E+00	2.29E+00	3.80E-03	4.23E-02	2.46E-03	1.70E-01
2003	5	7	3.29E-02	1.68E-01	1.51E-02	3.85E-01	2.37E-01	4.87E-02	5.09E-02	9.05E-02	5.02E-01	6.84E+00	4.48E+00	2.23E+00	3.29E+00	4.02E-02	7.09E-02
2003	5	8	2.23E-01	9.20E-04	9.66E-01	3.03E-04	4.36E-04	4.78E-01	1.44E-03	1.90E-03	4.84E+00	1.41E-03	1.11E-03	1.48E-03	1.44E-03	1.90E-03	4.57E-01
2003	5	9	3.32E-01	1.08E-05	1.05E+00	0.00E+00	0.00E+00	4.70E-01	5.60E-05	4.53E-03	3.94E+00	8.37E-05	2.04E-05	1.95E-05	3.89E-05	2.09E-03	6.78E-01
2003	5	10	9.44E-01	8.69E-01	6.97E-01	1.13E-01	1.72E-01	6.28E-01	1.27E+00	1.46E+00	4.17E+00	1.48E+01	3.29E+00	4.08E+00	5.82E+00	9.58E-01	1.38E+00
2003	5	11	5.88E-03	3.68E-04	3.83E-04	4.11E-02	5.38E-02	1.44E-03	4.04E-02	1.04E+00	2.14E-03	5.12E+00	3.96E-01	3.29E-01	2.02E+00	7.69E-02	8.42E-03
2003	5	12	6.96E-04	0.00E+00	0.00E+00	0.00E+00	1.43E-04	0.00E+00	4.50E-02	1.08E+00	1.28E-15	4.88E+00	1.64E-01	4.39E-01	1.07E+00	3.70E-02	4.34E-03
2003	5	13	4.08E-02	0.00E+00	6.49E-06	0.00E+00	6.91E-11	8.42E-04	5.33E-03	2.66E-01	1.45E-03	2.61E+00	2.15E-01	2.96E-01	6.22E-01	1.09E-02	1.23E-01
2003	5	14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-02	0.00E+00	1.39E-03	1.94E-01	1.01E-04	2.15E+00	4.94E-01	1.50E-01	4.49E-01	0.00E+00	0.00E+00
2003	5	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-03	0.00E+00	2.62E-04	3.10E-02	8.66E-30	2.17E+00	4.06E-01	5.34E-02	5.25E-01	0.00E+00	0.00E+00
2003	5	16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.48E-07	0.00E+00	4.52E-03	1.40E-01	1.52E-16	1.85E+00	2.24E-01	2.14E-01	4.95E-01	6.14E-03	0.00E+00
2003	5	17	9.48E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.58E-02	3.30E-01	1.99E-19	5.36E+00	6.66E-02	5.83E-01	8.47E-01	8.13E-03	1.44E-03
2003	5	18	6.98E-01	4.84E-01	6.86E-01	2.72E-03	1.57E-02	4.66E-01	2.79E-02	4.23E-01	6.25E+00	4.35E-01	1.83E+00	2.14E-02	4.32E-02	2.73E-01	9.26E-01
2003	5	19	5.76E-02	7.23E-01	6.72E-02	1.86E-01	3.10E-01	4.79E-02	5.97E-02	9.11E-01	5.54E-01	9.56E+00	3.80E+00	1.17E+00	1.72E+00	1.02E-01	1.16E-01
2003	5	20	1.78E-06	1.11E-06	0.00E+00	4.72E-06	1.44E-02	4.54E-08	3.63E-02	1.05E+00	2.40E-05	2.89E+00	4.12E-01	2.72E-01	8.06E-01	7.08E-02	2.83E-06
2003	5	21	3.65E-02	2.31E-05	7.92E-03	1.22E-07	8.08E-06	2.32E-02	4.41E-03	1.45E-01	2.23E-02	2.73E+00	2.19E-01	1.17E-01	8.39E-01	2.45E-02	1.05E-01
2003	5	22	3.40E-03	7.40E-07	1.11E-03	0.00E+00	2.94E-05	6.22E-03	1.05E-02	3.00E-01	3.74E-03	2.18E+00	2.31E-01	3.12E-01	5.98E-01	6.31E-02	2.11E-02
2003	5	23	4.93E-02	5.12E-01	5.44E-03	7.92E-02	1.34E-01	9.36E-03	2.66E-02	9.05E-01	2.83E-01	8.88E+00	1.31E+00	6.78E-01	1.55E+00	2.38E-02	1.18E-01
2003	5	24	1.04E-01	3.39E-01	1.51E-02	7.46E-02	1.18E-01	2.29E-02	4.91E-02	9.19E-01	1.56E+00	5.65E+00	8.05E-01	4.49E-01	9.93E-01	1.18E-01	2.00E-01
2003	5	25	1.95E-02	1.37E-01	2.72E-03	9.09E-02	2.43E-01	8.07E-03	1.55E-02	2.35E-01	1.13E-01	3.93E+00	1.33E+00	3.20E-01	5.44E-01	2.50E-02	3.87E-02
2003	5	26	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.79E-03	1.47E-01	2.31E-18	2.03E+00	2.21E-01	2.76E-01	4.77E-01	0.00E+00	0.00E+00
2003	5	27	1.75E-03	5.39E-06	9.43E-04	7.47E-06	2.83E-03	1.35E-02	1.42E-02	9.41E-01	1.69E-02	2.99E+00	2.48E-01	3.83E-01	1.22E+00	7.38E-02	4.73E-03
2003	5	28	1.45E-01	2.81E-01	3.73E-03	1.05E-01	3.32E-01	7.11E-03	1.02E-02	5.73E-01	4.17E-01	5.81E+00	2.69E+00	1.55E-01	9.05E-01	5.64E-02	2.87E-01
2003	5	29	7.39E-02	0.00E+00	5.32E-02	0.00E+00	0.00E+00	3.79E-02	8.67E-02	2.67E-01	7.22E-01	7.27E+00	2.16E-02	1.10E+00	1.44E+00	8.65E-02	8.39E-02
2003	5	30	2.65E-01	1.34E-04	5.86E-02	0.00E+00	0.00E+00	5.96E-02	7.18E-05	1.31E-01	1.63E+00	8.93E-02	7.64E-03	9.29E-06	1.28E-04	6.94E-02	4.76E-01
2003	5	31	1.48E-01	1.29E-01	1.21E-01	5.69E-02	9.18E-02	1.11E-01	3.19E-03	1.73E-01	4.97E+00	1.79E+00	6.62E-01	1.69E-01	3.53E-01	2.21E-02	3.50E-01
2003	6	1	6.64E-04	0.00E+00	6.25E-04	0.00E+00	0.00E+00	1.04E-02	1.14E-02	3.04E-01	2.45E-03	2.18E+00	7.87E-02	3.80E-01	5.65E-01	1.58E-03	1.76E-03
2003	6	2	3.08E-03	0.00E+00	2.67E-04	0.00E+00	2.46E-10	5.75E-03	2.30E-02	5.53E-01	1.38E-03	7.31E+00	8.99E-02	8.96E-01	1.61E+00	3.85E-03	2.31E-02
2003	6	3	1.41E-02	1.40E-05	3.08E-04	7.67E-07	2.88E-06	7.04E-04	3.45E-01	1.43E+00	1.98E-02	1.26E+01	5.58E-03	2.10E+00	3.57E+00	1.56E-01	2.05E-02
2003	6	4	4.06E-01	1.56E-06	3.90E-01	0.00E+00	0.00E+00	3.22E-01	2.51E-01	7.88E-01	3.97E+00	2.52E+00	8.95E-03	1.60E+00	1.45E+00	2.59E-01	6.95E-01
2003	6	5	2.32E-01	7.28E-01	3.57E-01	1.71E-01	3.48E-01	2.67E-01	1.11E-01	8.03E-01	4.27E+00	9.02E+00	6.95E+00	8.23E-01	1.83E+00	1.95E-01	3.87E-01
2003	6	6	6.01E-01	2.54E-02	7.96E-01	0.00E+00	1.81E-07	7.75E-01	1.01E-03	4.48E-02	4.74E+00	4.70E-03	9.24E-03	1.46E-03	2.07E-03	2.52E-02	9.29E-01
2003	6	7	7.03E-02	7.19E-01	1.49E-03	2.46E-01	2.04E-01	5.07E-03	2.10E-02	7.98E-01	1.49E-02	3.54E+00	7.27E+00	1.11E-01	8.16E-01	6.11E-02	1.96E-01
2003	6	8	4.27E-01	8.25E-07	1.89E-01	0.00E+00	1.01E-09	6.63E-01	2.82E-02	5.31E-01	1.74E+00	2.25E+00	2.35E-01	1.47E-01	5.72E-01	6.65E-02	7.16E-01
2003	6	9	4.54E-01	1.14E-04	1.43E+00	1.02E-06	5.23E-06	1.28E+00	3.66E-04	1.31E-02	4.17E+00	1.11E-02	2.40E-04	5.87E-04	6.80E-04	5.24E-03	8.58E-01
2003	6	10	1.26E-01	5.75E-01	2.17E-02	7.09E-02	1.57E-01	5.56E-02	1.56E-02	3.43E-01	4.17E+00	6.35E+00	1.85E+00	4.89E-01	7.65E-01	4.18E-02	3.15E-01
2003	6	11	2.76E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.54E-02	1.12E+00	8.25E-04	1.41E+01	1.99E-02	1.66E+00	2.25E+00	1.08E-01	7.49E-02
2003	6	12	1.28E-03	0.00E+00	7.78E-05	0.00E+00	1.16E-03	1.79E-04	5.52E-02	1.06E+00	2.44E-04	8.39E+00	3.61E-01	8.43E-01	9.40E-01	8.36E-02	9.99E-03
2003	6	13	2.75E-03	2.82E-05	1.08E-04	9.80E-02	3.30E-01	6.47E-04	1.42E-02	9.16E-01	4.25E-03	3.67E+00	2.90E+00	1.04E-01	5.98E-01	7.97E-02	6.93E-03
2003	6	14	1.62E-03	0.00E+00	4.91E-06	0.00E+00	0.00E+00	1.86E-04	1.52E-02	4.57E-01	8.94E-04	2.24E+00	1.66E-01	3.09E-01	6.69E-01	7.88E-03	3.24E-03
2003	6	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.96E-02	1.10E+00	1.10E-26	3.36E+00	1.19E-01	3.72E-01	8.85E-01	4.29E-02	0.00E+00
2003	6	16	1.04E-01	1.17E-02	8.04E-02	5.15E-03	8.09E-03	1.01E-01	1.07E-01	1.17E+00	4.26E+00	8.73E+00	6.95E-02	1.09E+00	2.12E+00	1.49E-01	1.81E-01
2003	6	17	4.75E-01	1.42E-01	1.16E-01	3.47E-02	7.20E-02	1.83E-01	2.18E-01	9.32E-01	3.08E+00	5.19E+00	3.60E-01	8.64E-01	1.32E+00	2.95E-01	7.19E-01
2003	6	18	1.46E-01	1.39E+00	8.18E-03	4.87E-01	4.11E-01	3.11E-02	4.40E-03	1.94E-01	1.70E+00	1.93E+00	6.96E+00	1.04E-02	2.52E-02	6.40E-02	3.31E-01
2003	6	19	6.13E-02	3.69E-01	2.03E-03	2.91E-01	2.72E-01	3.36E-02	8.49E-03	5.01E-01	2.40E-02	4.58E+00	6.39E+00	2.83E-01	7.33E-01	4.07E-02	1.35E-01
2003	6	20	9.70E-03	9.55E-03	7.57E-05	1.22E-01	1.39E-01	3.30E-04	1.68E-02	3.40E-01	1.48E-03	2.26E+00	1.89E+00	1.52E-01	9.00E-01	7.02E-03	4.29E-02
2003	6	21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-03	2.41E-01	8.37E-15	1.21E+00	1.60E-01	1.78E-01	3.39E-01	3.13E-07	0.00E+00
2003	6	22	4.68E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-04	3.36E-03	2.33E-01	8.69E-16	1.69E+00	1.98E-01	2.12E-01	5.00E-01	1.57E-04	3.65E-02
2003	6	23	9.82E-02	1.03E-01	5.80E-02	3.72E-02	3.19E-02	4.50E-02	1.02E-02	2.55E-01	2.45E+00	2.41E+00	1.29E-01	1.39E-01	4.61E-01	1.21E-02	2.06E-01
2003	6	24	1.12E-01	1.65E+00	9.72E-02	4.86E-02	2.95E-02	1.34E-01	6.92E-03	3.77E-01	4.35E+00	6.67E-01	2.80E+00	3.65E-02	6.87E-02	8.24E-02	2.57E-01

Table C4 - Timeseries Data for PM10

Application

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2003	6	25	2.15E+00	7.37E-02	9.57E-01	1.13E-01	1.55E-01	2.05E+01	7.84E+00	2.31E+01	5.55E-01	1.27E+01	1.74E+00	2.17E+00	3.19E+00	1.72E+01	2.92E+00
2003	6	26	7.90E-01	1.30E-03	6.07E-01	3.40E-05	3.37E-04	1.26E+01	2.35E+00	1.35E+01	1.94E-01	4.84E+00	3.19E-02	8.27E-01	7.56E-01	8.50E+00	2.00E+00
2003	6	27	6.70E-01	1.67E-03	9.31E-01	2.63E-04	5.56E-04	1.53E+01	2.86E+00	2.01E+01	3.09E-01	1.39E+01	1.20E-02	1.24E+00	3.66E+00	2.03E+01	9.18E-01
2003	6	28	4.25E+00	1.68E-01	2.65E+00	4.09E-02	8.20E-02	1.67E+01	2.11E+00	1.69E+01	1.90E+00	5.66E+00	4.28E-01	7.85E-01	8.96E-01	1.48E+01	4.98E+00
2003	6	29	3.94E+00	1.03E-01	9.66E-01	5.34E-02	1.92E-01	1.56E+01	3.71E+00	1.87E+01	6.02E-01	3.48E+00	2.15E+00	3.69E-01	6.72E-01	1.57E+01	6.51E+00
2003	6	30	2.57E+00	1.27E-01	2.67E-01	1.66E-01	1.58E-01	1.37E+01	3.30E+00	9.64E+00	5.21E-01	2.32E+00	2.57E+00	3.55E-01	5.95E-01	6.06E+00	4.14E+00
2003	7	1	6.41E-01	2.03E-07	1.66E-01	0.00E+00	2.89E-05	1.01E+01	1.71E+00	9.88E+00	2.65E-01	3.12E+00	1.83E-01	4.55E-01	6.48E-01	5.83E+00	1.37E+00
2003	7	2	1.59E-01	0.00E+00	2.03E-01	0.00E+00	3.65E-09	4.85E+00	8.47E-01	2.67E+00	2.45E-02	1.66E+00	1.55E-01	1.25E-01	4.71E-01	2.04E+00	4.40E-01
2003	7	3	1.80E-01	0.00E+00	2.97E-02	0.00E+00	0.00E+00	3.75E+00	1.26E+00	4.62E+00	2.07E-15	2.16E+00	6.28E-02	4.32E-01	4.66E-01	2.67E+00	4.38E-01
2003	7	4	1.19E+00	0.00E+00	1.32E-01	0.00E+00	0.00E+00	6.06E+00	1.53E+00	7.79E+00	1.51E-01	2.52E+00	1.29E-01	3.40E-01	6.49E-01	5.62E+00	2.01E+00
2003	7	5	3.18E+00	3.79E-04	6.21E-01	0.00E+00	8.99E-05	1.03E+01	2.22E+00	1.24E+01	2.49E-01	6.64E+00	8.18E-02	5.90E-01	1.19E+00	1.12E+01	5.06E+00
2003	7	6	9.38E+00	2.31E-01	3.35E+00	6.74E-02	8.51E-02	1.79E+01	4.37E+00	2.11E+01	6.76E-01	4.59E+00	4.23E-01	2.56E+00	2.92E+00	1.71E+01	1.33E+01
2003	7	7	1.07E+01	6.47E-01	3.59E+00	2.22E-01	4.81E-01	1.91E+01	3.81E+00	1.97E+01	1.23E+00	3.06E+00	5.06E+00	2.23E-01	2.39E-01	1.87E+01	1.52E+01
2003	7	8	3.51E+00	2.01E-01	1.08E+00	1.22E-01	2.17E-01	1.54E+01	4.97E+00	1.05E+01	4.19E-01	3.71E+00	3.42E+00	3.51E-01	7.91E-01	1.14E+01	6.08E+00
2003	7	9	8.32E-01	7.37E-05	3.50E-01	1.90E-06	1.03E-04	1.58E+01	2.90E+00	1.38E+01	3.06E-01	4.44E+00	1.06E-01	1.04E+00	1.05E+00	1.10E+01	1.21E+00
2003	7	10	1.28E+01	4.71E-02	5.86E+00	2.77E-02	2.01E-02	1.62E+01	5.41E-01	1.83E+01	2.01E+00	2.56E-02	1.75E-02	6.10E-02	3.47E-02	2.16E+01	1.50E+01
2003	7	11	9.23E+00	9.02E-01	4.04E+00	9.90E-02	1.87E-01	2.55E+01	5.81E+00	2.51E+01	3.10E+00	8.66E+00	2.34E+00	6.18E-01	1.44E+00	2.08E+01	1.23E+01
2003	7	12	1.05E+00	1.46E-04	6.01E-01	6.37E-03	9.97E-02	1.73E+01	2.94E+00	1.04E+01	2.91E-01	5.30E+00	8.84E-01	6.18E-01	7.42E-01	1.25E+01	1.89E+00
2003	7	13	5.48E-01	6.78E-06	3.11E-01	2.12E-07	1.35E-05	6.92E+00	1.75E+00	9.33E+00	7.79E-02	3.36E+00	1.62E-01	4.48E-01	5.40E-01	7.12E+00	1.54E+00
2003	7	14	7.67E-01	0.00E+00	4.04E-01	0.00E+00	0.00E+00	1.19E+01	2.27E+00	1.20E+01	1.54E-01	3.39E+00	1.69E-01	2.84E-01	9.39E-01	7.40E+00	2.19E+00
2003	7	15	3.63E+00	5.71E-01	1.30E+00	3.65E-02	4.96E-02	1.73E+01	2.76E+00	1.71E+01	6.56E-01	4.83E+00	4.82E-01	3.92E-01	8.55E-01	1.14E+01	5.39E+00
2003	7	16	6.78E+00	7.84E-01	2.29E+00	5.82E-01	4.48E-01	1.13E+01	4.31E+00	1.01E+01	5.60E-01	4.42E+00	8.05E+00	3.69E-01	5.58E-01	1.18E+01	8.59E+00
2003	7	17	3.64E-01	1.80E-06	3.23E-01	0.00E+00	6.28E-07	7.59E+00	1.96E+00	9.30E+00	3.71E-02	3.14E+00	1.52E-01	7.87E-01	9.43E-01	6.72E+00	1.16E+00
2003	7	18	3.15E+00	3.42E-02	1.38E+00	1.57E-02	5.27E-02	2.26E+01	6.02E+00	2.50E+01	2.65E+00	7.03E+00	4.36E-01	1.84E+00	1.99E+00	2.06E+01	4.07E+00
2003	7	19	6.09E+00	6.32E-02	2.57E+00	2.26E-02	3.57E-02	2.06E+01	2.29E+00	1.82E+01	3.68E+00	6.97E+00	5.24E-01	6.98E-01	9.70E-01	1.86E+01	8.34E+00
2003	7	20	1.02E+01	7.89E-01	3.54E+00	2.39E-01	6.38E-01	2.02E+01	3.56E+00	2.01E+01	2.37E+00	3.55E+00	4.86E+00	6.34E-01	4.77E-01	1.99E+01	1.57E+01
2003	7	21	9.28E+00	1.79E-01	3.38E+00	3.90E-02	3.63E-02	1.67E+01	2.94E+00	2.25E+01	2.82E+00	8.45E-01	1.16E-01	5.95E-01	5.18E-01	2.32E+01	1.25E+01
2003	7	22	3.06E+00	3.48E-02	1.23E+00	1.33E-02	2.33E-02	1.92E+01	3.90E+00	1.66E+01	3.61E-01	5.47E+00	2.30E-01	7.11E-01	9.93E-01	1.35E+01	4.27E+00
2003	7	23	9.04E-01	1.59E-01	5.34E-01	5.27E-02	7.48E-02	1.29E+01	4.72E+00	1.38E+01	2.53E-01	7.00E+00	1.52E+00	1.18E+00	1.19E+00	1.69E+01	1.16E+00
2003	7	24	3.26E+00	1.34E-01	1.95E+00	7.76E-02	3.11E-01	1.00E+01	1.60E+00	1.53E+01	1.12E+00	4.02E+00	2.23E+00	2.99E-01	4.97E-01	1.21E+01	5.70E+00
2003	7	25	1.92E+00	6.32E-01	1.11E+00	2.04E-01	8.85E-02	2.66E+00	8.72E-02	4.85E+00	1.12E+00	7.13E-03	2.46E-02	3.01E-03	4.27E-03	9.99E+00	2.50E+00
2003	7	26	8.70E+00	8.64E-01	3.21E+00	5.41E-02	8.66E-02	1.76E+01	3.73E+00	2.39E+01	2.22E+00	4.62E+00	9.40E-01	4.80E-01	7.10E-01	2.85E+01	1.19E+01
2003	7	27	7.08E-01	3.68E-05	7.88E-01	6.71E-08	8.98E-05	2.40E+01	5.49E+00	2.40E+01	4.16E-01	1.11E+01	7.30E-02	1.45E+00	1.18E+00	1.77E+01	1.02E+00
2003	7	28	1.81E+00	5.68E-02	9.81E-01	1.82E-02	1.18E-01	1.06E+01	2.10E+00	1.65E+01	8.22E-01	8.63E+00	1.31E+00	8.06E-01	1.67E+00	1.47E+01	2.77E+00
2003	7	29	9.87E+00	4.63E-02	5.21E+00	1.93E-02	1.44E-02	1.53E+01	4.03E-01	1.22E+01	2.58E+00	1.07E-02	9.94E-02	1.35E-02	1.12E-02	1.54E+01	1.07E+01
2003	7	30	4.62E+00	4.84E-01	1.58E+00	1.60E-01	2.76E-01	1.73E+01	4.38E+00	2.05E+01	2.00E+00	5.09E+00	4.30E+00	4.71E-01	1.21E+00	1.93E+01	6.43E+00
2003	7	31	1.13E+01	1.55E-02	4.96E+00	3.31E-03	3.92E-03	1.65E+01	6.36E-01	1.58E+01	5.36E+00	4.98E-02	2.11E-02	8.95E-02	6.55E-02	1.44E+01	1.45E+01
2003	8	1	6.25E+00	1.02E+00	1.01E+00	4.98E-01	5.01E-01	1.64E+01	5.14E+00	1.18E+01	1.16E+00	4.61E+00	1.53E+01	4.85E-01	5.95E-01	1.08E+01	8.35E+00
2003	8	2	1.51E+00	4.31E-03	8.17E-01	1.21E-03	1.58E-02	1.32E+01	3.17E+00	1.37E+01	3.20E-01	3.77E+00	4.63E-01	5.77E-01	9.99E-01	1.16E+01	2.77E+00
2003	8	3	1.87E+00	3.72E-04	5.83E-01	3.44E-05	8.71E-04	7.80E+00	1.30E+00	6.43E+00	1.03E-01	2.61E+00	2.17E-01	3.16E-01	4.62E-01	5.85E+00	2.61E+00
2003	8	4	6.64E+00	1.78E-02	2.63E+00	2.20E-03	2.86E-03	9.79E+00	1.69E+00	1.18E+01	3.02E+00	5.32E+00	5.79E-02	7.17E-01	1.37E+00	9.76E+00	8.68E+00
2003	8	5	6.60E+00	4.45E-01	2.41E+00	6.13E-02	1.13E-01	2.47E+01	4.18E+00	2.35E+01	1.65E+00	3.03E+00	9.67E-01	3.33E-01	8.91E-01	2.12E+01	9.81E+00
2003	8	6	4.17E+00	3.58E-01	1.81E+00	1.85E-01	3.85E-01	1.63E+01	6.09E+00	2.05E+01	1.86E+00	8.28E+00	2.12E+00	1.76E+00	2.27E+00	1.61E+01	5.43E+00
2003	8	7	1.79E+00	8.20E-02	8.19E-01	5.54E-02	1.46E-01	1.28E+01	3.93E+00	2.05E+01	4.92E-01	6.49E+00	1.31E+00	9.08E-01	1.42E+00	1.64E+01	2.90E+00
2003	8	8	4.68E+00	3.63E-02	2.23E+00	6.50E-03	7.31E-03	1.74E+01	2.57E+00	1.86E+01	1.58E+00	3.35E+00	6.07E-02	1.61E+00	1.21E+00	1.89E+01	5.89E+00
2003	8	9	1.20E+01	8.20E-01	4.65E+00	7.86E-03	1.31E-02	1.83E+01	3.67E+00	2.23E+01	2.17E+00	7.08E-01	2.36E+00	2.88E-01	2.55E-01	2.12E+01	1.37E+01
2003	8	10	2.91E+00	3.67E-01	9.87E-01	1.52E-01	2.78E-01	1.61E+01	6.99E+00	1.69E+01	1.09E+00	1.65E+01	1.60E+00	2.32E+00	3.37E+00	1.80E+01	4.80E+00
2003	8	11	1.70E+00	9.81E-02	2.88E-01	3.13E-02	6.18E-02	1.11E+01	2.32E+00	1.30E+01	2.96E-01	5.38E+00	5.32E-01	7.87E-01	7.13E-01	1.41E+01	2.72E+00
2003	8	12	2.62E+00	1.13E-02	1.08E+00	2.41E-01	4.09E-01	1.45E+01	5.75E+00	1.88E+01	4.77E-01	6.59E+00	4.39E+00	8.88E-01	1.02E+00	1.66E+01	4.32E+00
2003	8	13	1.91E+00	1.38E-03	1.33E+00	1.55E-04	9.32E-04	1.26E+01	2.83E+00	1.31E+01	3.32E-01	4.33E+00	1.41E-01	4.68E-01	8.57E-01	9.99E+00	3.23E+00
2003	8	14	1.77E+00	7.15E-02	8.33E-01	2.00E-02	1.01E-01	1.80E+01	9.37E+00	2.09E+01	6.91E-01	1.57E+01	1.23E+00	1.87E+00	2.89E+00	1.68E+01	3.39E+00
2003	8	15	1.19E+01	9.88E-01	5.40E+00	7.74E-02	1.06E-01	2.14E+01	6.94E+00	2.54E+01	5.53E+00	5.85E+00	2.56E+00	1.03E+00	1.66E+00	2.95E+01	1.52E+01
2003	8	16	2.17E+00	1.23E-01	7.43E-01	9.75E-02	1.50E-01	1.12E+01	2.82E+00	1.10E+01	1.58E+00	3.20E+00	1.04E+00	4.44E-01	7.13E-01	9.20E+00	3.72E+00
2003	8	17	2.44E+00	2.07E-02	9.97E-01	1.81E-02	4.76E-02	1.43E+01	5.14E+00	1.69E+01	2.27E-01	1.12E+01	5.98E-01	1.77E+00	2.39E+00	1.18E+01	3.65E+00
2003	8	18	1.07E+00	6.88E-04	7.72E-01	1.36E-05	2.67E-04	1.68E+01	3.40E+00	2.18E+01	3.74E-01	5.49E+00	1.26E-01	9.55E-01	8.71E-01	1.38E+01	1.43E+00
2003	8	19	4.23E+00	2.00E-01	2.98E+00	4.02E-02	7.25E-02	1.41E+01	4.74E+00	1.81E+01	2.87E+00	5.71E+00	4.87E-01	1.13E+00	6.25E-01	1.91E+01	5.01E+00
2003	8	20	7.10E+00	3.63E-01	2.59E+00	4.91E-01	6.18E-01	1.81E+01	6.26E+00	2.42E+01	8.57E-01	4.63E+00	7.43E+00	1.46E+00	2.07E+00	2.27E+01	9.51E+00
2003	8	21	2.22E+00	8.24E-03	9.74E-01	4.10E-01	6.57E-01	2.14E+01	5.33E+00	1.96E+01	6.24E-01	1.04E+01	7.08E+00	9.88E-01	1.15E+00	1.97E+01	3.48E+00
2003	8	22	9.82E-01	1.67E-03	4.56E-01	1.71E-03	6.80E-02	1.18E+01	2.05E+00	1.01E+01	3.72E-01	3.04E+00	9.84E-01	2.25E-01	7.24E-01	6.55E+00	3.58E+00
2003	8	23	4.31E-01	1.46E-04	4.66E-01	6.71E-07	4.38E-05	8.10E+00	2.00E+00	7.60E+00	7.41E-02	2.90E+00	1.78E-01	3.10E-01	6.83E-01	7.78E+00	1.44E+00
2003	8	24	1.06E+00	1.14E-03	8.90E-01	6.42E-05	4.93E-04	1.54E+01	3.00E+00	1.88E+01	3.01E-01	4.28E+00	1.22E-01	5.43E-01	9.37E-01	1.09E+01	1.76E+00
2003	8	25	3.81E+00	3.36E-02	2.27E+00	5.95E-02	1.54E-01	2.07E+01	7.04E+00	2.20E+01	6.52E-01	1.10E+01	3.57E+00	1.19E+00	1.77E+00	1.79E+01	5.52E+00
2003	8	26	3.78E+00	1.26E+00	1.14E+00	2.57E-01	5.22E-01	1.60E+01	5.68E+00	2.04E+01	1.28E+00	3.43E+00	3.33E+00	4.26E-01	1.00E+00	1.59E+01	5.57E+00
2003	8	27	9.18E-01	1.12E-03	8.20E-01	1.22E-04	1.03E-03	2.03E+01	3.81E+00	1.97E+01	3.80E-01	3.46E+00	2.16E-01	8.11E-01	1.04E+00	1.41E+01	2.77E+00
2003	8	28	1.32E+01	4.11E-03	5.51E+00	2.10E-04	1.06E-03	2.02E+01	6.00E+00	2.84E+01	5.02E+00	9.02E+00	1.48E-02	1.97E+00	2.77E+00	3.15E+01	1.94E+01
2003	8	29	1.19E+01	8.02E-01	5.58E+00	8.94E-02	1.59E-01	2.81E+01	9.36E+00	3.76E+01	6.49E+00	2.29E+01	2.31E+00	3.74E+00	5.87E+00	3.41E+01	1.57E+01
2003	8	30	1.04E+01	2.08E+00	3.82E+00	2.72E-01	3.48E-01	2.73E+01	5.74E+00	2.45E+01	1.15E+00	8.80E+00	1.04E+01	8.09E-01	1.65E+00	1.66E+01	1.33E+01
2003	8	31	1.47E+00	1.25E-02	5.73E-01	3.60E-02	5.84E-02	2.22E+01	4.12E+00	2.05E+01	2.76E-01	9.46E+00	1.89E-01	1.41E+00	9.79E-01	1.66E+01	1.99E+00
2003	9	1	5.02E+00	8.52E-02	2.52E+00	5.96E-02	4.42E-02	1.66E+01	3.54E+00	1.82E+01	3.44E+00	6.84E+00	5.72E-02	1.69E+00	1.35E+00	1.81E+01	6.85E+00
2003	9	2	1.33E+01	7.48E-01	6.19E+00	8.87E-02	1.27E-01	1.95E+01	2.19E+00	1.88E+01	2.34E+00	3.32E-01	1.30E+00	2.04E-01	1.89E-01	1.77E+01	1.58E+01
2003	9	3	2.42E+00	2.75E-01	7.62E-01	1.73E-01	1.75E-01	2.37E+01	5.84E+00	1.76E+01	7.42E-01	5.55E+00	4.87E+00	5.67E-01	1.25E+00	1.26E+01	4.14E+00
2003	9	4	1.28E+00	8.05E-04	6.10E-01	1.22E-04	1.60E-03	1.98E+01	4.43E+00	2.03E+01	4.73E-01	4.50E+00	4.65E-01	3.90E-01	1.02E+00	1.35E+01	3.14E+00
2003	9	5	1.71E+00	1.37E-03	1.15E+00	2.96E-04	4.85E-03	2.10E+01	6.42E+00	2.46E+01	4.24E-01	5.90E+00	8.88E-01	8.24E-01	1.28E+00	1.96E+01	3.61E+00
2003	9	6	9.26E+00	1.80E-01	4.14E+00	6.00E-02	1.93E-01	2.90E+01	5.20E+00	2.09E+01	1.90E+00	7.67E+00	1.74E+00	8.08E-01	8.07E-01	2.69E+01	1.23E+01
2003	9	7	6.62E+00	1.37E-01	2.33E+00	1.11E-01	1.57E-01	2.01E+01	6.05E+00	1.45E+01	5.91E-01	6.13E+00	3.31E+00	6.00E-01	6.53E-01	1.10E+01	8.72E+00
2003	9	8	3.73E+00	1.25E-02	1.72E+00	6.00E-02	3.48E-01	2.01E+01	5.52E+00	2.08E+01	1.40E+00	8.68E+00	2.76E+00	1.29E+00	1.15E+00	2.13E+01	7.09E+00
2003	9	9	2.46E+00	2.29E-01	9.33E-01	7.20E-02	2.70E-01	1.55E+01	6.42E+00	2.07E+01	9.58E-01	1.03E+01	2.45E+00	2.25E+00	3.85E+00	1.44E+01	5.34E+00
2003	9	10	7.49E-01	1.35E-05	5.31E-01	0.00E+00	4.36E-07	9.42E+00	2.53E+00	1.42E+01	2.31E-01	4.91E+00	1.65E-01	7.37E-01	6.91E-01	1.35E+01	1.61E+00
2003	9	11	3.69E-01	1.70E-05	2.86E-01	2.02E-08	1.46E-06	7.58E+00	1.78E+00	8.52E+00	2.08E-02	4.35E+00	1.67E-01	5.78E-01	6.61E-01	5.54E+00	8.64E-01
2003	9	12	1.24E+00	1.88E-05	5.99E-01	0.00E+00	3.54E-05	1.37E+01	2.83E+00	1.90E+01	7.84E-02	1.24E+01	1.19E-03	9.89E-01	2.76E+00	1.53E+01	2.41E+00
2003	9	13	1.45E+00	2.40E-03	9.04E-01	3.54E-04	1.89E-03	1.97E+01	6.06E+00	2.02E+01	1.55E-01	1.14E+01	4.18E-01	1.06E+00	2.07E+00	1.83E+01	2.24E+00
2003	9	14	4.55E-01	2.97E-03	3.24E-01	1.26E-04	1.57E-03	7.49E+00	2.04E+00	6.81E+00	1.54E-01	3.52E+00	7.37E-01	3.35E-01	7.03E-01	4.68E+00	8.36E-01
2003	9	15	8.88E+00	7.76E-03	4.85E+00	2.91E-04	1.05E-03	1.06E+01	7.15E-02	1.11E+01	4.40E+00	2.58E-01	4.29E-02	1.50E-01	1.88E-01	1.63E+01	1.12E+01
2003	9	16	5.76E+00	1.47E-03	4.29E+00	3.09E-06	9.17E-06	7.91E+00	2.18E-03	1.17E+01	3.87E+00	2.46E-03	1.32E-03	8.01E-04	1.29E-03	1.24E+01	6.38E+00
2003	9	17	7.88E+00	2.21E-01	5.51E+00	3.05E-01	3.10E-01	1.43E+01	3.11E+00	1.58E+01	2.82E+00	1.46E+00	3.32E+00	1.55E-01	3.38E-01	1.93E+01	8.91E+00
2003	9	18	6.64E-01	4.85E-04	4.23E-01	5.35E-05	1.01E-03	7.45E+00	1.78E+00	7.21E+00	1.41E-01	2.22E+00	3.46E-01	1.71E-01	7.33E-01	4.44E+00	1.56E+00
2003	9	19	6.42E-01	0.00E+00	4.14E-01	0.00E+00	2.69E-05	1.16E+01	2.25E+00	9.55E+00	4.13E-02	3.99E+00	1.46E-01	6.59E-01	8.69E-01	7.97E+00	1.28E+00
2003	9	20	1.32E+00	8.90E-03	8.39E-01	2.42E-02	9.85E-02	1.84E+01	3.28E+00	2.24E+01	5.30E-01	4.90E+00	5.94E-01	7.81E-01	8.37E-01	1.52E+01	3.96E+00
2003	9	21	5.54E+00	2.74E-01	4.26E+00	1.10E-01	1.73E-01	1.44E+01	4.31E+00	2.06E+01	6.01E+00	3.08E+00	6.30E-01	8.24E-01	9.16E-01	2.35E+01	8.03E+00
2003	9	22	7.88E-02	0.00E+00	4.18E-02	0.00E+00	0.00E+00	3.34E+00	1.45E+00	3.83E+00	8.35E-16	2.69E+00	1.62E-01	4.74E-01	4.89E-01	2.76E+00	1.79E-01

Baseline

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2003	6	25	2.13E+00	3.98E-02	9.57E-01	3.19E-02	4.51E-02	2.05E+01	7.77E+00	2.22E+01	4.89E-01	1.43E-01	8.03E-02	2.75E-01	2.01E-01	1.71E+01	2.88E+00
2003	6	26	7.79E-01	1.30E-03	6.07E-01	3.40E-05	3.37E-04	1.26E+01	2.32E+00	1.26E+01	1.94E-01	2.84E-02	7.15E-03	8.58E-02	5.22E-02	8.47E+00	1.95E+00
2003	6	27	6.51E-01	1.61E-03	9.30E-01	2.56E-04	5.39E-04	1.53E+01	2.81E+00	1.91E+01	1.87E-01	2.26E-02	5.49E-03	7.10E-02	4.36E-02	2.02E+01	8.59E-01
2003	6	28	4.05E+00	6.82E-04	2.42E+00	1.09E-04	2.95E-04	1.65E+01	2.04E+00	1.64E+01	2.39E-01	1.99E-02	2.57E-03	8.36E-02	4.69E-02	1.47E+01	4.66E+00
2003	6	29	3.93E+00	4.99E-03	9.62E-01	2.71E-03	7.39E-03	1.56E+01	3.69E+00	1.80E+01	3.69E-01	7.92E-02	2.54E-02	1.73E-01	1.39E-01	1.55E+01	6.49E+00
2003	6	30	2.54E+00	1.90E-02	2.67E-01	2.06E-02	2.49E-02	1.37E+01	3.29E+00	9.29E+00	5.08E-01	1.28E-01	5.87E-02	1.79E-01	1.54E-01	6.05E+00	4.06E+00
2003	7	1	6.41E-01	2.03E-07	1.66E-01	0.00E+00	2.50E-05	1.01E+01	1.69E+00	8.94E+00	2.65E-01	2.66E-02	2.58E-03	7.88E-02	5.60E-02	5.81E+00	1.37E+00
2003	7	2	1.59E-01	0.00E+00	2.03E-01	0.00E+00	0.00E+00	4.85E+00	8.46E-01	2.42E+00	2.45E-02	1.22E-03	3.01E-05	9.97E-03	5.79E-03	2.03E+00	4.40E-01
2003	7	3	1.80E-01	0.00E+00	2.97E-02	0.00E+00	0.00E+00	3.75E+00	1.25E+00	4.40E+00	0.00E+00	0.00E+00	0.00E+00	3.75E-03	1.65E-04	2.67E+00	4.38E-01
2003	7	4	1.19E+00	0.00E+00	1.32E-01	0.00E+00	0.00E+00	6.06E+00	1.52E+00	7.33E+00	1.51E-01	7.89E-03	5.96E-05	5.25E-02	4.18E-02	5.61E+00	2.01E+00
2003	7	5	3.14E+00	3.79E-04	6.21E-01	0.00E+00	8.98E-05	1.03E+01	2.19E+00	1.15E+01	2.47E-01	3.41E-02	5.29E-03	6.97E-02	5.51E-02	1.12E+01	4.94E+00
2003	7	6	9.28E+00	1.72E-02	3.33E+00	5.38E-03	8.74E-03	1.79E+01	4.32E+00	2.09E+01	4.10E-01	8.10E-02	3.44E-02	1.26E-01	1.05E-01	1.71E+01	1.30E+01
2003	7	7	1.06E+01	3.49E-02	3.58E+00	1.33E-02	1.99E-02	1.91E+01	3.80E+00	1.95E+01	5.74E-01	1.11E-01	5.60E-02	2.15E-01	1.54E-01	1.86E+01	1.50E+01
2003	7	8	3.50E+00	2.37E-02	1.08E+00	9.35E-03	1.69E-02	1.54E+01	4.94E+00	1.01E+01	4.07E-01	1.11E-01	5.27E-02	2.12E-01	1.56E-01	1.14E+01	6.05E+00
2003	7	9	8.32E-01	7.37E-05	3.50E-01	1.90E-06	8.58E-05	1.58E+01	2.86E+00	1.27E+01	3.05E-01	2.40E-02	2.09E-03	1.02E-01	6.39E-02	1.09E+01	1.21E+00
2003	7	10	1.24E+01	8.62E-03	5.73E+00	3.81E-03	3.20E-03	1.61E+01	5.26E-01	1.83E+01	2.23E-01	1.89E-02	7.42E-03	4.34E-02	2.81E-02	2.15E+01	1.44E+01
2003	7	11	9.01E+00	2.73E-02	4.02E+00	7.07E-03	1.09E-02	2.54E+01	5.78E+00	2.45E+01	5.93E-01	1.13E-01	4.38E-02	2.32E-01	1.66E-01	2.07E+01	1.19E+01
2003	7	12	1.05E+00	1.46E-04	6.01E-01	1.06E-04	4.49E-04	1.73E+01	2.89E+00	9.45E+00	2.91E-01	3.40E-02	4.06E-03	1.37E-01	7.77E-02	1.25E+01	1.89E+00
2003	7	13	5.08E-01	5.40E-06	3.09E-01	0.00E+00	1.23E-05	6.92E+00	1.73E+00	9.07E+00	7.54E-02	5.81E-03	1.91E-04	3.37E-02	1.95E-02	7.09E+00	1.42E+00
2003	7	14	7.17E-01	0.00E+00	4.04E-01	0.00E+00	0.00E+00	1.19E+01	2.26E+00	1.09E+01	1.52E-01	1.09E-02	4.62E-04	9.38E-02	4.77E-02	7.37E+00	2.06E+00
2003	7	15	3.63E+00	1.10E-02	1.29E+00	2.26E-03	2.34E-03	1.73E+01	2.73E+00	1.62E+01	5.65E-01	4.44E-02	1.21E-02	1.16E-01	7.41E-02	1.13E+01	5.38E+00
2003	7	16	6.65E+00	6.31E-02	2.28E+00	3.18E-02	3.92E-02	1.12E+01	4.31E+00	1.00E+01	4.22E-01	1.45E-01	8.85E-02	2.19E-01	2.02E-01	1.18E+01	8.36E+00
2003	7	17	3.64E-01	1.80E-06	3.23E-01	0.00E+00	0.00E+00	7.59E+00	1.92E+00	8.88E+00	3.71E-02	1.43E-03	2.47E-05	3.87E-02	1.16E-02	6.72E+00	1.16E+00
2003	7	18	2.69E+00	2.24E-03	1.21E+00	3.54E-04	9.97E-04	2.23E+01	5.72E+00	2.33E+01	4.10E-01	6.15E-02	1.47E-02	1.54E-01	1.02E-01	2.02E+01	3.56E+00
2003	7	19	6.04E+00	3.29E-03	2.56E+00	1.51E-03	2.08E-03	2.06E+01	2.25E+00	1.72E+01	4.54E-01	4.81E-02	9.46E-03	1.27E-01	8.57E-02	1.85E+01	8.18E+00
2003	7	20	1.01E+01	3.51E-02	3.51E+00	1.03E-02	1.72E-02	2.02E+01	3.56E+00	1.99E+01	5.03E-01	1.20E-01	5.64E-02	2.27E-01	1.68E-01	1.99E+01	1.54E+01
2003	7	21	8.73E+00	1.35E-02	3.18E+00	5.25E-03	6.83E-03	1.65E+01	2.59E+00	2.14E+01	4.38E-01	5.53E-02	2.17E-02	1.40E-01	8.52E-02	2.27E+01	1.17E+01
2003	7	22	3.02E+00	6.15E-03	1.23E+00	2.08E-03	3.83E-03	1.92E+01	3.86E+00	1.57E+01	3.55E-01	7.04E-02	2.19E-02	1.61E-01	1.13E-01	1.34E+01	4.15E+00
2003	7	23	8.85E-01	1.01E-03	5.31E-01	7.51E-04	1.77E-03	1.29E+01	4.67E+00	1.28E+01	1.93E-01	3.23E-02	6.66E-03	1.10E-01	6.45E-02	1.68E+01	1.12E+00
2003	7	24	3.17E+00	1.18E-02	1.92E+00	4.80E-03	1.01E-02	9.97E+00	1.59E+00	1.49E+01	2.25E-01	3.02E-02	1.81E-02	6.73E-02	5.21E-02	1.21E+01	5.42E+00
2003	7	25	1.92E+00	2.16E-02	1.10E+00	1.63E-02	1.35E-02	2.64E+00	8.72E-02	4.85E+00	7.03E-03	6.96E-03	1.29E-02	3.01E-03	4.26E-03	9.99E+00	2.50E+00
2003	7	26	8.51E+00	1.29E-02	3.19E+00	4.93E-03	6.32E-03	1.75E+01	3.73E+00	2.37E+01	3.95E-01	5.73E-02	2.04E-02	1.38E-01	8.90E-02	2.84E+01	1.14E+01
2003	7	27	7.06E-01	2.57E-05	7.88E-01	0.00E+00	8.43E-05	2.40E+01	5.42E+00	2.25E+01	4.14E-01	5.61E-02	7.99E-03	1.70E-01	1.08E-01	1.76E+01	1.01E+00
2003	7	28	1.77E+00	2.65E-03	7.91E-01	5.72E-04	2.55E-03	1.05E+01	2.06E+00	1.58E+01	2.10E-01	3.55E-02	1.34E-02	8.01E-02	5.55E-02	1.46E+01	2.67E+00
2003	7	29	9.41E+00	6.58E-03	5.11E+00	3.57E-03	3.17E-03	1.52E+01	4.03E-01	1.22E+01	6.51E-02	7.63E-03	4.90E-03	1.20E-02	9.20E-03	1.54E+01	9.91E+00
2003	7	30	4.58E+00	2.59E-02	1.53E+00	1.31E-02	2.28E-02	1.72E+01	4.35E+00	1.96E+01	4.80E-01	1.33E-01	5.90E-02	2.36E-01	1.85E-01	1.92E+01	6.36E+00
2003	7	31	1.05E+01	1.85E-03	4.35E+00	4.42E-04	6.53E-04	1.56E+01	5.72E-01	1.54E+01	1.67E-01	1.18E-02	3.70E-03	3.06E-02	1.86E-02	1.40E+01	1.37E+01
2003	8	1	6.22E+00	1.02E-01	1.01E+00	3.23E-02	4.22E-02	1.64E+01	5.13E+00	1.15E+01	1.13E+00	3.48E-01	1.85E-01	4.61E-01	3.95E-01	1.07E+01	8.29E+00
2003	8	2	1.49E+00	4.25E-03	8.16E-01	9.05E-04	3.65E-03	1.32E+01	3.14E+00	1.27E+01	3.18E-01	6.72E-02	2.30E-02	1.13E-01	9.65E-02	1.16E+01	2.72E+00
2003	8	3	1.87E+00	3.72E-04	5.83E-01	4.91E-06	2.72E-04	7.80E+00	1.30E+00	5.82E+00	1.03E-01	1.95E-02	4.98E-03	2.22E-02	2.11E-02	5.76E+00	2.60E+00
2003	8	4	6.39E+00	6.13E-03	2.56E+00	3.92E-04	6.25E-04	9.70E+00	1.66E+00	1.16E+01	2.34E-01	3.19E-02	1.08E-02	4.07E-02	3.59E-02	9.73E+00	8.29E+00
2003	8	5	6.53E+00	1.72E-02	2.40E+00	5.69E-03	1.12E-02	2.47E+01	4.14E+00	2.25E+01	5.07E-01	1.47E-01	5.10E-02	2.68E-01	2.25E-01	2.11E+01	9.65E+00
2003	8	6	4.10E+00	2.00E-02	1.80E+00	1.24E-02	2.20E-02	1.63E+01	6.02E+00	1.96E+01	4.99E-01	1.38E-01	5.43E-02	2.95E-01	2.22E-01	1.60E+01	5.30E+00
2003	8	7	1.78E+00	5.44E-03	8.17E-01	3.90E-03	7.81E-03	1.28E+01	3.87E+00	1.95E+01	3.43E-01	5.06E-02	1.63E-02	1.71E-01	1.09E-01	1.64E+01	2.87E+00
2003	8	8	4.59E+00	1.99E-03	2.20E+00	5.27E-04	8.37E-04	1.74E+01	2.42E+00	1.78E+01	3.45E-01	5.55E-02	1.03E-02	1.51E-01	1.06E-01	1.88E+01	5.70E+00
2003	8	9	1.15E+01	3.72E-02	4.44E+00	5.74E-03	1.09E-02	1.82E+01	3.66E+00	2.18E+01	4.78E-01	1.51E-01	6.93E-02	2.78E-01	2.06E-01	2.11E+01	1.28E+01
2003	8	10	2.82E+00	1.85E-02	9.52E-01	1.03E-02	1.66E-02	1.60E+01	6.85E+00	1.61E+01	5.51E-01	1.41E-01	5.54E-02	3.45E-01	2.27E-01	1.79E+01	4.64E+00
2003	8	11	1.68E+00	1.14E-03	2.87E-01	7.21E-04	1.30E-03	1.11E+01	2.29E+00	1.19E+01	1.80E-01	1.31E-02	2.06E-03	8.55E-02	4.37E-02	1.41E+01	2.67E+00
2003	8	12	2.60E+00	1.03E-02	1.08E+00	9.03E-03	1.21E-02	1.45E+01	5.72E+00	1.80E+01	4.70E-01	9.40E-02	2.85E-02	2.31E-01	1.59E-01	1.66E+01	4.25E+00
2003	8	13	1.80E+00	1.07E-03	1.32E+00	1.17E-04	8.47E-04	1.26E+01	2.81E+00	1.24E+01	3.27E-01	4.49E-02	1.17E-02	7.52E-02	6.63E-02	9.93E+00	2.92E+00
2003	8	14	1.74E+00	1.04E-02	8.33E-01	2.49E-03	6.18E-03	1.80E+01	9.31E+00	1.96E+01	6.79E-01	1.48E-01	4.17E-02	3.65E-01	2.44E-01	1.68E+01	3.32E+00
2003	8	15	1.17E+01	4.74E-02	5.34E+00	1.50E-02	2.36E-02	2.13E+01	6.91E+00	2.50E+01	5.16E-01	1.79E-01	8.78E-02	3.37E-01	2.43E-01	2.95E+01	1.47E+01
2003	8	16	2.12E+00	7.58E-03	6.30E-01	5.39E-03	1.28E-02	1.11E+01	2.80E+00	1.04E+01	2.83E-01	6.96E-02	2.83E-02	1.11E-01	9.03E-02	9.12E+00	3.64E+00
2003	8	17	2.37E+00	1.96E-03	9.96E-01	6.73E-05	4.71E-04	1.42E+01	4.89E+00	1.58E+01	2.15E-01	3.56E-02	1.15E-02	5.80E-02	4.33E-02	1.16E+01	3.54E+00
2003	8	18	1.07E+00	6.66E-04	7.72E-01	1.24E-05	2.58E-04	1.68E+01	3.35E+00	2.05E+01	3.73E-01	5.29E-02	1.07E-02	1.74E-01	1.17E-01	1.37E+01	1.42E+00
2003	8	19	3.99E+00	8.44E-03	2.65E+00	3.03E-03	2.58E-03	1.38E+01	4.56E+00	1.69E+01	2.29E-01	2.48E-02	6.87E-03	8.98E-02	4.76E-02	1.89E+01	4.71E+00
2003	8	20	6.92E+00	2.02E-02	2.48E+00	1.21E-02	2.40E-02	1.79E+01	6.04E+00	2.31E+01	3.46E-01	1.15E-01	6.20E-02	2.10E-01	1.50E-01	2.23E+01	9.16E+00
2003	8	21	2.18E+00	7.53E-03	9.74E-01	1.18E-02	2.34E-02	2.14E+01	5.28E+00	1.83E+01	6.19E-01	1.57E-01	5.95E-02	2.81E-01	2.16E-01	1.96E+01	3.37E+00
2003	8	22	9.67E-01	1.67E-03	4.56E-01	1.54E-03	5.45E-03	1.18E+01	2.04E+00	9.24E+00	3.72E-01	6.87E-02	1.87E-02	1.40E-01	1.20E-01	6.47E+00	3.53E+00
2003	8	23	4.03E-01	1.46E-04	4.66E-01	6.71E-07	4.38E-05	8.10E+00	1.99E+00	7.30E+00	5.24E-02	9.68E-03	2.27E-03	6.11E-02	2.05E-02	7.76E+00	1.38E+00
2003	8	24	1.04E+00	1.13E-03	8.90E-01	6.25E-05	4.86E-04	1.54E+01	2.97E+00	1.77E+01	3.01E-01	4.65E-02	1.11E-02	1.26E-01	8.44E-02	1.08E+01	1.73E+00
2003	8	25	3.71E+00	1.76E-02	2.25E+00	3.47E-03	7.42E-03	2.07E+01	6.99E+00	2.11E+01	5.91E-01	1.25E-01	4.84E-02	2.35E-01	1.77E-01	1.78E+01	5.29E+00
2003	8	26	3.68E+00	4.86E-02	1.13E+00	2.71E-02	4.19E-02	1.60E+01	5.67E+00	1.95E+01	5.32E-01	1.95E-01	1.04E-01	2.63E-01	2.40E-01	1.58E+01	5.28E+00
2003	8	27	9.14E-01	1.12E-03	8.20E-01	1.22E-04	1.03E-03	2.03E+01	3.77E+00	1.80E+01	3.79E-01	6.84E-02	1.65E-02	1.62E-01	1.18E-01	1.40E+01	2.76E+00
2003	8	28	1.26E+01	2.91E-03	4.98E+00	1.84E-04	9.42E-04	1.97E+01	5.71E+00	2.78E+01	4.37E-01	3.53E-02	9.70E-03	9.65E-02	6.02E-02	3.12E+01	1.83E+01
2003	8	29	1.10E+01	3.80E-02	4.83E+00	8.77E-03	1.54E-02	2.72E+01	8.82E+00	3.59E+01	9.88E-01	1.71E-01	7.16E-02	2.95E-01	2.21E-01	3.32E+01	1.46E+01
2003	8	30	1.02E+01	1.17E-01	3.80E+00	2.88E-02	4.34E-02	2.73E+01	5.72E+00	2.39E+01	1.05E+00	3.57E-01	1.87E-01	5.41E-01	4.44E-01	1.65E+01	1.29E+01
2003	8	31	1.46E+00	8.99E-03	5.73E-01	2.89E-03	4.87E-03	2.22E+01	4.04E+00	1.90E+01	2.75E-01	4.23E-02	1.49E-02	1.65E-01	8.10E-02	1.66E+01	1.97E+00
2003	9	1	5.01E+00	9.73E-03	2.51E+00	6.82E-03	6.63E-03	1.66E+01	3.40E+00	1.72E+01	4.80E-01	5.50E-02	1.46E-02	1.43E-01	9.32E-02	1.81E+01	6.84E+00
2003	9	2	1.28E+01	3.35E-02	6.11E+00	4.02E-03	7.77E-03	1.94E+01	2.17E+00	1.87E+01	5.35E-01	8.92E-02	4.43E-02	1.42E-01	1.08E-01	1.76E+01	1.48E+01
2003	9	3	2.41E+00	3.77E-02	7.61E-01	1.81E-02	2.95E-02	2.37E+01	5.80E+00	1.63E+01	7.31E-01	2.11E-01	8.97E-02	3.52E-01	2.95E-01	1.25E+01	4.12E+00
2003	9	4	1.28E+00	8.05E-04	6.10E-01	1.22E-04	1.30E-03	1.98E+01	4.39E+00	1.87E+01	4.73E-01	6.73E-02	1.22E-02	1.99E-01	1.32E-01	1.35E+01	3.14E+00
2003	9	5	1.70E+00	1.37E-03	1.15E+00	2.96E-04	3.09E-03	2.10E+01	6.37E+00	2.32E+01	4.24E-01	9.85E-02	2.19E-02	2.21E-01	1.70E-01	1.95E+01	3.59E+00
2003	9	6	9.13E+00	4.84E-03	4.12E+00	1.73E-03	2.64E-03	2.90E+01	5.13E+00	1.99E+01	3.52E-01	3.18E-02	9.68E-03	1.24E-01	5.95E-02	2.68E+01	1.21E+01
2003	9	7	6.49E+00	4.85E-02	2.33E+00	2.54E-02	2.48E-02	2.01E+01	6.03E+00	1.40E+01	5.41E-01	1.36E-01	8.10E-02	1.35E-01	1.17E-01	1.10E+01	8.38E+00
2003	9	8	3.66E+00	5.17E-03	1.64E+00	3.49E-03	9.12E-03	2.00E+01	5.40E+00	2.02E+01	7.22E-01	9.78E-02	3.05E-02	2.10E-01	1.50E-01	2.12E+01	6.96E+00
2003	9	9	2.42E+00	5.58E-03	9.31E-01	1.52E-03	6.61E-03	1.55E+01	6.07E+00	1.90E+01	3.96E-01	8.80E-02	3.40E-02	1.53E-01	9.98E-02	1.42E+01	5.28E+00
2003	9	10	6.94E-01	0.00E+00	5.30E-01	0.00E+00	0.00E+00	9.41E+00	2.51E+00	1.36E+01	2.28E-01	1.35E-02	5.75E-04	6.73E-02	3.84E-02	1.34E+01	1.49E+00
2003	9	11	3.69E-01	1.70E-05	2.86E-01	2.02E-08	8.82E-07	7.58E+00	1.76E+00	7.78E+00	2.08E-02	3.39E-03	7.36E-04	1.10E-02	5.82E-03	5.51E+00	8.64E-01
2003	9	12	1.23E+00	1.88E-05	5.99E-01	0.00E+00	3.54E-05	1.37E+01	2.78E+00	1.82E+01	7.72E-02	6.84E-03	1.19E-03	3.12E-02	1.56E-02	1.52E+01	2.36E+00
2003	9	13	1.44E+00	2.39E-03	9.04E-01	3.17E-04	9.70E-04	1.97E+01	6.01E+00	1.91E+01	1.46E-01	2.64E-02	8.73E-03	9.51E-02	4.97E-02	1.82E+01	2.20E+00
2003	9	14	4.55E-01	1.83E-03	3.24E-01	1.26E-04	1.55E-03	7.49E+00	2.04E+00	6.47E+00	6.10E-02	3.15E-02	2.46E-02	4.37E-02	2.62E-02	4.68E+00	8.36E-01
2003	9	15	8.80E+00	1.09E-03	4.60E+00	5.63E-05	1.53E-04	1.03E+01	2.31E-02	1.10E+01	2.85E-02	8.75E-03	3.33E-03	1.03E-02	1.00E-02	1.62E+01	1.11E+01
2003	9	16	5.64E+00	2.47E-05	3.99E+00	3.30E-12	3.93E-11	7.79E+00	2.07E-03	1.17E+01	9.73E-04	7.43E-05	2.73E-05	8.59E-05	7.99E-05	1.24E+01	6.14E+00
2003	9	17	7.76E+00	6.46E-03	4.86E+00	4.62E-03	1.13E-02	1.39E+01	3.05E+00	1.56E+01	3.78E-01	1.20E-01	5.23E-02	8.56E-02	1.01E-01	1.92E+01	8.73E+00
2003	9	18	6.60E-01	4.70E-04	4.23E-01	5.11E-05	3.93E-04	7.45E+00	1.77E+00	6.58E+00	1.40E-01	2.11E-02	4.66E-03	5.68E-02	3.58E-02	4.42E+00	1.54E+00
2003	9	19	5.74E-01	0.00E+00	4.13E-01	0.00E+00	0.00E+00	1.16E+01	2.24E+00	9.08E+00	4.09E-02	4.58E-04	4.12E-06	2.14E-02	5.09E-03	7.95E+00	1.13E+00
2003	9	20	1.25E+00	2.04E-03	8.23E-01	1.36E-04	6.79E-04	1.84E+01	3.09E+00	2.12E+01	2.73E-01	4.35E-02	9.96E-03	1.38E-01	8.50E-02	1.48E+01	3.85E+00
2003	9	21	5.49E+00	2.75E-03	3.75E+00	2.02E-04	7.47E-04	1.42E+01	4.25E+00	1.99E+01	2.13E-01	4.15E-02	1.16E-02	1.02E-01	6.75E-02	2.35E+01	7.93E+00
2003	9	22	7.88E-02	0.00E+00	4.18E-02	0.00E+00	0.00E+00	3.34E+00	1.45E+00	3.27E+00	0.00E+00	0.00E+00	0.00E+00	2.47E-04	0.00E+00	2.76E+00	1.79E-01

Project

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2003	6	25	2.10E-02	3.39E-02	3.59E-04	8.13E-02	1.10E-01	1.23E-03	7.52E-02	9.42E-01	6.60E-02	1.26E+01	1.66E+00	1.89E+00	2.99E+00	9.51E-02	4.54E-02
2003	6	26	1.14E-02	0.00E+00	6.27E-08	0.00E+00	0.00E+00	1.89E-05	3.05E-02	8.89E-01	1.51E-05	4.81E+00	2.48E-02	7.41E-01	7.03E-01	2.52E-02	4.56E-02
2003	6	27	1.89E-02	5.85E-05	1.69E-03	6.92E-06	1.64E-05	4.02E-03	5.04E-02	9.98E-01	1.22E-01	1.39E+01	6.56E-03	1.17E+00	3.62E+00	1.93E-02	5.87E-02
2003	6	28	1.95E-01	1.67E-01	2.32E-01	4.08E-02	8.17E-02	2.03E-01	6.36E-02	4.89E-01	1.66E+00	5.64E+00	4.26E-01	7.02E-01	8.49E-01	8.39E-02	3.22E-01
2003	6	29	1.08E-02	9.81E-02	3.59E-03	5.07E-02	1.85E-01	8.09E-03	2.26E-02	7.22E-01	2.33E-01	3.40E+00	2.13E+00	1.97E-01	5.33E-01	2.38E-01	2.68E-02
2003	6	30	2.93E-02	1.07E-01	3.33E-04	1.45E-01	1.33E-01	1.88E-03	5.28E-03	3.49E-01	1.32E-02	2.20E+00	2.51E+00	1.75E-01	4.41E-01	1.08E-02	7.87E-02
2003	7	1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.90E-06	0.00E+00	1.77E-02	9.43E-01	3.59E-24	3.10E+00	1.80E-01	3.76E-01	5.92E-01	2.00E-02	0.00E+00
2003	7	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.65E-09	0.00E+00	1.04E-03	2.56E-01	1.43E-21	1.66E+00	1.55E-01	1.15E-01	4.65E-01	1.01E-02	0.00E+00
2003	7	3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.08E-03	2.18E-01	2.07E-15	2.16E+00	6.28E-02	4.28E-01	4.66E-01	0.00E+00	0.00E+00
2003	7	4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.94E-03	4.63E-01	2.05E-19	2.51E+00	1.29E-01	2.88E-01	6.07E-01	1.20E-02	0.00E+00
2003	7	5	3.97E-02	1.79E-07	2.85E-05	0.00E+00	3.58E-08	6.31E-04	2.69E-02	8.95E-01	2.53E-03	6.61E+00	7.65E-02	5.21E-01	1.14E+00	1.34E-02	1.13E-01
2003	7	6	1.04E-01	2.14E-01	1.89E-02	6.20E-02	7.63E-02	4.60E-02	4.65E-02	2.11E-01	2.66E-01	4.51E+00	3.89E-01	2.44E+00	2.81E+00	3.79E-02	2.25E-01
2003	7	7	6.72E-02	6.12E-01	1.03E-02	2.09E-01	4.61E-01	2.82E-02	3.65E-03	2.74E-01	6.54E-01	2.95E+00	5.00E+00	8.37E-03	8.46E-02	1.07E-01	1.42E-01
2003	7	8	1.66E-02	1.77E-01	8.08E-04	1.12E-01	2.00E-01	4.54E-03	2.29E-02	3.84E-01	1.16E-02	3.60E+00	3.37E+00	1.39E-01	6.35E-01	7.21E-02	2.93E-02
2003	7	9	9.76E-05	0.00E+00	0.00E+00	0.00E+00	1.69E-05	2.24E-07	4.10E-02	1.08E+00	5.03E-04	4.42E+00	1.04E-01	9.42E-01	9.85E-01	3.43E-02	3.24E-04
2003	7	10	3.63E-01	3.85E-02	1.31E-01	2.39E-02	1.69E-02	8.55E-02	1.57E-02	7.34E-02	1.78E+00	6.67E-03	1.01E-02	1.77E-02	6.65E-03	3.17E-02	6.84E-01
2003	7	11	2.19E-01	8.74E-01	1.73E-02	9.19E-02	1.76E-01	2.73E-02	2.58E-02	5.55E-01	2.51E+00	8.55E+00	2.30E+00	3.86E-01	1.28E+00	6.15E-02	4.13E-01
2003	7	12	0.00E+00	0.00E+00	0.00E+00	6.26E-03	9.92E-02	0.00E+00	4.90E-02	9.12E-01	3.16E-05	5.27E+00	8.80E-01	4.82E-01	6.64E-01	5.98E-02	0.00E+00
2003	7	13	3.96E-02	1.39E-06	1.27E-03	2.12E-07	1.15E-06	5.09E-03	1.46E-02	2.63E-01	2.51E-03	3.36E+00	1.62E-01	4.15E-01	5.21E-01	3.09E-02	1.19E-01
2003	7	14	5.02E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-04	1.19E-02	1.10E+00	2.04E-03	3.38E+00	1.68E-01	1.90E-01	8.91E-01	2.12E-02	1.26E-01
2003	7	15	2.58E-03	5.60E-01	1.84E-03	3.42E-02	4.72E-02	4.62E-03	2.15E-02	8.31E-01	9.10E-02	4.79E+00	4.70E-01	2.76E-01	7.81E-01	3.93E-02	1.88E-02
2003	7	16	1.29E-01	7.21E-01	7.58E-03	5.50E-01	4.09E-01	2.41E-02	8.72E-03	9.27E-02	1.37E-01	4.27E+00	7.96E+00	1.50E-01	3.56E-01	7.08E-02	2.32E-01
2003	7	17	8.14E-06	0.00E+00	0.00E+00	0.00E+00	6.28E-07	0.00E+00	4.17E-02	4.21E-01	3.28E-05	3.14E+00	1.52E-01	7.48E-01	9.31E-01	8.63E-03	1.61E-05
2003	7	18	4.56E-01	3.20E-02	1.65E-01	1.54E-02	5.17E-02	3.17E-01	3.01E-01	1.72E+00	2.24E+00	6.97E+00	4.21E-01	1.69E+00	1.89E+00	4.10E-01	5.15E-01
2003	7	19	4.68E-02	5.99E-02	4.88E-03	2.11E-02	3.36E-02	1.09E-02	4.14E-02	9.87E-01	3.23E+00	6.92E+00	5.15E-01	5.72E-01	8.85E-01	6.29E-02	1.57E-01
2003	7	20	1.27E-01	7.54E-01	2.29E-02	2.28E-01	6.21E-01	4.82E-02	9.21E-03	2.44E-01	1.87E+00	3.43E+00	4.80E+00	4.06E-01	3.08E-01	4.09E-02	2.87E-01
2003	7	21	5.53E-01	1.65E-01	1.98E-01	3.38E-02	2.95E-02	2.67E-01	3.48E-01	1.02E+00	2.38E+00	7.89E-01	9.40E-02	4.56E-01	4.33E-01	5.58E-01	7.37E-01
2003	7	22	3.85E-02	2.87E-02	6.01E-03	1.12E-02	1.95E-02	4.56E-02	4.36E-02	9.40E-01	5.85E-03	5.40E+00	2.08E-01	5.50E-01	8.80E-01	6.48E-02	1.28E-01
2003	7	23	1.90E-02	1.58E-01	2.81E-03	5.20E-02	7.30E-02	8.12E-03	5.17E-02	1.02E+00	5.99E-02	6.96E+00	1.52E+00	1.07E+00	1.13E+00	7.95E-02	3.44E-02
2003	7	24	9.11E-02	1.22E-01	3.20E-02	7.28E-02	3.01E-01	3.84E-02	1.92E-02	4.69E-01	8.92E-01	3.99E+00	2.21E+00	2.32E-01	4.45E-01	4.53E-02	2.81E-01
2003	7	25	9.91E-05	6.10E-01	1.07E-02	1.88E-01	7.50E-02	1.52E-02	0.00E+00	0.00E+00	1.12E+00	1.67E-04	1.18E-02	1.12E-06	7.83E-06	0.00E+00	3.85E-03
2003	7	26	1.87E-01	8.51E-01	2.71E-02	4.92E-02	8.02E-02	3.03E-02	7.75E-03	1.73E-01	1.82E+00	4.56E+00	9.20E-01	3.42E-01	6.21E-01	2.50E-02	4.81E-01
2003	7	27	2.08E-03	1.10E-05	2.20E-04	6.71E-08	5.52E-06	8.15E-04	7.22E-02	1.44E+00	2.44E-03	1.10E+01	6.50E-02	1.28E+00	1.07E+00	9.58E-02	4.17E-03
2003	7	28	4.61E-02	5.41E-02	1.90E-01	1.76E-02	1.16E-01	9.68E-02	4.18E-02	6.67E-01	6.12E-01	8.59E+00	1.29E+00	7.25E-01	1.61E+00	6.72E-02	1.00E-01
2003	7	29	4.60E-01	3.97E-02	9.37E-02	1.57E-02	1.12E-02	4.70E-02	5.56E-04	8.48E-03	2.52E+00	3.09E-03	9.45E-02	1.42E-03	2.03E-03	6.37E-03	8.42E-01
2003	7	30	3.98E-02	4.58E-01	4.93E-02	1.47E-01	2.54E-01	4.48E-02	2.55E-02	9.42E-01	1.52E+00	4.95E+00	4.24E+00	2.35E-01	1.03E+00	1.11E-01	7.40E-02
2003	7	31	7.69E-01	1.37E-02	6.08E-01	2.87E-03	3.27E-03	8.42E-01	6.38E-02	4.07E-01	5.19E+00	3.80E-02	1.74E-02	5.89E-02	4.68E-02	3.56E-01	8.69E-01
2003	8	1	2.38E-02	9.22E-01	9.99E-04	4.66E-01	4.59E-01	3.69E-03	2.49E-03	2.94E-01	3.08E-02	4.26E+00	1.52E+01	2.40E-02	2.01E-01	6.81E-02	6.01E-02
2003	8	2	1.58E-02	5.78E-05	9.94E-04	3.01E-04	1.21E-02	1.24E-03	2.92E-02	1.06E+00	1.36E-03	3.70E+00	4.40E-01	4.64E-01	9.03E-01	4.74E-02	4.33E-02
2003	8	3	2.50E-03	0.00E+00	0.00E+00	2.95E-05	5.98E-04	2.00E-05	8.65E-03	6.03E-01	3.34E-04	2.59E+00	2.12E-01	2.94E-01	4.41E-01	9.62E-02	9.25E-03
2003	8	4	2.56E-01	1.17E-02	7.64E-02	1.81E-03	2.24E-03	8.54E-02	3.21E-02	2.79E-01	2.79E+00	5.28E+00	4.71E-02	6.76E-01	1.33E+00	3.10E-02	3.92E-01
2003	8	5	7.57E-02	4.28E-01	7.97E-03	5.56E-02	1.01E-01	1.45E-02	4.09E-02	1.01E+00	1.14E+00	2.88E+00	9.16E-01	6.52E-02	6.66E-01	8.45E-02	1.67E-01
2003	8	6	6.48E-02	3.38E-01	7.16E-03	1.73E-01	3.63E-01	3.09E-02	6.43E-02	8.81E-01	1.36E+00	8.14E+00	2.07E+00	1.46E+00	2.05E+00	8.56E-02	1.23E-01
2003	8	7	1.28E-02	7.66E-02	1.74E-03	5.15E-02	1.38E-01	4.42E-03	5.89E-02	1.05E+00	1.49E-01	6.44E+00	1.29E+00	7.37E-01	1.31E+00	5.79E-02	3.55E-02
2003	8	8	9.87E-02	3.43E-02	3.34E-02	5.98E-03	6.47E-03	2.62E-02	1.45E-01	8.03E-01	1.23E+00	3.30E+00	5.04E-02	1.46E+00	1.11E+00	8.45E-02	1.87E-01
2003	8	9	4.95E-01	7.82E-01	2.09E-01	2.11E-03	2.22E-03	1.67E-01	9.55E-03	5.12E-01	1.69E+00	5.57E-01	2.29E+00	1.06E-02	4.82E-02	7.06E-02	8.98E-01
2003	8	10	9.56E-02	3.48E-01	3.49E-02	1.42E-01	2.61E-01	5.39E-02	1.41E-01	8.56E-01	5.37E-01	1.63E+01	1.55E+00	1.97E+00	3.15E+00	1.37E-01	1.59E-01
2003	8	11	2.04E-02	9.69E-02	1.09E-03	3.06E-02	6.05E-02	2.01E-03	3.56E-02	1.11E+00	1.17E-01	5.36E+00	5.30E-01	7.01E-01	6.69E-01	2.42E-02	5.29E-02
2003	8	12	1.91E-02	1.06E-03	7.57E-04	2.32E-01	3.97E-01	3.36E-03	3.25E-02	8.96E-01	6.44E-03	6.50E+00	4.36E+00	6.56E-01	8.63E-01	5.25E-02	6.76E-02
2003	8	13	1.12E-01	3.09E-04	4.80E-03	3.86E-05	8.46E-05	1.27E-02	2.60E-02	7.23E-01	4.91E-03	4.28E+00	1.29E-01	3.92E-01	7.91E-01	5.30E-02	3.11E-01
2003	8	14	3.26E-02	6.10E-02	8.47E-04	1.75E-02	9.48E-02	2.25E-03	6.31E-02	1.25E+00	1.22E-02	1.56E+01	1.19E+00	1.50E+00	2.65E+00	3.96E-02	7.26E-02
2003	8	15	2.22E-01	9.41E-01	6.32E-02	6.24E-02	8.20E-02	7.33E-02	2.97E-02	4.20E-01	5.02E+00	5.67E+00	2.47E+00	6.98E-01	1.42E+00	5.24E-02	5.03E-01
2003	8	16	5.87E-02	1.15E-01	1.13E-01	9.21E-02	1.37E-01	1.13E-01	2.54E-02	5.92E-01	1.30E+00	3.13E+00	1.01E+00	3.33E-01	6.22E-01	7.76E-02	8.26E-02
2003	8	17	6.62E-02	1.87E-02	1.37E-03	1.80E-02	4.71E-02	5.10E-03	2.49E-01	1.13E+00	1.18E-02	1.12E+01	5.86E-01	1.71E+00	2.35E+00	1.53E-01	1.08E-01
2003	8	18	2.22E-03	2.20E-05	2.85E-04	1.18E-06	8.70E-06	1.12E-03	5.40E-02	1.36E+00	1.16E-03	5.44E+00	1.15E-01	7.81E-01	7.54E-01	6.68E-02	1.03E-02
2003	8	19	2.40E-01	1.92E-01	3.27E-01	3.72E-02	7.00E-02	3.83E-01	1.79E-01	1.15E+00	2.64E+00	5.68E+00	4.80E-01	1.04E+00	5.78E-01	1.85E-01	3.06E-01
2003	8	20	1.87E-01	3.43E-01	1.11E-01	4.78E-01	5.94E-01	1.74E-01	2.25E-01	1.11E+00	5.10E-01	4.52E+00	7.37E+00	1.25E+00	1.92E+00	3.41E-01	3.50E-01
2003	8	21	3.63E-02	7.11E-04	1.21E-04	3.98E-01	6.34E-01	1.03E-03	4.55E-02	1.27E+00	4.94E-03	1.02E+01	7.02E+00	7.07E-01	9.34E-01	8.44E-02	1.10E-01
2003	8	22	1.53E-02	0.00E+00	1.14E-06	1.67E-04	6.26E-02	3.98E-05	6.60E-03	8.60E-01	1.57E-04	2.97E+00	9.66E-01	8.54E-02	6.05E-01	7.51E-02	5.26E-02
2003	8	23	2.77E-02	0.00E+00	4.65E-04	0.00E+00	0.00E+00	2.35E-03	9.01E-03	3.04E-01	2.17E-02	2.89E+00	1.76E-01	2.49E-01	6.63E-01	2.30E-02	6.12E-02
2003	8	24	1.63E-02	1.49E-05	4.63E-04	1.67E-06	6.54E-06	9.71E-04	3.18E-02	1.02E+00	4.43E-04	4.24E+00	1.11E-01	4.17E-01	8.53E-01	6.30E-02	3.64E-02
2003	8	25	1.09E-01	1.60E-02	1.38E-02	5.60E-02	1.47E-01	2.82E-02	4.29E-02	8.96E-01	6.09E-02	1.09E+01	3.52E+00	9.52E-01	1.60E+00	6.57E-02	2.26E-01
2003	8	26	1.03E-01	1.21E+00	5.00E-03	2.30E-01	4.80E-01	9.57E-03	1.25E-02	8.31E-01	7.49E-01	3.24E+00	3.23E+00	1.63E-01	7.59E-01	1.01E-01	2.89E-01
2003	8	27	3.96E-03	0.00E+00	1.46E-04	0.00E+00	8.59E-09	6.94E-04	4.41E-02	1.63E+00	7.52E-04	3.39E+00	1.99E-01	6.49E-01	9.25E-01	4.04E-02	1.59E-02
2003	8	28	6.09E-01	1.20E-03	5.33E-01	2.52E-05	1.17E-04	4.09E-01	2.84E-01	6.03E-01	4.59E+00	8.99E+00	5.10E-03	1.87E+00	2.71E+00	3.00E-01	1.05E+00
2003	8	29	8.87E-01	7.64E-01	7.44E-01	8.06E-02	1.44E-01	8.54E-01	5.42E-01	1.68E+00	5.51E+00	2.28E+01	2.24E+00	3.44E+00	5.65E+00	8.28E-01	1.07E+00
2003	8	30	1.79E-01	1.96E+00	1.76E-02	2.43E-01	3.05E-01	3.24E-02	1.91E-02	5.85E-01	1.05E-01	8.44E+00	1.02E+01	2.68E-01	1.21E+00	8.07E-02	3.56E-01
2003	8	31	8.59E-03	3.48E-03	4.93E-04	3.31E-02	5.35E-02	6.53E-04	7.82E-02	1.54E+00	1.33E-03	9.42E+00	1.74E-01	1.25E+00	8.98E-01	7.23E-02	1.78E-02
2003	9	1	1.18E-02	7.54E-02	1.02E-02	5.28E-02	3.76E-02	2.43E-02	1.43E-01	1.03E+00	2.96E+00	6.79E+00	4.26E-02	1.54E+00	1.26E+00	6.21E-02	1.62E-02
2003	9	2	5.34E-01	7.14E-01	8.45E-02	8.47E-02	1.19E-01	6.13E-02	2.36E-02	5.70E-02	1.81E+00	2.43E-01	1.26E+00	6.22E-02	8.03E-02	3.14E-02	9.42E-01
2003	9	3	6.90E-03	2.37E-01	1.18E-03	1.55E-01	1.45E-01	2.97E-03	3.56E-02	1.31E+00	1.13E-02	5.34E+00	4.78E+00	2.15E-01	9.58E-01	7.97E-02	1.48E-02
2003	9	4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.05E-04	0.00E+00	3.61E-02	1.59E+00	5.54E-06	4.43E+00	4.53E-01	1.91E-01	8.92E-01	4.50E-02	0.00E+00
2003	9	5	7.48E-03	0.00E+00	2.22E-04	0.00E+00	1.76E-03	9.23E-04	5.21E-02	1.44E+00	4.67E-04	5.80E+00	8.66E-01	6.03E-01	1.11E+00	7.66E-02	1.77E-02
2003	9	6	1.28E-01	1.75E-01	1.83E-02	5.83E-02	1.90E-01	3.32E-02	7.08E-02	1.02E+00	1.55E+00	7.64E+00	1.73E+00	6.83E-01	7.48E-01	7.85E-02	2.29E-01
2003	9	7	1.27E-01	8.90E-02	8.36E-03	8.59E-02	1.33E-01	2.81E-02	2.34E-02	5.48E-01	5.01E-02	5.99E+00	3.23E+00	4.65E-01	5.36E-01	2.39E-02	3.41E-01
2003	9	8	6.90E-02	7.30E-03	7.13E-02	5.65E-02	3.39E-01	8.29E-02	1.16E-01	6.00E-01	6.77E-01	8.58E+00	2.73E+00	1.08E+00	9.98E-01	7.40E-02	1.26E-01
2003	9	9	4.11E-02	2.23E-01	1.97E-03	7.05E-02	2.64E-01	7.92E-03	3.51E-01	1.76E+00	5.62E-01	1.03E+01	2.41E+00	2.10E+00	3.75E+00	1.88E-01	5.90E-02
2003	9	10	5.46E-02	1.35E-05	1.18E-03	0.00E+00	4.36E-07	3.10E-03	2.27E-02	5.56E-01	3.03E-03	4.89E+00	1.64E-01	6.70E-01	6.52E-01	6.52E-02	1.22E-01
2003	9	11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.77E-07	0.00E+00	1.93E-02	7.43E-01	2.12E-18	4.35E+00	1.67E-01	5.67E-01	6.55E-01	2.73E-02	0.00E+00
2003	9	12	1.50E-02	0.00E+00	2.45E-05	0.00E+00	0.00E+00	4.15E-04	4.62E-02	8.10E-01	1.22E-03	1.24E+01	3.26E-07	9.58E-01	2.74E+00	3.07E-02	4.60E-02
2003	9	13	5.19E-03	1.62E-05	1.29E-06	3.73E-05	9.23E-04	1.48E-05	5.06E-02	1.14E+00	9.46E-03	1.14E+01	4.09E-01	9.65E-01	2.02E+00	1.28E-01	3.69E-02
2003	9	14	1.28E-04	1.14E-03	7.04E-05	6.52E-08	2.37E-05	9.76E-04	4.70E-03	3.33E-01	9.33E-02	3.49E+00	7.12E-01	2.91E-01	6.77E-01	1.85E-04	1.80E-04
2003	9	15	8.01E-02	6.67E-03	2.47E-01	2.34E-04	9.01E-04	2.49E-01	4.85E-02	5.57E-02	4.37E+00	2.49E-01	3.95E-02	1.40E-01	1.78E-01	5.01E-02	1.08E-01
2003	9	16	1.17E-01	1.45E-03	3.00E-01	3.09E-06	9.17E-06	1.16E-01	1.05E-04	9.33E-04	3.87E+00	2.38E-03	1.29E-03	7.15E-04	1.21E-03	8.35E-04	2.42E-01
2003	9	17	1.20E-01	2.14E-01	6.48E-01	3.00E-01	2.99E-01	3.92E-01	6.39E-02	1.79E-01	2.44E+00	1.34E+00	3.27E+00	6.93E-02	2.37E-01	8.35E-02	1.85E-01
2003	9	18	4.50E-03	1.53E-05	7.61E-05	2.43E-06	6.15E-04	1.45E-04	5.54E-03	6.28E-01	2.82E-04	2.20E+00	3.41E-01	1.14E-01	6.97E-01	1.57E-02	1.41E-02
2003	9	19	6.84E-02	0.00E+00	9.20E-04	0.00E+00	2.69E-05	2.25E-03	1.38E-02	4.64E-01	3.80E-04	3.99E+00	1.46E-01	6.37E-01	8.64E-01	2.02E-02	1.42E-01
2003	9	20	6.94E-02	6.86E-03	1.63E-02	2.40E-02	9.79E-02	2.81E-02	1.88E-01	1.20E+00	2.57E-01	4.86E+00	5.84E-01	6.42E-01	7.52E-01	4.67E-01	1.09E-01
2003	9	21	5.71E-02	2.71E-01	5.01E-01	1.09E-01	1.72E-01	2.46E-01	5.34E-02	6.52E-01	5.79E+00	3.04E+00	6.18E-01	7.21E-01	8.49E-01	3.00E-02	1.03E-01
2003	9	22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.85E-03	5.58E-01	8.35E-16	2.69E+00	1.62E-01	4.73E-01	4.89E-01	0.00E+00	0.00E+00

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2003	9	23	7.02E+00	1.50E-03	4.98E+00	3.65E-05	1.95E-04	1.18E+01	3.71E+00	1.43E+01	2.84E+00	2.08E+01	3.57E-02	1.50E+00	5.10E+00	1.69E+01	8.85E+00
2003	9	24	1.25E+01	8.71E-01	5.70E+00	1.35E-01	1.19E-01	1.98E+01	2.43E+00	1.84E+01	2.34E+00	2.64E+00	1.84E+00	1.47E-01	4.42E-01	1.56E+01	1.50E+01
2003	9	25	1.69E-01	0.00E+00	8.34E-03	0.00E+00	0.00E+00	4.23E+00	1.73E+00	5.71E+00	8.61E-04	3.24E+00	6.07E-03	8.66E-01	4.51E-01	3.42E+00	3.56E-01
2003	9	26	1.52E+00	2.08E-04	1.04E+00	7.19E-09	4.12E-06	1.32E+01	3.90E+00	2.10E+01	7.21E-01	1.18E+01	4.17E-03	2.78E+00	4.31E+00	1.76E+01	2.67E+00
2003	9	27	1.35E+01	2.52E-03	6.72E+00	1.52E-04	4.58E-04	2.17E+01	1.33E+00	1.58E+01	3.42E+00	5.84E-01	1.36E-02	4.72E-01	5.18E-01	1.97E+01	1.64E+01
2003	9	28	1.26E+01	6.53E-02	7.81E+00	1.59E-02	1.92E-02	1.94E+01	1.96E-01	1.33E+01	3.05E+00	4.36E-02	4.38E-02	3.67E-02	3.76E-02	1.87E+01	1.31E+01
2003	9	29	1.24E+01	0.00E+00	7.46E+00	0.00E+00	0.00E+00	1.52E+01	1.06E-01	1.06E+01	4.82E+00	3.00E-03	2.30E-04	1.80E-03	1.19E-03	1.52E+01	1.39E+01
2003	9	30	1.65E+01	8.42E-01	9.51E+00	1.98E-01	3.24E-01	3.46E+01	8.84E+00	3.15E+01	3.68E+00	7.47E+00	6.45E+00	1.38E+00	2.22E+00	2.99E+01	1.98E+01
2003	10	1	2.77E+00	7.96E-01	1.78E+00	2.19E-01	3.00E-01	5.99E+00	2.51E+00	7.27E+00	2.35E+00	8.92E+00	2.52E+00	9.41E-01	1.55E+00	7.39E+00	3.67E+00
2003	10	2	2.62E+00	1.35E-03	1.58E+00	1.41E-04	3.69E-04	3.13E+00	3.83E-01	3.69E+00	2.40E+00	2.86E-02	3.59E-03	4.28E-02	2.54E-02	4.27E+00	3.31E+00
2003	10	3	6.47E-01	6.96E-02	5.30E-01	4.83E-02	1.54E-01	4.70E+00	2.22E+00	6.86E+00	7.05E-01	8.48E+00	3.72E-01	1.99E+00	2.27E+00	6.68E+00	1.02E+00
2003	10	4	4.18E-01	1.95E-04	1.11E-01	4.81E-04	7.83E-03	4.40E+00	1.08E+00	6.77E+00	3.80E-02	6.99E+00	2.03E-02	1.10E+00	2.13E+00	3.98E+00	4.78E-01
2003	10	5	3.35E-01	5.18E-05	1.08E-01	1.29E-06	2.51E-05	4.44E+00	9.99E-01	6.76E+00	5.43E-02	6.51E+00	3.20E-02	1.26E+00	1.94E+00	3.77E+00	3.62E-01
2003	10	6	4.31E-01	7.36E-04	2.62E-01	3.04E-04	1.39E-02	4.70E+00	1.33E+00	6.16E+00	9.87E-02	4.11E+00	4.34E-01	7.47E-01	8.62E-01	4.54E+00	7.02E-01
2003	10	7	2.58E-01	1.16E-06	1.29E-01	2.54E-05	8.35E-04	1.55E+00	5.61E-01	3.19E+00	2.29E-02	1.16E+00	1.22E-01	2.16E-01	4.89E-01	1.47E+00	4.46E-01
2003	10	8	9.16E-02	0.00E+00	9.81E-02	6.52E-06	1.46E-02	1.44E+00	4.83E-01	3.04E+00	7.41E-03	2.46E+00	2.73E-01	2.07E-01	5.85E-01	1.28E+00	2.75E-01
2003	10	9	4.48E-02	0.00E+00	1.35E-02	0.00E+00	2.12E-09	6.17E-01	1.81E-01	7.31E-01	1.78E-04	7.98E-01	7.47E-02	1.16E-01	2.70E-01	4.18E-01	1.31E-01
2003	10	10	7.59E-02	3.18E-06	1.71E-01	0.00E+00	4.38E-07	2.52E+00	6.76E-01	3.49E+00	3.58E-02	3.74E+00	4.69E-03	9.24E-01	3.36E-01	2.76E+00	1.58E-01
2003	10	11	1.85E-01	4.87E-05	2.10E-01	1.62E-01	1.64E-01	2.32E+00	9.09E-01	4.45E+00	2.45E-02	2.21E+00	2.01E+00	3.56E-01	7.11E-01	2.73E+00	4.23E-01
2003	10	12	6.83E-02	0.00E+00	1.13E-02	0.00E+00	2.13E-06	6.19E-01	2.42E-01	1.47E+00	1.11E-03	8.29E-01	7.13E-02	2.43E-01	2.32E-01	5.67E-01	9.98E-02
2003	10	13	4.09E-01	4.10E-02	1.51E-01	1.70E-02	8.55E-02	1.94E+00	1.28E+00	4.03E+00	1.17E-01	5.77E+00	1.35E+00	1.06E+00	1.53E+00	2.49E+00	6.87E-01
2003	10	14	1.59E+00	8.03E-01	9.04E-01	1.29E-01	1.73E-01	5.12E+00	1.71E+00	7.49E+00	7.97E-01	3.01E+00	2.14E+00	9.66E-01	8.15E-01	5.64E+00	2.41E+00
2003	10	15	2.19E+00	8.83E-02	1.23E+00	9.10E-04	1.12E-03	3.69E+00	7.25E-01	4.36E+00	2.32E+00	1.23E+00	7.93E-03	4.35E-01	3.42E-01	5.12E+00	2.73E+00
2003	10	16	1.39E+00	1.31E-01	5.44E-01	2.26E-02	3.32E-02	2.87E+00	4.70E-01	2.43E+00	5.75E-01	1.08E+00	1.52E+00	6.09E-02	3.66E-01	1.94E+00	1.87E+00
2003	10	17	1.24E-01	0.00E+00	1.48E-02	0.00E+00	9.21E-05	1.51E+00	1.04E-01	3.07E-01	3.18E-02	6.50E-01	1.19E-01	1.58E-02	2.05E-01	4.22E-01	3.46E-01
2003	10	18	8.43E-02	0.00E+00	3.79E-02	0.00E+00	1.31E-02	7.68E-01	3.45E-01	1.61E+00	9.78E-03	1.05E+00	2.22E-01	1.12E-01	4.52E-01	8.35E-01	1.92E-01
2003	10	19	2.79E-02	0.00E+00	1.96E-02	0.00E+00	3.44E-12	6.02E-01	2.31E-01	1.12E+00	8.10E-07	1.15E+00	6.17E-02	1.86E-01	2.34E-01	5.07E-01	9.50E-02
2003	10	20	5.00E-01	2.80E-03	1.73E-01	3.21E-02	2.86E-01	2.87E+00	8.50E-01	4.29E+00	1.30E-01	2.14E+00	1.34E+00	2.63E-01	1.11E+00	2.28E+00	8.86E-01
2003	10	21	2.06E-01	3.71E-06	3.47E-02	9.99E-07	6.42E-05	1.19E+00	2.86E-01	1.40E+00	6.88E-02	3.02E+00	8.89E-02	2.28E-01	4.66E-01	1.00E+00	4.24E-01
2003	10	22	2.23E+00	2.29E-01	1.05E+00	6.93E-02	1.95E-01	3.07E+00	7.82E-01	4.31E+00	8.95E-01	2.98E+00	8.31E-01	4.27E-01	7.28E-01	3.65E+00	2.82E+00
2003	10	23	4.44E-02	0.00E+00	6.31E-03	0.00E+00	3.81E-06	4.77E-01	1.67E-01	5.61E-01	2.07E-04	1.03E+00	4.01E-02	1.58E-01	2.38E-01	4.13E-01	9.94E-02
2003	10	24	3.01E-01	3.63E-06	1.30E-01	0.00E+00	0.00E+00	2.44E+00	7.58E-01	4.02E+00	1.48E-02	5.09E+00	6.75E-04	7.78E-01	9.74E-01	2.01E+00	4.06E-01
2003	10	25	2.00E-01	2.46E-04	1.29E-01	3.16E-05	6.89E-05	1.49E+00	6.15E-01	2.36E+00	9.89E-03	4.45E+00	1.13E-03	6.79E-01	2.92E-01	1.50E+00	3.26E-01
2003	10	26	4.61E-02	0.00E+00	3.34E-03	0.00E+00	0.00E+00	7.66E-01	2.41E-01	1.16E+00	1.31E-03	2.72E+00	2.57E-03	3.80E-01	4.89E-01	5.80E-01	6.33E-02
2003	10	27	3.58E-01	2.43E-05	1.67E-01	8.79E-08	2.61E-06	3.39E+00	6.13E-01	4.40E+00	8.39E-02	3.90E+00	2.71E-02	3.79E-01	4.57E-01	2.38E+00	5.80E-01
2003	10	28	5.26E-01	1.40E-03	1.50E-01	5.49E-04	2.55E-02	2.32E+00	1.36E+00	4.07E+00	8.83E-02	5.27E+00	1.50E-01	1.13E+00	7.85E-01	2.61E+00	7.04E-01
2003	10	29	1.08E+00	0.00E+00	6.31E-01	0.00E+00	0.00E+00	2.15E+00	4.61E-02	2.28E+00	1.19E+00	1.53E-01	0.00E+00	2.00E-01	1.51E-01	1.56E+00	1.35E+00
2003	10	30	1.28E+00	0.00E+00	1.05E+00	0.00E+00	0.00E+00	1.91E+00	7.00E-03	1.67E+00	1.89E+00	4.45E-09	0.00E+00	2.85E-08	7.98E-10	1.56E+00	1.56E+00
2003	10	31	2.18E+00	2.25E-01	1.04E+00	3.50E-02	6.63E-02	3.77E+00	1.23E+00	5.82E+00	1.40E+00	6.26E+00	6.82E-01	1.01E+00	5.73E-01	5.26E+00	3.10E+00
2003	11	1	4.39E-01	1.14E-04	2.30E-01	1.20E-06	7.46E-06	1.80E+00	1.42E+00	3.36E+00	7.21E-02	5.60E+00	1.21E-02	1.24E+00	3.77E-01	2.95E+00	6.63E-01
2003	11	2	4.69E+00	1.10E-01	2.47E+00	5.17E-03	1.26E-02	5.30E+00	5.41E-01	4.58E+00	8.63E+00	4.07E-01	2.46E-01	1.76E-01	2.13E-01	4.67E+00	5.69E+00
2003	11	3	2.64E+00	0.00E+00	1.82E+00	0.00E+00	0.00E+00	2.95E+00	4.19E-04	2.27E+00	3.41E+00	1.44E-05	3.63E-07	5.53E-05	3.07E-05	2.42E+00	3.05E+00
2003	11	4	2.95E+00	3.24E-03	1.63E+00	6.45E-02	2.11E-01	4.44E+00	7.45E-01	5.15E+00	2.37E+00	2.17E+00	1.89E+00	6.15E-01	3.31E-01	4.16E+00	3.41E+00
2003	11	5	1.95E-01	2.74E-05	1.99E-01	4.14E-06	1.40E-05	3.78E+00	8.90E-01	4.01E+00	3.01E-02	5.41E+00	1.44E-03	1.28E+00	2.45E-01	4.40E+00	2.73E-01
2003	11	6	4.51E-02	0.00E+00	1.48E-02	0.00E+00	0.00E+00	5.48E-01	3.61E-01	1.74E+00	2.19E-03	3.38E+00	2.32E-03	4.98E-01	2.73E-01	9.19E-01	1.51E-01
2003	11	7	1.42E+00	5.13E-04	6.79E-01	6.58E-06	8.16E-05	3.66E+00	8.32E-01	5.93E+00	9.02E-02	6.08E+00	2.10E-02	8.63E-01	4.56E-01	4.96E+00	2.42E+00
2003	11	8	3.77E-01	1.23E-05	2.48E-01	4.69E-07	5.90E-06	2.60E+00	8.42E-01	3.83E+00	4.54E-02	4.08E+00	1.42E-02	9.64E-01	4.38E-01	3.07E+00	8.15E-01
2003	11	9	2.13E-01	8.67E-05	1.10E-01	7.24E-06	4.07E-05	2.46E+00	8.16E-01	2.97E+00	1.55E-02	4.90E+00	2.05E-02	1.13E+00	2.48E-01	3.26E+00	2.58E-01
2003	11	10	2.04E-02	0.00E+00	1.57E-02	0.00E+00	0.00E+00	5.11E-01	2.06E-01	6.74E-01	3.18E-05	9.77E-01	7.36E-02	2.09E-01	2.97E-01	4.71E-01	9.35E-02
2003	11	11	5.95E-01	4.53E-06	1.01E-01	0.00E+00	1.09E-05	3.19E+00	4.27E-01	3.54E+00	3.92E-02	4.36E+00	3.05E-02	6.59E-01	9.10E-01	2.15E+00	7.96E-01
2003	11	12	2.92E-01	3.11E-04	1.61E-01	3.83E-05	9.42E-05	2.41E+00	7.11E-01	3.87E+00	2.45E-02	3.36E+00	4.33E-03	6.81E-01	2.19E-01	2.81E+00	4.73E-01
2003	11	13	1.93E-02	0.00E+00	2.61E-03	0.00E+00	0.00E+00	4.86E-01	3.40E-01	1.26E+00	1.83E-17	3.11E+00	6.87E-04	5.98E-01	2.69E-01	6.16E-01	6.14E-02
2003	11	14	2.49E-01	0.00E+00	2.23E-01	0.00E+00	0.00E+00	2.52E+00	7.41E-01	3.10E+00	9.23E-03	4.73E+00	2.68E-03	9.71E-01	2.32E-01	2.82E+00	4.18E-01
2003	11	15	4.76E-01	1.15E-03	5.19E-01	1.49E-04	4.95E-04	3.26E+00	1.38E+00	6.01E+00	1.26E-01	7.96E+00	4.37E-02	1.37E+00	5.47E-01	5.68E+00	8.28E-01
2003	11	16	3.58E-01	2.53E-04	3.55E-02	1.75E-01	2.24E-01	1.23E+00	4.85E-01	3.26E+00	6.91E-03	1.46E+00	1.73E+00	8.68E-02	4.92E-01	1.46E+00	7.11E-01
2003	11	17	3.63E-02	0.00E+00	1.25E-02	0.00E+00	0.00E+00	5.82E-01	2.95E-01	1.04E+00	6.47E-18	9.59E-01	5.14E-02	3.03E-01	2.69E-01	5.75E-01	9.45E-02
2003	11	18	3.32E-01	6.70E-01	1.50E-01	3.43E-02	3.92E-02	2.57E+00	4.05E-01	2.27E+00	9.00E-02	9.29E-01	5.64E-01	1.09E-01	4.38E-01	1.48E+00	7.90E-01
2003	11	19	2.73E-01	2.51E-02	3.24E-02	2.09E-02	9.12E-02	1.06E+00	2.79E-01	9.53E-01	3.36E-02	1.15E+00	4.59E-01	7.69E-02	3.22E-01	8.29E-01	5.10E-01
2003	11	20	8.23E-01	2.03E-01	4.06E-01	1.88E-01	4.44E-01	1.73E+00	9.07E-01	2.89E+00	5.51E-01	2.13E+00	1.27E+00	5.03E-01	1.71E-01	2.46E+00	1.16E+00
2003	11	21	2.48E+00	3.43E-01	1.29E+00	2.99E-02	5.37E-02	3.15E+00	7.17E-01	3.39E+00	4.16E+00	5.32E-01	2.35E+00	7.80E-02	1.35E-01	4.21E+00	3.15E+00
2003	11	22	2.35E-01	2.93E-03	2.75E-02	3.64E-03	6.38E-03	2.31E+00	8.83E-01	4.34E+00	4.68E-02	5.90E+00	7.30E-03	7.08E-01	9.91E-01	2.97E+00	2.75E-01
2003	11	23	5.33E-02	0.00E+00	4.14E-03	0.00E+00	1.19E-11	3.65E-01	2.99E-01	1.05E+00	1.28E-15	2.93E+00	1.80E-02	3.43E-01	2.45E-01	6.19E-01	8.52E-02
2003	11	24	2.68E-02	0.00E+00	1.91E-02	0.00E+00	9.76E-06	5.44E-01	3.23E-01	1.26E+00	1.60E-04	1.45E+00	5.80E-02	3.96E-01	2.80E-01	6.13E-01	5.47E-02
2003	11	25	4.33E-02	0.00E+00	1.85E-02	0.00E+00	2.37E-05	5.32E-01	3.02E-01	1.24E+00	2.67E-04	1.16E+00	1.05E-01	2.54E-01	3.06E-01	6.18E-01	1.14E-01
2003	11	26	6.78E-02	1.34E-06	5.44E-02	0.00E+00	1.18E-07	1.82E+00	7.45E-01	3.37E+00	2.08E-02	5.01E+00	2.51E-03	1.23E+00	2.93E-01	1.67E+00	1.09E-01
2003	11	27	3.71E-01	2.64E-04	2.12E-01	3.75E-05	5.96E-03	2.26E+00	7.79E-01	3.85E+00	7.15E-02	4.63E+00	1.34E-01	9.98E-01	3.66E-01	2.50E+00	6.71E-01
2003	11	28	2.05E-02	0.00E+00	1.94E-02	0.00E+00	7.11E-04	5.00E-01	1.80E-01	6.20E-01	1.46E-03	7.23E-01	1.33E-01	1.28E-01	3.11E-01	4.95E-01	1.02E-01
2003	11	29	6.44E-02	0.00E+00	3.14E-02	0.00E+00	4.47E-11	1.10E+00	1.84E-01	1.01E+00	2.34E-02	7.83E-01	7.27E-02	7.65E-02	3.32E-01	4.91E-01	1.89E-01
2003	11	30	1.78E-01	1.45E-03	3.07E-01	2.50E-04	1.34E-03	3.79E+00	2.19E+00	4.61E+00	6.71E-02	1.05E+01	1.95E-02	1.44E+00	1.05E+00	6.01E+00	2.30E-01
2003	12	1	1.14E+00	3.22E-01	3.51E-01	4.22E-01	4.30E-01	3.69E+00	1.45E+00	5.06E+00	1.57E-01	5.70E+00	7.11E+00	6.56E-01	5.63E-01	2.80E+00	1.53E+00
2003	12	2	3.63E-01	5.95E-05	1.61E-01	3.41E-05	3.26E-04	2.29E+00	6.37E-01	3.62E+00	2.08E-02	3.72E+00	6.25E-02	6.82E-01	3.06E-01	2.32E+00	4.88E-01
2003	12	3	1.12E+00	7.99E-07	4.74E-01	1.83E-07	3.57E-03	1.94E+00	1.19E+00	2.43E+00	1.95E+00	3.71E+00	1.17E-01	7.50E-01	8.34E-01	2.19E+00	1.79E+00
2003	12	4	5.06E+00	9.08E-01	2.38E+00	1.34E-02	2.27E-02	4.81E+00	2.19E+00	9.05E+00	5.33E+00	1.48E+00	2.08E+00	5.42E-01	6.70E-01	8.38E+00	6.27E+00
2003	12	5	1.21E+00	1.57E-01	3.17E-01	2.10E-02	1.03E-01	2.44E+00	1.05E+00	4.92E+00	2.59E-01	1.55E+00	1.80E+00	2.96E-01	4.98E-01	2.67E+00	1.60E+00
2003	12	6	5.93E-01	2.91E-05	1.36E-01	2.26E-03	1.90E-01	1.75E+00	6.81E-01	2.12E+00	1.67E-02	2.44E+00	8.37E-01	3.41E-01	5.83E-01	1.85E+00	8.82E-01
2003	12	7	1.87E-01	9.63E-04	1.97E-01	1.33E-04	3.74E-04	3.45E+00	1.92E+00	6.73E+00	4.39E-02	1.25E+01	3.08E-03	1.73E+00	1.32E+00	4.30E+00	2.56E-01
2003	12	8	7.35E-01	1.00E-03	6.37E-01	1.08E-04	3.54E-04	5.71E+00	2.19E+00	7.92E+00	5.71E-01	1.18E+01	5.34E-03	1.70E+00	2.18E+00	5.73E+00	1.17E+00
2003	12	9	2.88E+00	1.17E-02	1.84E+00	4.44E-04	1.33E-03	4.73E+00	1.75E+00	6.38E+00	2.32E+00	1.46E+01	4.72E-02	1.31E+00	1.41E+00	6.25E+00	3.73E+00
2003	12	10	4.80E+00	1.25E-01	3.02E+00	1.90E-02	4.00E-02	6.82E+00	1.87E+00	8.38E+00	3.55E+00	6.04E+00	5.71E-01	1.03E+00	1.56E+00	7.98E+00	6.03E+00
2003	12	11	2.40E-01	8.91E-04	3.21E-02	4.18E-04	7.87E-04	2.19E+00	4.60E-01	3.62E+00	1.21E-02	3.98E+00	5.76E-03	9.71E-01	1.26E+00	1.91E+00	2.62E-01
2003	12	12	4.99E-02	0.00E+00	8.79E-03	0.00E+00	1.26E-11	6.16E-01	3.99E-01	1.77E+00	1.44E-04	1.49E+00	5.06E-02	5.26E-01	2.43E-01	7.56E-01	9.00E-02
2003	12	13	1.56E-01	0.00E+00	5.13E-02	2.00E-07	3.30E-04	1.85E+00	6.95E-01	2.73E+00	5.66E-03	2.96E+00	5.78E-02	6.98E-01	7.10E-01	1.27E+00	3.33E-01
2003	12	14	1.86E-01	7.71E-04	1.02E-01	3.81E-05	1.60E-04	1.71E+00	5.56E-01	2.78E+00	3.44E-02	1.33E+00	3.15E-02	7.26E-01	3.54E-01	1.22E+00	3.44E-01
2003	12	15	1.02E-01	0.00E+00	6.89E-03	0.00E+00	0.00E+00	1.02E+00	5.99E-01	2.73E+00	1.19E-02	3.33E+00	1.27E-02	9.34E-01	2.45E-01	1.09E+00	2.04E-01
2003	12	16	2.49E-02	0.00E+00	1.31E-02	0.00E+00	6.67E-05	4.18E-01	1.63E-01	6.43E-01	1.08E-03	6.46E-01	8.11E-02	1.12E-01	2.40E-01	3.65E-01	7.47E-02
2003	12	17	9.07E-02	9.74E-08	4.48E-02	0.00E+00	5.85E-08	1.39E+00	4.79E-01	2.83E+00	3.03E-03	2.10E+00	1.69E-02	5.57E-01	2.18E-01	1.34E+00	1.36E-01
2003	12	18	4.92E-01	6.97E-07	2.40E-01	0.00E+00	5.31E-07	1.71E+00	7.93E-01	3.27E+00	3.69E-02	4.55E+00	2.76E-02	7.94E-01	3.18E-01	2.15E+00	8.54E-01
2003	12	19	2.31E-01	1.01E-08	9.16E-02	0.00E+00	5.60E-08	1.09E+00	4.30E-01	1.92E+00	8.07E-03	1.67E+00	1.94E-02	3.71E-01	2.37E-01	2.33E+00	4.77E-01
2003	12	20	1.34E-01	0.00E+00	1.18E-02	0.00E+00	2.45E-12	6.60E-01	5.48E-01	1.52E+00	3.22E-16	3.03E+00	2.01E-02	6.57E-01	2.70E-01	1.10E+00	2.12E-01
2003	12	21	1.16E-01	0.00E+00	7.07E-04	0.00E+00	0.00E+00	5.87E-01	6.34E-01	2.17E+00	2.40E-16	6.47E+00	1.87E-03	7.34E-01	3.70E-01	1.09E+00	1.72E-01

Year	Month	Day	Baseline														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2003	9	23	6.91E+00	3.80E-04	4.89E+00	1.00E-05	5.92E-05	1.17E+01	3.67E+00	1.41E+01	9.01E-02	2.02E-02	3.93E-03	3.94E-02	3.16E-02	1.69E+01	8.58E+00
2003	9	24	1.21E+01	2.05E-02	5.67E+00	8.85E-03	1.26E-02	1.97E+01	2.43E+00	1.84E+01	2.02E-01	4.19E-02	2.94E-02	4.89E-02	4.14E-02	1.56E+01	1.43E+01
2003	9	25	1.69E-01	0.00E+00	8.34E-03	0.00E+00	0.00E+00	4.23E+00	1.71E+00	5.17E+00	8.61E-04	0.00E+00	0.00E+00	4.18E-03	5.15E-04	3.42E+00	3.56E-01
2003	9	26	1.47E+00	2.07E-04	1.04E+00	0.00E+00	4.02E-06	1.32E+01	3.68E+00	2.00E+01	1.25E-01	9.84E-03	1.82E-03	5.29E-02	2.66E-02	1.75E+01	2.61E+00
2003	9	27	1.31E+01	1.98E-03	6.27E+00	1.52E-04	4.58E-04	2.13E+01	1.31E+00	1.56E+01	1.57E-01	1.50E-02	4.42E-03	4.28E-02	2.68E-02	1.97E+01	1.59E+01
2003	9	28	1.20E+01	1.14E-02	7.70E+00	3.17E-03	3.35E-03	1.93E+01	1.83E-01	1.33E+01	7.47E-02	9.13E-03	7.10E-03	1.33E-02	1.01E-02	1.86E+01	1.22E+01
2003	9	29	1.19E+01	0.00E+00	7.37E+00	0.00E+00	0.00E+00	1.52E+01	1.06E-01	1.06E+01	2.40E-02	6.63E-04	3.55E-05	1.80E-03	1.14E-03	1.52E+01	1.31E+01
2003	9	30	1.57E+01	4.42E-02	9.32E+00	1.56E-02	2.48E-02	3.43E+01	8.57E+00	3.05E+01	4.79E-01	1.44E-01	7.52E-02	2.63E-01	1.96E-01	2.95E+01	1.85E+01
2003	10	1	2.49E+00	1.37E-02	1.73E+00	4.08E-03	6.70E-03	5.95E+00	2.45E+00	6.59E+00	1.78E-01	4.72E-02	2.36E-02	9.57E-02	6.69E-02	7.28E+00	3.10E+00
2003	10	2	2.32E+00	1.35E-03	1.41E+00	1.41E-04	3.68E-04	2.98E+00	3.76E-01	3.52E+00	6.43E-02	1.12E-02	3.50E-03	2.63E-02	1.73E-02	4.22E+00	2.85E+00
2003	10	3	5.63E-01	7.27E-03	4.92E-01	2.27E-03	4.12E-03	4.67E+00	2.08E+00	5.41E+00	9.40E-02	3.04E-02	1.52E-02	6.13E-02	4.25E-02	6.53E+00	8.84E-01
2003	10	4	4.14E-01	1.95E-04	1.11E-01	1.65E-05	8.53E-05	4.40E+00	9.80E-01	5.29E+00	3.80E-02	6.69E-03	1.43E-03	2.34E-02	1.37E-02	3.90E+00	4.60E-01
2003	10	5	3.35E-01	5.18E-05	1.08E-01	1.29E-06	2.51E-05	4.44E+00	8.92E-01	5.20E+00	5.43E-02	7.13E-03	9.77E-04	2.81E-02	1.62E-02	3.68E+00	3.62E-01
2003	10	6	4.25E-01	7.36E-04	2.62E-01	3.04E-04	1.34E-03	4.70E+00	1.26E+00	4.33E+00	9.52E-02	2.14E-02	6.71E-03	5.71E-02	3.47E-02	4.44E+00	6.79E-01
2003	10	7	2.37E-01	1.16E-06	1.29E-01	2.54E-05	1.50E-04	1.55E+00	5.43E-01	2.17E+00	2.29E-02	5.51E-03	7.81E-04	2.10E-02	1.32E-02	1.46E+00	3.95E-01
2003	10	8	9.16E-02	0.00E+00	9.81E-02	0.00E+00	4.14E-07	1.44E+00	4.66E-01	2.08E+00	7.41E-03	1.10E-03	2.58E-06	2.10E-02	8.77E-03	1.28E+00	2.75E-01
2003	10	9	4.48E-02	0.00E+00	1.35E-02	0.00E+00	0.00E+00	6.17E-01	1.80E-01	6.11E-01	1.78E-04	0.00E+00	0.00E+00	4.53E-03	5.29E-04	4.18E-01	1.31E-01
2003	10	10	7.03E-02	3.18E-06	1.71E-01	0.00E+00	4.38E-07	2.52E+00	6.28E-01	2.32E+00	3.58E-02	3.18E-03	2.10E-04	1.14E-02	7.16E-03	2.67E+00	1.39E-01
2003	10	11	1.67E-01	4.87E-05	2.10E-01	7.92E-04	1.95E-03	2.32E+00	8.63E-01	3.25E+00	2.28E-02	4.07E-03	9.24E-04	2.01E-02	1.00E-02	2.64E+00	3.79E-01
2003	10	12	6.83E-02	0.00E+00	1.13E-02	0.00E+00	0.00E+00	6.19E-01	2.38E-01	8.60E-01	1.11E-03	1.52E-04	0.00E+00	3.55E-03	9.42E-04	5.67E-01	9.98E-02
2003	10	13	3.70E-01	9.72E-06	1.51E-01	9.99E-07	2.88E-05	1.94E+00	1.22E+00	3.16E+00	1.72E-02	1.80E-03	2.30E-04	1.70E-02	6.40E-03	2.45E+00	6.03E-01
2003	10	14	1.40E+00	1.24E-02	7.80E-01	3.99E-03	6.32E-03	5.07E+00	1.63E+00	6.45E+00	1.31E-01	4.26E-02	2.14E-02	8.98E-02	6.10E-02	5.58E+00	2.07E+00
2003	10	15	1.79E+00	5.89E-03	9.01E-01	9.10E-04	1.12E-03	3.45E+00	6.75E-01	3.89E+00	4.87E-02	1.37E-02	7.58E-03	2.45E-02	1.75E-02	5.08E+00	2.08E+00
2003	10	16	1.22E+00	5.13E-03	5.34E-01	1.35E-03	2.20E-03	2.85E+00	4.68E-01	2.31E+00	7.33E-02	1.93E-02	8.71E-03	3.91E-02	2.88E-02	1.93E+00	1.56E+00
2003	10	17	1.24E-01	0.00E+00	1.48E-02	0.00E+00	1.25E-06	1.51E+00	1.04E-01	3.07E-01	3.18E-02	4.24E-03	6.17E-05	3.58E-03	6.82E-03	4.22E-01	3.46E-01
2003	10	18	8.43E-02	0.00E+00	3.79E-02	0.00E+00	8.64E-06	7.68E-01	3.37E-01	1.09E+00	9.78E-03	1.54E-03	1.50E-05	7.63E-03	8.19E-03	8.33E-01	1.92E-01
2003	10	19	2.79E-02	0.00E+00	1.96E-02	0.00E+00	0.00E+00	6.02E-01	2.22E-01	6.41E-01	8.10E-07	0.00E+00	0.00E+00	5.96E-04	2.69E-06	5.05E-01	9.50E-02
2003	10	20	4.97E-01	2.80E-03	1.73E-01	1.80E-03	4.04E-03	2.87E+00	8.15E-01	3.18E+00	1.30E-01	2.94E-02	1.21E-02	5.67E-02	4.30E-02	2.19E+00	8.74E-01
2003	10	21	2.06E-01	3.71E-06	3.47E-02	9.99E-07	6.10E-05	1.19E+00	2.63E-01	1.13E+00	6.81E-02	9.17E-03	7.25E-04	4.98E-03	1.06E-02	9.99E-01	4.24E-01
2003	10	22	1.79E+00	5.29E-03	8.94E-01	2.37E-03	2.94E-03	2.93E+00	7.13E-01	3.84E+00	6.75E-02	1.38E-02	7.32E-03	2.55E-02	2.39E-02	3.56E+00	2.03E+00
2003	10	23	4.44E-02	0.00E+00	6.31E-03	0.00E+00	0.00E+00	4.77E-01	1.58E-01	4.54E-01	2.07E-04	4.70E-06	0.00E+00	2.56E-03	4.27E-04	4.11E-01	9.94E-02
2003	10	24	2.60E-01	3.63E-06	1.28E-01	0.00E+00	0.00E+00	2.43E+00	6.90E-01	2.87E+00	1.44E-02	1.05E-03	5.14E-05	5.10E-03	2.81E-03	1.99E+00	3.08E-01
2003	10	25	1.62E-01	2.46E-04	1.29E-01	3.16E-05	6.89E-05	1.49E+00	5.39E-01	1.55E+00	9.89E-03	2.19E-03	6.86E-04	6.05E-03	3.71E-03	1.45E+00	2.24E-01
2003	10	26	4.61E-02	0.00E+00	3.34E-03	0.00E+00	0.00E+00	7.66E-01	2.18E-01	8.63E-01	1.31E-03	0.00E+00	0.00E+00	7.01E-06	0.00E+00	5.56E-01	6.33E-02
2003	10	27	3.56E-01	2.43E-05	1.67E-01	8.79E-08	2.61E-06	3.38E+00	5.66E-01	3.10E+00	8.22E-02	1.24E-02	1.50E-03	2.53E-02	2.12E-02	2.30E+00	5.62E-01
2003	10	28	5.22E-01	1.40E-03	1.50E-01	3.50E-04	1.05E-03	2.32E+00	1.30E+00	3.12E+00	8.32E-02	1.61E-02	6.20E-03	3.87E-02	2.43E-02	2.59E+00	6.90E-01
2003	10	29	8.70E-01	0.00E+00	3.66E-01	0.00E+00	0.00E+00	1.73E+00	9.76E-03	2.03E+00	9.05E-04	0.00E+00	0.00E+00	1.88E-04	3.06E-05	1.42E+00	1.06E+00
2003	10	30	1.18E+00	0.00E+00	6.66E-01	0.00E+00	0.00E+00	1.54E+00	6.99E-03	1.66E+00	2.85E-06	0.00E+00	0.00E+00	2.85E-08	7.98E-10	1.55E+00	1.27E+00
2003	10	31	1.92E+00	6.19E-03	9.74E-01	1.56E-03	2.74E-03	3.72E+00	1.19E+00	5.09E+00	1.15E-01	2.66E-02	1.22E-02	5.34E-02	3.74E-02	5.18E+00	2.61E+00
2003	11	1	4.10E-01	1.14E-04	2.29E-01	1.20E-06	7.46E-06	1.80E+00	1.35E+00	2.31E+00	1.62E-02	1.74E-03	3.54E-04	6.77E-03	3.38E-03	2.92E+00	5.89E-01
2003	11	2	3.94E+00	9.08E-03	2.38E+00	1.21E-03	2.42E-03	5.18E+00	5.27E-01	4.48E+00	1.11E-01	2.94E-02	1.47E-02	5.37E-02	3.87E-02	4.65E+00	4.41E+00
2003	11	3	2.35E+00	0.00E+00	1.50E+00	0.00E+00	0.00E+00	2.64E+00	3.65E-04	2.26E+00	1.07E-03	1.94E-06	2.28E-08	5.98E-06	3.95E-06	2.42E+00	2.49E+00
2003	11	4	2.41E+00	1.14E-03	1.31E+00	1.96E-04	5.75E-04	4.17E+00	6.18E-01	4.24E+00	6.38E-02	1.53E-02	3.91E-03	3.30E-02	2.34E-02	4.02E+00	2.58E+00
2003	11	5	1.86E-01	2.74E-05	1.99E-01	4.14E-06	1.40E-05	3.78E+00	7.95E-01	2.44E+00	3.01E-02	3.33E-03	3.65E-04	1.61E-02	8.18E-03	4.31E+00	2.30E-01
2003	11	6	4.34E-02	0.00E+00	1.48E-02	0.00E+00	0.00E+00	5.47E-01	3.24E-01	1.22E+00	2.19E-03	2.86E-05	0.00E+00	1.27E-03	3.27E-04	9.18E-01	1.44E-01
2003	11	7	1.30E+00	5.09E-04	6.63E-01	6.58E-06	8.16E-05	3.55E+00	8.14E-01	5.41E+00	8.21E-02	1.26E-02	2.91E-03	3.66E-02	2.23E-02	4.94E+00	2.06E+00
2003	11	8	2.99E-01	5.78E-06	2.35E-01	2.56E-07	2.12E-06	2.57E+00	7.83E-01	2.81E+00	2.48E-02	3.27E-03	1.70E-04	1.17E-02	8.10E-03	3.01E+00	6.19E-01
2003	11	9	2.13E-01	8.67E-05	1.10E-01	7.24E-06	4.07E-05	2.46E+00	7.41E-01	1.70E+00	1.55E-02	2.31E-03	5.65E-04	1.19E-02	4.98E-03	3.22E+00	2.58E-01
2003	11	10	2.04E-02	0.00E+00	1.57E-02	0.00E+00	0.00E+00	5.11E-01	2.02E-01	4.99E-01	3.18E-05	0.00E+00	0.00E+00	3.67E-03	3.17E-04	4.71E-01	9.35E-02
2003	11	11	5.63E-01	4.53E-06	9.92E-02	0.00E+00	1.09E-05	3.19E+00	3.82E-01	2.91E+00	3.64E-02	4.23E-03	4.88E-04	9.76E-03	6.62E-03	2.12E+00	7.05E-01
2003	11	12	1.85E-01	3.11E-04	1.61E-01	3.83E-05	9.42E-05	2.41E+00	6.37E-01	2.83E+00	2.29E-02	4.25E-03	1.17E-03	1.19E-02	7.26E-03	2.76E+00	2.50E-01
2003	11	13	1.93E-02	0.00E+00	2.61E-03	0.00E+00	0.00E+00	4.86E-01	3.10E-01	8.32E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.16E-01	6.14E-02
2003	11	14	2.04E-01	0.00E+00	2.22E-01	0.00E+00	0.00E+00	2.51E+00	6.99E-01	2.36E+00	9.12E-03	8.15E-04	7.06E-05	3.40E-03	1.72E-03	2.76E+00	2.94E-01
2003	11	15	4.29E-01	8.40E-04	5.11E-01	9.56E-05	3.66E-04	3.24E+00	1.31E+00	4.70E+00	1.12E-01	2.29E-02	6.29E-03	5.05E-02	3.47E-02	5.58E+00	6.92E-01
2003	11	16	3.58E-01	2.53E-04	3.55E-02	6.32E-04	1.66E-03	1.23E+00	4.81E-01	2.45E+00	6.91E-03	2.61E-03	9.76E-04	1.82E-02	1.19E-02	1.45E+00	7.11E-01
2003	11	17	3.63E-02	0.00E+00	1.25E-02	0.00E+00	0.00E+00	5.82E-01	2.92E-01	7.51E-01	0.00E+00	0.00E+00	0.00E+00	1.05E-03	2.39E-06	5.75E-01	9.45E-02
2003	11	18	3.32E-01	7.50E-03	1.49E-01	3.22E-03	3.78E-03	2.56E+00	4.02E-01	1.98E+00	8.87E-02	2.38E-02	1.04E-02	3.95E-02	2.92E-02	1.48E+00	7.87E-01
2003	11	19	2.73E-01	4.98E-04	3.24E-02	1.05E-03	2.66E-03	1.06E+00	2.79E-01	9.08E-01	3.01E-02	8.25E-03	2.56E-03	8.19E-03	1.17E-02	8.29E-01	5.10E-01
2003	11	20	8.18E-01	3.54E-03	3.98E-01	8.35E-03	1.75E-02	1.70E+00	8.69E-01	2.46E+00	3.96E-02	2.60E-02	1.86E-02	2.91E-02	2.90E-02	2.46E+00	1.14E+00
2003	11	21	2.21E+00	4.49E-03	1.26E+00	7.80E-04	1.68E-03	3.10E+00	7.13E-01	3.24E+00	6.25E-02	1.44E-02	7.78E-03	3.00E-02	2.03E-02	4.19E+00	2.69E+00
2003	11	22	2.35E-01	1.09E-03	2.67E-02	2.94E-04	6.25E-04	2.31E+00	7.53E-01	2.65E+00	4.51E-02	7.24E-03	2.60E-03	2.66E-02	1.53E-02	2.92E+00	2.74E-01
2003	11	23	5.33E-02	0.00E+00	4.14E-03	0.00E+00	0.00E+00	3.65E-01	2.66E-01	5.20E-01	0.00E+00	0.00E+00	0.00E+00	3.27E-04	1.04E-04	6.09E-01	8.52E-02
2003	11	24	2.68E-02	0.00E+00	1.91E-02	0.00E+00	0.00E+00	5.44E-01	3.12E-01	9.82E-01	1.60E-04	1.75E-05	0.00E+00	2.45E-03	7.93E-04	6.13E-01	5.47E-02
2003	11	25	4.33E-02	0.00E+00	1.85E-02	0.00E+00	0.00E+00	5.32E-01	2.88E-01	6.97E-01	2.67E-04	6.77E-05	0.00E+00	2.65E-03	2.08E-03	6.18E-01	1.14E-01
2003	11	26	6.78E-02	1.34E-06	5.44E-02	0.00E+00	1.18E-07	1.82E+00	6.73E-01	2.15E+00	2.08E-02	1.08E-03	6.75E-05	8.30E-03	3.67E-03	1.64E+00	1.09E-01
2003	11	27	2.44E-01	2.38E-04	2.10E-01	3.69E-05	1.29E-04	2.25E+00	7.20E-01	2.34E+00	4.63E-02	6.88E-03	1.09E-03	1.91E-02	1.45E-02	2.45E+00	3.58E-01
2003	11	28	2.05E-02	0.00E+00	1.94E-02	0.00E+00	0.00E+00	5.00E-01	1.79E-01	4.77E-01	1.46E-03	2.55E-04	0.00E+00	6.02E-03	1.65E-03	4.95E-01	1.02E-01
2003	11	29	6.44E-02	0.00E+00	3.14E-02	0.00E+00	0.00E+00	1.10E+00	1.84E-01	6.99E-01	2.34E-02	1.07E-03	3.69E-05	9.42E-03	5.66E-03	4.82E-01	1.89E-01
2003	11	30	1.71E-01	1.10E-03	3.07E-01	2.08E-04	6.15E-04	3.79E+00	2.10E+00	3.31E+00	5.55E-02	1.17E-02	3.79E-03	2.88E-02	1.92E-02	5.89E+00	2.09E-01
2003	12	1	1.01E+00	1.75E-02	3.48E-01	1.12E-02	1.44E-02	3.68E+00	1.42E+00	3.93E+00	1.32E-01	5.47E-02	3.24E-02	6.80E-02	6.33E-02	2.50E+00	1.28E+00
2003	12	2	2.89E-01	5.95E-05	1.60E-01	3.41E-05	2.54E-04	2.29E+00	5.84E-01	2.44E+00	2.03E-02	3.52E-03	1.23E-03	7.67E-03	4.19E-03	2.16E+00	3.63E-01
2003	12	3	1.08E+00	2.44E-07	4.58E-01	1.83E-07	4.97E-05	1.91E+00	1.17E+00	2.38E+00	4.25E-02	5.01E-03	3.93E-04	1.29E-02	1.24E-02	2.16E+00	1.74E+00
2003	12	4	4.32E+00	1.21E-02	2.19E+00	5.26E-03	7.95E-03	4.64E+00	2.09E+00	7.38E+00	1.34E-01	4.55E-02	2.27E-02	1.01E-01	6.60E-02	8.06E+00	4.98E+00
2003	12	5	1.10E+00	8.33E-03	3.15E-01	3.73E-03	6.15E-03	2.44E+00	1.04E+00	3.36E+00	1.02E-01	3.86E-02	1.93E-02	7.31E-02	5.21E-02	2.55E+00	1.38E+00
2003	12	6	5.92E-01	2.91E-05	1.36E-01	1.37E-04	4.90E-04	1.75E+00	6.46E-01	1.93E+00	1.57E-02	2.16E-03	8.82E-04	1.74E-02	5.49E-03	1.73E+00	8.73E-01
2003	12	7	1.85E-01	9.63E-04	1.97E-01	1.33E-04	3.74E-04	3.45E+00	1.76E+00	4.87E+00	4.39E-02	7.96E-03	2.86E-03	2.14E-02	1.30E-02	4.14E+00	2.43E-01
2003	12	8	6.14E-01	9.90E-04	6.28E-01	1.08E-04	3.51E-04	5.65E+00	2.05E+00	6.18E+00	7.51E-02	1.44E-02	4.33E-03	3.26E-02	2.28E-02	5.57E+00	8.64E-01
2003	12	9	2.30E+00	1.65E-03	1.51E+00	2.67E-04	6.35E-04	4.49E+00	1.51E+00	4.84E+00	6.67E-02	1.16E-02	4.18E-03	2.79E-02	1.81E-02	5.97E+00	2.74E+00
2003	12	10	3.63E+00	5.37E-03	2.71E+00	1.05E-03	2.12E-03	6.59E+00	1.76E+00	7.40E+00	1.13E-01	2.54E-02	1.10E-02	5.28E-02	3.68E-02	7.77E+00	3.86E+00
2003	12	11	2.38E-01	2.46E-04	3.10E-02	8.13E-05	1.65E-04	2.19E+00	4.18E-01	2.73E+00	1.07E-02	1.85E-03	6.49E-04	8.51E-03	3.81E-03	1.86E+00	2.60E-01
2003	12	12	4.99E-02	0.00E+00	8.79E-03	0.00E+00	0.00E+00	6.16E-01	3.92E-01	8.66E-01	1.44E-04	0.00E+00	0.00E+00	1.69E-03	4.92E-04	7.56E-01	9.00E-02
2003	12	13	1.56E-01	0.00E+00	5.13E-02	2.00E-07	1.42E-06	1.85E+00	6.73E-01	1.78E+00	5.66E-03	1.74E-04	2.56E-06	2.58E-02	4.63E-03	1.25E+00	3.33E-01
2003	12	14	1.78E-01	7.71E-04	1.02E-01	3.81E-05	1.60E-04	1.71E+00	5.38E-01	1.57E+00	3.44E-02	5.90E-03	1.95E-03	1.31E-02	8.30E-03	1.18E+00	3.12E-01
2003	12	15	1.02E-01	0.00E+00	6.89E-03	0.00E+00	0.00E+00	1.02E+00	5.48E-01	1.42E+00	1.19E-02	9.75E-04	2.41E-05	5.79E-03	3.03E-03	1.09E+00	2.04E-01
2003	12	16	2.49E-02	0.00E+00	1.31E-02	0.00E+00	0.00E+00	4.18E-01	1.62E-01	4.76E-01	1.08E-03	2.75E-04	0.00E+00	4.72E-03	7.71E-04	3.65E-01	7.47E-02
2003	12	17	9.07E-02	9.74E-08	4.48E-02	0.00E+00	5.85E-08	1.39E+00	4.60E-01	1.74E+00	3.03E-03	1.54E-04	3.53E-06	1.58E-03	6.25E-04	1.33E+00	1.36E-01
2003	12	18	4.73E-01	6.97E-07	2.39E-01	0.00E+00	5.31E-07	1.68E+00	7.55E-01	2.81E+00	3.41E-02	2.61E-03	5.84E-05	1.47E-02	7.26E-03	2.14E+00	7.86E-01
2003	12	19	1.45E-01	1.01E-08	9.15E-02	0.00E+00	5.60E-08	1.09E+00	4.19E-01	1.68E+00	7.94E-03	6.12E-04	1.03E-05	4.40E-03	2.36E-03	2.29E+00	2.38E-01
2003	12	20	1.34E-01	0.00E+00	1.18E-02	0.00E+00	0.00E+00	6.60E-01	4.83E-01	1.11E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-04	4.21E-07	1.05E+00	2.12E-01
2003	12	21	1.16E-01	0.00E+00	7.07E-04	0.00E+00	0.00E+00	5.87E-01	5.37E-01	1.02E+00	0.00E+00	0.00E+00	0.00E+00	1.68E-07	0.00E+00	1.09E+00	1.72E-01

Year	Month	Day	Project														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2003	9	23	1.16E-01	1.12E-03	9.18E-02	2.64E-05	1.35E-04	1.04E-01	4.71E-02	1.69E-01	2.75E+00	2.08E+01	3.18E-02	1.46E+00	5.06E+00	1.85E-02	2.73E-01
2003	9	24	3.90E-01	8.51E-01	3.03E-02	1.26E-01	1.07E-01	3.86E-02	2.98E-03	6.58E-02	2.14E+00	2.60E+00	1.82E+00	9.77E-02	4.01E-01	1.47E-02	6.93E-01
2003	9	25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-02	5.31E-01	3.88E-16	3.24E+00	6.07E-03	8.62E-01	4.50E-01	4.33E-04	0.00E+00
2003	9	26	4.62E-02	8.37E-07	2.75E-03	7.19E-09	9.44E-08	8.42E-03	2.16E-01	9.82E-01	5.97E-01	1.18E+01	2.34E-03	2.73E+00	4.28E+00	1.06E-01	6.38E-02
2003	9	27	3.93E-01	5.39E-04	4.49E-01	0.00E+00	3.83E-09	4.46E-01	2.62E-02	2.06E-01	3.27E+00	5.68E-01	9.18E-03	4.30E-01	4.91E-01	6.74E-03	5.41E-01
2003	9	28	5.66E-01	5.39E-02	1.10E-01	1.27E-02	1.58E-02	9.52E-02	1.33E-02	5.52E-02	2.97E+00	3.45E-02	3.67E-02	2.33E-02	2.76E-02	3.64E-02	9.64E-01
2003	9	29	4.75E-01	0.00E+00	8.48E-02	0.00E+00	0.00E+00	6.69E-02	0.00E+00	3.35E-03	4.79E+00	2.34E-03	1.95E-04	4.48E-06	5.31E-05	1.71E-03	8.09E-01
2003	9	30	8.26E-01	7.98E-01	1.97E-01	1.83E-01	2.99E-01	2.66E-01	2.72E-01	9.97E-01	3.20E+00	7.32E+00	6.37E+00	1.11E+00	2.02E+00	4.11E-01	1.31E+00
2003	10	1	2.85E-01	7.82E-01	4.15E-02	2.15E-01	2.94E-01	4.12E-02	6.38E-02	6.84E-01	2.17E+00	8.88E+00	2.50E+00	8.45E-01	1.48E+00	1.07E-01	5.73E-01
2003	10	2	3.02E-01	7.87E-06	1.71E-01	0.00E+00	6.55E-07	1.51E-01	7.24E-03	1.68E-01	2.33E+00	1.74E-02	9.02E-05	1.65E-02	8.12E-03	5.14E-02	4.64E-01
2003	10	3	8.38E-02	6.23E-02	3.82E-02	4.60E-02	1.50E-01	3.75E-02	1.44E-01	1.45E+00	6.11E-01	8.45E+00	3.57E-01	1.93E+00	2.22E+00	1.48E-01	1.40E-01
2003	10	4	4.04E-03	0.00E+00	0.00E+00	4.64E-04	7.74E-03	0.00E+00	1.03E-01	1.48E+00	0.00E+00	6.99E+00	1.88E-02	1.08E+00	2.11E+00	8.37E-02	1.82E-02
2003	10	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-01	1.56E+00	0.00E+00	6.50E+00	3.10E-02	1.23E+00	1.92E+00	9.00E-02	3.53E-06
2003	10	6	6.18E-03	0.00E+00	0.00E+00	0.00E+00	1.26E-02	0.00E+00	7.31E-02	1.83E+00	3.54E-03	4.09E+00	4.28E-01	6.90E-01	8.27E-01	9.62E-02	2.34E-02
2003	10	7	2.09E-02	0.00E+00	0.00E+00	0.00E+00	6.84E-04	1.34E-04	1.84E-02	1.02E+00	9.88E-29	1.15E+00	1.21E-01	1.95E-01	4.76E-01	1.60E-02	5.11E-02
2003	10	8	0.00E+00	0.00E+00	0.00E+00	6.52E-06	1.46E-02	0.00E+00	1.64E-02	9.58E-01	0.00E+00	2.46E+00	2.73E-01	1.86E-01	5.76E-01	2.48E-03	0.00E+00
2003	10	9	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.12E-09	0.00E+00	5.20E-04	1.20E-01	4.26E-29	7.98E-01	7.47E-02	1.11E-01	2.70E-01	0.00E+00	0.00E+00
2003	10	10	5.61E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.85E-02	1.17E+00	5.50E-17	3.74E+00	4.48E-03	9.12E-01	3.29E-01	8.84E-02	1.89E-02
2003	10	11	1.80E-02	0.00E+00	0.00E+00	1.61E-01	1.62E-01	0.00E+00	4.65E-02	1.20E+00	1.64E-03	2.21E+00	2.00E+00	3.36E-01	7.00E-01	8.20E-02	4.35E-02
2003	10	12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.13E-06	0.00E+00	4.06E-03	6.06E-01	5.81E-19	8.29E-01	7.13E-02	2.40E-01	2.31E-01	3.54E-05	0.00E+00
2003	10	13	3.82E-02	4.10E-02	1.14E-04	1.70E-02	8.55E-02	3.25E-04	6.18E-02	8.63E-01	1.00E-01	5.77E+00	1.35E+00	1.04E+00	1.52E+00	3.46E-02	8.41E-02
2003	10	14	1.91E-01	7.90E-01	1.24E-01	1.25E-01	1.67E-01	5.55E-02	8.79E-02	1.04E+00	6.66E-01	2.96E+00	2.12E+00	8.76E-01	7.54E-01	5.96E-02	3.32E-01
2003	10	15	3.96E-01	8.24E-02	3.30E-01	0.00E+00	0.00E+00	2.44E-01	4.96E-02	4.64E-01	2.27E+00	1.21E+00	3.41E-04	4.10E-01	3.24E-01	3.76E-02	6.47E-01
2003	10	16	1.76E-01	1.26E-01	9.38E-03	2.13E-02	3.10E-02	1.31E-02	2.40E-03	1.17E-01	5.02E-01	1.06E+00	1.51E+00	2.19E-02	3.37E-01	8.18E-03	3.08E-01
2003	10	17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.08E-05	0.00E+00	0.00E+00	0.00E+00	1.04E-29	6.46E-01	1.19E-01	1.22E-02	1.99E-01	0.00E+00	0.00E+00
2003	10	18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-02	0.00E+00	8.25E-03	5.13E-01	7.56E-27	1.05E+00	2.22E-01	1.04E-01	4.44E-01	1.82E-03	0.00E+00
2003	10	19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.44E-12	0.00E+00	9.17E-03	4.83E-01	6.65E-18	1.15E+00	6.17E-02	1.85E-01	2.34E-01	2.50E-03	0.00E+00
2003	10	20	3.17E-03	0.00E+00	0.00E+00	3.02E-02	2.82E-01	0.00E+00	3.44E-02	1.10E+00	1.53E-04	2.11E+00	1.33E+00	2.06E-01	1.06E+00	8.93E-02	1.23E-02
2003	10	21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.18E-06	0.00E+00	2.32E-02	2.70E-01	6.83E-04	3.02E+00	8.82E-02	2.23E-01	4.55E-01	3.65E-03	0.00E+00
2003	10	22	4.39E-01	2.24E-01	1.56E-01	6.70E-02	1.92E-01	1.42E-01	6.94E-02	4.68E-01	8.28E-01	2.97E+00	8.24E-01	4.01E-01	7.05E-01	9.05E-02	7.82E-01
2003	10	23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.81E-06	0.00E+00	9.07E-03	1.08E-01	7.13E-17	1.03E+00	4.01E-02	1.55E-01	2.37E-01	1.44E-03	0.00E+00
2003	10	24	4.19E-02	0.00E+00	2.93E-03	0.00E+00	0.00E+00	8.61E-03	6.85E-02	1.15E+00	4.72E-04	5.09E+00	6.23E-04	7.73E-01	9.71E-01	2.53E-02	9.85E-02
2003	10	25	3.86E-02	0.00E+00	3.37E-05	0.00E+00	0.00E+00	4.49E-04	7.51E-02	8.10E-01	5.06E-16	4.45E+00	4.44E-04	6.73E-01	2.88E-01	4.68E-02	1.02E-01
2003	10	26	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.31E-02	3.00E-01	3.62E-13	2.72E+00	2.57E-03	3.80E-01	4.89E-01	2.38E-02	0.00E+00
2003	10	27	1.42E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.42E-03	4.70E-02	1.30E+00	1.67E-03	3.88E+00	2.56E-02	3.53E-01	4.36E-01	7.60E-02	1.71E-02
2003	10	28	4.35E-03	1.34E-06	3.64E-04	1.99E-04	2.45E-02	1.52E-03	6.43E-02	9.49E-01	5.11E-03	5.25E+00	1.43E-01	1.09E+00	7.60E-01	1.40E-02	1.43E-02
2003	10	29	2.07E-01	0.00E+00	2.65E-01	0.00E+00	0.00E+00	4.23E-01	3.64E-02	2.52E-01	1.19E+00	1.53E-01	0.00E+00	2.00E-01	1.51E-01	1.36E-01	2.97E-01
2003	10	30	1.08E-01	0.00E+00	3.83E-01	0.00E+00	0.00E+00	3.73E-01	2.05E-06	1.26E-02	1.89E+00	4.45E-09	0.00E+00	0.00E+00	1.48E-18	3.06E-03	2.94E-01
2003	10	31	2.55E-01	2.18E-01	6.40E-02	3.34E-02	6.35E-02	4.95E-02	3.70E-02	7.27E-01	1.28E+00	6.24E+00	6.70E-01	9.59E-01	5.36E-01	8.14E-02	4.92E-01
2003	11	1	2.92E-02	0.00E+00	1.94E-04	0.00E+00	0.00E+00	5.24E-04	6.38E-02	1.05E+00	5.59E-02	5.60E+00	1.18E-02	1.24E+00	3.74E-01	3.01E-02	7.38E-02
2003	11	2	7.45E-01	1.01E-01	8.62E-02	3.96E-03	1.02E-02	1.24E-01	1.36E-02	9.84E-02	8.52E+00	3.78E-01	2.31E-01	1.22E-01	1.74E-01	2.14E-02	1.27E+00
2003	11	3	2.87E-01	0.00E+00	3.24E-01	0.00E+00	0.00E+00	3.07E-01	5.40E-05	2.43E-03	3.40E+00	1.24E-05	3.40E-07	4.93E-05	2.68E-05	1.20E-03	5.54E-01
2003	11	4	5.39E-01	2.10E-03	3.24E-01	6.43E-02	2.11E-01	2.68E-01	1.27E-01	9.10E-01	2.31E+00	2.15E+00	1.89E+00	5.82E-01	3.07E-01	1.39E-01	8.22E-01
2003	11	5	9.37E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.46E-02	1.57E+00	8.56E-16	5.41E+00	1.08E-03	1.26E+00	2.37E-01	8.86E-02	4.31E-02
2003	11	6	1.69E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.66E-04	3.77E-02	5.22E-01	1.13E-15	3.38E+00	2.32E-03	4.96E-01	2.72E-01	1.12E-03	7.09E-03
2003	11	7	1.24E-01	4.20E-06	1.60E-02	0.00E+00	0.00E+00	1.08E-01	1.76E-02	5.24E-01	8.14E-03	6.06E+00	1.81E-02	8.27E-01	4.33E-01	1.20E-02	3.64E-01
2003	11	8	7.73E-02	6.50E-06	1.30E-02	2.14E-07	3.78E-06	3.14E-02	5.91E-02	1.02E+00	2.06E-02	4.08E+00	1.41E-02	9.52E-01	4.30E-01	6.39E-02	1.97E-01
2003	11	9	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.52E-02	1.27E+00	8.39E-17	4.90E+00	2.00E-02	1.12E+00	2.43E-01	4.26E-02	0.00E+00
2003	11	10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.70E-03	1.75E-01	8.37E-17	9.77E-01	7.36E-02	2.05E-01	2.97E-01	0.00E+00	0.00E+00
2003	11	11	3.18E-02	0.00E+00	1.38E-03	0.00E+00	9.20E-11	4.36E-03	4.45E-02	6.29E-01	2.82E-03	4.35E+00	3.00E-02	6.49E-01	9.03E-01	2.82E-02	9.06E-02
2003	11	12	1.07E-01	0.00E+00	4.77E-05	0.00E+00	0.00E+00	4.65E-04	7.40E-02	1.04E+00	1.53E-03	3.36E+00	3.16E-03	6.69E-01	2.12E-01	4.73E-02	2.23E-01
2003	11	13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.04E-02	4.29E-01	1.83E-17	3.11E+00	6.87E-04	5.98E-01	2.69E-01	0.00E+00	0.00E+00
2003	11	14	4.45E-02	0.00E+00	8.88E-04	0.00E+00	0.00E+00	6.66E-03	4.25E-02	7.36E-01	1.11E-04	4.73E+00	2.61E-03	9.68E-01	2.31E-01	5.86E-02	1.24E-01
2003	11	15	4.71E-02	3.05E-04	7.93E-03	5.38E-05	1.29E-04	2.28E-02	7.14E-02	1.31E+00	1.39E-02	7.94E+00	3.74E-02	1.32E+00	5.12E-01	1.02E-01	1.36E-01
2003	11	16	0.00E+00	0.00E+00	0.00E+00	1.75E-01	2.22E-01	0.00E+00	4.15E-03	8.05E-01	0.00E+00	1.46E+00	1.73E+00	6.86E-02	4.80E-01	1.50E-02	0.00E+00
2003	11	17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.03E-03	2.84E-01	6.47E-18	9.59E-01	5.14E-02	3.02E-01	2.69E-01	0.00E+00	0.00E+00
2003	11	18	4.06E-04	6.62E-01	8.25E-05	3.11E-02	3.54E-02	1.71E-03	2.23E-03	2.88E-01	1.25E-03	9.06E-01	5.54E-01	6.96E-02	4.09E-01	2.08E-03	2.49E-03
2003	11	19	0.00E+00	2.46E-02	0.00E+00	1.98E-02	8.85E-02	0.00E+00	7.50E-05	4.40E-02	3.47E-03	1.15E+00	4.56E-01	6.87E-02	3.10E-01	0.00E+00	0.00E+00
2003	11	20	5.07E-03	2.00E-01	8.27E-03	1.80E-01	4.27E-01	2.58E-02	3.76E-02	4.27E-01	5.11E-01	2.11E+00	1.26E+00	4.74E-01	1.42E-01	4.01E-03	1.81E-02
2003	11	21	2.74E-01	3.39E-01	3.81E-02	2.91E-02	5.20E-02	5.32E-02	3.89E-03	1.51E-01	4.10E+00	5.17E-01	2.34E+00	4.80E-02	1.14E-01	1.98E-02	4.60E-01
2003	11	22	9.77E-04	1.84E-03	7.77E-04	3.34E-03	5.75E-03	1.00E-03	1.30E-01	1.70E+00	1.75E-03	5.89E+00	4.71E-03	6.81E-01	9.76E-01	5.08E-02	1.26E-03
2003	11	23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-11	0.00E+00	3.33E-02	5.31E-01	1.28E-15	2.93E+00	1.80E-02	3.43E-01	2.45E-01	1.04E-02	0.00E+00
2003	11	24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.76E-06	0.00E+00	1.09E-02	2.77E-01	4.05E-17	1.45E+00	5.80E-02	3.94E-01	2.79E-01	0.00E+00	0.00E+00
2003	11	25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E-05	0.00E+00	1.40E-02	5.41E-01	3.69E-18	1.16E+00	1.05E-01	2.52E-01	3.04E-01	3.20E-04	0.00E+00
2003	11	26	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.23E-02	1.23E+00	6.14E-18	5.01E+00	2.45E-03	1.22E+00	2.89E-01	2.97E-02	1.12E-04
2003	11	27	1.27E-01	2.60E-05	1.21E-03	5.68E-07	5.83E-03	1.07E-02	5.91E-02	1.50E+00	2.52E-02	4.63E+00	1.33E-01	9.79E-01	3.52E-01	4.85E-02	3.12E-01
2003	11	28	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.11E-04	0.00E+00	5.44E-04	1.43E-01	3.01E-28	7.23E-01	1.33E-01	1.22E-01	3.09E-01	0.00E+00	0.00E+00
2003	11	29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.47E-11	0.00E+00	5.14E-05	3.16E-01	7.13E-18	7.82E-01	7.27E-02	6.71E-02	3.26E-01	9.12E-03	0.00E+00
2003	11	30	6.70E-03	3.47E-04	1.16E-05	4.25E-05	7.30E-04	5.13E-05	9.05E-02	1.30E+00	1.16E-02	1.05E+01	1.57E-02	1.41E+00	1.04E+00	1.24E-01	2.09E-02
2003	12	1	1.28E-01	3.04E-01	3.64E-03	4.11E-01	4.16E-01	1.12E-02	2.24E-02	1.12E+00	2.54E-02	5.64E+00	7.08E+00	5.88E-01	4.99E-01	2.99E-01	2.58E-01
2003	12	2	7.41E-02	0.00E+00	9.28E-04	0.00E+00	7.17E-05	2.08E-03	5.30E-02	1.18E+00	5.25E-04	3.72E+00	6.12E-02	6.75E-01	3.02E-01	1.63E-01	1.26E-01
2003	12	3	3.53E-02	5.55E-07	1.64E-02	0.00E+00	3.52E-03	2.80E-02	2.54E-02	5.10E-02	1.90E+00	3.71E+00	1.16E-01	7.37E-01	8.22E-01	3.15E-02	4.63E-02
2003	12	4	7.40E-01	8.96E-01	1.81E-01	8.18E-03	1.48E-02	1.72E-01	1.06E-01	1.67E+00	5.19E+00	1.43E+00	2.05E+00	4.41E-01	6.04E-01	3.19E-01	1.29E+00
2003	12	5	1.09E-01	1.48E-01	2.78E-03	1.72E-02	9.66E-02	5.52E-03	1.30E-02	1.56E+00	1.57E-01	1.51E+00	1.78E+00	2.23E-01	4.46E-01	1.21E-01	2.12E-01
2003	12	6	1.34E-03	0.00E+00	1.11E-04	2.13E-03	1.90E-01	4.16E-03	3.50E-02	1.84E-01	1.01E-03	2.44E+00	8.36E-01	3.24E-01	5.77E-01	1.19E-01	9.28E-03
2003	12	7	2.95E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E-01	1.85E+00	5.58E-19	1.25E+01	2.26E-04	1.71E+00	1.31E+00	1.53E-01	1.31E-02
2003	12	8	1.21E-01	1.50E-05	9.03E-03	3.50E-07	2.90E-06	6.59E-02	1.45E-01	1.74E+00	4.95E-01	1.17E+01	1.01E-03	1.67E+00	2.16E+00	1.56E-01	3.09E-01
2003	12	9	5.75E-01	1.00E-02	3.35E-01	1.77E-04	6.94E-04	2.44E-01	2.49E-01	1.54E+00	2.25E+00	1.46E+01	4.30E-02	1.28E+00	1.39E+00	2.79E-01	9.94E-01
2003	12	10	1.17E+00	1.20E-01	3.08E-01	1.80E-02	3.79E-02	2.36E-01	1.00E-01	9.80E-01	3.44E+00	6.02E+00	5.60E-01	9.78E-01	1.52E+00	2.11E-01	2.17E+00
2003	12	11	1.63E-03	6.44E-04	1.11E-03	3.37E-04	6.23E-04	1.25E-03	4.28E-02	8.95E-01	1.45E-03	3.98E+00	5.11E-03	9.63E-01	1.26E+00	4.51E-02	1.65E-03
2003	12	12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-11	0.00E+00	7.77E-03	9.08E-01	1.00E-15	1.49E+00	5.06E-02	5.24E-01	2.42E-01	0.00E+00	0.00E+00
2003	12	13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.28E-04	0.00E+00	2.18E-02	9.49E-01	9.20E-17	2.96E+00	5.78E-02	6.72E-01	7.06E-01	1.79E-02	0.00E+00
2003	12	14	8.18E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-02	1.21E+00	2.53E-20	1.32E+00	2.96E-02	7.13E-01	3.45E-01	4.15E-02	3.25E-02
2003	12	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.08E-02	1.31E+00	2.15E-16	3.32E+00	1.27E-02	9.28E-01	2.42E-01	3.33E-03	0.00E+00
2003	12	16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.67E-05	0.00E+00	1.03E-03	1.68E-01	1.03E-27	6.46E-01	8.11E-02	1.07E-01	2.40E-01	0.00E+00	0.00E+00
2003	12	17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-02	1.10E+00	7.54E-18	2.10E+00	1.69E-02	5.56E-01	2.18E-01	9.30E-03	0.00E+00
2003	12	18	1.91E-02	0.00E+00	8.02E-04	0.00E+00	0.00E+00	3.09E-02	3.76E-02	4.60E-01	2.77E-03	4.55E+00	2.75E-02	7.79E-01	3.11E-01	1.47E-02	6.78E-02
2003	12	19	8.64E-02	0.00E+00	1.08E-04	0.00E+00	0.00E+00	2.97E-03	1.13E-02	2.37E-01	1.28E-04	1.67E+00	1.94E-02	3.66E-01	2.34E-01	4.41E-02	2.39E-01
2003	12	20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.45E-12	0.00E+00	6.56E-02	4.12E-01	3.22E-16	3.03E+00	2.01E-02	6.57E-01	2.70E-01	5.15E-02	0.00E+00
2003	12	21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.69E-02	1.15E+00	2.40E-16	6.47E+00	1.87E-03	7.34E-01	3.70E-01	2.38E-03	0.00E+00

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2003	12	22	5.04E-02	0.00E+00	5.31E-03	0.00E+00	0.00E+00	4.21E-01	4.31E-01	1.16E+00	5.80E-17	4.86E+00	2.16E-03	4.98E-01	3.30E-01	7.33E-01	8.30E-02
2003	12	23	1.22E-01	0.00E+00	4.40E-02	1.73E-06	3.37E-03	8.85E-01	4.53E-01	1.93E+00	1.57E-02	1.66E+00	1.07E-01	2.73E-01	5.93E-01	1.04E+00	1.76E-01
2003	12	24	5.80E-01	1.95E-03	2.56E-01	1.14E-03	2.02E-01	2.92E+00	1.06E+00	5.65E+00	9.67E-02	1.73E+00	1.92E+00	3.09E-01	2.60E-01	2.82E+00	9.34E-01
2003	12	25	2.33E-01	3.14E-04	2.08E-01	1.29E-05	8.64E-05	3.01E+00	9.31E-01	4.88E+00	5.10E-02	1.90E+00	5.16E-02	9.29E-01	4.16E-01	2.39E+00	3.16E-01
2003	12	26	1.44E+00	3.17E-03	9.72E-01	4.64E-04	1.45E-03	6.43E+00	2.85E+00	8.07E+00	3.89E-01	1.80E+01	1.80E-02	2.77E+00	2.93E+00	8.22E+00	2.26E+00
2003	12	27	1.67E+00	3.37E-02	1.35E+00	5.06E-03	1.21E-02	4.22E+00	2.28E+00	5.73E+00	3.84E+00	8.85E+00	1.50E-01	1.80E+00	1.26E+00	6.21E+00	2.27E+00
2003	12	28	3.44E+00	7.73E-01	2.18E+00	3.47E-01	5.75E-01	4.26E+00	1.96E+00	4.89E+00	7.76E+00	6.49E+00	5.35E+00	8.75E-01	1.68E+00	4.52E+00	4.52E+00
2003	12	29	5.19E+00	2.84E-03	3.71E+00	1.13E-03	1.97E-03	6.28E+00	7.98E-01	5.92E+00	4.24E+00	7.97E-01	6.59E-03	4.42E-01	5.61E-01	6.49E+00	6.39E+00
2003	12	30	1.37E-01	8.06E-04	1.24E-01	2.16E-04	4.37E-04	1.96E+00	6.77E-01	2.41E+00	1.53E-02	3.69E+00	5.88E-03	8.04E-01	4.88E-01	2.11E+00	1.92E-01
2003	12	31	7.50E-02	0.00E+00	3.62E-03	0.00E+00	0.00E+00	4.68E-01	7.94E-01	1.85E+00	3.54E-17	6.51E+00	3.78E-03	1.09E+00	2.52E-01	1.07E+00	1.28E-01
2004	1	1	8.46E-01	8.55E-04	5.22E-01	2.58E-05	1.36E-04	2.13E+00	1.61E+00	3.94E+00	1.03E+00	8.50E+00	1.15E-02	1.46E+00	6.23E-01	4.51E+00	1.27E+00
2004	1	2	9.72E-01	8.80E-01	5.09E-01	1.98E-02	5.89E-03	1.17E+00	3.44E-01	1.94E+00	1.90E+00	7.48E-03	7.76E-03	3.80E-03	5.23E-03	2.07E+00	1.30E+00
2004	1	3	3.17E+00	5.67E-02	1.63E+00	1.51E-03	5.65E-03	3.95E+00	9.33E-01	3.46E+00	4.49E+00	3.20E+00	4.70E-01	3.10E-01	3.87E-01	4.68E+00	3.92E+00
2004	1	4	1.84E+00	2.23E-01	9.30E-01	4.90E-02	1.20E-01	6.70E+00	5.20E+00	1.22E+01	9.76E-01	1.68E+01	1.40E+00	5.98E+00	6.02E+00	1.10E+01	2.63E+00
2004	1	5	6.40E-01	0.00E+00	2.45E-01	0.00E+00	5.11E-07	3.15E+00	2.92E+00	7.03E+00	3.69E-02	1.14E+01	2.49E-03	1.44E+00	7.89E-01	5.94E+00	7.76E-01
2004	1	6	3.10E-01	0.00E+00	9.17E-02	0.00E+00	0.00E+00	1.18E+00	7.63E-01	2.25E+00	9.29E-04	4.63E+00	8.98E-03	9.51E-01	1.99E-01	1.85E+00	5.06E-01
2004	1	7	3.48E-01	0.00E+00	1.02E-01	0.00E+00	6.56E-06	9.88E-01	8.96E-01	2.03E+00	2.38E-03	5.32E+00	5.81E-02	8.91E-01	3.52E-01	1.37E+00	5.37E-01
2004	1	8	7.75E-02	0.00E+00	8.45E-04	0.00E+00	0.00E+00	3.83E-01	5.26E-01	1.29E+00	8.88E-17	4.66E+00	8.38E-03	5.85E-01	2.42E-01	7.99E-01	1.31E-01
2004	1	9	1.55E-01	0.00E+00	1.18E-01	0.00E+00	7.30E-05	1.42E+00	1.34E+00	4.20E+00	3.61E-03	5.56E+00	8.88E-02	1.35E+00	7.68E-01	2.48E+00	4.32E-01
2004	1	10	4.35E-01	3.19E-05	2.36E-01	0.00E+00	2.28E-06	1.59E+00	1.06E+00	2.70E+00	1.62E-02	4.66E+00	1.74E-02	1.37E+00	3.47E-01	2.32E+00	6.13E-01
2004	1	11	1.09E+00	4.85E-04	5.18E-01	7.18E-06	1.64E-04	1.94E+00	1.79E+00	4.37E+00	7.80E-02	1.17E+01	6.03E-03	1.61E+00	5.84E-01	2.89E+00	1.32E+00
2004	1	12	3.76E-01	0.00E+00	2.02E-01	0.00E+00	0.00E+00	1.46E+00	1.28E+00	3.42E+00	1.52E-03	8.83E+00	1.06E-02	1.25E+00	4.26E-01	2.32E+00	8.07E-01
2004	1	13	9.45E-02	0.00E+00	1.72E-03	0.00E+00	0.00E+00	4.53E-01	5.39E-01	1.37E+00	4.78E-18	2.25E+00	1.67E-02	7.22E-01	2.33E-01	8.45E-01	1.36E-01
2004	1	14	1.66E-01	0.00E+00	2.31E-02	0.00E+00	0.00E+00	6.69E-01	6.44E-01	2.47E+00	7.71E-06	2.25E+00	2.06E-02	1.03E+00	2.70E-01	1.18E+00	2.34E-01
2004	1	15	1.10E-01	0.00E+00	1.30E-02	0.00E+00	0.00E+00	6.66E-01	6.85E-01	2.17E+00	1.25E-18	2.76E+00	1.52E-02	1.01E+00	2.91E-01	1.08E+00	1.89E-01
2004	1	16	8.62E-02	0.00E+00	1.90E-02	0.00E+00	0.00E+00	5.68E-01	8.66E-01	2.09E+00	6.00E-17	8.73E+00	5.22E-04	1.04E+00	3.80E-01	1.13E+00	1.29E-01
2004	1	17	4.62E-02	0.00E+00	5.59E-04	0.00E+00	0.00E+00	3.47E-01	4.37E-01	1.03E+00	1.20E-16	6.28E+00	5.05E-04	5.10E-01	2.94E-01	7.14E-01	8.34E-02
2004	1	18	5.38E-02	0.00E+00	5.03E-04	0.00E+00	0.00E+00	4.07E-01	6.43E-01	1.43E+00	2.30E-17	6.38E+00	3.59E-04	7.40E-01	2.66E-01	8.76E-01	8.98E-02
2004	1	19	1.68E-01	5.22E-04	1.55E-01	4.76E-05	1.47E-04	2.31E+00	1.59E+00	4.83E+00	1.76E-02	1.13E+01	1.12E-03	1.25E+00	1.11E+00	3.10E+00	3.09E-01
2004	1	20	6.80E-01	4.58E-03	4.82E-01	1.41E-03	2.50E-03	3.91E+00	3.09E+00	7.90E+00	8.72E-02	1.51E+01	9.31E-03	1.37E+00	1.73E+00	6.01E+00	8.30E-01
2004	1	21	4.82E-02	0.00E+00	4.02E-04	0.00E+00	0.00E+00	3.28E-01	4.24E-01	1.06E+00	2.95E-17	4.51E+00	6.06E-04	5.21E-01	3.07E-01	6.52E-01	7.49E-02
2004	1	22	6.34E-02	0.00E+00	7.17E-04	0.00E+00	0.00E+00	3.59E-01	4.25E-01	1.13E+00	3.10E-16	3.27E+00	4.59E-03	6.76E-01	2.12E-01	6.94E-01	1.02E-01
2004	1	23	2.43E+00	7.73E-01	1.15E+00	3.06E-02	4.90E-02	2.98E+00	2.16E+00	5.47E+00	3.48E+00	8.42E+00	1.91E+00	1.85E+00	9.65E-01	4.61E+00	3.38E+00
2004	1	24	1.64E+00	1.80E+00	7.78E-01	5.54E-01	7.60E-01	2.24E+00	1.44E+00	2.74E+00	1.41E+00	2.00E+00	1.33E+01	1.33E-01	2.03E-01	2.85E+00	2.19E+00
2004	1	25	6.29E-01	1.01E+00	3.64E-01	8.87E-03	5.14E-03	8.95E-01	6.51E-01	1.81E+00	5.83E-01	1.44E-02	3.05E-01	5.21E-03	8.82E-03	1.94E+00	8.52E-01
2004	1	26	6.99E-01	2.61E+00	2.99E-01	2.89E-01	5.52E-02	8.27E-01	6.00E-01	2.07E+00	4.85E-01	2.33E-02	1.08E+00	9.98E-03	1.30E-02	1.85E+00	9.60E-01
2004	1	27	5.74E-01	9.36E-01	2.87E-01	2.73E-03	2.06E-03	8.59E-01	5.80E-01	2.13E+00	2.74E-01	3.62E-03	7.02E-03	2.19E-03	2.24E-03	1.94E+00	7.89E-01
2004	1	28	1.50E+00	1.19E+00	2.93E-01	1.48E-01	3.48E-01	1.79E+00	1.68E+00	3.49E+00	1.32E-01	3.20E+00	2.29E+00	8.51E-02	5.98E-01	2.70E+00	2.16E+00
2004	1	29	2.47E+00	1.88E-01	9.56E-01	6.62E-02	3.59E-01	3.64E+00	2.66E+00	6.04E+00	1.30E+00	7.64E+00	2.19E+00	6.24E-01	7.59E-01	5.60E+00	3.60E+00
2004	1	30	1.08E+00	5.94E-02	1.47E-01	1.29E-01	2.75E-01	2.10E+00	5.38E-01	2.40E+00	5.89E-02	1.33E+00	1.84E+00	3.58E-02	1.29E-01	1.63E+00	1.48E+00
2004	1	31	1.46E+00	4.67E-01	4.33E-01	1.11E-01	1.97E-01	1.53E+00	1.62E+00	2.47E+00	6.10E-01	7.26E+00	2.28E+00	4.45E-01	1.06E+00	3.07E+00	1.99E+00
2004	2	1	3.81E+00	2.17E+00	2.22E+00	7.07E-01	7.50E-01	6.15E+00	2.43E+00	7.80E+00	6.46E+00	6.51E+00	3.83E+00	9.07E-01	5.03E-01	9.44E+00	5.02E+00
2004	2	2	2.59E+00	5.05E-02	2.02E+00	2.99E-03	6.77E-03	6.21E+00	4.58E+00	9.85E+00	3.90E+00	1.51E+01	1.61E-01	2.69E+00	2.03E+00	1.15E+01	3.56E+00
2004	2	3	1.67E+00	5.01E-01	1.20E+00	8.50E-02	2.99E-01	4.36E+00	3.58E+00	7.36E+00	1.55E+00	1.54E+01	2.31E+00	2.15E+00	1.68E+00	7.65E+00	2.33E+00
2004	2	4	1.48E+00	5.84E-02	7.39E-01	4.65E-03	2.11E-02	1.83E+00	1.28E+00	3.36E+00	1.64E+00	6.06E+00	1.40E+00	1.44E+00	8.44E-01	2.55E+00	1.96E+00
2004	2	5	1.76E+00	8.90E-02	1.39E+00	1.59E-02	3.24E-02	5.66E+00	3.29E+00	7.15E+00	1.50E+00	1.70E+01	5.15E-01	1.79E+00	1.69E+00	7.91E+00	2.33E+00
2004	2	6	4.81E-02	0.00E+00	5.58E-04	0.00E+00	0.00E+00	3.17E-01	3.86E-01	8.96E-01	3.76E-16	3.48E+00	2.40E-03	5.55E-01	2.13E-01	6.28E-01	6.86E-02
2004	2	7	1.43E-01	0.00E+00	9.05E-04	0.00E+00	0.00E+00	6.18E-01	6.23E-01	2.33E+00	1.63E-17	3.89E+00	5.33E-03	6.57E-01	2.82E-01	1.27E+00	2.42E-01
2004	2	8	7.87E-01	3.50E-04	4.58E-01	2.71E-05	8.75E-05	2.26E+00	1.93E+00	5.48E+00	6.10E-01	1.17E+01	1.97E-02	9.47E-01	1.09E+00	3.92E+00	1.00E+00
2004	2	9	2.20E-01	7.03E-08	1.22E-01	0.00E+00	4.68E-08	1.73E+00	1.78E+00	3.64E+00	4.21E-03	1.19E+01	2.01E-04	1.91E+00	1.48E+00	2.55E+00	4.97E-01
2004	2	10	2.21E+00	9.05E-04	7.98E-01	9.60E-05	1.99E-04	2.42E+00	9.85E-01	4.62E+00	1.35E+00	4.95E+00	3.08E-03	7.26E-01	5.39E-01	4.00E+00	3.13E+00
2004	2	11	1.07E+00	4.70E-03	8.96E-01	6.94E-05	5.33E-04	3.53E+00	2.08E+00	6.19E+00	2.14E+00	1.05E+01	9.88E-02	1.72E+00	2.24E+00	4.69E+00	1.43E+00
2004	2	12	1.27E-02	0.00E+00	3.73E-03	0.00E+00	0.00E+00	4.53E-01	4.33E-01	9.51E-01	4.28E-04	3.31E+00	6.42E-03	8.30E-01	2.34E-01	6.00E-01	2.55E-02
2004	2	13	1.00E+00	1.71E-04	5.81E-01	6.44E-06	7.48E-05	3.43E+00	1.72E+00	4.37E+00	1.01E-01	7.61E+00	2.31E-02	1.27E+00	5.50E-01	3.77E+00	1.61E+00
2004	2	14	1.95E-01	1.81E-05	1.29E-01	1.06E-06	9.58E-06	1.75E+00	1.10E+00	3.42E+00	1.36E-02	3.43E+00	1.74E-02	1.20E+00	2.77E-01	2.65E+00	3.36E-01
2004	2	15	1.32E-01	0.00E+00	2.76E-02	0.00E+00	0.00E+00	9.28E-01	8.04E-01	2.17E+00	1.09E-04	4.39E+00	7.42E-03	9.83E-01	3.00E-01	1.38E+00	1.66E-01
2004	2	16	2.02E-01	3.31E-01	1.14E-01	3.02E-01	2.99E-01	1.35E+00	1.31E+00	3.46E+00	3.14E-02	2.92E+00	4.98E+00	7.68E-01	9.23E-01	1.94E+00	4.25E-01
2004	2	17	4.16E-01	1.66E-03	2.04E-01	5.50E-02	1.66E-01	1.01E+00	1.53E+00	2.83E+00	4.54E-02	5.43E+00	1.17E+00	1.02E+00	1.21E+00	2.12E+00	6.33E-01
2004	2	18	1.30E+00	2.84E-01	8.79E-01	1.81E-01	3.67E-01	4.83E+00	2.74E+00	6.06E+00	6.81E-01	7.95E+00	4.02E+00	1.49E+00	1.96E+00	4.38E+00	1.78E+00
2004	2	19	1.10E-01	2.22E-08	3.46E-02	0.00E+00	9.19E-09	1.71E+00	1.41E+00	4.96E+00	6.89E-03	9.68E+00	4.26E-04	1.57E+00	3.83E-01	2.52E+00	1.97E-01
2004	2	20	8.13E-01	2.14E-03	6.69E-01	4.39E-04	9.41E-04	4.32E+00	2.92E+00	6.72E+00	7.17E-02	1.83E+01	1.60E-02	2.15E+00	1.57E+00	6.46E+00	1.33E+00
2004	2	21	1.52E+00	1.16E+00	1.09E+00	3.11E-01	3.08E-01	7.64E+00	4.09E+00	1.11E+01	1.26E+00	1.42E+01	4.67E+00	2.16E+00	2.85E+00	9.68E+00	2.03E+00
2004	2	22	1.79E+00	1.03E+00	1.44E+00	2.55E-01	3.60E-01	7.58E+00	5.15E+00	1.38E+01	1.62E+00	1.74E+01	2.66E+00	3.16E+00	3.90E+00	1.31E+01	2.70E+00
2004	2	23	9.41E-01	4.30E-01	8.33E-01	3.31E-01	5.69E-01	7.78E+00	4.19E+00	1.01E+01	3.68E-01	1.73E+01	4.15E+00	1.75E+00	1.57E+00	1.09E+01	1.32E+00
2004	2	24	9.69E-01	8.92E-03	6.33E-01	6.24E-03	2.33E-01	5.86E+00	2.82E+00	8.07E+00	2.06E-01	8.49E+00	1.90E+00	6.99E-01	1.34E+00	6.95E+00	1.25E+00
2004	2	25	2.61E+00	4.47E-02	1.42E+00	2.10E-02	3.67E-02	2.87E+00	9.87E-01	4.02E+00	2.56E+00	5.10E+00	1.09E-01	9.44E-01	6.47E-01	3.44E+00	3.48E+00
2004	2	26	2.85E+00	7.16E-01	1.56E+00	1.36E-01	4.29E-01	5.21E+00	2.43E+00	7.03E+00	2.67E+00	4.66E+00	4.77E+00	6.45E-01	1.22E+00	6.37E+00	3.75E+00
2004	2	27	8.76E-01	1.84E-03	6.77E-01	3.84E-04	1.00E-03	4.86E+00	2.61E+00	6.44E+00	1.58E-01	9.98E+00	2.33E-02	1.98E+00	7.11E-01	5.96E+00	1.37E+00
2004	2	28	5.15E-01	1.81E-03	6.73E-01	3.36E-04	1.13E-03	6.76E+00	4.10E+00	8.41E+00	1.56E-01	1.37E+01	1.56E-02	2.43E+00	7.51E-01	9.76E+00	7.75E-01
2004	2	29	1.00E+00	1.03E-01	9.28E-01	4.17E-03	1.41E-02	5.79E+00	3.78E+00	7.09E+00	2.41E+00	1.51E+01	1.19E+00	2.20E+00	2.01E+00	9.94E+00	1.32E+00
2004	3	1	3.99E+00	6.49E-01	2.37E+00	6.92E-02	1.07E-01	3.75E+00	9.05E-01	3.41E+00	1.25E+01	8.72E-01	9.28E-01	2.89E-01	3.75E-01	4.96E+00	5.36E+00
2004	3	2	3.88E+00	7.18E-01	1.99E+00	1.01E-01	1.54E-01	4.52E+00	2.13E+00	6.73E+00	5.18E+00	3.62E+00	1.62E+00	9.91E-01	9.64E-01	6.10E+00	5.23E+00
2004	3	3	8.00E-01	2.65E-01	3.51E-01	5.36E-02	8.52E-02	2.94E+00	1.13E+00	3.90E+00	1.32E-01	1.57E+00	2.08E+00	3.25E-01	5.57E-01	2.02E+00	1.29E+00
2004	3	4	1.54E+00	3.16E-02	7.03E-01	1.88E-04	2.28E-03	1.65E+00	8.60E-01	2.80E+00	5.86E-01	1.57E+00	2.14E-01	6.32E-01	4.24E-01	2.25E+00	2.05E+00
2004	3	5	5.74E-01	1.37E-01	2.43E-01	3.24E-02	4.34E-02	1.34E+00	8.99E-01	2.54E+00	1.09E-01	1.84E+00	8.52E-01	2.29E-01	8.87E-01	1.52E+00	9.27E-01
2004	3	6	8.55E-03	0.00E+00	4.63E-03	0.00E+00	8.61E-15	3.91E-01	3.58E-01	9.58E-01	1.91E-17	1.76E+00	1.27E-02	5.95E-01	2.54E-01	4.87E-01	2.07E-02
2004	3	7	1.67E-02	0.00E+00	4.96E-03	0.00E+00	0.00E+00	3.20E-01	2.12E-01	6.80E-01	7.24E-18	7.51E-01	3.79E-02	2.74E-01	1.69E-01	3.67E-01	3.80E-02
2004	3	8	3.04E-01	1.08E-04	9.92E-02	1.10E-05	2.98E-04	1.31E+00	9.32E-01	3.60E+00	7.18E-02	2.51E+00	6.76E-02	6.34E-01	5.15E-01	1.91E+00	3.93E-01
2004	3	9	1.15E-01	0.00E+00	5.22E-02	0.00E+00	0.00E+00	4.83E-01	1.34E+00	1.01E+00	4.63E-02	4.19E+00	3.78E-02	5.18E-01	3.76E-01	7.78E-01	1.66E-01
2004	3	10	9.54E-01	1.25E+00	4.60E-01	1.99E-01	2.38E-01	2.47E+00	1.92E+00	4.79E+00	3.86E-01	6.76E+00	2.09E+00	1.39E+00	5.04E-01	4.17E+00	1.43E+00
2004	3	11	1.32E+00	1.42E-03	1.15E+00	1.91E-04	7.11E-04	4.20E+00	3.04E+00	6.64E+00	1.42E-01	1.11E+01	1.51E-02	1.59E+00	6.91E-01	5.70E+00	1.81E+00
2004	3	12	2.93E-01	1.91E-04	2.31E-01	6.21E-06	9.67E-05	2.31E+00	1.00E+00	4.08E+00	3.78E-02	2.72E+00	1.40E-02	9.27E-01	4.64E-01	3.06E+00	6.11E-01
2004	3	13	2.24E+00	1.02E-01	1.72E+00	1.47E-01	3.33E-01	4.53E+00	2.78E+00	7.26E+00	5.31E+00	3.18E+00	1.64E+00	1.40E+00	1.67E+00	7.76E+00	2.96E+00
2004	3	14	7.18E-01	2.36E-03	4.08E-01	6.22E-04	2.31E-03	3.42E+00	1.53E+00	5.36E+00	1.18E-01	3.36E+00	6.03E-02	9.83E-01	6.26E-01	3.00E+00	9.65E-01
2004	3	15	3.53E-01	1.01E-03	2.81E-01	6.50E-05	2.87E-04	2.78E+00	1.78E+00	3.83E+00	1.15E-01	6.22E+00	4.34E-02	1.12E+00	3.25E-01	3.07E+00	5.00E-01
2004	3	16	3.57E-02	0.00E+00	5.73E-03	0.00E+00	3.16E-12	4.67E-01	3.84E-01	1.03E+00	5.67E-19	2.02E+00	5.33E-02	3.98E-01	2.47E-01	6.17E-01	7.29E-02
2004	3	17	1.97E-01	7.44E-01	7.75E-02	4.86E-02	7.19E-02	6.37E-01	1.68E+00	2.30E+00	7.23E-02	8.64E+00	3.30E+00	1.55E+00	1.55E+00	1.68E+00	1.78E-01
2004	3	18	4.68E-01	1.90E-02	1.61E-01	1.37E-02	1.03E-01	2.43E+00	4.58E-01	2.65E+00	9.00E-02	1.53E+00	7.54E-01	9.97E-02	5.83E-01	1.42E+00	9.06E-01
2004	3	19	1.65E-01	1.81E-06	8.70E-02	0.00E+00	3.33E-06	1.95E+00	9.43E-01	3.56E+00	1.19E-02	2.62E+00	5.01E-02	7.44E-01	3.52E-01	2.07E+00	2.44E-01
2004	3	20	3.18E+00	1.72E-02	1.94E+00	3.97E-03	5.49E-03	5.11E+00	1.99E+00	6.84E+00	3.05E+00	5.99E+00	3.37E-02	1.61E+00	1.54E+00	7.12E+00	4.28E+00

Year	Month	Day	Baseline R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2003	12	22	5.04E-02	0.00E+00	5.31E-03	0.00E+00	0.00E+00	4.21E-01	3.76E-01	4.92E-01	0.00E+00	0.00E+00	0.00E+00	6.40E-06	0.00E+00	7.33E-01	8.30E-02
2003	12	23	1.22E-01	0.00E+00	4.40E-02	1.72E-06	9.49E-05	8.85E-01	4.44E-01	1.44E+00	1.57E-02	1.95E-03	5.47E-05	2.01E-02	1.31E-02	1.03E+00	1.76E-01
2003	12	24	5.41E-01	1.95E-03	2.56E-01	9.86E-04	2.98E-03	2.92E+00	1.03E+00	3.83E+00	9.50E-02	2.68E-02	1.02E-02	4.50E-02	3.78E-02	2.73E+00	7.96E-01
2003	12	25	2.33E-01	3.14E-04	2.08E-01	1.29E-05	8.64E-05	3.01E+00	8.75E-01	3.33E+00	5.10E-02	9.48E-03	2.10E-03	2.94E-02	1.75E-02	2.32E+00	3.16E-01
2003	12	26	1.26E+00	2.66E-03	9.34E-01	4.19E-04	1.25E-03	6.33E+00	2.69E+00	6.19E+00	1.27E-01	2.88E-02	9.91E-03	5.92E-02	4.12E-02	8.07E+00	1.81E+00
2003	12	27	1.57E+00	4.89E-03	1.10E+00	1.12E-03	2.24E-03	3.97E+00	2.12E+00	4.39E+00	9.60E-02	2.26E-02	1.05E-02	4.64E-02	3.21E-02	6.05E+00	2.09E+00
2003	12	28	3.14E+00	9.38E-03	1.94E+00	6.38E-03	9.19E-03	3.96E+00	1.86E+00	4.36E+00	9.55E-02	3.45E-02	1.79E-02	7.45E-02	5.86E-02	4.39E+00	4.04E+00
2003	12	29	4.22E+00	1.79E-03	2.43E+00	4.23E-04	1.08E-03	5.42E+00	7.60E-01	5.54E+00	7.20E-02	1.31E-02	5.04E-03	2.95E-02	2.01E-02	6.41E+00	4.75E+00
2003	12	30	1.24E-01	8.02E-04	1.24E-01	2.14E-04	4.32E-04	1.96E+00	6.09E-01	1.72E+00	1.52E-02	4.03E-03	1.72E-03	9.99E-03	6.33E-03	2.09E+00	1.69E-01
2003	12	31	7.50E-02	0.00E+00	3.62E-03	0.00E+00	0.00E+00	4.68E-01	7.23E-01	1.12E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-05	0.00E+00	1.07E+00	1.28E-01
2004	1	1	7.78E-01	5.44E-04	4.84E-01	2.58E-05	1.18E-04	2.07E+00	1.55E+00	3.19E+00	5.00E-02	1.03E-02	2.43E-03	3.36E-02	1.93E-02	4.44E+00	1.06E+00
2004	1	2	9.72E-01	5.77E-03	4.82E-01	3.86E-03	4.03E-03	1.11E+00	3.44E-01	1.94E+00	1.55E-02	6.91E-03	6.38E-03	3.78E-03	5.06E-03	2.07E+00	1.30E+00
2004	1	3	2.79E+00	4.13E-03	1.53E+00	8.19E-04	1.77E-03	3.87E+00	9.20E-01	3.24E+00	6.97E-02	1.77E-02	8.32E-03	3.25E-02	2.39E-02	4.66E+00	3.23E+00
2004	1	4	1.06E+00	7.43E-03	7.74E-01	2.38E-03	4.75E-03	6.49E+00	3.69E+00	9.03E+00	1.29E-01	3.85E-02	1.73E-02	9.17E-02	5.96E-02	9.83E+00	1.48E+00
2004	1	5	6.34E-01	0.00E+00	2.44E-01	0.00E+00	5.11E-07	3.14E+00	2.72E+00	4.99E+00	3.66E-02	4.59E-03	2.24E-04	3.90E-02	1.66E-02	5.82E+00	7.56E-01
2004	1	6	3.03E-01	0.00E+00	9.06E-02	0.00E+00	0.00E+00	1.17E+00	7.02E-01	1.82E+00	8.89E-04	0.00E+00	0.00E+00	1.67E-03	1.93E-04	1.83E+00	4.83E-01
2004	1	7	3.35E-01	0.00E+00	1.01E-01	0.00E+00	6.56E-06	9.79E-01	8.35E-01	1.47E+00	2.08E-03	5.00E-04	3.92E-05	8.83E-03	3.81E-03	1.34E+00	4.83E-01
2004	1	8	7.75E-02	0.00E+00	8.45E-04	0.00E+00	0.00E+00	3.83E-01	4.43E-01	9.27E-01	0.00E+00	0.00E+00	0.00E+00	2.88E-07	0.00E+00	7.98E-01	1.31E-01
2004	1	9	1.21E-01	0.00E+00	1.18E-01	0.00E+00	3.72E-05	1.42E+00	1.27E+00	3.14E+00	3.61E-03	8.26E-04	7.31E-05	1.75E-02	4.92E-03	2.48E+00	3.08E-01
2004	1	10	3.47E-01	3.19E-05	2.34E-01	0.00E+00	2.28E-06	1.59E+00	9.67E-01	1.77E+00	1.13E-02	1.49E-03	3.50E-04	4.14E-03	2.35E-03	2.29E+00	4.41E-01
2004	1	11	1.04E+00	4.49E-04	5.09E-01	5.73E-06	1.48E-04	1.92E+00	1.67E+00	3.12E+00	4.19E-02	9.91E-03	3.16E-03	2.77E-02	1.65E-02	2.86E+00	1.20E+00
2004	1	12	3.29E-01	0.00E+00	2.02E-01	0.00E+00	0.00E+00	1.46E+00	1.17E+00	2.34E+00	1.52E-03	4.87E-05	5.77E-08	7.99E-03	9.62E-04	2.29E+00	6.97E-01
2004	1	13	9.45E-02	0.00E+00	1.72E-03	0.00E+00	0.00E+00	4.53E-01	4.82E-01	8.46E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.33E-01	1.36E-01
2004	1	14	1.66E-01	0.00E+00	2.31E-02	0.00E+00	0.00E+00	6.69E-01	6.18E-01	1.35E+00	7.71E-06	0.00E+00	0.00E+00	4.15E-04	3.71E-05	1.17E+00	2.34E-01
2004	1	15	1.10E-01	0.00E+00	1.30E-02	0.00E+00	0.00E+00	6.66E-01	6.33E-01	1.29E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-03	2.25E-05	1.08E+00	1.89E-01
2004	1	16	8.62E-02	0.00E+00	1.90E-02	0.00E+00	0.00E+00	5.68E-01	7.60E-01	1.19E+00	0.00E+00	0.00E+00	0.00E+00	3.19E-05	0.00E+00	1.13E+00	1.29E-01
2004	1	17	4.62E-02	0.00E+00	5.59E-04	0.00E+00	0.00E+00	3.47E-01	3.74E-01	5.56E-01	0.00E+00	0.00E+00	0.00E+00	1.72E-07	0.00E+00	7.14E-01	8.34E-02
2004	1	18	5.38E-02	0.00E+00	5.03E-04	0.00E+00	0.00E+00	4.07E-01	5.62E-01	5.51E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.76E-01	8.98E-02
2004	1	19	1.50E-01	5.22E-04	1.55E-01	4.76E-05	1.47E-04	2.31E+00	1.43E+00	3.39E+00	1.37E-02	2.78E-03	1.11E-03	6.65E-03	4.20E-03	3.08E+00	2.54E-01
2004	1	20	6.36E-01	4.58E-03	4.82E-01	1.41E-03	2.50E-03	3.91E+00	2.94E+00	5.98E+00	7.13E-02	1.78E-02	8.57E-03	4.23E-02	2.71E-02	5.78E+00	7.21E-01
2004	1	21	4.82E-02	0.00E+00	4.02E-04	0.00E+00	0.00E+00	3.28E-01	3.65E-01	5.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.52E-01	7.49E-02
2004	1	22	6.34E-02	0.00E+00	7.17E-04	0.00E+00	0.00E+00	3.59E-01	3.78E-01	6.61E-01	0.00E+00	0.00E+00	0.00E+00	2.73E-07	0.00E+00	6.94E-01	1.02E-01
2004	1	23	2.16E+00	1.25E-02	1.03E+00	1.98E-03	3.28E-03	2.84E+00	2.02E+00	4.31E+00	1.05E-01	3.42E-02	1.77E-02	6.75E-02	4.52E-02	4.49E+00	2.87E+00
2004	1	24	1.61E+00	7.20E-02	7.51E-01	3.23E-02	4.61E-02	2.16E+00	1.43E+00	2.62E+00	1.88E-01	1.14E-01	9.40E-02	1.09E-01	1.09E-01	2.85E+00	2.13E+00
2004	1	25	6.29E-01	1.21E-02	3.49E-01	3.58E-03	3.29E-03	8.57E-01	6.50E-01	1.81E+00	3.56E-02	1.24E-02	1.10E-02	4.94E-03	8.07E-03	1.94E+00	8.52E-01
2004	1	26	6.99E-01	3.99E-02	2.97E-01	1.51E-02	1.43E-02	8.05E-01	6.00E-01	2.07E+00	4.79E-02	1.80E-02	2.18E-02	9.92E-03	1.17E-02	1.85E+00	9.60E-01
2004	1	27	5.74E-01	8.27E-03	2.82E-01	1.98E-03	1.82E-03	8.43E-01	5.80E-01	2.13E+00	2.25E-02	3.49E-03	4.49E-03	2.18E-03	2.22E-03	1.94E+00	7.89E-01
2004	1	28	1.45E+00	8.99E-03	2.93E-01	5.51E-03	9.45E-03	1.78E+00	1.67E+00	2.99E+00	9.46E-02	3.85E-02	1.38E-02	5.01E-02	4.82E-02	2.68E+00	2.03E+00
2004	1	29	2.34E+00	4.46E-03	9.24E-01	9.97E-03	2.18E-02	3.54E+00	2.60E+00	5.31E+00	1.24E-01	6.99E-02	3.19E-02	7.03E-02	7.30E-02	5.54E+00	3.32E+00
2004	1	30	1.06E+00	2.69E-03	1.46E-01	2.97E-03	3.36E-03	2.05E+00	5.37E-01	2.14E+00	3.98E-02	1.30E-02	1.20E-02	1.87E-02	1.06E-02	1.61E+00	1.42E+00
2004	1	31	1.44E+00	1.28E-03	4.17E-01	1.17E-03	2.30E-03	1.48E+00	1.60E+00	2.45E+00	1.25E-01	3.03E-02	6.16E-03	7.80E-02	5.45E-02	3.06E+00	1.97E+00
2004	2	1	3.42E+00	3.17E-02	2.14E+00	1.94E-02	2.65E-02	6.05E+00	2.37E+00	6.72E+00	1.75E-01	7.69E-02	5.32E-02	1.07E-01	9.12E-02	9.22E+00	4.20E+00
2004	2	2	2.24E+00	7.58E-03	1.84E+00	1.71E-03	3.77E-03	6.04E+00	4.18E+00	7.29E+00	1.69E-01	4.62E-02	1.74E-02	1.35E-01	8.15E-02	1.10E+01	2.79E+00
2004	2	3	1.51E+00	1.89E-02	1.15E+00	7.49E-03	1.33E-02	4.31E+00	3.45E+00	5.93E+00	1.84E-01	7.22E-02	3.73E-02	1.40E-01	1.02E-01	7.52E+00	1.93E+00
2004	2	4	1.26E+00	2.00E-03	6.49E-01	1.74E-04	8.33E-04	1.74E+00	1.18E+00	2.79E+00	6.82E-02	1.60E-02	7.17E-03	2.30E-02	1.87E-02	2.50E+00	1.57E+00
2004	2	5	1.49E+00	1.78E-02	1.33E+00	6.42E-03	1.09E-02	5.62E+00	3.15E+00	5.73E+00	1.89E-01	6.38E-02	3.44E-02	1.06E-01	8.08E-02	7.63E+00	1.76E+00
2004	2	6	4.81E-02	0.00E+00	5.58E-04	0.00E+00	0.00E+00	3.17E-01	3.49E-01	4.26E-01	0.00E+00	0.00E+00	0.00E+00	3.65E-06	0.00E+00	6.28E-01	6.86E-02
2004	2	7	1.43E-01	0.00E+00	9.05E-04	0.00E+00	0.00E+00	6.18E-01	5.34E-01	1.48E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E+00	2.42E-01
2004	2	8	7.14E-01	3.44E-04	4.57E-01	2.71E-05	8.65E-05	2.25E+00	1.83E+00	4.37E+00	1.69E-02	2.77E-03	8.41E-04	1.17E-02	5.70E-03	3.79E+00	8.48E-01
2004	2	9	1.78E-01	7.03E-08	1.22E-01	0.00E+00	4.68E-08	1.73E+00	1.67E+00	2.87E+00	3.97E-03	2.85E-04	1.58E-05	9.84E-03	2.92E-03	2.50E+00	3.98E-01
2004	2	10	1.50E+00	8.21E-04	7.75E-01	9.60E-05	1.99E-04	2.33E+00	8.59E-01	3.59E+00	3.80E-02	5.07E-03	1.79E-03	1.29E-02	7.69E-03	3.70E+00	2.27E+00
2004	2	11	9.49E-01	9.46E-04	7.16E-01	6.54E-05	1.68E-04	3.37E+00	1.82E+00	5.04E+00	3.76E-02	7.41E-03	2.79E-03	2.45E-02	1.29E-02	4.38E+00	1.27E+00
2004	2	12	1.27E-02	0.00E+00	3.73E-03	0.00E+00	0.00E+00	4.53E-01	4.12E-01	6.55E-01	4.28E-04	5.70E-06	0.00E+00	2.98E-04	7.02E-05	6.00E-01	2.55E-02
2004	2	13	8.57E-01	1.71E-04	5.72E-01	6.44E-06	7.45E-05	3.38E+00	1.66E+00	3.74E+00	8.06E-02	1.07E-02	1.94E-03	3.93E-02	2.29E-02	3.70E+00	1.25E+00
2004	2	14	1.77E-01	1.81E-05	1.28E-01	1.06E-06	9.58E-06	1.75E+00	1.00E+00	2.26E+00	1.17E-02	1.11E-03	1.93E-04	9.81E-03	3.68E-03	2.63E+00	2.89E-01
2004	2	15	1.32E-01	0.00E+00	2.76E-02	0.00E+00	0.00E+00	9.28E-01	7.29E-01	1.60E+00	1.09E-04	0.00E+00	0.00E+00	2.47E-04	5.57E-05	1.37E+00	1.66E-01
2004	2	16	2.02E-01	2.48E-03	1.14E-01	7.47E-03	1.12E-02	1.35E+00	1.28E+00	2.19E+00	2.69E-02	1.27E-02	7.69E-03	3.74E-02	2.26E-02	1.86E+00	4.25E-01
2004	2	17	3.67E-01	1.66E-03	2.04E-01	3.77E-03	5.11E-03	1.01E+00	1.47E+00	2.36E+00	5.44E-03	1.38E-02	7.86E-03	2.09E-02	2.04E-02	2.06E+00	5.35E-01
2004	2	18	1.09E+00	1.45E-02	8.54E-01	6.71E-03	1.13E-02	4.79E+00	2.61E+00	4.57E+00	1.83E-01	6.02E-02	3.15E-02	1.12E-01	8.14E-02	4.21E+00	1.38E+00
2004	2	19	1.10E-01	2.22E-08	3.46E-02	0.00E+00	9.19E-09	1.71E+00	1.25E+00	3.13E+00	6.89E-03	3.06E-04	1.92E-05	3.49E-03	1.08E-03	2.51E+00	1.97E-01
2004	2	20	6.98E-01	2.03E-03	6.64E-01	4.37E-04	9.31E-04	4.30E+00	2.73E+00	5.15E+00	5.43E-02	1.15E-02	4.65E-03	2.63E-02	1.72E-02	6.33E+00	1.02E+00
2004	2	21	1.16E+00	2.27E-02	8.63E-01	9.54E-03	1.55E-02	7.29E+00	3.70E+00	9.01E+00	2.42E-01	7.73E-02	4.27E-02	1.48E-01	1.06E-01	9.07E+00	1.54E+00
2004	2	22	1.55E+00	2.59E-02	1.42E+00	1.18E-02	1.76E-02	7.53E+00	4.71E+00	1.17E+01	2.67E-01	8.75E-02	4.56E-02	1.66E-01	1.22E-01	1.26E+01	2.10E+00
2004	2	23	8.90E-01	1.70E-02	8.30E-01	1.19E-02	1.89E-02	7.77E+00	4.07E+00	7.91E+00	1.90E-01	7.64E-02	4.05E-02	1.53E-01	1.10E-01	1.06E+01	1.16E+00
2004	2	24	9.52E-01	8.91E-03	6.33E-01	4.42E-03	1.15E-02	5.86E+00	2.76E+00	6.07E+00	2.02E-01	6.86E-02	3.17E-02	1.15E-01	8.72E-02	6.70E+00	1.18E+00
2004	2	25	2.29E+00	1.63E-03	1.39E+00	6.73E-04	1.19E-03	2.83E+00	9.33E-01	3.14E+00	7.87E-02	9.06E-03	3.54E-03	1.87E-02	1.28E-02	3.43E+00	2.88E+00
2004	2	26	2.59E+00	3.20E-02	1.53E+00	1.05E-02	1.66E-02	5.18E+00	2.39E+00	5.98E+00	3.04E-01	1.01E-01	5.39E-02	1.79E-01	1.34E-01	6.28E+00	3.25E+00
2004	2	27	8.20E-01	1.79E-03	6.72E-01	3.84E-04	9.96E-04	4.84E+00	2.51E+00	4.87E+00	1.51E-01	3.28E-02	9.65E-03	7.69E-02	5.19E-02	5.84E+00	1.18E+00
2004	2	28	4.97E-01	1.64E-03	6.72E-01	2.99E-04	1.06E-03	6.75E+00	3.97E+00	6.13E+00	1.53E-01	2.94E-02	8.12E-03	9.81E-02	5.77E-02	9.50E+00	7.12E-01
2004	2	29	8.79E-01	7.23E-03	7.69E-01	1.35E-03	3.16E-03	5.58E+00	3.58E+00	5.40E+00	1.37E-01	4.32E-02	1.93E-02	9.76E-02	6.73E-02	9.54E+00	1.18E+00
2004	3	1	3.81E+00	1.03E-02	1.89E+00	1.37E-03	1.97E-03	3.25E+00	7.99E-01	3.25E+00	9.23E-02	1.77E-02	1.10E-02	2.23E-02	1.82E-02	4.81E+00	5.16E+00
2004	3	2	3.14E+00	1.60E-02	1.62E+00	3.78E-03	7.16E-03	4.00E+00	1.85E+00	5.83E+00	1.92E-01	5.61E-02	2.85E-02	1.11E-01	7.69E-02	5.63E+00	4.23E+00
2004	3	3	7.16E-01	8.80E-03	3.47E-01	2.78E-03	4.85E-03	2.93E+00	1.11E+00	2.86E+00	1.24E-01	3.62E-02	1.77E-02	5.71E-02	4.61E-02	1.97E+00	1.09E+00
2004	3	4	1.41E+00	3.95E-06	6.47E-01	0.00E+00	5.20E-07	1.56E+00	8.32E-01	2.15E+00	6.69E-03	7.55E-04	7.22E-05	4.34E-03	2.11E-03	2.22E+00	1.76E+00
2004	3	5	4.80E-01	5.95E-03	2.41E-01	1.87E-03	3.49E-03	1.33E+00	8.85E-01	2.06E+00	9.20E-02	2.56E-02	1.26E-02	3.63E-02	3.02E-02	1.48E+00	7.37E-01
2004	3	6	8.55E-03	0.00E+00	4.63E-03	0.00E+00	0.00E+00	3.91E-01	3.47E-01	7.03E-01	0.00E+00	0.00E+00	0.00E+00	2.39E-04	0.00E+00	4.87E-01	2.07E-02
2004	3	7	1.67E-02	0.00E+00	4.96E-03	0.00E+00	0.00E+00	3.20E-01	2.08E-01	4.90E-01	0.00E+00	0.00E+00	0.00E+00	2.64E-04	0.00E+00	3.67E-01	3.80E-02
2004	3	8	2.97E-01	8.66E-05	9.86E-02	7.92E-06	2.87E-04	1.31E+00	8.77E-01	2.69E+00	7.04E-02	1.20E-02	2.89E-03	9.84E-03	1.23E-02	1.87E+00	3.72E-01
2004	3	9	1.15E-01	0.00E+00	5.22E-02	0.00E+00	0.00E+00	4.83E-01	1.32E+00	8.71E-01	6.32E-03	9.14E-05	2.60E-06	2.34E-03	5.36E-04	7.75E-01	1.66E-01
2004	3	10	8.67E-01	1.12E-02	4.24E-01	2.63E-03	3.78E-03	2.40E+00	1.81E+00	3.96E+00	7.92E-02	2.17E-02	1.32E-02	3.78E-02	2.70E-02	4.07E+00	1.22E+00
2004	3	11	1.24E+00	1.33E-03	1.13E+00	1.80E-04	6.72E-04	4.15E+00	2.96E+00	5.61E+00	9.07E-02	1.92E-02	6.09E-03	4.79E-02	3.10E-02	5.66E+00	1.59E+00
2004	3	12	2.43E-01	1.91E-04	2.27E-01	6.21E-06	9.67E-05	2.30E+00	9.67E-01	3.54E+00	3.06E-02	4.85E-03	1.50E-03	1.06E-02	6.40E-03	3.03E+00	4.86E-01
2004	3	13	1.84E+00	7.44E-03	1.36E+00	5.31E-03	8.36E-03	4.07E+00	2.43E+00	6.04E+00	1.10E-01	3.76E-02	1.70E-02	7.24E-02	5.44E-02	7.34E+00	2.50E+00
2004	3	14	6.61E-01	2.27E-03	3.97E-01	6.02E-04	2.21E-03	3.39E+00	1.45E+00	4.08E+00	1.01E-01	2.73E-02	1.08E-02	4.97E-02	3.87E-02	2.97E+00	8.26E-01
2004	3	15	3.32E-01	1.01E-03	2.81E-01	6.50E-05	2.87E-04	2.78E+00	1.71E+00	2.97E+00	6.42E-02	1.23E-02	3.71E-03	3.46E-02	2.13E-02	3.02E+00	4.46E-01
2004	3	16	3.57E-02	0.00E+00	5.73E-03	0.00E+00	0.00E+00	4.67E-01	3.46E-01	5.76E-01	0.00E+00	0.00E+00	0.00E+00	3.27E-05	0.00E+00	6.17E-01	7.29E-02
2004	3	17	1.96E-01	4.25E-03	7.69E-02	1.07E-03	2.44E-03	6.36E-01	1.63E+00	1.94E+00	3.79E-02	2.32E-02	1.22E-02	4.16E-02	3.06E-02	1.68E+00	1.77E-01
2004	3	18	4.62E-01	1.18E-03	1.60E-01	7.20E-04	2.10E-03	2.43E+00	4.53E-01	2.29E+00	8.52E-02	1.72E-02	5.38E-03	2.49E-02	2.23E-02	1.41E+00	8.88E-01
2004	3	19	1.65E-01	1.81E-06	8.70E-02	0.00E+00	3.33E-06	1.95E+00	8.85E-01	2.72E+00	1.19E-02	1.22E-03	1.15E-04	1.70E-02	4.92E-03	2.06E+00	2.44E-01
2004	3	20	2.66E+00	4.81E-03	1.69E+00	7.27E-04	1.36E-03	4.82E+00	1.76E+00	5.79E+00	1.51E-01	3.15E-02	1.08E-02	5.24E-02	4.20E-02	6.80E+00	3.32E+00

Year	Month	Day	Project R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2003	12	22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.48E-02	6.72E-01	5.80E-17	4.86E+00	2.16E-03	4.98E-01	3.30E-01	0.00E+00	0.00E+00
2003	12	23	0.00E+00	0.00E+00	0.00E+00	1.74E-08	3.27E-03	0.00E+00	8.82E-03	4.94E-01	2.39E-18	1.66E+00	1.07E-01	2.53E-01	5.80E-01	1.24E-02	0.00E+00
2003	12	24	3.91E-02	3.11E-06	7.44E-06	1.55E-04	1.99E-01	2.96E-04	3.40E-02	1.81E+00	1.67E-03	1.71E+00	1.91E+00	2.64E-01	2.22E-01	9.49E-02	1.37E-01
2003	12	25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.55E-02	1.55E+00	1.63E-30	1.89E+00	4.95E-02	8.99E-01	3.99E-01	7.33E-02	0.00E+00
2003	12	26	1.72E-01	5.19E-04	3.83E-02	4.44E-05	1.99E-04	1.02E-01	1.54E-01	1.87E+00	2.62E-01	1.80E+01	8.10E-03	2.71E+00	2.88E+00	1.53E-01	4.49E-01
2003	12	27	1.02E-01	2.88E-02	2.44E-01	3.94E-03	9.81E-03	2.46E-01	1.61E-01	1.34E+00	3.75E+00	8.83E+00	1.39E-01	1.76E+00	1.23E+00	1.62E-01	1.74E-01
2003	12	28	3.04E-01	7.63E-01	2.36E-01	3.40E-01	5.65E-01	3.09E-01	1.03E-01	5.30E-01	7.66E+00	6.46E+00	5.33E+00	8.00E-01	1.62E+00	1.30E-01	4.73E-01
2003	12	29	9.70E-01	1.05E-03	1.28E+00	7.09E-04	8.83E-04	8.54E-01	3.87E-02	3.76E-01	4.17E+00	7.84E-01	1.54E-03	4.13E-01	5.41E-01	7.82E-02	1.64E+00
2003	12	30	1.23E-02	4.07E-06	1.91E-05	1.72E-06	4.40E-06	2.28E-05	6.77E-02	6.96E-01	3.47E-05	3.68E+00	4.16E-03	7.94E-01	4.82E-01	2.79E-02	2.32E-02
2003	12	31	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.04E-02	7.27E-01	3.54E-17	6.51E+00	3.78E-03	1.09E+00	2.52E-01	0.00E+00	0.00E+00
2004	1	1	6.77E-02	3.11E-04	3.85E-02	0.00E+00	1.80E-05	5.34E-02	6.03E-02	7.52E-01	9.80E-01	8.49E+00	9.02E-03	1.43E+00	6.04E-01	7.64E-02	2.12E-01
2004	1	2	0.00E+00	8.75E-01	2.72E-02	1.60E-02	1.86E-03	5.86E-02	0.00E+00	0.00E+00	1.88E+00	5.74E-04	1.38E-03	2.15E-05	1.71E-04	0.00E+00	0.00E+00
2004	1	3	3.83E-01	5.25E-02	9.99E-02	6.92E-04	3.88E-03	8.37E-02	1.24E-02	2.18E-01	4.42E+00	3.18E+00	4.61E-01	2.78E-01	3.63E-01	2.81E-02	6.90E-01
2004	1	4	7.76E-01	2.16E-01	1.56E-01	4.66E-02	1.15E-01	2.14E-01	1.51E+00	3.12E+00	8.47E-01	1.67E+01	1.39E+00	5.89E+00	5.96E+00	1.12E+00	1.15E+00
2004	1	5	5.54E-03	0.00E+00	5.23E-04	0.00E+00	0.00E+00	8.29E-03	1.95E-01	2.04E+00	3.74E-04	1.14E+01	2.27E-03	1.40E+00	7.72E-01	1.18E-01	1.97E-02
2004	1	6	7.38E-03	0.00E+00	1.14E-03	0.00E+00	0.00E+00	1.43E-02	6.06E-02	4.29E-01	4.02E-05	4.63E+00	8.98E-03	9.49E-01	1.99E-01	1.83E-02	2.29E-02
2004	1	7	1.27E-02	0.00E+00	9.68E-04	0.00E+00	0.00E+00	8.54E-03	6.11E-02	5.53E-01	3.01E-04	5.32E+00	5.80E-02	8.82E-01	3.48E-01	3.61E-02	5.38E-02
2004	1	8	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.33E-02	3.62E-01	8.88E-17	4.66E+00	8.38E-03	5.85E-01	2.42E-01	8.80E-04	0.00E+00
2004	1	9	3.48E-02	0.00E+00	0.00E+00	0.00E+00	3.58E-05	0.00E+00	6.74E-02	1.06E+00	1.01E-19	5.55E+00	8.88E-02	1.34E+00	7.63E-01	8.24E-03	1.24E-01
2004	1	10	8.80E-02	0.00E+00	2.23E-03	0.00E+00	0.00E+00	6.18E-03	8.78E-02	9.28E-01	4.85E-03	4.66E+00	1.71E-02	1.37E+00	3.45E-01	2.95E-02	1.72E-01
2004	1	11	5.10E-02	3.57E-05	8.93E-03	1.45E-06	1.57E-05	2.18E-02	1.20E-01	1.24E+00	3.61E-02	1.17E+01	2.87E-03	1.59E+00	5.67E-01	2.53E-02	1.17E-01
2004	1	12	4.68E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-04	1.10E-01	1.08E+00	9.08E-06	8.83E+00	1.06E-02	1.24E+00	4.25E-01	2.40E-02	1.11E-01
2004	1	13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.69E-02	5.22E-01	4.78E-18	2.25E+00	1.67E-02	7.22E-01	2.33E-01	1.21E-02	0.00E+00
2004	1	14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E-02	1.12E+00	7.88E-19	2.25E+00	2.06E-02	1.03E+00	2.70E-01	7.06E-03	0.00E+00
2004	1	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.12E-02	8.78E-01	1.25E-18	2.76E+00	1.52E-02	1.01E+00	2.91E-01	0.00E+00	0.00E+00
2004	1	16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-01	8.97E-01	6.00E-17	8.73E+00	5.22E-04	1.04E+00	3.80E-01	0.00E+00	0.00E+00
2004	1	17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.23E-02	4.78E-01	1.20E-16	6.28E+00	5.05E-04	5.10E-01	2.94E-01	0.00E+00	0.00E+00
2004	1	18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.18E-02	8.75E-01	2.30E-17	6.38E+00	3.59E-04	7.40E-01	2.66E-01	0.00E+00	0.00E+00
2004	1	19	1.82E-02	0.00E+00	1.04E-07	0.00E+00	0.00E+00	4.80E-05	1.52E-01	1.44E+00	3.97E-03	1.13E+01	6.33E-06	1.24E+00	1.11E+00	2.18E-02	5.49E-02
2004	1	20	4.42E-02	0.00E+00	3.56E-04	0.00E+00	0.00E+00	2.80E-03	1.53E-01	1.92E+00	1.59E-02	1.51E+01	7.40E-04	1.33E+00	1.71E+00	2.32E-01	1.10E-01
2004	1	21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.87E-02	5.56E-01	2.95E-17	4.51E+00	6.06E-04	5.21E-01	3.07E-01	0.00E+00	0.00E+00
2004	1	22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.71E-02	4.69E-01	3.10E-16	3.27E+00	4.59E-03	6.76E-01	2.12E-01	4.77E-05	0.00E+00
2004	1	23	2.67E-01	7.61E-01	1.13E-01	2.86E-02	4.57E-02	1.34E-01	1.49E-01	1.16E+00	3.38E+00	8.39E+00	1.90E+00	1.79E+00	9.20E-01	1.18E-01	5.02E-01
2004	1	24	2.76E-02	1.73E+00	2.64E-02	5.22E-01	7.14E-01	8.06E-02	3.52E-03	1.20E-01	1.22E+00	1.88E+00	1.32E+01	2.32E-02	9.42E-02	7.67E-03	6.02E-02
2004	1	25	1.50E-04	1.00E+00	1.51E-02	5.29E-03	1.85E-03	3.84E-02	3.09E-05	9.95E-05	5.48E-01	1.96E-03	2.94E-01	2.69E-04	7.50E-04	7.48E-05	1.51E-04
2004	1	26	0.00E+00	2.57E+00	1.97E-03	2.74E-01	4.10E-02	2.23E-02	0.00E+00	0.00E+00	4.37E-01	5.36E-03	1.06E+00	5.36E-05	1.22E-03	0.00E+00	0.00E+00
2004	1	27	1.13E-07	9.28E-01	4.89E-03	7.47E-04	2.41E-04	1.60E-02	1.99E-08	1.48E-07	2.51E-01	1.32E-04	2.53E-03	9.11E-06	2.30E-05	4.17E-08	1.62E-07
2004	1	28	5.02E-02	1.18E+00	3.24E-04	1.43E-01	3.39E-01	4.83E-03	4.47E-03	5.03E-01	3.70E-02	3.16E+00	2.28E+00	3.50E-02	5.49E-01	1.68E-02	1.30E-01
2004	1	29	1.26E-01	1.84E-01	3.20E-02	5.63E-02	3.37E-01	9.77E-02	6.22E-02	7.34E-01	1.17E+00	7.57E+00	2.16E+00	5.54E-01	6.86E-01	6.06E-02	2.85E-01
2004	1	30	2.25E-02	5.67E-02	6.61E-04	1.26E-01	2.71E-01	4.49E-02	2.18E-04	2.53E-01	1.91E-02	1.32E+00	1.83E+00	1.72E-02	1.18E-01	1.50E-02	6.21E-02
2004	1	31	1.66E-02	4.66E-01	1.59E-02	1.10E-01	1.95E-01	4.83E-02	1.81E-02	1.96E-02	4.85E-01	7.23E+00	2.27E+00	3.67E-01	1.00E+00	1.64E-02	2.00E-02
2004	2	1	3.92E-01	2.14E+00	7.78E-02	6.88E-01	7.24E-01	1.00E-01	6.31E-02	1.08E+00	6.29E+00	6.43E+00	3.77E+00	8.00E-01	4.12E-01	2.25E-01	8.16E-01
2004	2	2	3.49E-01	4.29E-02	1.82E-01	1.28E-03	3.00E-03	1.69E-01	3.96E-01	2.55E+00	3.73E+00	1.51E+01	1.44E-01	2.55E+00	1.94E+00	5.00E-01	7.65E-01
2004	2	3	1.56E-01	4.82E-01	5.48E-02	7.75E-02	2.86E-01	5.58E-02	1.32E-01	1.43E+00	1.37E+00	1.54E+01	2.27E+00	2.01E+00	1.58E+00	1.25E-01	4.03E-01
2004	2	4	2.20E-01	5.64E-02	9.01E-02	4.48E-03	2.02E-02	8.83E-02	9.85E-02	5.70E-01	1.57E+00	6.04E+00	1.39E+00	1.42E+00	8.25E-01	4.79E-02	3.87E-01
2004	2	5	2.76E-01	7.12E-02	5.80E-02	9.43E-03	2.15E-02	4.81E-02	1.35E-01	1.41E+00	1.31E+00	1.69E+01	4.80E-01	1.68E+00	1.61E+00	2.78E-01	5.65E-01
2004	2	6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.78E-02	4.70E-01	3.76E-16	3.48E+00	2.40E-03	5.55E-01	2.13E-01	0.00E+00	0.00E+00
2004	2	7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.91E-02	8.47E-01	1.63E-17	3.89E+00	5.33E-03	6.57E-01	2.82E-01	7.83E-02	0.00E+00
2004	2	8	7.27E-02	5.19E-06	2.16E-04	5.31E-09	9.91E-07	8.18E-03	1.05E-01	1.11E+00	5.93E-01	1.17E+01	1.88E-02	9.36E-01	1.09E+00	1.32E-01	1.55E-01
2004	2	9	4.11E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-01	7.64E-01	2.43E-04	1.19E+01	1.85E-04	1.90E+00	1.48E+00	4.98E-02	9.90E-02
2004	2	10	7.05E-01	8.35E-05	2.27E-02	0.00E+00	1.18E-07	8.50E-02	1.27E-01	1.03E+00	1.31E+00	4.94E+00	1.29E-03	7.13E-01	5.32E-01	3.00E-01	8.65E-01
2004	2	11	1.24E-01	3.75E-03	1.81E-01	4.01E-06	3.64E-04	1.57E-01	2.66E-01	1.15E+00	2.10E+00	1.05E+01	9.61E-02	1.69E+00	2.22E+00	3.08E-01	1.55E-01
2004	2	12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.12E-02	2.96E-01	6.41E-17	3.31E+00	6.42E-03	8.30E-01	2.34E-01	3.60E-11	0.00E+00
2004	2	13	1.43E-01	0.00E+00	8.38E-03	0.00E+00	2.69E-07	5.70E-02	5.21E-02	6.28E-01	2.07E-02	7.60E+00	2.12E-02	1.23E+00	5.27E-01	6.26E-02	3.55E-01
2004	2	14	1.76E-02	0.00E+00	1.20E-04	0.00E+00	0.00E+00	2.87E-04	9.26E-02	1.17E+00	1.91E-03	3.43E+00	1.72E-02	1.19E+00	2.74E-01	1.45E-02	4.64E-02
2004	2	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.52E-02	5.77E-01	7.33E-18	4.39E+00	7.42E-03	9.82E-01	3.00E-01	6.60E-03	0.00E+00
2004	2	16	0.00E+00	3.29E-01	0.00E+00	2.94E-01	2.88E-01	0.00E+00	3.57E-02	1.27E+00	4.47E-03	2.91E+00	4.97E+00	7.30E-01	9.00E-01	8.09E-02	0.00E+00
2004	2	17	4.91E-02	2.52E-06	0.00E+00	5.12E-02	1.61E-01	3.84E-04	6.52E-02	4.69E-01	4.00E-02	5.42E+00	1.16E+00	9.96E-01	1.19E+00	6.67E-02	9.78E-02
2004	2	18	2.11E-01	2.70E-01	2.43E-02	1.74E-01	3.56E-01	4.26E-02	1.27E-01	1.49E+00	4.98E-01	7.89E+00	3.99E+00	1.38E+00	1.88E+00	1.64E-01	3.99E-01
2004	2	19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-01	1.84E+00	5.65E-21	9.68E+00	4.06E-04	1.57E+00	3.82E-01	6.82E-03	0.00E+00
2004	2	20	1.15E-01	1.09E-04	5.49E-03	1.69E-06	9.57E-06	1.37E-02	1.89E-01	1.57E+00	1.74E-02	1.83E+01	1.14E-02	2.12E+00	1.55E+00	1.24E-01	3.07E-01
2004	2	21	3.60E-01	1.14E+00	2.31E-01	3.02E-01	2.93E-01	3.48E-01	3.85E-01	2.06E+00	1.02E+00	1.42E+01	4.63E+00	2.01E+00	2.75E+00	6.09E-01	4.86E-01
2004	2	22	2.33E-01	1.00E+00	2.35E-02	2.43E-01	3.43E-01	4.23E-02	4.35E-01	2.17E+00	1.36E+00	1.73E+01	2.62E+00	2.99E+00	3.78E+00	5.67E-01	6.01E-01
2004	2	23	5.09E-02	4.13E-01	2.86E-03	3.20E-01	5.50E-01	6.45E-03	1.14E-01	2.17E+00	1.77E-01	1.72E+01	4.11E+00	1.59E+00	1.46E+00	2.70E-01	1.59E-01
2004	2	24	1.75E-02	9.73E-06	1.83E-05	1.82E-03	2.22E-01	2.90E-04	6.24E-02	2.00E+00	3.83E-03	8.42E+00	1.87E+00	5.84E-01	1.26E+00	2.57E-01	6.82E-02
2004	2	25	3.24E-01	4.31E-02	3.37E-02	2.04E-02	3.55E-02	3.75E-02	5.40E-02	8.81E-01	2.48E+00	5.09E+00	1.06E-01	9.25E-01	6.35E-01	1.42E-02	5.97E-01
2004	2	26	2.59E-01	6.84E-01	2.87E-02	1.25E-01	4.12E-01	2.98E-02	3.58E-02	1.05E+00	2.36E+00	4.56E+00	4.72E+00	4.66E-01	1.08E+00	9.70E-02	5.01E-01
2004	2	27	5.58E-02	4.73E-05	4.77E-03	5.33E-09	8.65E-06	2.21E-02	9.87E-02	1.57E+00	6.36E-03	9.95E+00	1.36E-02	1.90E+00	6.59E-01	1.17E-01	1.98E-01
2004	2	28	1.85E-02	1.69E-04	1.05E-03	3.66E-05	7.41E-05	1.30E-03	1.26E-01	2.28E+00	2.82E-03	1.36E+01	7.44E-03	2.33E+00	6.93E-01	2.63E-01	6.31E-02
2004	2	29	1.25E-01	9.54E-02	1.59E-01	2.82E-03	1.09E-02	2.06E-01	1.98E-01	1.69E+00	2.27E+00	1.51E+01	1.17E+00	2.10E+00	1.94E+00	4.06E-01	1.36E-01
2004	3	1	1.81E-01	6.39E-01	4.75E-01	6.79E-02	1.05E-01	4.94E-01	1.06E-01	1.61E-01	1.24E+01	8.54E-01	9.17E-01	2.67E-01	3.57E-01	1.49E-01	1.95E-01
2004	3	2	7.47E-01	7.02E-01	3.73E-01	9.76E-02	1.47E-01	5.19E-01	2.84E-01	9.06E-01	4.98E+00	3.56E+00	1.59E+00	8.80E-01	8.88E-01	4.71E-01	9.91E-01
2004	3	3	8.40E-02	2.56E-01	3.50E-03	5.09E-02	8.04E-02	1.02E-02	2.04E-02	1.04E+00	8.54E-03	1.54E+00	2.07E+00	2.68E-01	5.11E-01	5.22E-02	1.97E-01
2004	3	4	1.24E-01	3.16E-02	5.66E-02	1.88E-04	2.28E-03	8.94E-02	2.80E-02	6.51E-01	5.80E-01	1.57E+00	2.14E-01	6.27E-01	4.22E-01	2.92E-02	2.88E-01
2004	3	5	9.41E-02	1.31E-01	2.49E-03	3.05E-02	3.99E-02	7.78E-03	1.35E-02	4.79E-01	1.67E-02	1.81E+00	8.40E-01	1.93E-01	8.57E-01	3.61E-02	1.90E-01
2004	3	6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.61E-15	0.00E+00	1.13E-02	2.55E-01	1.91E-17	1.76E+00	1.27E-02	5.94E-01	2.54E-01	0.00E+00	0.00E+00
2004	3	7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.18E-03	1.90E-01	7.24E-18	7.51E-01	3.79E-02	2.73E-01	1.69E-01	0.00E+00	0.00E+00
2004	3	8	6.79E-03	2.10E-05	6.25E-04	3.05E-06	1.08E-05	1.43E-03	5.60E-02	9.09E-01	1.37E-03	2.50E+00	6.47E-02	6.25E-01	5.03E-01	3.53E-02	2.09E-02
2004	3	9	7.03E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-02	1.34E-01	4.00E-02	4.19E+00	3.78E-02	5.15E-01	3.75E-01	3.60E-03	1.02E-05
2004	3	10	8.70E-02	1.23E+00	3.68E-02	1.97E-01	2.34E-01	6.51E-02	1.02E-01	8.27E-01	3.07E-01	6.74E+00	2.08E+00	1.36E+00	4.77E-01	9.53E-02	2.14E-01
2004	3	11	8.49E-02	8.91E-05	2.03E-02	1.04E-05	3.94E-05	5.52E-02	8.68E-02	1.03E+00	5.09E-02	1.11E+01	8.99E-03	1.54E+00	6.60E-01	4.80E-02	2.18E-01
2004	3	12	4.93E-02	3.94E-09	4.27E-03	0.00E+00	0.00E+00	1.09E-02	3.69E-02	5.36E-01	7.12E-03	2.72E+00	1.25E-02	9.16E-01	4.58E-01	2.99E-02	1.25E-01
2004	3	13	3.99E-01	9.44E-02	3.56E-01	1.42E-01	3.24E-01	4.59E-01	3.48E-01	1.22E+00	5.20E+00	3.14E+00	1.62E+00	1.33E+00	1.62E+00	4.28E-01	4.59E-01
2004	3	14	5.75E-02	9.08E-05	1.07E-02	2.00E-05	9.49E-05	2.52E-02	7.64E-02	1.28E+00	1.71E-02	3.33E+00	4.95E-02	9.33E-01	5.88E-01	3.40E-02	1.39E-01
2004	3	15	2.11E-02	0.00E+00	3.81E-06	0.00E+00	0.00E+00	1.11E-03	6.69E-02	8.57E-01	5.08E-02	6.21E+00	3.97E-02	1.08E+00	3.04E-01	4.77E-02	5.41E-02
2004	3	16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.16E-12	0.00E+00	3.87E-02	4.52E-01	5.67E-19	2.02E+00	5.33E-02	3.98E-01	2.47E-01	0.00E+00	0.00E+00
2004	3	17	8.34E-04	7.40E-01	5.59E-04	4.75E-02	6.95E-02	1.14E-03	4.94E-02	3.64E-01	3.44E-02	8.62E+00	3.29E+00	1.51E+00	1.52E+00	2.67E-03	1.15E-03
2004	3	18	5.42E-03	1.79E-02	1.02E-03	1.29E-02	1.01E-01	2.76E-03	5.41E-03	3.54E-01	4.85E-03	1.52E+00	7.49E-01	7.48E-02	5.60E-01	1.11E-02	1.72E-02
2004	3	19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-02	8.33E-01	1.95E-19	2.62E+00	4.99E-02	7.27E-01	3.47E-01	8.13E-03	1.10E-05
2004	3	20	5.25E-01	1.24E-02	2.59E-01	3.24E-03	4.12E-03	2.95E-01	2.30E-01	1.05E+00	2.90E+00	5.96E+00	2.30E-02	1.56E+00	1.50E+00	3.25E-01	9.67E-01

MILLENNIUM
EMS Solutions Ltd.

Table C4 - Timeseries Data for PM10

Application

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2004	3	21	4.80E+00	5.34E-01	3.69E+00	6.58E-02	1.15E-01	5.73E+00	1.82E+00	7.60E+00	5.26E+00	5.11E+00	1.53E+00	2.54E+00	3.05E+00	6.82E+00	5.89E+00
2004	3	22	3.87E+00	2.00E+00	1.96E+00	4.06E-01	4.92E-01	6.67E+00	4.15E+00	9.38E+00	3.63E+00	1.07E+01	4.93E+00	1.90E+00	2.59E+00	9.36E+00	5.03E+00
2004	3	23	4.72E-01	6.95E-02	5.04E-01	5.31E-02	8.30E-02	3.98E+00	2.42E+00	5.27E+00	1.63E-01	8.17E+00	5.41E-01	1.22E+00	1.03E+00	5.49E+00	7.13E-01
2004	3	24	7.65E-02	0.00E+00	1.18E-02	2.48E-08	4.00E-03	5.51E-01	5.23E-01	1.28E+00	1.29E-03	2.43E+00	1.95E-01	6.96E-01	3.34E-01	7.70E-01	1.31E-01
2004	3	25	2.56E+00	8.41E-02	1.36E+00	1.86E-01	1.56E-01	2.25E+00	3.13E-01	2.65E+00	2.05E+00	1.52E+00	1.24E+00	2.53E-01	2.27E-01	2.79E+00	3.12E+00
2004	3	26	2.42E+00	3.32E-01	1.83E+00	6.93E-02	1.76E-01	3.07E+00	7.05E-01	3.17E+00	1.24E+00	1.36E+00	1.26E+00	2.44E-01	4.15E-01	3.04E+00	2.89E+00
2004	3	27	8.11E-02	0.00E+00	3.42E-02	0.00E+00	2.79E-05	8.97E-01	7.32E-01	2.43E+00	5.34E-04	3.87E+00	8.54E-02	5.40E-01	4.13E-01	1.23E+00	1.22E-01
2004	3	28	9.90E-01	2.60E-05	7.87E-01	5.30E-08	6.88E-07	2.94E+00	2.17E+00	4.10E+00	2.06E-02	1.02E+01	9.76E-04	1.49E+00	5.56E-01	3.27E+00	1.37E+00
2004	3	29	1.68E+00	8.95E-01	9.40E-01	1.22E-01	3.50E-01	4.49E+00	2.30E+00	5.02E+00	2.40E-01	8.68E+00	4.94E+00	9.96E-01	4.66E-01	4.53E+00	2.37E+00
2004	3	30	5.66E-01	2.66E-03	4.08E-01	2.72E-02	4.60E-01	4.63E+00	2.16E+00	6.46E+00	1.73E-01	4.60E+00	2.63E+00	6.99E-01	1.23E+00	3.68E+00	1.08E+00
2004	3	31	2.27E+00	3.24E-01	1.07E+00	2.70E-02	5.14E-02	2.27E+00	7.47E-01	2.30E+00	1.93E+00	2.73E+00	9.58E-01	3.97E-01	6.02E-01	2.70E+00	2.86E+00
2004	4	1	3.02E+00	1.21E-04	1.73E+00	2.33E-17	1.76E-06	2.74E+00	2.76E-01	2.75E+00	5.69E+00	3.47E-03	2.54E-03	6.58E-03	3.99E-03	4.18E+00	3.96E+00
2004	4	2	4.00E+00	5.61E-02	3.14E+00	2.03E-03	4.94E-03	4.57E+00	1.41E+00	6.85E+00	4.49E+00	1.34E+00	2.93E-01	6.19E-01	5.94E-01	7.47E+00	5.46E+00
2004	4	3	2.80E+00	1.86E-01	1.92E+00	1.49E-01	2.47E-01	2.88E+00	5.05E-01	3.15E+00	2.29E+00	2.58E+00	1.66E+00	4.65E-01	3.36E-01	3.81E+00	3.39E+00
2004	4	4	1.86E+00	6.95E-04	1.17E+00	5.10E-06	2.71E-05	3.17E+00	1.71E+00	3.86E+00	4.39E+00	3.62E+00	3.04E-02	6.75E-01	5.38E-01	3.48E+00	2.47E+00
2004	4	5	2.83E+00	8.81E-01	1.24E+00	1.16E-01	1.49E-01	5.50E+00	3.17E+00	8.30E+00	1.39E+00	4.04E+00	3.99E+00	2.02E+00	1.90E+00	6.66E+00	3.96E+00
2004	4	6	1.67E+00	1.07E-01	1.01E+00	4.33E-02	6.83E-02	4.59E+00	1.72E+00	6.52E+00	3.25E+00	6.36E+00	3.50E-01	1.51E+00	2.47E+00	5.29E+00	2.28E+00
2004	4	7	1.94E+00	4.25E-01	1.25E+00	3.03E-02	3.98E-02	6.17E+00	2.71E+00	8.02E+00	8.88E-01	7.85E+00	1.74E+00	1.04E+00	6.14E-01	7.87E+00	2.78E+00
2004	4	8	2.90E+00	2.17E-03	2.06E+00	3.49E-04	7.41E-04	4.52E+00	7.08E-01	5.32E+00	3.09E+00	7.25E-01	4.77E-03	2.38E-01	3.26E-01	5.03E+00	3.72E+00
2004	4	9	4.55E+00	1.03E-02	2.77E+00	1.74E-03	2.75E-03	4.61E+00	7.41E-01	5.29E+00	6.09E+00	1.08E-01	1.37E-02	1.62E-01	9.37E-02	6.03E+00	6.24E+00
2004	4	10	4.00E+00	7.66E-01	2.54E+00	8.69E-02	1.09E-01	5.88E+00	2.15E+00	7.10E+00	3.63E+00	4.83E+00	2.60E+00	8.79E-01	1.36E+00	7.85E+00	5.41E+00
2004	4	11	5.84E-01	1.48E-02	7.43E-01	1.25E-02	1.84E-02	6.03E+00	2.62E+00	8.47E+00	1.33E-01	1.24E+01	6.04E-02	1.39E+00	1.31E+00	8.56E+00	7.41E-01
2004	4	12	2.60E+00	1.87E-02	1.58E+00	4.71E-03	7.28E-03	5.25E+00	1.26E+00	4.70E+00	2.47E+00	5.10E+00	8.16E-02	9.27E-01	8.00E-01	6.05E+00	3.28E+00
2004	4	13	1.88E+00	2.23E-01	1.31E+00	2.51E-02	4.53E-02	4.93E+00	1.55E+00	4.86E+00	2.96E+00	4.68E+00	3.51E-01	7.06E-01	6.87E-01	7.42E+00	2.43E+00
2004	4	14	1.92E+00	1.41E-01	1.03E+00	2.74E-02	4.72E-02	2.05E+00	5.36E-01	1.80E+00	7.33E-01	1.20E+00	5.50E-01	1.84E-01	1.95E-01	1.84E+00	2.46E+00
2004	4	15	5.12E-01	3.50E-03	2.10E-01	1.56E-02	1.37E-01	1.23E+00	8.23E-01	2.16E+00	6.81E-02	3.66E+00	1.69E+00	2.25E-01	4.48E-01	1.85E+00	9.77E-01
2004	4	16	1.61E+00	8.03E-02	4.09E-01	2.41E-02	1.30E-01	1.73E+00	6.79E-01	3.58E+00	1.38E+00	2.24E+00	1.70E+00	2.81E-02	8.66E-02	3.18E+00	2.44E+00
2004	4	17	1.91E+00	6.70E-01	9.99E-01	6.58E-02	1.12E-01	5.13E+00	2.56E+00	6.30E+00	1.90E+00	9.57E+00	2.52E+00	8.63E-01	1.80E+00	5.81E+00	3.08E+00
2004	4	18	3.43E-01	3.74E-03	3.17E-01	4.56E-03	3.02E-02	3.45E+00	1.88E+00	6.08E+00	2.17E-01	7.49E+00	2.77E-01	1.23E+00	1.64E+00	4.20E+00	4.08E-01
2004	4	19	1.61E-01	7.74E-05	1.29E-01	1.03E-06	5.94E-05	2.05E+00	6.60E-01	3.05E+00	6.26E-02	1.79E+00	9.48E-02	4.23E-01	5.31E-01	1.80E+00	4.23E-01
2004	4	20	1.43E-01	1.53E-03	5.18E-01	4.71E-04	6.76E-03	3.57E+00	1.22E+00	5.68E+00	6.04E-02	5.00E+00	1.45E-01	7.89E-01	7.41E-01	4.54E+00	2.50E-01
2004	4	21	4.16E-01	3.11E-04	2.60E-01	1.77E-05	9.65E-05	2.75E+00	1.44E+00	3.65E+00	4.29E-02	9.72E+00	4.62E-02	1.36E+00	1.61E+00	4.39E+00	7.25E-01
2004	4	22	2.85E+00	2.45E-01	1.17E+00	1.30E-03	2.74E-03	5.12E+00	1.63E+00	7.27E+00	9.32E-01	6.44E+00	8.38E-01	7.10E-01	1.44E+00	5.03E+00	3.71E+00
2004	4	23	3.17E-01	2.71E-02	2.84E-01	1.49E-02	2.54E-02	1.77E+00	5.54E-01	2.33E+00	7.31E-02	1.52E+00	3.08E-01	2.16E-01	5.26E-01	1.66E+00	6.35E-01
2004	4	24	2.86E-02	0.00E+00	2.35E-02	0.00E+00	0.00E+00	1.04E+00	7.60E-01	2.39E+00	2.28E-03	5.90E+00	6.52E-04	7.03E-01	5.22E-01	1.37E+00	1.22E-01
2004	4	25	1.82E+00	7.27E-02	9.01E-01	2.08E-02	7.40E-02	4.03E+00	1.96E+00	6.11E+00	1.49E+00	7.09E+00	1.28E+00	1.31E+00	1.30E+00	5.46E+00	2.45E+00
2004	4	26	1.70E-01	5.57E-04	1.54E-01	2.82E-05	2.04E-04	2.41E+00	7.33E-01	3.43E+00	8.08E-02	3.10E+00	4.54E-02	8.51E-01	3.25E-01	2.58E+00	2.26E-01
2004	4	27	8.35E-01	4.56E-05	3.17E-01	3.41E-06	2.56E-04	1.34E+00	4.44E-01	1.76E+00	1.33E+00	1.66E+00	1.17E-01	2.60E-01	4.35E-01	1.46E+00	1.29E+00
2004	4	28	1.51E+00	3.55E-01	6.67E-01	4.21E-02	5.88E-02	2.61E+00	6.78E-01	3.58E+00	1.30E+00	3.91E-01	2.01E+00	4.85E-02	6.41E-02	3.07E+00	2.20E+00
2004	4	29	1.51E+00	2.46E-03	1.11E+00	2.61E-03	8.39E-03	4.37E+00	1.12E+00	5.35E+00	2.50E+00	4.07E+00	3.42E-02	7.02E-01	5.19E-01	6.27E+00	2.04E+00
2004	4	30	4.43E+00	1.79E-03	2.63E+00	9.26E-07	5.22E-06	4.19E+00	2.64E-01	3.60E+00	4.13E+00	6.79E-02	4.14E-02	1.13E-02	9.28E-03	4.71E+00	5.58E+00
2004	5	1	7.28E+00	1.57E-01	3.79E+00	4.04E-01	7.94E-01	2.30E+01	1.09E+01	2.59E+01	3.56E+00	1.58E+01	2.71E+00	4.54E+00	6.80E+00	2.27E+01	9.80E+00
2004	5	2	2.22E+00	4.88E-03	6.84E-01	6.73E-04	2.00E-03	8.76E+00	3.87E+00	1.22E+01	1.11E-01	5.49E+00	1.65E-01	8.16E-01	7.98E-01	9.64E+00	2.75E+00
2004	5	3	1.58E+01	6.73E-01	6.61E+00	3.92E-02	4.12E-02	2.28E+01	4.95E+00	2.53E+01	6.63E+00	1.03E+00	4.84E+00	2.87E-01	2.73E-01	2.68E+01	1.98E+01
2004	5	4	1.46E+00	4.86E-02	1.19E+00	4.26E-02	7.98E-02	1.62E+01	6.06E+00	1.79E+01	4.31E-01	4.65E+00	8.49E-01	8.84E-01	1.45E+00	2.07E+01	3.22E+00
2004	5	5	2.83E+00	1.19E-01	6.12E-01	7.16E-02	8.62E-02	6.84E+00	1.65E+00	6.84E+00	5.59E-01	2.69E+00	8.08E-01	1.72E-01	4.93E-01	9.39E+00	3.80E+00
2004	5	6	4.24E+00	8.33E-01	1.99E+00	1.27E-01	1.28E-01	1.12E+01	4.82E+00	1.58E+01	4.03E-01	4.67E+00	7.23E-01	3.79E-01	9.08E-01	1.56E+01	5.82E+00
2004	5	7	6.72E+00	2.87E-01	4.66E+00	7.85E-02	1.67E-01	2.24E+01	7.71E+00	2.24E+01	3.67E+00	1.18E+01	1.94E+00	1.68E+00	2.77E+00	1.63E+01	8.55E+00
2004	5	8	1.99E+00	1.80E-03	1.10E+00	2.12E-04	1.92E-03	1.13E+01	5.26E+00	1.25E+01	2.87E-01	1.06E+01	2.78E-01	1.10E+00	9.07E-01	1.05E+01	3.08E+00
2004	5	9	6.53E-01	1.02E-01	2.97E-01	1.65E-02	3.68E-02	4.03E+00	9.91E-01	3.03E+00	1.63E-01	2.23E+00	8.80E-01	2.60E-01	2.52E-01	4.12E+00	1.38E+00
2004	5	10	4.91E+00	9.43E-02	2.27E+00	8.84E-05	2.99E-05	6.22E+00	1.77E-01	7.53E+00	1.21E+00	3.98E-03	1.63E-03	9.29E-04	1.20E-03	1.21E+01	5.54E+00
2004	5	11	5.89E+00	0.00E+00	2.57E+00	0.00E+00	0.00E+00	7.12E+00	1.32E-02	7.65E+00	2.96E+00	1.97E-05	0.00E+00	0.00E+00	1.20E-20	1.10E+01	6.58E+00
2004	5	12	7.10E+00	7.84E-05	3.95E+00	0.00E+00	0.00E+00	8.83E+00	1.65E+00	1.08E+01	2.61E+00	7.19E-04	9.42E-04	3.62E-03	1.47E-03	1.53E+01	9.29E+00
2004	5	13	1.58E+01	1.34E+00	7.90E+00	5.59E-01	4.98E-01	2.15E+01	8.15E+00	2.83E+01	1.55E+00	6.19E+00	1.22E+01	4.06E-01	1.18E+00	2.65E+01	2.28E+01
2004	5	14	2.60E+00	1.93E-01	1.72E+00	6.09E-02	1.07E-01	2.03E+01	6.86E+00	1.97E+01	4.25E-01	9.27E+00	1.33E+00	1.25E+00	1.18E+00	1.87E+01	3.35E+00
2004	5	15	8.45E+00	1.85E-01	4.32E+00	2.47E-02	1.82E-02	2.41E+01	7.07E+00	2.44E+01	2.98E+00	1.20E+01	5.78E-02	2.42E+00	3.93E+00	3.38E+01	1.05E+01
2004	5	16	1.41E+01	3.49E-01	8.11E+00	2.03E-02	3.94E-02	2.38E+01	5.77E+00	2.56E+01	7.79E+00	3.20E+00	1.09E+00	2.22E+00	1.85E+00	2.45E+01	1.83E+01
2004	5	17	1.18E+01	1.57E-01	5.52E+00	1.02E-02	2.10E-02	2.53E+01	6.84E+00	3.15E+01	6.71E+00	1.57E+00	5.80E-01	1.78E+00	1.33E+00	3.41E+01	1.57E+01
2004	5	18	7.87E+00	5.07E-01	5.43E+00	2.64E-02	4.75E-02	1.97E+01	9.05E+00	2.53E+01	7.13E+00	3.88E+00	1.14E+00	1.64E+00	1.69E+00	2.73E+01	1.12E+01
2004	5	19	9.31E+00	1.04E-02	4.31E+00	1.27E-03	2.44E-03	2.45E+01	5.29E+00	3.36E+01	2.74E+00	3.56E+00	1.39E-01	1.54E+00	1.56E+00	3.18E+01	1.17E+01
2004	5	20	9.20E+00	2.08E+00	4.81E+00	4.96E-01	4.45E-01	2.05E+01	9.45E+00	2.17E+01	3.45E+00	5.77E+00	8.26E+00	9.11E-01	1.23E+00	1.79E+01	1.23E+01
2004	5	21	1.41E+01	9.21E-07	8.74E+00	0.00E+00	0.00E+00	1.63E+01	9.07E-02	1.19E+01	5.08E+00	1.09E-04	1.26E-05	3.55E-04	1.78E-04	2.13E+01	1.54E+01
2004	5	22	7.84E+00	0.00E+00	5.70E+00	0.00E+00	0.00E+00	1.27E+01	4.19E-02	1.34E+01	3.83E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E+01	8.83E+00
2004	5	23	1.49E+01	7.61E-05	9.41E+00	0.00E+00	1.42E-07	1.56E+01	1.18E-02	1.63E+01	6.41E+00	2.62E-03	3.82E-04	5.67E-03	3.93E-03	1.91E+01	1.75E+01
2004	5	24	8.49E+00	7.57E-01	4.78E+00	4.11E-01	5.57E-01	2.67E+01	1.23E+01	3.02E+01	3.97E+00	1.89E+01	5.29E+00	3.65E+00	5.66E+00	3.26E+01	1.11E+01
2004	5	25	7.05E-01	6.38E-03	9.51E-01	1.58E-03	4.10E-03	1.65E+01	7.80E+00	1.76E+01	3.27E-01	1.58E+01	1.33E-01	1.28E+00	1.07E+00	2.08E+01	8.76E-01
2004	5	26	1.00E+00	0.00E+00	1.69E-01	0.00E+00	3.34E-06	5.12E+00	2.34E+00	7.56E+00	3.64E-03	3.92E+00	1.11E-01	6.21E-01	7.38E-01	5.51E+00	1.28E+00
2004	5	27	2.18E+00	1.75E-03	9.69E-01	6.14E-04	2.13E-02	1.36E+01	5.00E+00	1.75E+01	4.30E-01	4.32E+00	1.04E+00	5.37E-01	1.07E+00	1.10E+01	4.05E+00
2004	5	28	1.38E+00	8.95E-04	8.45E-01	3.11E-04	6.20E-03	1.31E+01	3.07E+00	1.07E+01	3.13E-01	3.00E+00	4.75E-01	2.79E-01	9.06E-01	8.44E+00	2.44E+00
2004	5	29	3.77E-01	0.00E+00	1.14E-01	0.00E+00	0.00E+00	7.43E+00	1.61E+00	6.90E+00	1.77E-02	4.23E+00	1.16E-02	6.72E-01	5.28E-01	4.22E+00	1.03E+00
2004	5	30	1.39E-01	0.00E+00	1.66E-02	0.00E+00	0.00E+00	3.30E+00	1.27E+00	3.97E+00	8.83E-16	2.67E+00	8.26E-02	4.47E-01	4.54E-01	2.60E+00	3.07E-01
2004	5	31	6.48E-01	1.16E-04	8.96E-01	0.00E+00	9.75E-05	1.23E+01	4.16E+00	1.52E+01	1.15E-01	8.73E+00	1.78E-02	9.01E-01	9.97E-01	9.87E+00	1.95E+00
2004	6	1	8.49E-01	9.21E-04	1.46E+00	6.17E-05	7.99E-04	2.05E+01	6.41E+00	2.03E+01	2.10E-01	9.41E+00	1.93E-01	9.23E-01	1.17E+00	2.37E+01	2.43E+00
2004	6	2	1.12E+00	2.40E-03	1.47E+00	2.33E-02	8.31E-02	2.90E+01	1.12E+01	2.38E+01	3.14E-01	1.59E+01	4.21E-01	1.70E+00	1.64E+00	3.80E+01	1.68E+00
2004	6	3	7.76E+00	7.71E-01	4.65E+00	3.67E-02	6.43E-02	2.45E+01	7.91E+00	2.77E+01	3.65E+00	5.72E+00	1.18E+00	1.31E+00	1.28E+00	3.19E+01	1.12E+01
2004	6	4	3.34E+00	9.15E-01	1.84E+00	1.24E-01	1.73E-01	2.52E+01	1.15E+01	3.33E+01	1.43E+00	1.87E+01	2.35E+00	2.83E+00	3.85E+00	2.91E+01	5.22E+00
2004	6	5	2.78E+00	5.27E-01	1.25E+00	2.06E-01	2.98E-01	2.31E+01	7.49E+00	2.01E+01	4.85E-01	9.30E+00	2.88E+00	9.78E-01	1.30E+00	2.29E+01	3.43E+00
2004	6	6	2.15E-01	0.00E+00	5.98E-02	0.00E+00	2.47E-04	2.99E+00	8.92E-01	3.30E+00	1.54E-03	1.84E+00	3.22E-01	1.45E-01	4.69E-01	2.23E+00	3.98E-01
2004	6	7	5.26E+00	0.00E+00	2.49E+00	0.00E+00	0.00E+00	8.36E+00	1.02E+00	1.16E+01	1.72E+00	5.07E+00	2.55E-03	4.39E-01	8.07E-01	9.31E+00	7.19E+00
2004	6	8	1.30E+01	4.47E-04	6.63E+00	0.00E+00	4.12E-05	1.67E+01	1.15E-01	1.20E+01	1.43E+00	5.85E-03	1.81E-03	1.38E-02	8.51E-03	1.65E+01	1.40E+01
2004	6	9	1.60E+01	3.53E-02	8.72E+00	6.03E-06	4.84E-05	2.01E+01	9.26E-01	1.82E+01	4.68E+00	1.67E-02	1.53E-01	3.01E-02	2.11E-02	2.48E+01	1.88E+01
2004	6	10	8.24E+00	9.41E-01	4.06E+00	8.71E-02	1.18E-01	1.69E+01	5.06E+00	1.78E+01	4.20E+00	6.37E+00	1.95E+00	8.79E-01	1.06E+00	2.02E+01	1.10E+01
2004	6	11	3.16E-01	0.00E+00	4.46E-03	0.00E+00	0.00E+00	3.37E+00	1.53E+00	4.11E+00	1.44E-16	5.19E+00	1.24E-02	6.60E-01	5.91E-01	3.70E+00	4.29E-01
2004	6	12	3.44E-01	0.00E+00	1.02E-01	0.00E+00	0.00E+00	6.11E+00	1.82E+00	6.78E+00	3.74E-05	3.13E+00	9.83E-02	5.28E-01	5.71E-01	4.99E+00	7.00E-01
2004	6	13	1.18E-01	0.00E+00	5.88E-02	0.00E+00	0.00E+00	4.11E+00	1.69E+00	5.19E+00	6.14E-06	2.79E+00	1.28E-01	4.14E-01	4.67E-01	3.60E+00	4.66E-01
2004	6	14	4.04E+00	1.59E-03	1.98E+00	1.07E-04	1.40E-03	1.76E+01	3.77E+00	1.67E+01	3.73E-01	4.60E+00	1.48E-01	5.18E-01	1.04E+00	1.43E+01	5.67E+00
2004	6	15	3.34E+00	3.87E-02	1.76E+00	7.25E-03	3.64E-02	1.94E+01	7.40E+00	2.60E+01	1.37E+00	1.75E+01	7.59E-01	3.35E+00	4.90E+00	2.53E+01	4.50E+00
2004	6	16	6.66E+00	1.83E-01	3.34E+00	3.51E-02	6.14E-02	2.56E+01	6.57E+00	2.25E+01	1.72E+00	1.39E+01	5.06E-01	1.81E+00	1.59E+00	2.98E+01	8.95E+00
2004	6	17	1.75E+01	1.58E-03	9.88E+00	2.14E-07	1.14E-05	1.85E+01	8.42E-01	2.15E+01	1.10E+01	5.19E-02	3.56E-02	7.24E-02	5.56E-02	2.57E+01	2.08E+01
2004	6	18	1.49E+01	6.48E-02	9.17E+00	2.05E-04	7.23E-04	1.98E+01	1.68E+00	1.81E+01	4.77E+00	5.11E-02	1.33E-01	7.37E-02	5.07E-02	2.09E+01	1.75E+01

Baseline

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2004	3	21	4.02E+00	2.10E-02	3.52E+00	8.63E-03	1.27E-02	5.57E+00	1.13E+00	6.56E+00	2.40E-01	6.98E-02	3.70E-02	1.08E-01	8.70E-02	6.26E+00	4.64E+00
2004	3	22	3.38E+00	6.35E-02	1.84E+00	3.01E-02	3.69E-02	6.51E+00	3.78E+00	8.34E+00	3.16E-01	1.22E-01	7.81E-02	1.98E-01	1.55E-01	9.05E+00	4.12E+00
2004	3	23	4.57E-01	1.29E-02	5.03E-01	4.95E-03	9.02E-03	3.98E+00	2.34E+00	3.93E+00	1.50E-01	5.30E-02	2.74E-02	1.04E-01	7.46E-02	5.36E+00	6.87E-01
2004	3	24	7.65E-02	0.00E+00	1.18E-02	2.48E-08	2.23E-05	5.51E-01	4.98E-01	7.51E-01	1.29E-03	5.67E-04	7.35E-05	3.08E-03	2.35E-03	7.70E-01	1.31E-01
2004	3	25	2.32E+00	3.90E-03	1.33E+00	4.01E-03	5.47E-03	2.22E+00	3.10E-01	2.22E+00	2.74E-02	1.10E-02	7.32E-03	1.74E-02	1.39E-02	2.78E+00	2.67E+00
2004	3	26	2.15E+00	9.78E-03	1.73E+00	3.12E-03	5.00E-03	3.02E+00	6.99E-01	2.75E+00	1.05E-01	3.16E-02	1.67E-02	6.09E-02	4.40E-02	3.02E+00	2.44E+00
2004	3	27	8.11E-02	0.00E+00	3.42E-02	0.00E+00	3.26E-07	8.97E-01	6.70E-01	1.59E+00	5.34E-04	1.21E-04	7.33E-06	5.04E-03	1.57E-03	1.22E+00	1.22E-01
2004	3	28	8.75E-01	2.57E-05	7.72E-01	5.30E-08	5.06E-07	2.91E+00	2.08E+00	3.29E+00	1.87E-02	2.01E-03	1.67E-04	2.50E-02	7.20E-03	3.25E+00	1.09E+00
2004	3	29	1.58E+00	1.65E-02	9.13E-01	6.22E-03	9.59E-03	4.42E+00	2.28E+00	4.44E+00	2.07E-01	7.06E-02	3.49E-02	1.25E-01	9.32E-02	4.46E+00	2.13E+00
2004	3	30	5.40E-01	2.66E-03	4.08E-01	2.73E-03	6.88E-03	4.63E+00	2.08E+00	4.79E+00	1.71E-01	4.86E-02	1.67E-02	1.09E-01	8.63E-02	3.50E+00	1.03E+00
2004	3	31	2.06E+00	4.20E-03	1.04E+00	1.56E-03	2.97E-03	2.24E+00	7.26E-01	2.04E+00	2.90E-02	1.02E-02	6.95E-03	2.14E-02	1.52E-02	2.65E+00	2.47E+00
2004	4	1	2.85E+00	7.02E-05	1.67E+00	2.33E-17	1.76E-06	2.66E+00	2.76E-01	2.74E+00	2.52E-02	1.75E-03	3.55E-04	5.17E-03	2.49E-03	4.18E+00	3.62E+00
2004	4	2	3.28E+00	7.92E-03	2.60E+00	1.57E-03	2.92E-03	4.12E+00	1.31E+00	6.35E+00	1.62E-01	3.92E-02	1.70E-02	7.88E-02	5.53E-02	7.34E+00	4.17E+00
2004	4	3	2.28E+00	3.31E-03	1.75E+00	1.40E-03	1.24E-03	2.75E+00	4.88E-01	2.95E+00	5.58E-02	8.88E-03	3.58E-03	1.59E-02	1.16E-02	3.80E+00	2.51E+00
2004	4	4	1.76E+00	1.69E-04	1.06E+00	1.13E-09	1.04E-05	3.01E+00	1.66E+00	3.24E+00	2.75E-02	3.63E-03	7.86E-04	1.03E-02	6.29E-03	3.41E+00	2.27E+00
2004	4	5	2.21E+00	2.44E-02	1.12E+00	7.61E-03	1.19E-02	5.34E+00	2.31E+00	6.81E+00	2.27E-01	7.51E-02	4.02E-02	1.37E-01	1.01E-01	5.95E+00	3.07E+00
2004	4	6	1.52E+00	1.05E-02	9.60E-01	2.76E-03	5.27E-03	4.54E+00	1.42E+00	5.49E+00	9.16E-02	2.98E-02	1.72E-02	5.45E-02	3.97E-02	5.01E+00	1.94E+00
2004	4	7	1.77E+00	1.81E-02	1.24E+00	5.62E-03	8.58E-03	6.15E+00	2.65E+00	6.79E+00	1.80E-01	5.13E-02	2.73E-02	9.93E-02	7.01E-02	7.69E+00	2.43E+00
2004	4	8	2.46E+00	2.17E-03	1.58E+00	3.49E-04	7.41E-04	4.06E+00	6.78E-01	4.78E+00	7.02E-02	1.18E-02	4.76E-03	2.78E-02	1.77E-02	4.90E+00	3.05E+00
2004	4	9	3.58E+00	3.73E-03	2.37E+00	4.14E-04	1.16E-03	4.25E+00	4.24E-01	4.47E+00	1.12E-01	2.16E-02	8.63E-03	4.68E-02	3.17E-02	5.40E+00	4.89E+00
2004	4	10	3.38E+00	1.42E-02	2.13E+00	3.04E-03	5.70E-03	5.42E+00	1.91E+00	6.29E+00	2.02E-01	4.97E-02	2.45E-02	9.34E-02	6.72E-02	7.49E+00	4.45E+00
2004	4	11	5.53E-01	6.82E-03	7.41E-01	1.83E-03	3.92E-03	6.02E+00	2.54E+00	6.96E+00	1.26E-01	3.50E-02	1.56E-02	8.52E-02	5.59E-02	8.32E+00	6.58E-01
2004	4	12	2.32E+00	1.98E-03	1.54E+00	3.42E-04	8.60E-04	5.22E+00	1.18E+00	3.72E+00	9.80E-02	1.71E-02	6.39E-03	4.87E-02	2.89E-02	5.92E+00	2.80E+00
2004	4	13	1.79E+00	6.80E-03	1.27E+00	1.91E-03	4.04E-03	4.86E+00	1.49E+00	3.99E+00	1.22E-01	3.79E-02	1.65E-02	7.86E-02	5.63E-02	7.27E+00	2.23E+00
2004	4	14	1.53E+00	2.76E-03	8.66E-01	1.37E-03	1.84E-03	1.95E+00	5.33E-01	1.62E+00	2.48E-02	4.51E-03	2.88E-03	6.52E-03	4.85E-03	1.83E+00	1.73E+00
2004	4	15	4.59E-01	3.31E-03	2.09E-01	2.37E-03	8.29E-03	1.22E+00	8.12E-01	1.90E+00	3.48E-02	1.08E-02	1.51E-02	2.07E-02	1.42E-02	1.83E+00	8.24E-01
2004	4	16	1.57E+00	3.69E-03	3.93E-01	2.00E-03	9.20E-03	1.71E+00	6.78E-01	3.54E+00	8.20E-02	2.46E-02	2.52E-02	1.93E-02	1.87E-02	3.18E+00	2.35E+00
2004	4	17	1.79E+00	1.52E-02	9.76E-01	5.49E-03	7.96E-03	5.08E+00	2.48E+00	5.64E+00	1.71E-01	4.67E-02	2.47E-02	8.78E-02	6.30E-02	5.64E+00	2.74E+00
2004	4	18	2.73E-01	3.46E-03	3.15E-01	1.01E-03	2.27E-03	3.44E+00	1.53E+00	4.91E+00	7.66E-02	2.06E-02	9.10E-03	5.22E-02	3.23E-02	3.94E+00	3.17E-01
2004	4	19	1.61E-01	7.74E-05	1.29E-01	1.03E-06	2.66E-05	2.05E+00	6.30E-01	2.32E+00	6.26E-02	9.92E-03	1.28E-03	1.99E-02	1.73E-02	1.77E+00	4.20E-01
2004	4	20	1.06E-01	1.53E-03	5.18E-01	1.89E-04	7.42E-04	3.57E+00	1.18E+00	4.60E+00	5.61E-02	1.48E-02	5.91E-03	3.06E-02	2.14E-02	4.45E+00	1.44E-01
2004	4	21	3.90E-01	3.11E-04	2.60E-01	1.77E-05	9.65E-05	2.75E+00	1.36E+00	2.51E+00	4.08E-02	5.84E-03	1.21E-03	2.49E-02	1.33E-02	4.29E+00	6.81E-01
2004	4	22	2.74E+00	3.71E-03	1.15E+00	3.12E-04	1.05E-03	5.09E+00	1.56E+00	6.26E+00	9.73E-02	1.95E-02	8.44E-03	4.72E-02	2.92E-02	4.91E+00	3.51E+00
2004	4	23	2.82E-01	7.58E-03	2.82E-01	2.26E-03	4.00E-03	1.76E+00	5.33E-01	1.89E+00	6.79E-02	2.63E-02	1.46E-02	3.69E-02	3.08E-02	1.61E+00	5.44E-01
2004	4	24	2.85E-02	0.00E+00	2.35E-02	0.00E+00	0.00E+00	1.04E+00	6.91E-01	2.02E+00	2.28E-03	0.00E+00	0.00E+00	1.19E-04	4.94E-06	1.36E+00	1.21E-01
2004	4	25	1.01E+00	9.89E-04	6.28E-01	1.33E-04	4.60E-04	3.61E+00	1.81E+00	4.97E+00	8.27E-02	1.78E-02	4.93E-03	4.88E-02	2.96E-02	4.89E+00	1.56E+00
2004	4	26	1.69E-01	5.23E-04	1.54E-01	2.78E-05	1.87E-04	2.41E+00	6.70E-01	2.33E+00	7.88E-02	1.25E-02	2.97E-03	3.61E-02	2.27E-02	2.52E+00	2.25E-01
2004	4	27	6.07E-01	4.56E-05	3.07E-01	3.41E-06	3.10E-05	1.30E+00	4.18E-01	1.44E+00	1.68E-02	1.50E-03	3.24E-04	3.60E-03	2.42E-03	1.37E+00	1.02E+00
2004	4	28	1.15E+00	1.19E-02	5.27E-01	3.29E-03	4.44E-03	2.44E+00	6.71E-01	3.39E+00	8.22E-02	2.98E-02	1.71E-02	4.10E-02	3.54E-02	2.99E+00	1.69E+00
2004	4	29	1.40E+00	2.34E-03	8.07E-01	7.80E-04	1.77E-03	4.08E+00	1.04E+00	4.41E+00	1.05E-01	1.78E-02	6.84E-03	4.53E-02	2.83E-02	6.07E+00	1.84E+00
2004	4	30	3.60E+00	1.24E-04	2.40E+00	6.46E-07	4.15E-06	4.09E+00	2.63E-01	3.53E+00	6.50E-02	3.16E-03	5.41E-04	7.46E-03	5.00E-03	4.68E+00	4.08E+00
2004	5	1	6.76E+00	1.90E-02	3.66E+00	5.00E-03	1.23E-02	2.28E+01	9.83E+00	2.44E+01	4.61E-01	1.22E-01	4.93E-02	2.91E-01	1.90E-01	2.20E+01	9.11E+00
2004	5	2	2.20E+00	4.88E-03	6.82E-01	6.73E-04	2.00E-03	8.75E+00	3.83E+00	1.14E+01	1.10E-01	2.68E-02	1.18E-02	5.98E-02	3.97E-02	9.60E+00	2.70E+00
2004	5	3	1.55E+01	2.23E-02	6.37E+00	5.17E-03	9.94E-03	2.26E+01	4.93E+00	2.50E+01	5.26E-01	1.06E-01	4.51E-02	2.13E-01	1.47E-01	2.68E+01	1.91E+01
2004	5	4	1.38E+00	1.56E-02	1.19E+00	6.25E-03	1.31E-02	1.62E+01	6.01E+00	1.71E+01	3.73E-01	1.08E-01	4.68E-02	2.77E-01	1.75E-01	2.06E+01	3.07E+00
2004	5	5	2.82E+00	1.42E-02	6.04E-01	7.77E-03	9.19E-03	6.83E+00	1.63E+00	6.76E+00	2.35E-01	4.85E-02	4.07E-02	7.30E-02	6.92E-02	9.37E+00	3.79E+00
2004	5	6	4.17E+00	2.59E-02	1.97E+00	2.03E-02	1.88E-02	1.12E+01	4.81E+00	1.55E+01	2.31E-01	7.52E-02	4.23E-02	1.34E-01	9.87E-02	1.56E+01	5.67E+00
2004	5	7	6.29E+00	1.38E-02	4.23E+00	3.56E-03	7.15E-03	2.20E+01	7.42E+00	2.12E+01	5.52E-01	1.10E-01	3.78E-02	2.48E-01	1.68E-01	1.59E+01	7.99E+00
2004	5	8	1.89E+00	1.79E-03	1.10E+00	2.12E-04	1.06E-03	1.13E+01	5.22E+00	1.19E+01	2.77E-01	4.76E-02	1.15E-02	1.32E-01	8.66E-02	1.05E+01	2.87E+00
2004	5	9	6.53E-01	3.83E-03	2.94E-01	1.37E-03	3.00E-03	4.03E+00	9.85E-01	2.89E+00	1.20E-02	5.78E-03	1.09E-02	9.65E-03	5.75E-03	4.12E+00	1.38E+00
2004	5	10	4.76E+00	6.07E-03	2.07E+00	8.84E-05	2.99E-05	6.09E+00	1.77E-01	7.53E+00	2.46E-02	2.03E-03	1.63E-03	9.29E-04	1.20E-03	1.21E+01	5.30E+00
2004	5	11	5.82E+00	0.00E+00	2.34E+00	0.00E+00	0.00E+00	6.90E+00	1.32E-02	7.65E+00	3.94E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E+01	6.40E+00
2004	5	12	7.09E+00	0.00E+00	3.93E+00	0.00E+00	0.00E+00	8.78E+00	1.65E+00	1.08E+01	3.13E-02	7.18E-04	1.41E-05	3.62E-03	1.47E-03	1.53E+01	9.28E+00
2004	5	13	1.56E+01	9.31E-02	7.81E+00	3.13E-02	3.79E-02	2.13E+01	8.12E+00	2.82E+01	4.09E-01	1.23E-01	9.56E-02	1.30E-01	1.16E-01	2.65E+01	2.25E+01
2004	5	14	2.56E+00	3.18E-02	1.71E+00	9.61E-03	1.72E-02	2.03E+01	6.82E+00	1.85E+01	4.02E-01	1.20E-01	6.26E-02	2.59E-01	1.74E-01	1.86E+01	3.25E+00
2004	5	15	8.08E+00	1.48E-02	4.22E+00	4.64E-03	5.23E-03	2.40E+01	6.87E+00	2.35E+01	3.29E-01	6.05E-02	2.06E-02	1.71E-01	1.07E-01	3.36E+01	9.75E+00
2004	5	16	1.32E+01	3.69E-02	7.68E+00	5.58E-03	1.24E-02	2.34E+01	5.22E+00	2.47E+01	7.23E-01	1.51E-01	7.06E-02	2.73E-01	2.02E-01	2.38E+01	1.72E+01
2004	5	17	1.08E+01	2.89E-02	5.14E+00	7.58E-03	1.42E-02	2.49E+01	5.94E+00	3.00E+01	6.12E-01	1.27E-01	5.89E-02	2.52E-01	1.73E-01	3.31E+01	1.44E+01
2004	5	18	6.85E+00	3.29E-02	4.15E+00	7.59E-03	1.36E-02	1.83E+01	8.67E+00	2.39E+01	4.90E-01	1.23E-01	5.82E-02	2.59E-01	1.75E-01	2.65E+01	1.00E+01
2004	5	19	8.81E+00	2.31E-03	4.23E+00	4.50E-04	1.14E-03	2.44E+01	4.94E+00	3.22E+01	2.55E-01	2.78E-02	7.79E-03	9.02E-02	4.95E-02	3.13E+01	1.10E+01
2004	5	20	8.87E+00	7.47E-02	4.19E+00	2.91E-02	4.36E-02	2.02E+01	9.38E+00	2.14E+01	6.54E-01	2.21E-01	1.27E-01	3.82E-01	2.87E-01	1.78E+01	1.16E+01
2004	5	21	1.38E+01	9.21E-07	8.12E+00	0.00E+00	0.00E+00	1.60E+01	9.06E-02	1.19E+01	3.16E-02	4.99E-05	9.22E-07	3.49E-04	1.53E-04	2.13E+01	1.49E+01
2004	5	22	7.59E+00	0.00E+00	5.05E+00	0.00E+00	0.00E+00	1.23E+01	4.19E-02	1.34E+01	1.54E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E+01	8.33E+00
2004	5	23	1.45E+01	7.48E-05	7.90E+00	0.00E+00	1.42E-07	1.46E+01	1.16E-02	1.63E+01	5.74E-02	2.38E-03	3.66E-04	5.43E-03	3.75E-03	1.91E+01	1.66E+01
2004	5	24	8.03E+00	4.64E-02	4.33E+00	2.43E-02	3.87E-02	2.63E+01	1.19E+01	2.90E+01	6.55E-01	2.06E-01	1.04E-01	3.86E-01	2.80E-01	3.22E+01	1.03E+01
2004	5	25	7.02E-01	6.37E-03	9.51E-01	1.57E-03	4.06E-03	1.65E+01	7.75E+00	1.67E+01	3.26E-01	7.07E-02	2.21E-02	1.66E-01	1.17E-01	2.06E+01	8.62E-01
2004	5	26	1.00E+00	0.00E+00	1.69E-01	0.00E+00	0.00E+00	5.12E+00	2.31E+00	7.09E+00	3.64E-03	5.28E-04	0.00E+00	9.67E-03	2.76E-03	5.49E+00	1.26E+00
2004	5	27	2.15E+00	1.75E-03	9.69E-01	6.14E-04	3.52E-03	1.36E+01	4.96E+00	1.65E+01	4.29E-01	8.79E-02	2.44E-02	1.08E-01	1.14E-01	1.09E+01	3.93E+00
2004	5	28	1.34E+00	8.47E-04	8.45E-01	3.10E-04	2.61E-03	1.31E+01	3.05E+00	1.00E+01	3.07E-01	8.00E-02	2.15E-02	1.24E-01	1.10E-01	8.39E+00	2.34E+00
2004	5	29	3.77E-01	0.00E+00	1.14E-01	0.00E+00	0.00E+00	7.43E+00	1.59E+00	6.26E+00	1.77E-02	2.58E-05	0.00E+00	2.96E-02	2.62E-03	4.21E+00	1.03E+00
2004	5	30	1.39E-01	0.00E+00	1.66E-02	0.00E+00	0.00E+00	3.30E+00	1.26E+00	3.53E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-04	0.00E+00	2.60E+00	3.07E-01
2004	5	31	5.38E-01	1.16E-04	8.96E-01	0.00E+00	9.75E-05	1.23E+01	4.12E+00	1.44E+01	1.15E-01	1.79E-02	3.73E-03	3.32E-02	2.55E-02	9.85E+00	1.73E+00
2004	6	1	8.42E-01	9.21E-04	1.46E+00	6.17E-05	6.05E-04	2.05E+01	6.36E+00	1.93E+01	2.09E-01	3.89E-02	9.84E-03	1.01E-01	6.33E-02	2.36E+01	2.39E+00
2004	6	2	1.12E+00	2.40E-03	1.47E+00	4.78E-04	1.92E-03	2.90E+01	1.11E+01	2.23E+01	3.13E-01	6.69E-02	1.72E-02	1.97E-01	1.25E-01	3.78E+01	1.66E+00
2004	6	3	7.08E+00	2.86E-02	4.46E+00	8.74E-03	1.39E-02	2.42E+01	7.26E+00	2.65E+01	5.12E-01	9.97E-02	4.86E-02	1.94E-01	1.31E-01	3.12E+01	1.03E+01
2004	6	4	3.15E+00	3.43E-02	1.80E+00	8.52E-03	1.80E-02	2.51E+01	1.11E+01	3.20E+01	5.31E-01	1.82E-01	7.92E-02	4.06E-01	2.79E-01	2.88E+01	4.92E+00
2004	6	5	2.75E+00	3.47E-02	1.25E+00	1.35E-02	2.61E-02	2.31E+01	7.46E+00	1.92E+01	4.26E-01	1.60E-01	8.24E-02	2.80E-01	2.16E-01	2.27E+01	3.37E+00
2004	6	6	2.15E-01	0.00E+00	5.98E-02	0.00E+00	0.00E+00	2.99E+00	8.91E-01	3.18E+00	1.54E-03	2.01E-04	0.00E+00	1.04E-02	5.15E-03	2.22E+00	3.98E-01
2004	6	7	4.74E+00	0.00E+00	2.23E+00	0.00E+00	0.00E+00	8.08E+00	9.15E-01	1.11E+01	3.47E-02	2.69E-03	6.50E-05	1.02E-02	6.68E-03	9.07E+00	6.47E+00
2004	6	8	1.24E+01	4.34E-04	6.41E+00	0.00E+00	4.12E-05	1.66E+01	1.15E-01	1.19E+01	9.73E-02	5.74E-03	1.77E-03	1.36E-02	8.37E-03	1.65E+01	1.30E+01
2004	6	9	1.55E+01	1.31E-03	8.46E+00	6.03E-06	4.84E-05	1.99E+01	9.25E-01	1.81E+01	2.13E-01	1.49E-02	4.17E-03	2.85E-02	2.00E-02	2.47E+01	1.79E+01
2004	6	10	7.94E+00	4.07E-02	3.94E+00	8.81E-03	1.39E-02	1.67E+01	5.03E+00	1.73E+01	4.60E-01	1.11E-01	5.73E-02	1.85E-01	1.41E-01	2.01E+01	1.03E+01
2004	6	11	3.16E-01	0.00E+00	4.46E-03	0.00E+00	0.00E+00	3.37E+00	1.50E+00	3.57E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.70E+00	4.29E-01
2004	6	12	3.44E-01	0.00E+00	1.02E-01	0.00E+00	0.00E+00	6.11E+00	1.80E+00	6.17E+00	3.74E-05	0.00E+00	0.00E+00	1.82E-02	1.32E-03	4.99E+00	7.00E-01
2004	6	13	1.18E-01	0.00E+00	5.88E-02	0.00E+00	0.00E+00	4.11E+00	1.68E+00	4.65E+00	6.14E-06	0.00E+00	0.00E+00	1.45E-03	1.73E-05	3.59E+00	4.66E-01
2004	6	14	3.90E+00	1.37E-03	1.96E+00	8.92E-05	1.34E-03	1.75E+01	3.75E+00	1.63E+01	3.45E-01	7.87E-02	2.22E-02	1.31E-01	1.05E-01	1.42E+01	5.29E+00
2004	6	15	3.12E+00	4.70E-03	1.73E+00	7.30E-04	2.34E-03	1.93E+01	7.16E+00	2.49E+01	2.98E-01	5.51E-02	1.78E-02	1.42E-01	9.03E-02	2.51E+01	4.06E+00
2004	6	16	6.33E+00	1.07E-02	3.00E+00	3.06E-03	7.63E-03	2.52E+01	6.33E+00	2.14E+01	3.20E-01	8.29E-02	3.33E-02	1.88E-01	1.31E-01	2.94E+01	8.49E+00
2004	6	17	1.69E+01	4.90E-04	8.10E+00	2.13E-07	1.13E-05	1.72E+01	8.19E-01	2.13E+01	2.01E-01	9.64E-03	2.45E-03	2.20E-02	1.46E-02	2.55E+01	1.98E+01
2004	6	18	1.44E+01	4.32E-03	8.82E+00	2.04E-04	7.19E-04	1.96E+01	1.68E+00	1.80E+01	2.58E-01	3.03E-02	1.04E-02	6.71E-02	4.37E-02	2.08E+01	1.66E+01

Project

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2004	3	21	7.77E-01	5.13E-01	1.65E-01	5.72E-02	1.03E-01	1.63E-01	6.94E-01	1.04E+00	5.02E+00	5.04E+00	1.50E+00	2.43E+00	2.96E+00	5.57E-01	1.25E+00
2004	3	22	4.89E-01	1.94E+00	1.22E-01	3.76E-01	4.55E-01	1.56E-01	3.65E-01	1.04E+00	3.31E+00	1.05E+01	4.85E+00	1.71E+00	2.44E+00	3.09E-01	9.02E-01
2004	3	23	1.52E-02	5.67E-02	9.28E-04	4.82E-02	7.40E-02	1.98E-03	7.68E-02	1.35E+00	1.28E-02	8.11E+00	5.14E-01	1.11E+00	9.53E-01	1.26E-01	2.65E-02
2004	3	24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.97E-03	0.00E+00	2.50E-02	5.26E-01	7.58E-23	2.43E+00	1.95E-01	6.93E-01	3.32E-01	0.00E+00	0.00E+00
2004	3	25	2.39E-01	8.02E-02	2.42E-02	1.82E-01	1.51E-01	2.80E-02	3.37E-03	4.35E-01	2.02E+00	1.51E+00	1.23E+00	2.36E-01	2.13E-01	2.80E-03	4.53E-01
2004	3	26	2.69E-01	3.22E-01	9.32E-02	6.62E-02	1.71E-01	4.60E-02	6.29E-03	4.24E-01	1.14E+00	1.33E+00	1.24E+00	1.83E-01	3.71E-01	2.81E-02	4.51E-01
2004	3	27	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-05	0.00E+00	6.21E-02	8.45E-01	1.96E-18	3.87E+00	8.54E-02	5.35E-01	4.11E-01	1.00E-02	0.00E+00
2004	3	28	1.15E-01	2.92E-07	1.51E-02	0.00E+00	1.82E-07	3.01E-02	8.39E-02	8.19E-01	1.92E-03	1.02E+01	8.09E-04	1.47E+00	5.49E-01	2.19E-02	2.77E-01
2004	3	29	1.02E-01	8.78E-01	2.78E-02	1.16E-01	3.41E-01	6.65E-02	2.62E-02	5.80E-01	3.32E-02	8.61E+00	4.90E+00	8.71E-01	3.73E-01	7.59E-02	2.40E-01
2004	3	30	2.66E-02	2.01E-07	1.14E-06	2.45E-02	4.54E-01	3.95E-04	7.62E-02	1.67E+00	2.21E-03	4.55E+00	2.61E+00	5.90E-01	1.14E+00	1.79E-01	4.54E-02
2004	3	31	2.08E-01	3.20E-01	2.79E-02	2.54E-02	4.85E-02	3.20E-02	2.09E-02	2.57E-01	1.90E+00	2.72E+00	9.51E-01	3.76E-01	5.86E-01	4.44E-02	3.97E-01
2004	4	1	1.67E-01	5.11E-05	5.86E-02	0.00E+00	0.00E+00	7.95E-02	3.03E-05	6.83E-03	5.67E+00	1.71E-03	2.18E-03	1.41E-03	1.50E-03	1.37E-03	3.43E-01
2004	4	2	7.20E-01	4.82E-02	5.46E-01	4.63E-04	2.03E-03	4.52E-01	9.65E-02	4.92E-01	4.33E+00	1.30E+00	2.76E-01	5.40E-01	5.38E-01	1.30E-01	1.29E+00
2004	4	3	5.20E-01	1.83E-01	1.71E-01	1.47E-01	2.45E-01	1.30E-01	1.64E-02	1.98E-01	2.23E+00	2.57E+00	1.65E+00	4.49E-01	3.25E-01	1.89E-02	8.84E-01
2004	4	4	1.00E-01	5.26E-04	1.06E-01	5.10E-06	1.67E-05	1.59E-01	5.69E-02	6.15E-01	4.36E+00	3.62E+00	2.96E-02	6.64E-01	5.32E-01	7.50E-02	1.96E-01
2004	4	5	6.22E-01	8.57E-01	1.23E-01	1.09E-01	1.37E-01	1.63E-01	8.58E-01	1.49E+00	1.16E+00	3.97E+00	3.95E+00	1.89E+00	1.80E+00	7.13E-01	8.96E-01
2004	4	6	1.46E-01	9.66E-02	4.63E-02	4.05E-02	6.30E-02	5.51E-02	2.98E-01	1.03E+00	3.16E+00	6.33E+00	3.33E-01	1.45E+00	2.44E+00	2.79E-01	3.40E-01
2004	4	7	1.71E-01	4.07E-01	1.40E-02	2.47E-02	3.12E-02	2.06E-02	6.46E-02	1.23E+00	7.09E-01	7.79E+00	1.71E+00	9.40E-01	5.44E-01	1.81E-01	3.54E-01
2004	4	8	4.41E-01	1.96E-06	4.83E-01	0.00E+00	1.89E-10	4.60E-01	3.03E-02	5.39E-01	3.02E+00	7.13E-01	1.46E-05	2.11E-01	3.09E-01	1.26E-01	6.74E-01
2004	4	9	9.62E-01	6.59E-03	4.02E-01	1.33E-03	1.59E-03	3.62E-01	3.17E-01	8.18E-01	5.98E+00	8.62E-02	5.02E-03	1.15E-01	6.21E-02	6.38E-01	1.36E+00
2004	4	10	6.25E-01	7.52E-01	4.07E-01	8.39E-02	1.03E-01	4.63E-01	2.38E-01	8.05E-01	3.43E+00	4.78E+00	2.58E+00	7.86E-01	1.29E+00	3.62E-01	9.59E-01
2004	4	11	3.11E-02	8.02E-03	1.53E-03	1.07E-02	1.44E-02	3.52E-03	8.54E-02	1.51E+00	6.76E-03	1.24E+01	4.48E-02	1.31E+00	1.25E+00	2.41E-01	8.30E-02
2004	4	12	2.80E-01	1.67E-02	4.19E-02	4.37E-03	6.42E-03	2.86E-02	8.43E-02	9.79E-01	2.37E+00	5.08E+00	7.52E-02	8.78E-01	7.71E-01	1.21E-01	4.78E-01
2004	4	13	8.78E-02	2.16E-01	4.37E-02	2.31E-02	4.13E-02	6.46E-02	5.80E-02	8.65E-01	2.84E+00	4.65E+00	3.34E-01	6.27E-01	6.31E-01	1.51E-01	1.97E-01
2004	4	14	3.97E-01	1.38E-01	1.67E-01	2.61E-02	4.54E-02	9.93E-02	2.66E-03	1.80E-01	7.09E-01	1.19E+00	5.47E-01	1.78E-01	1.91E-01	9.07E-03	7.31E-01
2004	4	15	5.31E-02	1.92E-04	1.24E-03	1.33E-02	1.29E-01	1.07E-02	1.12E-02	2.55E-01	3.33E-02	3.65E+00	1.67E+00	2.04E-01	4.34E-01	1.46E-02	1.53E-01
2004	4	16	3.35E-02	7.67E-02	1.55E-02	2.21E-02	1.21E-01	2.14E-02	1.24E-03	3.44E-02	1.30E+00	2.22E+00	1.68E+00	8.72E-03	6.79E-02	6.21E-03	8.43E-02
2004	4	17	1.21E-01	6.55E-01	2.32E-02	6.03E-02	1.04E-01	4.95E-02	8.33E-02	6.62E-01	1.73E+00	9.52E+00	2.50E+00	7.75E-01	1.73E+00	1.65E-01	3.38E-01
2004	4	18	7.07E-02	2.79E-04	1.92E-03	3.55E-03	2.79E-02	1.05E-02	3.50E-01	1.17E+00	1.40E-01	7.47E+00	2.68E-01	1.17E+00	1.61E+00	2.57E-01	9.11E-02
2004	4	19	4.24E-04	0.00E+00	0.00E+00	0.00E+00	3.28E-05	0.00E+00	3.08E-02	7.29E-01	6.17E-06	1.78E+00	9.35E-02	4.03E-01	5.14E-01	2.89E-02	3.18E-03
2004	4	20	3.70E-02	0.00E+00	4.26E-07	2.82E-04	6.02E-03	1.69E-05	4.19E-02	1.08E+00	4.31E-03	4.99E+00	1.39E-01	7.58E-01	7.20E-01	9.81E-02	1.06E-01
2004	4	21	2.60E-02	0.00E+00	5.40E-05	0.00E+00	0.00E+00	6.78E-04	8.24E-02	1.13E+00	2.08E-03	9.72E+00	4.50E-02	1.34E+00	1.60E+00	1.03E-01	4.41E-02
2004	4	22	1.18E-01	2.41E-01	1.57E-02	9.85E-04	1.69E-03	2.95E-02	6.75E-02	1.01E+00	8.35E-01	6.42E+00	8.30E-01	6.63E-01	1.41E+00	1.12E-01	1.98E-01
2004	4	23	3.57E-02	1.96E-02	2.18E-03	1.26E-02	2.14E-02	3.30E-03	2.12E-02	4.36E-01	5.26E-03	1.49E+00	2.93E-01	1.79E-01	4.95E-01	5.58E-02	9.11E-02
2004	4	24	1.90E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.94E-02	3.75E-01	3.15E-19	5.90E+00	6.52E-04	7.03E-01	5.22E-01	8.41E-03	7.42E-05
2004	4	25	8.07E-01	7.17E-02	2.72E-01	2.06E-02	7.35E-02	4.15E-01	1.44E-01	1.14E+00	1.41E+00	7.08E+00	1.28E+00	1.26E+00	1.28E+00	5.72E-01	8.85E-01
2004	4	26	9.24E-04	3.33E-05	1.79E-04	3.43E-07	1.70E-05	9.19E-04	6.27E-02	1.10E+00	1.97E-03	3.09E+00	4.25E-02	8.15E-01	3.02E-01	5.38E-02	1.16E-03
2004	4	27	2.28E-01	0.00E+00	1.08E-02	0.00E+00	2.25E-04	4.25E-02	2.59E-02	3.23E-01	1.31E+00	1.66E+00	1.17E-01	2.57E-01	4.33E-01	8.92E-02	2.65E-01
2004	4	28	3.55E-01	3.43E-01	1.41E-01	3.88E-02	5.44E-02	1.75E-01	6.58E-03	1.90E-01	1.22E+00	3.61E-01	1.99E+00	7.49E-03	2.87E-02	7.71E-02	5.09E-01
2004	4	29	1.11E-01	1.20E-04	3.03E-01	1.83E-03	6.62E-03	2.87E-01	7.18E-02	9.44E-01	2.39E+00	4.05E+00	2.73E-02	6.56E-01	4.91E-01	1.97E-01	1.97E-01
2004	4	30	8.37E-01	1.66E-03	2.26E-01	2.80E-07	1.07E-06	1.01E-01	1.30E-04	6.88E-02	4.06E+00	6.47E-02	4.08E-02	3.86E-03	4.28E-03	2.84E-02	1.49E+00
2004	5	1	5.19E-01	1.38E-01	1.22E-01	3.99E-01	7.82E-01	1.47E-01	1.04E+00	1.53E+00	3.10E+00	1.57E+01	2.67E+00	4.25E+00	6.61E+00	6.32E-01	6.90E-01
2004	5	2	1.58E-02	0.00E+00	2.57E-03	0.00E+00	0.00E+00	9.78E-03	3.74E-02	8.02E-01	7.66E-04	5.47E+00	1.53E-01	7.56E-01	7.58E-01	3.63E-02	5.05E-02
2004	5	3	3.43E-01	6.51E-01	2.40E-01	3.40E-02	3.13E-02	1.73E-01	1.73E-02	2.56E-01	6.11E+00	9.19E-01	4.79E+00	7.38E-02	1.26E-01	5.11E-02	7.23E-01
2004	5	4	7.88E-02	3.30E-02	7.15E-04	3.64E-02	6.67E-02	1.41E-03	5.16E-02	8.36E-01	5.75E-02	4.54E+00	8.02E-01	6.07E-01	1.27E+00	9.58E-02	1.49E-01
2004	5	5	9.79E-03	1.05E-01	7.50E-03	6.39E-02	7.70E-02	1.53E-02	2.32E-02	7.19E-02	3.23E-01	2.64E+00	7.67E-01	9.92E-02	4.24E-01	1.78E-02	1.12E-02
2004	5	6	6.66E-02	8.07E-01	1.18E-02	1.06E-01	1.09E-01	2.88E-02	7.37E-03	2.67E-01	1.72E-01	4.59E+00	6.81E-01	2.45E-01	8.09E-01	1.40E-02	1.50E-01
2004	5	7	4.29E-01	2.73E-01	4.21E-01	7.50E-02	1.60E-01	3.72E-01	2.92E-01	1.21E+00	3.12E+00	1.17E+01	1.91E+00	1.43E+00	2.60E+00	3.49E-01	5.61E-01
2004	5	8	9.80E-02	6.23E-06	8.20E-04	2.07E-07	8.62E-04	3.10E-03	3.95E-02	5.34E-01	9.87E-03	1.06E+01	2.67E-01	9.64E-01	8.21E-01	4.80E-02	2.06E-01
2004	5	9	0.00E+00	9.78E-02	3.90E-03	1.51E-02	3.38E-02	4.78E-03	6.02E-03	1.40E-01	1.51E-01	2.22E+00	8.69E-01	2.50E-01	2.46E-01	0.00E+00	0.00E+00
2004	5	10	1.58E-01	8.82E-02	1.98E-01	0.00E+00	0.00E+00	1.38E-01	1.46E-06	1.07E-03	1.18E+00	1.95E-03	1.40E-11	0.00E+00	4.81E-20	7.56E-04	2.41E-01
2004	5	11	6.35E-02	0.00E+00	2.33E-01	0.00E+00	0.00E+00	2.14E-01	0.00E+00	3.55E-04	2.96E+00	1.97E-05	0.00E+00	0.00E+00	1.20E-20	7.95E-04	1.74E-01
2004	5	12	1.76E-03	7.84E-05	2.39E-02	0.00E+00	0.00E+00	5.03E-02	0.00E+00	0.00E+00	2.58E+00	6.52E-07	9.28E-04	0.00E+00	0.00E+00	0.00E+00	1.14E-02
2004	5	13	1.59E-01	1.25E+00	8.31E-02	5.27E-01	4.61E-01	1.85E-01	3.39E-02	7.96E-02	1.14E+00	6.07E+00	1.21E+01	2.76E-01	1.06E+00	4.63E-02	3.47E-01
2004	5	14	3.96E-02	1.61E-01	6.06E-03	5.13E-02	9.01E-02	1.16E-02	4.46E-02	1.22E+00	2.32E-02	9.15E+00	1.27E+00	9.93E-01	1.01E+00	1.00E-01	1.03E-01
2004	5	15	3.74E-01	1.71E-01	9.61E-02	2.01E-02	1.30E-02	9.39E-02	1.98E-01	9.35E-01	2.65E+00	1.20E+01	3.72E-02	2.25E+00	3.82E+00	2.45E-01	7.31E-01
2004	5	16	8.41E-01	3.12E-01	4.26E-01	1.47E-02	2.70E-02	4.94E-01	5.43E-01	9.69E-01	7.07E+00	3.05E+00	1.02E+00	1.94E+00	1.64E+00	6.83E-01	1.09E+00
2004	5	17	9.90E-01	1.28E-01	3.83E-01	2.57E-03	6.79E-03	4.69E-01	8.98E-01	1.53E+00	6.10E+00	1.45E+00	5.21E-01	1.53E+00	1.16E+00	9.92E-01	1.28E+00
2004	5	18	1.02E+00	4.74E-01	1.27E+00	1.88E-02	3.39E-02	1.45E+00	3.80E-01	1.37E+00	6.64E+00	3.75E+00	1.08E+00	1.38E+00	1.51E+00	7.72E-01	1.17E+00
2004	5	19	4.94E-01	8.06E-03	8.22E-02	8.17E-04	1.31E-03	8.76E-02	3.43E-01	1.39E+00	2.48E+00	3.53E+00	1.31E-01	1.45E+00	1.51E+00	5.19E-01	7.34E-01
2004	5	20	3.36E-01	2.01E+00	6.22E-01	4.67E-01	4.02E-01	2.88E-01	6.52E-02	3.99E-01	2.79E+00	5.54E+00	8.14E+00	5.28E-01	9.42E-01	1.27E-01	6.24E-01
2004	5	21	2.46E-01	0.00E+00	6.14E-01	0.00E+00	0.00E+00	3.65E-01	8.07E-06	3.37E-03	5.04E+00	5.92E-05	1.17E-05	5.78E-06	2.42E-05	1.78E-03	5.10E-01
2004	5	22	2.47E-01	0.00E+00	6.48E-01	0.00E+00	0.00E+00	3.63E-01	0.00E+00	2.86E-04	3.83E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.92E-05	5.01E-01
2004	5	23	4.19E-01	1.33E-06	1.51E+00	0.00E+00	0.00E+00	9.71E-01	1.76E-04	1.12E-02	6.36E+00	2.33E-04	1.52E-05	2.38E-04	1.79E-04	5.19E-03	8.47E-01
2004	5	24	4.56E-01	7.11E-01	4.51E-01	3.87E-01	5.18E-01	4.11E-01	3.56E-01	1.19E+00	3.31E+00	1.87E+01	5.19E+00	3.26E+00	5.38E+00	3.88E-01	8.17E-01
2004	5	25	2.69E-03	1.71E-05	5.46E-05	1.21E-05	3.08E-05	8.25E-05	5.05E-02	9.02E-01	1.52E-03	1.57E+01	1.11E-01	1.11E+00	9.54E-01	1.55E-01	1.35E-02
2004	5	26	1.75E-03	0.00E+00	0.00E+00	0.00E+00	3.34E-06	0.00E+00	2.95E-02	4.70E-01	4.55E-18	3.92E+00	1.11E-01	6.11E-01	7.35E-01	2.00E-02	1.36E-02
2004	5	27	2.99E-02	0.00E+00	7.20E-05	2.18E-08	1.78E-02	1.25E-03	4.79E-02	1.06E+00	8.68E-04	4.23E+00	1.02E+00	4.28E-01	9.55E-01	9.78E-02	1.21E-01
2004	5	28	4.82E-02	4.74E-05	4.90E-04	9.50E-07	3.59E-03	1.16E-03	2.15E-02	6.90E-01	5.81E-03	2.92E+00	4.53E-01	1.55E-01	7.96E-01	4.18E-02	1.02E-01
2004	5	29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-02	6.36E-01	7.31E-16	4.23E+00	1.16E-02	6.42E-01	5.25E-01	9.68E-03	0.00E+00
2004	5	30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.41E-03	4.39E-01	8.83E-16	2.67E+00	8.26E-02	4.47E-01	4.54E-01	0.00E+00	0.00E+00
2004	5	31	1.10E-01	0.00E+00	1.82E-04	0.00E+00	0.00E+00	8.39E-04	3.96E-02	7.72E-01	2.57E-05	8.71E+00	1.41E-02	8.67E-01	9.72E-01	2.45E-02	2.24E-01
2004	6	1	7.44E-03	0.00E+00	0.00E+00	0.00E+00	1.94E-04	6.89E-06	4.68E-02	1.03E+00	2.84E-04	9.37E+00	1.84E-01	8.22E-01	1.10E+00	9.05E-02	3.21E-02
2004	6	2	3.51E-03	0.00E+00	0.00E+00	2.28E-02	8.12E-02	0.00E+00	7.45E-02	1.53E+00	6.73E-04	1.59E+01	4.04E-01	1.50E+00	1.52E+00	2.46E-01	1.71E-02
2004	6	3	6.76E-01	7.43E-01	1.97E-01	2.79E-02	5.04E-02	2.87E-01	6.47E-01	1.12E+00	3.14E+00	5.62E+00	1.13E+00	1.12E+00	1.15E+00	6.42E-01	8.63E-01
2004	6	4	1.94E-01	8.81E-01	4.51E-02	1.16E-01	1.55E-01	8.42E-02	3.76E-01	1.33E+00	9.02E-01	1.85E+01	2.27E+00	2.42E+00	3.58E+00	3.73E-01	2.98E-01
2004	6	5	2.53E-02	4.92E-01	1.04E-03	1.93E-01	2.72E-01	2.60E-03	3.56E-02	8.64E-01	5.95E-02	9.14E+00	2.80E+00	6.98E-01	1.08E+00	1.87E-01	6.76E-02
2004	6	6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.47E-04	0.00E+00	1.39E-03	1.22E-01	1.57E-20	1.84E+00	3.22E-01	1.35E-01	4.63E-01	3.87E-03	0.00E+00
2004	6	7	5.19E-01	0.00E+00	2.55E-01	0.00E+00	0.00E+00	2.79E-01	1.04E-01	4.78E-01	1.68E+00	5.07E+00	2.48E-03	4.29E-01	8.01E-01	2.50E-01	7.27E-01
2004	6	8	5.87E-01	1.24E-05	2.26E-01	0.00E+00	0.00E+00	1.15E-01	1.62E-04	3.40E-02	1.34E+00	1.13E-04	4.17E-05	1.91E-04	1.41E-04	1.89E-02	9.86E-01
2004	6	9	5.42E-01	3.40E-02	2.67E-01	0.00E+00	1.87E-08	1.98E-01	9.50E-04	1.06E-01	4.47E+00	1.82E-03	1.48E-01	1.62E-03	1.07E-03	4.89E-02	9.63E-01
2004	6	10	3.00E-01	9.00E-01	1.21E-01	7.82E-02	1.04E-01	1.15E-01	3.09E-02	5.05E-01	3.73E+00	6.26E+00	1.89E+00	6.93E-01	9.16E-01	1.08E-01	6.45E-01
2004	6	11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-02	5.40E-01	1.44E-16	5.19E+00	1.24E-02	6.60E-01	5.91E-01	8.48E-06	0.00E+00
2004	6	12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-02	6.14E-01	5.47E-16	3.13E+00	9.83E-02	5.10E-01	5.70E-01	3.36E-03	0.00E+00
2004	6	13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.54E-03	5.37E-01	4.10E-16	2.79E+00	1.28E-01	4.13E-01	4.67E-01	8.07E-03	0.00E+00
2004	6	14	1.40E-01	2.29E-04	2.11E-02	1.81E-05	6.10E-05	6.02E-02	2.05E-02	4.05E-01	2.77E-02	4.52E+00	1.25E-01	3.88E-01	9.37E-01	3.22E-02	3.80E-01
2004	6	15	2.25E-01	3.40E-02	2.84E-02	6.52E-03	3.41E-02	6.47E-02	2.41E-01	1.12E+00	1.07E+00	1.74E+01	7.41E-01	3.21E+00	4.81E+00	1.71E-01	4.35E-01
2004	6	16	3.34E-01	1.72E-01	3.39E-01	3.21E-02	5.38E-02	3.85E-01	2.42E-01	1.06E+00	1.40E+00	1.38E+01	4.72E-01	1.63E+00	1.46E+00	3.93E-01	4.57E-01
2004	6	17	5.93E-01	1.09E-03	1.78E+00	4.70E-10	1.17E-07	1.31E+00	2.25E-02	1.84E-01	1.08E+01	4.23E-02	3.32E-02	5.04E-02	4.10E-02	1.40E-01	9.70E-01
2004	6	18	5.23E-01	6.05E-02	3.45E-01	1.11E-06	3.93E-06	2.19E-01	2.07E-03	1.05E-01	4.51E+00	2.07E-02	1.23E-01	6.65E-03	6.99E-03	4.08E-02	9.65E-01

Table C4 - Timeseries Data for PM10

Application

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2004	6	19	8.85E+00	2.97E-01	5.48E+00	1.54E-01	1.54E-01	1.82E+01	3.15E+00	1.92E+01	2.71E+00	2.71E+00	4.08E+00	2.89E-01	3.18E-01	2.41E+01	1.06E+01
2004	6	20	5.55E+00	7.34E-02	2.36E+00	1.87E-03	5.75E-03	2.63E+01	7.90E+00	3.68E+01	3.59E+00	9.08E+00	4.05E-01	1.33E+00	1.12E+00	3.22E+01	8.55E+00
2004	6	21	4.45E+00	3.27E-01	2.31E+00	1.14E-01	2.52E-01	2.30E+01	1.12E+01	2.69E+01	1.94E+00	1.73E+01	2.85E+00	3.45E+00	3.53E+00	2.52E+01	6.85E+00
2004	6	22	9.47E+00	9.73E-01	4.75E+00	8.91E-02	1.75E-01	1.82E+01	5.69E+00	1.91E+01	3.59E+00	3.23E+00	4.08E+00	3.26E-01	4.37E-01	2.14E+01	1.21E+01
2004	6	23	8.43E+00	5.37E-01	4.39E+00	1.61E-01	2.37E-01	1.81E+01	5.34E+00	2.20E+01	6.51E+00	1.04E+01	1.30E+00	2.52E+00	4.52E+00	1.63E+01	9.90E+00
2004	6	24	1.16E+01	2.27E-01	4.59E+00	3.17E-05	9.76E-05	1.58E+01	1.54E+00	2.08E+01	4.89E+00	9.66E-02	8.99E-01	7.45E-02	5.91E-02	3.06E+01	1.66E+01
2004	6	25	1.40E+01	2.16E-02	7.46E+00	3.58E-04	6.61E-04	1.95E+01	3.42E-01	2.01E+01	8.58E+00	3.10E-02	7.95E-03	5.35E-02	3.64E-02	2.90E+01	1.81E+01
2004	6	26	1.23E+01	5.61E-03	7.93E+00	4.47E-04	1.07E-03	1.77E+01	6.45E-01	1.95E+01	1.04E+01	1.04E-01	1.80E-02	1.97E-01	1.48E-01	2.07E+01	1.45E+01
2004	6	27	1.46E+01	1.17E-02	6.52E+00	2.16E-05	9.15E-05	1.76E+01	8.97E-01	1.82E+01	5.92E+00	3.47E-02	4.74E-02	5.37E-02	4.21E-02	2.57E+01	1.95E+01
2004	6	28	8.50E+00	6.29E-01	4.79E+00	8.70E-02	1.32E-01	2.47E+01	8.94E+00	3.02E+01	3.32E+00	1.57E+01	1.47E+00	1.35E+00	2.67E+00	3.37E+01	1.08E+01
2004	6	29	7.67E+00	1.62E+00	4.14E+00	1.11E-01	1.80E-01	1.75E+01	9.46E+00	2.31E+01	2.37E+00	1.66E+01	2.43E+00	1.39E+00	2.22E+00	2.39E+01	1.09E+01
2004	6	30	6.62E+00	3.86E-01	3.01E+00	1.23E-01	2.05E-01	1.74E+01	8.09E+00	2.20E+01	3.51E+00	9.05E+00	1.74E+00	1.31E+00	2.58E+00	2.00E+01	9.16E+00
2004	7	1	2.19E+00	1.04E-03	1.38E+00	4.02E-04	3.80E-03	1.45E+01	6.96E+00	1.37E+01	1.63E-01	1.10E+01	2.97E-01	9.97E-01	1.25E+00	1.30E+01	4.29E+00
2004	7	2	3.48E+00	3.44E-04	1.22E+00	3.99E-05	2.79E-04	1.97E+01	7.27E+00	1.56E+01	2.29E-01	1.22E+01	1.43E-01	1.34E+00	1.06E+00	1.98E+01	4.99E+00
2004	7	3	3.19E+00	5.32E-03	2.04E+00	1.36E-03	3.21E-02	2.11E+01	6.41E+00	1.57E+01	2.87E-01	7.92E+00	7.22E-01	9.13E-01	9.06E-01	1.85E+01	5.08E+00
2004	7	4	8.65E+00	2.68E-03	4.18E+00	1.67E-04	4.49E-04	1.60E+01	1.73E+00	2.17E+01	7.44E+00	2.88E+00	1.11E-02	2.13E+00	2.60E+00	2.45E+01	1.31E+01
2004	7	5	9.42E+00	2.12E+00	4.52E+00	2.82E-01	3.00E-01	1.63E+01	6.64E+00	1.94E+01	3.39E+00	7.51E+00	4.22E+00	8.29E-01	1.43E+00	1.54E+01	1.17E+01
2004	7	6	2.43E+00	3.84E-05	1.03E+00	4.59E-06	2.64E-04	7.63E+00	3.16E+00	6.40E+00	9.26E-02	3.94E+00	2.46E-01	4.09E-01	7.97E-01	7.11E+00	3.50E+00
2004	7	7	2.07E-01	0.00E+00	1.26E-01	0.00E+00	0.00E+00	9.26E+00	1.85E+00	7.55E+00	1.13E-01	4.05E+00	1.02E-01	5.89E-01	5.62E-01	4.83E+00	6.71E-01
2004	7	8	3.07E-01	3.05E-04	2.37E-01	5.95E-05	1.47E-04	1.34E+01	1.70E+00	9.93E+00	2.47E-01	2.63E+00	8.42E-02	3.20E-01	7.12E-01	6.54E+00	7.87E-01
2004	7	9	7.77E-01	8.18E-06	1.10E-01	1.08E-02	1.57E-01	5.62E+00	4.48E+00	9.57E+00	3.06E-03	1.01E+01	5.34E-01	1.02E+00	1.00E+00	8.66E+00	1.24E+00
2004	7	10	4.53E-01	1.37E-01	5.14E-01	2.11E-01	5.04E-01	8.20E+00	7.02E+00	1.07E+01	2.59E-02	9.43E+00	5.29E+00	1.25E+00	1.89E+00	1.01E+01	1.17E+00
2004	7	11	8.42E-01	2.28E-04	6.28E-01	1.22E-05	3.30E-03	1.02E+01	1.97E+00	1.07E+01	1.16E-01	3.01E+00	4.13E-01	2.73E-01	5.50E-01	8.74E+00	9.55E-01
2004	7	12	3.23E+00	1.03E+00	1.24E+00	7.76E-02	8.29E-02	1.98E+01	6.69E+00	2.29E+01	5.22E-01	1.30E+01	2.79E+00	1.47E+00	1.45E+00	1.68E+01	4.78E+00
2004	7	13	4.82E+00	1.57E+00	3.06E+00	5.56E-02	9.20E-02	9.04E+00	9.51E+00	1.17E+01	4.56E+00	9.37E+00	4.63E+00	3.93E+00	5.66E+00	1.31E+01	6.33E+00
2004	7	14	7.16E+00	2.48E-02	2.93E+00	3.27E-03	1.02E-02	2.01E+01	5.36E+00	2.72E+01	2.69E+00	1.25E+01	7.51E-02	1.63E+00	3.17E+00	2.22E+01	9.06E+00
2004	7	15	8.70E+00	5.85E-02	4.13E+00	1.37E-02	2.29E-02	1.48E+01	1.38E+00	1.78E+01	2.36E+00	1.51E+00	1.06E-01	1.69E+00	1.13E+00	1.74E+01	1.07E+01
2004	7	16	7.98E+00	1.29E-01	1.89E+00	7.48E-02	3.09E-01	1.50E+01	1.03E+01	2.19E+01	1.22E+00	1.45E+01	2.65E+00	1.88E+00	3.04E+00	1.98E+01	9.84E+00
2004	7	17	2.79E+00	1.08E-02	1.27E+00	7.21E-03	5.28E-02	1.83E+01	8.25E+00	2.45E+01	8.06E-01	1.37E+01	4.97E-01	1.01E+00	2.61E+00	2.34E+01	5.02E+00
2004	7	18	1.28E+00	5.98E-03	7.53E-01	1.71E-02	5.51E-02	1.47E+01	7.69E+00	1.78E+01	2.81E-01	1.95E+01	1.14E+00	1.64E+00	2.37E+00	2.03E+01	2.20E+00
2004	7	19	2.32E+00	9.48E-02	8.15E-01	2.86E-01	5.11E-01	8.50E+00	4.45E+00	1.33E+01	2.25E-01	7.01E+00	4.84E+00	3.50E-01	6.92E-01	1.14E+01	3.55E+00
2004	7	20	1.72E+00	6.24E-03	6.13E-01	1.58E-03	2.60E-02	5.56E+00	3.55E+00	7.05E+00	7.18E-02	5.67E+00	1.59E+00	1.90E-01	3.17E-01	8.21E+00	2.75E+00
2004	7	21	1.51E+00	2.83E-03	8.98E-01	1.95E-04	3.89E-03	1.81E+01	7.59E+00	2.77E+01	5.98E-01	2.24E+01	7.13E-01	1.80E+00	3.48E+00	2.54E+01	1.99E+00
2004	7	22	9.57E+00	1.13E-02	5.01E+00	1.46E-03	2.92E-03	1.96E+01	4.24E+00	1.67E+01	6.84E+00	1.81E+00	2.52E-02	2.49E+00	1.89E+00	1.44E+01	1.18E+01
2004	7	23	3.04E+00	1.34E-02	1.11E+00	3.18E-04	9.01E-04	6.71E+00	3.87E+00	1.23E+01	1.29E+00	9.32E+00	1.06E-01	4.23E+00	5.64E+00	9.58E+00	4.01E+00
2004	7	24	6.69E+00	1.38E+00	3.25E+00	2.22E-01	5.73E-01	1.79E+01	1.08E+01	2.18E+01	1.86E+00	9.78E+00	6.33E+00	9.32E-01	1.42E+00	1.76E+01	8.91E+00
2004	7	25	2.27E+00	5.56E-02	1.31E+00	3.45E-02	1.17E-01	1.78E+01	8.41E+00	2.48E+01	7.55E-01	1.18E+01	2.23E+00	1.15E+00	1.70E+00	2.69E+01	3.61E+00
2004	7	26	2.15E+00	4.82E-02	1.50E+00	4.88E-02	1.07E-01	2.36E+01	7.64E+00	2.53E+01	1.25E+00	1.18E+01	5.37E-01	2.21E+00	2.22E+00	2.45E+01	3.07E+00
2004	7	27	1.16E+01	1.51E+00	5.87E+00	2.13E-01	3.26E-01	1.91E+01	4.00E+00	2.58E+01	6.47E+00	4.76E+00	4.00E+00	9.43E-01	1.31E+00	2.98E+01	1.51E+01
2004	7	28	1.10E+01	9.53E-01	5.94E+00	3.34E-01	4.36E-01	2.24E+01	4.79E+00	2.40E+01	5.20E+00	6.60E+00	3.18E+00	6.43E-01	1.25E+00	2.60E+01	1.45E+01
2004	7	29	3.16E+00	7.58E-02	1.36E+00	3.80E-03	1.28E-02	1.19E+01	8.38E+00	2.03E+01	8.67E-01	2.16E+01	2.91E-01	2.30E+00	4.02E+00	1.53E+01	5.28E+00
2004	7	30	2.10E+00	1.60E-03	1.14E+00	1.44E-04	6.78E-04	1.66E+01	7.46E+00	2.38E+01	4.18E-01	1.37E+01	3.15E-02	1.74E+00	1.65E+00	1.83E+01	3.80E+00
2004	7	31	2.46E+00	2.07E-02	8.48E-01	3.47E-01	6.29E-01	1.75E+01	9.05E+00	2.05E+01	6.42E-01	1.12E+01	3.34E+00	1.29E+00	1.77E+00	1.91E+01	3.57E+00
2004	8	1	1.29E+01	1.88E-01	4.28E+00	5.08E-02	7.72E-02	2.11E+01	3.50E+00	2.67E+01	1.20E+01	2.07E+00	4.36E-01	2.70E+00	2.08E+00	2.75E+01	1.80E+01
2004	8	2	1.36E+01	1.39E+00	6.59E+00	4.87E-01	6.90E-01	1.73E+01	5.30E+00	2.18E+01	8.96E+00	1.53E+01	6.07E+00	2.28E+00	4.32E+00	2.25E+01	1.66E+01
2004	8	3	4.21E+00	6.78E-01	3.07E+00	2.40E-01	4.31E-01	1.95E+01	1.04E+01	2.42E+01	2.25E+00	1.50E+01	6.60E+00	1.64E+00	3.03E+00	2.54E+01	6.24E+00
2004	8	4	2.32E+00	4.12E-03	1.44E+00	7.10E-04	3.18E-03	2.40E+01	1.09E+01	2.69E+01	5.25E-01	1.44E+01	1.31E-01	1.55E+00	1.89E+00	3.23E+01	3.57E+00
2004	8	5	2.15E+00	8.10E-02	1.47E+00	1.30E-02	1.95E-02	2.19E+01	9.58E+00	2.89E+01	2.30E+00	1.31E+01	3.06E-01	2.60E+00	3.29E+00	2.48E+01	4.37E+00
2004	8	6	1.42E+00	4.73E-03	1.06E+00	3.50E-03	1.46E-01	2.12E+01	5.95E+00	2.06E+01	4.67E-01	6.60E+00	1.23E+00	8.37E-01	1.10E+00	1.95E+01	4.21E+00
2004	8	7	2.97E+00	1.72E+00	1.19E+00	3.56E-02	1.99E-02	1.42E+01	4.09E+00	1.66E+01	7.40E-01	4.72E+00	2.01E+00	4.86E-01	7.70E-01	1.48E+01	4.44E+00
2004	8	8	5.17E+00	4.35E-01	2.11E+00	1.19E-01	9.05E-02	1.09E+01	4.24E+00	1.81E+01	1.66E+00	1.07E+01	2.77E-01	1.74E+00	2.42E+00	1.76E+01	7.79E+00
2004	8	9	7.94E+00	3.80E-03	3.75E+00	1.12E-06	1.59E-06	9.35E+00	1.06E+00	1.48E+01	3.28E+00	4.50E-03	5.28E-04	6.88E-03	4.15E-03	1.84E+01	1.09E+01
2004	8	10	8.69E+00	2.62E+00	4.58E+00	7.56E-02	3.30E-02	1.07E+01	2.16E+00	1.89E+01	4.48E+00	6.36E-02	5.25E-01	6.35E-02	4.22E-02	1.93E+01	1.05E+01
2004	8	11	1.28E+01	3.93E-01	6.44E+00	1.46E-02	1.01E-02	1.52E+01	1.46E+00	1.98E+01	1.01E+01	7.51E-02	1.60E-01	7.84E-02	6.42E-02	2.06E+01	1.96E+01
2004	8	12	8.26E+00	1.48E+00	3.25E+00	2.67E-01	2.91E-01	2.20E+01	9.56E+00	2.72E+01	1.29E+00	1.45E+01	7.42E+00	1.72E+00	2.66E+00	2.69E+01	1.04E+01
2004	8	13	7.48E+00	7.54E-01	2.43E+00	6.85E-02	1.12E-01	2.35E+01	9.89E+00	2.64E+01	1.89E+00	1.28E+01	1.92E+00	2.28E+00	3.11E+00	2.28E+01	9.88E+00
2004	8	14	2.22E+00	2.70E-01	1.87E+00	6.03E-02	9.08E-02	2.09E+01	6.55E+00	3.01E+01	2.28E+00	1.45E+01	6.09E-01	3.42E+00	4.40E+00	2.08E+01	3.46E+00
2004	8	15	6.06E+00	1.20E-04	3.27E+00	0.00E+00	0.00E+00	9.69E+00	4.28E-01	1.23E+01	2.46E+00	1.74E-03	2.44E-04	4.63E-03	2.71E-03	1.43E+01	6.93E+00
2004	8	16	4.33E+00	1.09E-03	1.96E+00	0.00E+00	0.00E+00	5.21E+00	1.89E-01	1.02E+01	4.67E+00	6.56E-03	1.49E-03	1.32E-02	6.48E-03	1.20E+01	5.92E+00
2004	8	17	8.63E+00	3.66E-01	4.41E+00	9.79E-02	8.33E-02	8.30E+00	5.74E-01	1.75E+01	5.51E+00	1.63E+00	2.47E-01	2.65E-01	5.67E-01	1.72E+01	1.16E+01
2004	8	18	1.51E+01	1.62E+00	6.64E+00	4.40E-01	4.08E-01	2.42E+01	4.90E+00	2.36E+01	5.73E+00	5.96E+00	5.58E+00	3.76E-01	6.11E-01	2.84E+01	1.98E+01
2004	8	19	3.88E+00	2.05E-02	2.53E+00	2.21E-02	3.37E-02	2.57E+01	1.15E+01	3.78E+01	1.29E+00	2.24E+01	1.48E-01	5.90E+00	7.93E+00	2.94E+01	4.31E+00
2004	8	20	4.67E+00	1.58E-01	3.70E+00	8.12E-02	2.04E-01	2.39E+01	1.02E+01	2.66E+01	4.46E+00	1.16E+01	1.15E+00	1.85E+00	2.74E+00	2.93E+01	6.32E+00
2004	8	21	3.85E+00	2.35E-03	1.54E+00	2.09E-04	1.02E-03	2.00E+01	7.13E+00	2.47E+01	1.50E+00	1.39E+01	1.56E-02	2.02E+00	3.00E+00	3.03E+01	4.38E+00
2004	8	22	8.05E+00	9.93E-01	3.06E+00	1.19E+00	1.40E+00	1.77E+01	3.64E+00	1.55E+01	1.98E+00	2.54E+00	7.45E+00	1.62E-01	2.70E-01	1.73E+01	1.03E+01
2004	8	23	2.42E+00	1.11E+00	1.11E+00	7.02E-01	1.30E+00	1.81E+01	8.95E+00	2.72E+01	8.87E-01	1.52E+01	6.02E+00	1.90E+00	3.15E+00	2.45E+01	4.38E+00
2004	8	24	4.23E+00	2.83E-04	6.35E-01	3.78E-05	7.74E-03	1.63E+01	2.50E+00	1.65E+01	4.87E-01	3.71E+00	4.41E-01	1.93E-01	7.91E-01	1.27E+01	6.15E+00
2004	8	25	1.98E+00	3.75E-04	4.57E-01	5.95E-05	1.16E-02	2.01E+01	2.67E+00	1.61E+01	5.88E-01	6.27E+00	3.64E-01	6.14E-01	1.11E+00	1.17E+01	3.52E+00
2004	8	26	7.37E+00	1.69E+00	3.81E+00	7.75E-02	9.64E-02	2.61E+01	1.30E+01	3.35E+01	3.78E+00	1.03E+01	2.12E+00	4.88E+00	4.60E+00	2.80E+01	1.07E+01
2004	8	27	1.99E+00	5.22E-02	6.02E-01	2.46E-02	6.03E-02	2.37E+01	3.06E+00	1.67E+01	6.75E-01	3.51E+00	9.07E-01	3.49E-01	1.09E+00	1.11E+01	3.68E+00
2004	8	28	2.78E+00	1.38E-03	7.68E-01	8.73E-05	5.24E-04	1.97E+01	4.07E+00	2.05E+01	2.61E-01	6.09E+00	1.41E-01	7.19E-01	7.75E-01	1.38E+01	4.76E+00
2004	8	29	8.95E-01	1.28E-03	8.62E-01	1.19E-04	6.96E-04	1.89E+01	7.16E+00	1.59E+01	3.27E-01	1.28E+01	1.96E-01	1.69E+00	8.65E-01	2.54E+01	1.06E+00
2004	8	30	2.21E+00	9.51E-05	7.37E-01	2.18E-05	3.19E-04	1.10E+01	4.72E+00	1.63E+01	2.14E-01	4.72E+00	1.79E-01	7.76E-01	1.15E+00	1.34E+01	3.29E+00
2004	8	31	3.27E+00	1.70E-02	1.12E+00	2.63E-02	2.13E-01	1.78E+01	7.97E+00	1.94E+01	4.99E-01	5.85E+00	2.68E+00	7.34E-01	1.57E+00	1.47E+01	4.89E+00
2004	9	1	2.77E+00	4.50E-02	1.07E+00	6.79E-02	7.45E-01	2.18E+01	8.51E+00	2.25E+01	5.53E-01	9.57E+00	2.83E+00	1.08E+00	1.91E+00	1.93E+01	5.33E+00
2004	9	2	3.26E-01	0.00E+00	9.59E-02	0.00E+00	1.53E-04	4.52E+00	1.30E+00	3.66E+00	1.07E-02	2.42E+00	3.84E-01	1.49E-01	7.41E-01	2.96E+00	1.13E+00
2004	9	3	8.14E-01	0.00E+00	1.34E-01	0.00E+00	0.00E+00	5.61E+00	2.77E+00	7.27E+00	2.07E-02	6.11E+00	2.99E-02	8.75E-01	7.17E-01	5.49E+00	1.05E+00
2004	9	4	2.47E+00	5.31E-03	2.29E+00	8.82E-04	2.20E-03	1.40E+01	6.94E+00	1.61E+01	2.46E-01	1.29E+01	1.42E-01	1.38E+00	7.43E-01	1.73E+01	3.64E+00
2004	9	5	3.27E+00	1.13E-01	1.47E+00	3.63E-03	8.54E-03	1.71E+01	8.42E+00	2.07E+01	6.77E-01	1.62E+01	9.46E-01	1.63E+00	3.18E+00	1.82E+01	4.54E+00
2004	9	6	1.48E+01	1.82E+00	6.66E+00	6.51E-01	1.20E+00	3.41E+01	1.35E+01	2.86E+01	4.28E+00	1.24E+01	1.41E+01	8.17E-01	1.72E+00	2.67E+01	2.00E+01
2004	9	7	4.13E+00	6.01E-01	1.83E+00	7.24E-01	1.22E+00	2.92E+01	1.50E+01	2.68E+01	9.33E-01	9.77E+00	1.58E+01	1.18E+00	2.15E+00	2.24E+01	7.16E+00
2004	9	8	4.55E+00	7.76E-03	2.38E+00	2.09E-03	1.07E-02	2.37E+01	1.21E+01	2.34E+01	5.79E-01	1.35E+01	5.36E-01	1.34E+00	1.54E+00	3.08E+01	6.73E+00
2004	9	9	2.89E+00	6.38E-03	9.45E-01	2.23E-03	3.30E-02	1.40E+01	8.30E+00	1.60E+01	2.70E-01	6.81E+00	3.40E+00	8.55E-01	1.13E+00	1.86E+01	5.14E+00
2004	9	10	9.29E+00	1.08E+00	3.98E+00	8.28E-01	1.39E+00	1.65E+01	9.32E+00	2.08E+01	8.98E-01	7.22E+00	1.54E+01	4.33E-01	9.60E-01	2.13E+01	1.28E+01
2004	9	11	3.14E+00	1.06E-01	6.80E-01	6.03E-02	3.53E-01	1.11E+01	3.68E+00	9.14E+00	3.58E-01	3.99E+00	3.49E+00	5.24E-01	6.14E-01	6.10E+00	4.69E+00
2004	9	12	5.04E+00	4.11E-01	2.04E+00	6.76E-02	2.08E-01	1.67E+01	1.11E+01	1.50E+01	1.37E+00	9.17E+00	5.34E+00	1.08E+00	1.71E+00	1.29E+01	6.80E+00
2004	9	13	4.43E+00	9.50E-01	1.19E+00	5.19E-01	1.01E+00	2.09E+01	1.61E+01	2.97E+01	7.70E-01	3.33E+01	1.18E+01	3.15E+00	4.35E+00	2.94E+01	6.07E+00
2004	9	14	1.91E+00	5.67E-04	9.95E-01	5.17E-05	5.37E-04	1.28E+01	4.93E+00	1.45E+01	3.06E-01	6.39E+00	7.01E-02	9.05E-01	1.05E+00	1.25E+01	3.12E+00
2004	9	15	3.42E+00	1.25E-06	1.08E+00	0.00E+00	2.35E-04	9.18E+00	4.90E+00	1.29E+01	2.74E-01	7.17E+00	2.33E-01	7.58E-01	1.39E+00	9.03E+00	5.08E+00
2004	9	16	1.43E+00	3.81E-04	6.91E-01	1.90E-05	3.02E-04	1.84E+01	4.34E+00	1.72E+01	3.37E-01	5.15E+00	2.71E-01	7.52E-01	1.35E+00	1.28E+01	3.49E+00

Baseline

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2004	6	19	8.45E+00	1.11E-02	4.97E+00	3.75E-03	9.17E-03	1.78E+01	3.13E+00	1.88E+01	4.04E-01	9.77E-02	3.84E-02	1.71E-01	1.38E-01	2.41E+01	9.96E+00
2004	6	20	5.19E+00	7.68E-03	1.92E+00	1.04E-03	2.78E-03	2.58E+01	7.63E+00	3.54E+01	3.05E-01	5.55E-02	2.04E-02	1.65E-01	9.57E-02	3.17E+01	7.96E+00
2004	6	21	3.84E+00	2.82E-02	2.01E+00	9.86E-03	1.69E-02	2.26E+01	1.05E+01	2.52E+01	4.26E-01	1.28E-01	6.07E-02	2.84E-01	1.92E-01	2.46E+01	6.01E+00
2004	6	22	9.34E+00	1.72E-02	4.61E+00	3.61E-03	6.01E-03	1.81E+01	5.66E+00	1.88E+01	4.05E-01	7.87E-02	3.14E-02	1.41E-01	1.05E-01	2.14E+01	1.17E+01
2004	6	23	7.63E+00	6.10E-02	3.83E+00	1.44E-02	2.41E-02	1.74E+01	4.75E+00	2.09E+01	4.89E-01	1.80E-01	1.02E-01	2.74E-01	2.18E-01	1.56E+01	8.87E+00
2004	6	24	1.13E+01	3.46E-03	4.52E+00	7.60E-06	6.00E-05	1.57E+01	1.54E+00	2.07E+01	2.90E-01	3.47E-02	8.82E-03	6.94E-02	4.82E-02	3.05E+01	1.59E+01
2004	6	25	1.33E+01	4.12E-03	6.48E+00	3.41E-04	6.24E-04	1.85E+01	2.84E-01	1.98E+01	3.36E-01	2.34E-02	7.14E-03	4.66E-02	3.20E-02	2.87E+01	1.71E+01
2004	6	26	1.16E+01	4.88E-03	5.85E+00	4.35E-04	1.04E-03	1.59E+01	6.19E-01	1.93E+01	3.69E-01	4.17E-02	1.24E-02	8.46E-02	5.87E-02	2.05E+01	1.36E+01
2004	6	27	1.42E+01	1.90E-03	6.42E+00	1.98E-05	7.44E-05	1.75E+01	8.97E-01	1.82E+01	3.17E-01	2.23E-02	5.27E-03	4.29E-02	2.97E-02	2.57E+01	1.87E+01
2004	6	28	8.30E+00	4.07E-02	4.73E+00	1.19E-02	2.01E-02	2.47E+01	8.86E+00	2.95E+01	5.00E-01	1.25E-01	6.52E-02	2.30E-01	1.69E-01	3.36E+01	1.04E+01
2004	6	29	7.56E+00	7.12E-02	4.11E+00	1.97E-02	2.74E-02	1.75E+01	9.43E+00	2.27E+01	6.04E-01	1.84E-01	9.87E-02	3.27E-01	2.40E-01	2.39E+01	1.07E+01
2004	6	30	6.35E+00	1.93E-02	2.75E+00	6.33E-03	1.15E-02	1.71E+01	7.94E+00	2.13E+01	5.15E-01	1.30E-01	4.70E-02	2.70E-01	1.97E-01	1.97E+01	8.76E+00
2004	7	1	2.10E+00	1.04E-03	1.38E+00	3.97E-04	1.94E-03	1.45E+01	6.90E+00	1.29E+01	1.16E-01	2.78E-02	6.49E-03	1.31E-01	7.22E-02	1.30E+01	4.06E+00
2004	7	2	3.38E+00	3.44E-04	1.22E+00	3.99E-05	1.74E-04	1.97E+01	7.20E+00	1.45E+01	2.11E-01	2.78E-02	4.07E-03	1.12E-01	6.13E-02	1.97E+01	4.81E+00
2004	7	3	3.04E+00	5.18E-03	2.04E+00	1.31E-03	5.76E-03	2.11E+01	6.37E+00	1.49E+01	2.58E-01	7.87E-02	3.03E-02	1.48E-01	1.08E-01	1.84E+01	4.73E+00
2004	7	4	8.01E+00	1.58E-03	3.14E+00	1.56E-04	3.91E-04	1.50E+01	1.05E+00	2.06E+01	1.99E-01	1.69E-02	4.71E-03	3.83E-02	2.55E-02	2.40E+01	1.20E+01
2004	7	5	9.13E+00	6.54E-02	4.34E+00	2.01E-02	3.11E-02	1.61E+01	6.60E+00	1.91E+01	6.70E-01	2.00E-01	1.07E-01	4.14E-01	2.76E-01	1.53E+01	1.12E+01
2004	7	6	2.33E+00	3.84E-05	1.03E+00	4.59E-06	1.92E-04	7.62E+00	3.14E+00	6.14E+00	5.86E-02	1.36E-02	2.74E-03	5.25E-02	2.71E-02	7.08E+00	3.30E+00
2004	7	7	2.07E-01	0.00E+00	1.26E-01	0.00E+00	0.00E+00	9.26E+00	1.84E+00	7.04E+00	1.13E-01	4.28E-03	1.21E-04	2.80E-02	1.31E-02	4.83E+00	6.71E-01
2004	7	8	3.07E-01	3.05E-04	2.37E-01	5.95E-05	1.47E-04	1.34E+01	1.68E+00	8.92E+00	2.47E-01	2.31E-02	2.59E-03	1.09E-01	6.27E-02	6.52E+00	7.87E-01
2004	7	9	7.77E-01	8.18E-06	1.10E-01	7.22E-04	2.44E-03	5.62E+00	4.41E+00	8.93E+00	3.06E-03	5.16E-03	1.16E-03	3.49E-02	1.96E-02	8.59E+00	1.24E+00
2004	7	10	4.52E-01	1.09E-03	5.14E-01	8.59E-03	1.54E-02	8.20E+00	6.96E+00	9.93E+00	2.56E-02	3.21E-02	1.56E-02	7.95E-02	4.47E-02	1.00E+01	1.17E+00
2004	7	11	8.20E-01	2.28E-04	6.28E-01	1.22E-05	1.28E-04	1.02E+01	1.96E+00	9.89E+00	1.16E-01	1.56E-02	3.02E-03	5.67E-02	4.25E-02	8.72E+00	8.78E-01
2004	7	12	3.21E+00	2.41E-02	1.24E+00	3.91E-03	6.38E-03	1.98E+01	6.61E+00	2.19E+01	5.08E-01	1.38E-01	5.11E-02	3.16E-01	2.14E-01	1.67E+01	4.74E+00
2004	7	13	4.57E+00	5.30E-02	2.79E+00	2.30E-02	3.25E-02	8.71E+00	9.09E+00	1.10E+01	1.60E-01	1.08E-01	7.60E-02	1.72E-01	1.35E-01	1.29E+01	6.02E+00
2004	7	14	6.92E+00	3.29E-03	2.74E+00	5.41E-04	1.47E-03	2.00E+01	5.17E+00	2.60E+01	2.55E-01	3.61E-02	1.04E-02	1.00E-01	6.21E-02	2.20E+01	8.65E+00
2004	7	15	8.29E+00	7.61E-03	3.84E+00	1.43E-03	2.51E-03	1.46E+01	1.01E+00	1.73E+01	2.77E-01	4.10E-02	1.64E-02	7.47E-02	5.60E-02	1.71E+01	1.00E+01
2004	7	16	7.76E+00	1.72E-02	1.78E+00	6.71E-03	1.90E-02	1.49E+01	9.89E+00	2.10E+01	4.06E-01	1.25E-01	5.79E-02	2.58E-01	1.78E-01	1.95E+01	9.51E+00
2004	7	17	2.73E+00	1.05E-02	1.26E+00	3.60E-03	9.19E-03	1.83E+01	8.22E+00	2.38E+01	7.45E-01	1.38E-01	4.49E-02	2.50E-01	1.96E-01	2.34E+01	4.88E+00
2004	7	18	1.28E+00	5.23E-03	7.53E-01	8.21E-04	2.85E-03	1.47E+01	7.62E+00	1.68E+01	2.80E-01	7.26E-02	2.59E-02	1.83E-01	1.17E-01	2.02E+01	2.19E+00
2004	7	19	2.31E+00	1.80E-02	8.15E-01	1.34E-02	3.12E-02	8.50E+00	4.44E+00	1.30E+01	1.96E-01	8.29E-02	7.26E-02	8.08E-02	7.20E-02	1.13E+01	3.50E+00
2004	7	20	1.69E+00	6.01E-03	6.12E-01	1.56E-03	2.00E-02	5.56E+00	3.54E+00	6.96E+00	4.97E-02	3.33E-02	6.00E-02	3.22E-02	2.24E-02	8.20E+00	2.64E+00
2004	7	21	1.49E+00	2.68E-03	8.96E-01	1.88E-04	1.31E-03	1.81E+01	7.49E+00	2.65E+01	3.52E-01	5.78E-02	1.76E-02	1.53E-01	9.40E-02	2.52E+01	1.95E+00
2004	7	22	9.02E+00	9.68E-03	3.09E+00	1.43E-03	2.85E-03	1.78E+01	4.09E+00	1.62E+01	2.75E-01	5.20E-02	2.05E-02	1.04E-01	7.35E-02	1.42E+01	1.09E+01
2004	7	23	2.74E+00	9.00E-06	9.98E-01	0.00E+00	4.65E-11	6.58E+00	3.34E+00	1.15E+01	6.87E-02	4.03E-03	2.96E-04	1.45E-02	8.02E-03	9.24E+00	3.65E+00
2004	7	24	6.63E+00	8.47E-02	3.23E+00	3.32E-02	4.84E-02	1.79E+01	1.08E+01	2.14E+01	7.48E-01	2.38E-01	1.35E-01	3.92E-01	3.06E-01	1.75E+01	8.75E+00
2004	7	25	2.24E+00	2.58E-02	1.31E+00	8.44E-03	1.97E-02	1.78E+01	8.36E+00	2.37E+01	6.97E-01	1.74E-01	7.31E-02	2.91E-01	2.34E-01	2.68E+01	3.54E+00
2004	7	26	1.94E+00	2.65E-03	9.92E-01	5.81E-04	1.57E-03	2.31E+01	7.41E+00	2.42E+01	2.06E-01	3.25E-02	9.38E-03	1.13E-01	6.30E-02	2.42E+01	2.78E+00
2004	7	27	1.10E+01	4.92E-02	5.34E+00	8.53E-03	1.45E-02	1.87E+01	3.83E+00	2.52E+01	5.97E-01	1.51E-01	7.55E-02	2.74E-01	1.98E-01	2.96E+01	1.40E+01
2004	7	28	1.05E+01	2.38E-02	5.73E+00	1.07E-02	1.57E-02	2.22E+01	4.74E+00	2.36E+01	4.32E-01	8.72E-02	4.21E-02	1.82E-01	1.21E-01	2.59E+01	1.37E+01
2004	7	29	3.09E+00	4.15E-03	1.35E+00	6.30E-04	1.95E-03	1.19E+01	8.14E+00	1.98E+01	1.96E-01	4.54E-02	1.56E-02	1.04E-01	6.96E-02	1.51E+01	5.17E+00
2004	7	30	2.10E+00	1.60E-03	1.14E+00	1.43E-04	6.76E-04	1.66E+01	7.38E+00	2.25E+01	4.14E-01	6.46E-02	1.40E-02	2.07E-01	1.19E-01	1.82E+01	3.79E+00
2004	7	31	2.45E+00	1.17E-02	8.48E-01	5.94E-03	1.36E-02	1.75E+01	8.98E+00	1.94E+01	5.82E-01	1.64E-01	5.78E-02	2.74E-01	2.24E-01	1.90E+01	3.55E+00
2004	8	1	1.15E+01	1.84E-02	3.16E+00	3.85E-03	7.88E-03	1.98E+01	2.38E+00	2.48E+01	5.05E-01	1.00E-01	4.00E-02	2.16E-01	1.46E-01	2.61E+01	1.63E+01
2004	8	2	1.30E+01	3.99E-02	6.17E+00	2.54E-02	3.90E-02	1.68E+01	4.88E+00	2.10E+01	4.72E-01	1.41E-01	7.75E-02	2.46E-01	1.84E-01	2.21E+01	1.58E+01
2004	8	3	4.12E+00	4.81E-02	3.03E+00	2.11E-02	3.01E-02	1.95E+01	1.03E+01	2.33E+01	5.54E-01	1.67E-01	8.47E-02	3.14E-01	2.28E-01	2.53E+01	6.02E+00
2004	8	4	2.32E+00	4.06E-03	1.44E+00	7.02E-04	3.10E-03	2.40E+01	1.08E+01	2.55E+01	5.22E-01	1.08E-01	3.34E-02	2.77E-01	1.80E-01	3.21E+01	3.55E+00
2004	8	5	1.68E+00	9.50E-03	1.06E+00	5.18E-03	9.25E-03	2.13E+01	9.17E+00	2.71E+01	5.42E-01	1.19E-01	3.90E-02	2.55E-01	1.87E-01	2.43E+01	3.77E+00
2004	8	6	1.38E+00	4.66E-03	1.06E+00	1.95E-03	6.31E-03	2.11E+01	5.88E+00	1.92E+01	4.66E-01	8.25E-02	2.52E-02	2.28E-01	1.44E-01	1.94E+01	4.13E+00
2004	8	7	2.96E+00	2.40E-02	1.14E+00	2.13E-03	3.65E-03	1.42E+01	4.06E+00	1.56E+01	3.84E-01	8.79E-02	3.53E-02	2.02E-01	1.30E-01	1.48E+01	4.41E+00
2004	8	8	5.05E+00	2.78E-02	2.03E+00	1.36E-02	1.41E-02	1.08E+01	4.14E+00	1.76E+01	2.08E-01	5.81E-02	2.93E-02	7.37E-02	6.29E-02	1.74E+01	7.62E+00
2004	8	9	7.91E+00	9.01E-05	3.73E+00	1.12E-06	1.59E-06	9.29E+00	1.06E+00	1.48E+01	7.71E-02	2.64E-03	3.21E-04	6.88E-03	4.14E-03	1.84E+01	1.08E+01
2004	8	10	8.60E+00	3.66E-02	4.45E+00	8.51E-03	6.93E-03	1.06E+01	2.16E+00	1.89E+01	1.49E-01	3.02E-02	2.17E-02	6.23E-02	3.90E-02	1.93E+01	1.04E+01
2004	8	11	1.27E+01	1.36E-02	6.12E+00	4.45E-03	5.02E-03	1.50E+01	1.46E+00	1.98E+01	3.33E-01	3.28E-02	1.45E-02	6.78E-02	4.39E-02	2.05E+01	1.93E+01
2004	8	12	8.04E+00	8.58E-02	3.20E+00	2.85E-02	4.19E-02	2.19E+01	9.43E+00	2.64E+01	6.99E-01	2.46E-01	1.41E-01	4.26E-01	3.18E-01	2.67E+01	9.94E+00
2004	8	13	7.21E+00	4.48E-02	2.34E+00	1.42E-02	2.62E-02	2.33E+01	9.59E+00	2.53E+01	9.31E-01	2.60E-01	1.13E-01	4.87E-01	3.60E-01	2.24E+01	9.55E+00
2004	8	14	2.02E+00	2.52E-02	1.73E+00	9.54E-03	1.58E-02	2.07E+01	6.20E+00	2.90E+01	4.42E-01	1.06E-01	5.04E-02	2.21E-01	1.57E-01	2.05E+01	3.23E+00
2004	8	15	5.86E+00	1.00E-04	3.13E+00	0.00E+00	0.00E+00	9.60E+00	4.28E-01	1.23E+01	3.01E-02	1.63E-03	2.43E-04	4.63E-03	2.71E-03	1.43E+01	6.57E+00
2004	8	16	4.20E+00	8.93E-06	1.64E+00	0.00E+00	0.00E+00	4.91E+00	1.64E-01	1.01E+01	1.15E-02	5.85E-04	2.87E-05	1.39E-03	7.74E-04	1.19E+01	5.76E+00
2004	8	17	8.24E+00	1.97E-02	3.53E+00	8.27E-03	9.27E-03	7.81E+00	4.94E-01	1.73E+01	4.25E-02	1.54E-02	1.64E-02	1.46E-02	1.33E-02	1.69E+01	1.11E+01
2004	8	18	1.48E+01	3.84E-02	6.16E+00	1.98E-02	2.93E-02	2.40E+01	4.89E+00	2.33E+01	5.29E-01	1.38E-01	7.05E-02	2.50E-01	1.85E-01	2.84E+01	1.92E+01
2004	8	19	3.69E+00	1.11E-02	2.48E+00	3.45E-03	7.70E-03	2.57E+01	1.06E+01	3.61E+01	3.98E-01	8.49E-02	3.28E-02	1.97E-01	1.31E-01	2.90E+01	4.01E+00
2004	8	20	4.49E+00	3.53E-02	3.53E+00	1.28E-02	2.14E-02	2.38E+01	1.00E+01	2.54E+01	6.26E-01	1.71E-01	8.01E-02	3.21E-01	2.36E-01	2.90E+01	6.01E+00
2004	8	21	3.77E+00	2.01E-03	1.50E+00	2.07E-04	1.01E-03	2.00E+01	7.02E+00	2.35E+01	1.85E-01	3.33E-02	9.21E-03	1.14E-01	6.54E-02	3.01E+01	4.27E+00
2004	8	22	7.86E+00	5.00E-02	3.04E+00	3.28E-02	3.55E-02	1.76E+01	3.63E+00	1.52E+01	4.96E-01	1.04E-01	6.01E-02	1.56E-01	1.25E-01	1.73E+01	9.78E+00
2004	8	23	2.27E+00	6.08E-02	1.01E+00	3.95E-02	6.36E-02	1.79E+01	8.78E+00	2.55E+01	4.68E-01	1.82E-01	1.12E-01	3.22E-01	2.49E-01	2.42E+01	4.18E+00
2004	8	24	4.23E+00	2.80E-04	6.35E-01	3.74E-05	1.31E-03	1.63E+01	2.49E+00	1.53E+01	4.81E-01	8.03E-02	1.75E-02	1.23E-01	1.02E-01	1.26E+01	6.13E+00
2004	8	25	1.98E+00	3.75E-04	4.57E-01	5.95E-05	8.49E-04	2.01E+01	2.66E+00	1.51E+01	5.88E-01	8.11E-02	9.09E-03	1.83E-01	1.70E-01	1.17E+01	3.52E+00
2004	8	26	6.59E+00	3.79E-02	3.63E+00	1.17E-02	1.81E-02	2.58E+01	1.16E+01	3.12E+01	7.69E-01	1.79E-01	7.69E-02	3.91E-01	2.76E-01	2.70E+01	9.78E+00
2004	8	27	1.99E+00	8.87E-03	6.02E-01	2.93E-03	6.18E-03	2.37E+01	3.04E+00	1.53E+01	6.62E-01	1.29E-01	3.63E-02	2.66E-01	2.11E-01	1.10E+01	3.67E+00
2004	8	28	2.75E+00	1.38E-03	7.68E-01	8.73E-05	5.24E-04	1.97E+01	4.02E+00	1.91E+01	2.61E-01	4.21E-02	1.00E-02	1.54E-01	8.11E-02	1.38E+01	4.70E+00
2004	8	29	8.95E-01	1.28E-03	8.62E-01	1.19E-04	6.69E-04	1.89E+01	7.08E+00	1.47E+01	3.26E-01	5.89E-02	1.35E-02	1.94E-01	1.21E-01	2.53E+01	1.06E+00
2004	8	30	2.17E+00	9.51E-05	7.36E-01	2.18E-05	3.18E-04	1.10E+01	4.66E+00	1.54E+01	2.10E-01	3.57E-02	5.12E-03	1.16E-01	7.86E-02	1.33E+01	3.16E+00
2004	8	31	3.21E+00	1.53E-02	1.12E+00	4.06E-03	8.83E-03	1.78E+01	7.92E+00	1.83E+01	4.83E-01	1.01E-01	3.96E-02	1.70E-01	1.41E-01	1.46E+01	4.72E+00
2004	9	1	2.74E+00	2.74E-02	1.07E+00	1.77E-02	3.69E-02	2.18E+01	8.45E+00	2.13E+01	4.68E-01	1.73E-01	8.69E-02	2.81E-01	2.17E-01	1.92E+01	5.28E+00
2004	9	2	3.26E-01	0.00E+00	9.59E-02	0.00E+00	0.00E+00	4.52E+00	1.30E+00	3.26E+00	1.07E-02	1.91E-03	0.00E+00	5.52E-02	2.33E-02	2.96E+00	1.13E+00
2004	9	3	8.14E-01	0.00E+00	1.34E-01	0.00E+00	0.00E+00	5.61E+00	2.72E+00	6.45E+00	2.07E-02	1.01E-03	4.63E-06	1.00E-02	4.26E-03	5.47E+00	1.05E+00
2004	9	4	2.37E+00	5.30E-03	2.29E+00	8.82E-04	2.20E-03	1.40E+01	6.88E+00	1.53E+01	1.05E-01	2.28E-02	1.18E-02	5.63E-02	3.13E-02	1.72E+01	3.39E+00
2004	9	5	3.19E+00	8.01E-03	1.46E+00	1.39E-03	2.80E-03	1.71E+01	8.26E+00	1.96E+01	1.74E-01	3.60E-02	1.55E-02	1.01E-01	5.62E-02	1.81E+01	4.38E+00
2004	9	6	1.44E+01	6.70E-02	6.56E+00	2.45E-02	4.03E-02	3.40E+01	1.34E+01	2.80E+01	7.15E-01	2.30E-01	1.22E-01	4.35E-01	3.14E-01	2.66E+01	1.91E+01
2004	9	7	4.06E+00	6.09E-02	1.83E+00	3.88E-02	6.57E-02	2.92E+01	1.50E+01	2.54E+01	7.88E-01	2.78E-01	1.50E-01	4.69E-01	3.57E-01	2.22E+01	6.95E+00
2004	9	8	4.51E+00	7.64E-03	2.38E+00	1.93E-03	7.96E-03	2.37E+01	1.20E+01	2.23E+01	5.39E-01	1.36E-01	4.64E-02	2.83E-01	2.02E-01	3.07E+01	6.61E+00
2004	9	9	2.89E+00	6.31E-03	9.45E-01	2.20E-03	2.01E-02	1.40E+01	8.25E+00	1.52E+01	2.51E-01	1.03E-01	5.97E-02	2.13E-01	1.57E-01	1.85E+01	5.12E+00
2004	9	10	9.17E+00	1.31E-01	3.97E+00	8.44E-02	1.02E-01	1.64E+01	9.31E+00	2.06E+01	5.41E-01	1.90E-01	1.75E-01	1.99E-01	1.73E-01	2.13E+01	1.26E+01
2004	9	11	3.09E+00	1.72E-02	6.79E-01	1.12E-02	1.88E-02	1.11E+01	3.66E+00	8.62E+00	3.48E-01	9.71E-02	4.80E-02	1.82E-01	1.31E-01	6.00E+00	4.56E+00
2004	9	12	4.93E+00	1.66E-02	2.02E+00	5.41E-03	1.12E-02	1.66E+01	1.11E+01	1.44E+01	3.40E-01	9.08E-02	3.79E-02	2.00E-01	1.48E-01	1.29E+01	6.56E+00
2004	9	13	4.37E+00	3.06E-02	1.18E+00	2.12E-02	4.31E-02	2.08E+01	1.60E+01	2.78E+01	4.92E-01	2.11E-01	1.05E-01	3.91E-01	2.89E-01	2.93E+01	5.91E+00
2004	9	14	1.87E+00	5.64E-04	9.95E-01	5.15E-05	5.35E-04	1.28E+01	4.89E+00	1.37E+01	3.05E-01	3.82E-02	6.49E-03	1.36E-01	9.12E-02	1.25E+01	3.00E+00
2004	9	15	3.39E+00	1.25E-06	1.07E+00	0.00E+00	2.85E-05	9.17E+00	4.89E+00	1.23E+01	2.54E-01	2.84E-02	1.23E-03	9.39E-02	7.91E-02	9.02E+00	4.96E+00
2004	9	16	1.43E+00	3.81E-04	6.91E-01	1.90E-05	2.89E-04	1.84E+01	4.31E+00	1.61E+01	3.37E-01	4.64E-02	7.08E-03	1.28E-01	9.36E-02	1.27E+01	3.49E+00

Project

Year	Month	Day	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2004	6	19	4.08E-01	2.86E-01	5.04E-01	1.50E-01	1.45E-01	4.54E-01	1.72E-02	3.89E-01	2.31E+00	2.61E+00	4.04E+00	1.18E-01	1.80E-01	8.19E-02	6.56E-01
2004	6	20	3.56E-01	6.57E-02	4.35E-01	8.29E-04	2.96E-03	4.10E-01	2.73E-01	1.39E+00	3.28E+00	9.02E+00	3.85E-01	1.17E+00	1.03E+00	4.96E-01	5.90E-01
2004	6	21	6.16E-01	2.99E-01	2.96E-01	1.04E-01	2.35E-01	3.81E-01	6.28E-01	1.75E+00	1.51E+00	1.71E+01	2.79E+00	3.17E+00	3.33E+00	6.14E-01	8.38E-01
2004	6	22	1.35E-01	9.56E-01	1.33E-01	8.55E-02	1.69E-01	9.67E-02	2.44E-02	2.40E-01	3.19E+00	3.15E+00	4.04E+00	1.85E-01	3.32E-01	5.99E-02	3.68E-01
2004	6	23	7.97E-01	4.76E-01	5.60E-01	1.47E-01	2.13E-01	6.56E-01	5.86E-01	1.05E+00	6.02E+00	1.02E+01	1.20E+00	2.25E+00	4.30E+00	6.74E-01	1.04E+00
2004	6	24	3.42E-01	2.23E-01	7.06E-02	2.41E-05	3.76E-05	7.91E-02	2.91E-03	1.26E-01	4.60E+00	6.19E-02	8.90E-01	5.18E-03	1.09E-02	4.07E-02	7.27E-01
2004	6	25	7.45E-01	1.75E-02	9.76E-01	1.67E-05	3.63E-05	9.48E-01	5.88E-02	3.62E-01	8.24E+00	7.58E-03	8.14E-04	6.93E-03	4.43E-03	2.76E-01	1.02E+00
2004	6	26	6.50E-01	7.31E-04	2.08E+00	1.13E-05	3.11E-05	1.79E+00	2.66E-02	2.52E-01	1.01E+01	6.25E-02	5.60E-03	1.12E-01	8.95E-02	1.84E-01	9.54E-01
2004	6	27	4.15E-01	9.79E-03	9.63E-02	1.79E-06	1.70E-05	7.75E-02	3.79E-04	3.80E-02	5.60E+00	1.25E-02	4.22E-02	1.07E-02	1.25E-02	1.94E-02	8.35E-01
2004	6	28	2.00E-01	5.88E-01	5.83E-02	7.51E-02	1.12E-01	7.73E-02	7.48E-02	7.29E-01	2.82E+00	1.55E+01	1.40E+00	1.12E+00	2.50E+00	1.59E-01	3.95E-01
2004	6	29	1.07E-01	1.55E+00	3.05E-02	9.11E-02	1.52E-01	5.07E-02	3.68E-02	4.06E-01	1.76E+00	1.64E+01	2.33E+00	1.06E+00	1.98E+00	6.96E-02	2.16E-01
2004	6	30	2.76E-01	3.66E-01	2.63E-01	1.16E-01	1.93E-01	2.77E-01	1.50E-01	7.24E-01	2.99E+00	8.92E+00	1.69E+00	1.04E+00	2.39E+00	2.64E-01	3.94E-01
2004	7	1	8.28E-02	4.66E-07	1.71E-09	4.92E-06	1.86E-03	2.16E-08	5.98E-02	7.83E-01	4.76E-02	1.09E+01	2.91E-01	8.66E-01	1.17E+00	7.87E-02	2.28E-01
2004	7	2	1.06E-01	0.00E+00	1.81E-03	0.00E+00	1.05E-04	5.18E-03	6.66E-02	1.08E+00	1.84E-02	1.21E+01	1.39E-01	1.23E+00	1.00E+00	9.20E-02	1.75E-01
2004	7	3	1.52E-01	1.46E-04	5.86E-03	4.60E-05	2.64E-02	1.70E-02	4.08E-02	7.62E-01	2.95E-02	7.84E+00	6.91E-01	7.64E-01	7.97E-01	1.37E-01	3.53E-01
2004	7	4	6.44E-01	1.10E-03	1.04E+00	1.06E-05	5.84E-05	9.76E-01	6.82E-01	1.05E+00	7.25E+00	2.87E+00	6.41E-03	2.10E+00	2.57E+00	5.58E-01	1.01E+00
2004	7	5	2.84E-01	2.06E+00	1.81E-01	2.62E-01	2.68E-01	1.70E-01	3.70E-02	3.54E-01	2.72E+00	7.31E+00	4.11E+00	4.15E-01	1.15E+00	8.17E-02	5.59E-01
2004	7	6	9.67E-02	0.00E+00	4.05E-03	0.00E+00	7.21E-05	9.91E-03	1.58E-02	2.56E-01	3.40E-02	3.93E+00	2.43E-01	3.56E-01	7.70E-01	2.89E-02	1.95E-01
2004	7	7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-02	5.11E-01	1.38E-20	4.05E+00	1.02E-01	5.61E-01	5.49E-01	2.81E-03	0.00E+00
2004	7	8	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-02	1.01E+00	2.16E-15	2.61E+00	8.16E-02	2.11E-01	6.50E-01	2.74E-02	4.08E-05
2004	7	9	0.00E+00	0.00E+00	0.00E+00	1.01E-02	1.55E-01	0.00E+00	6.75E-02	6.40E-01	8.51E-16	1.01E+01	5.33E-01	9.84E-01	9.81E-01	7.75E-02	0.00E+00
2004	7	10	5.99E-04	1.36E-01	0.00E+00	2.03E-01	4.88E-01	0.00E+00	6.08E-02	7.97E-01	2.55E-04	9.39E+00	5.28E+00	1.17E+00	1.84E+00	3.08E-02	3.61E-03
2004	7	11	2.14E-02	0.00E+00	0.00E+00	0.00E+00	3.18E-03	0.00E+00	1.14E-02	7.73E-01	3.72E-04	3.00E+00	4.10E-01	2.17E-01	5.07E-01	2.35E-02	7.71E-02
2004	7	12	1.59E-02	1.00E+00	7.07E-05	7.36E-02	7.65E-02	4.67E-04	7.63E-02	9.98E-01	1.38E-02	1.29E+01	2.74E+00	1.15E+00	1.24E+00	1.06E-01	3.72E-02
2004	7	13	2.51E-01	1.52E+00	2.75E-01	3.27E-02	5.95E-02	3.26E-01	4.25E-01	6.91E-01	4.40E+00	9.26E+00	4.56E+00	3.76E+00	5.53E+00	2.52E-01	3.11E-01
2004	7	14	2.32E-01	2.15E-02	1.85E-01	2.73E-03	8.68E-03	1.75E-01	1.84E-01	1.18E+00	2.43E+00	1.24E+01	6.47E-02	1.53E+00	3.11E+00	2.03E-01	4.08E-01
2004	7	15	4.11E-01	5.09E-02	2.89E-01	1.23E-02	2.04E-02	2.44E-01	3.65E-01	5.75E-01	2.08E+00	1.47E+00	8.97E-02	1.62E+00	1.07E+00	2.84E-01	7.34E-01
2004	7	16	2.25E-01	1.12E-01	1.09E-01	6.81E-02	2.90E-01	1.06E-01	3.84E-01	8.25E-01	8.15E-01	1.44E+01	2.59E+00	1.62E+00	2.86E+00	3.06E-01	3.34E-01
2004	7	17	5.53E-02	2.61E-04	3.50E-03	3.62E-03	4.36E-02	7.24E-03	3.29E-02	6.92E-01	6.14E-02	1.36E+01	4.52E-01	7.62E-01	2.42E+00	6.87E-02	1.50E-01
2004	7	18	1.65E-03	7.50E-04	2.18E-05	1.62E-02	5.22E-02	9.98E-05	7.48E-02	9.56E-01	5.67E-04	1.95E+01	1.11E+00	1.46E+00	2.25E+00	1.15E-01	6.80E-03
2004	7	19	1.58E-02	7.68E-02	1.63E-04	2.73E-01	4.80E-01	1.05E-03	1.00E-02	3.02E-01	2.97E-02	6.93E+00	4.76E+00	2.70E-01	6.20E-01	3.12E-02	4.97E-02
2004	7	20	3.37E-02	2.29E-04	2.68E-04	2.42E-05	6.01E-03	2.70E-03	6.10E-03	8.85E-02	2.21E-02	5.63E+00	1.53E+00	1.58E-01	2.95E-01	1.21E-02	1.05E-01
2004	7	21	1.55E-02	1.51E-04	1.75E-03	7.77E-06	2.58E-03	8.95E-03	1.03E-01	1.25E+00	2.46E-01	2.23E+01	6.95E-01	1.64E+00	3.38E+00	1.27E-01	3.61E-02
2004	7	22	5.54E-01	1.60E-03	1.92E+00	2.63E-05	6.71E-05	1.73E+00	1.49E-01	5.62E-01	6.57E+00	1.76E+00	4.73E-03	2.39E+00	1.81E+00	2.62E-01	8.68E-01
2004	7	23	3.00E-01	1.34E-02	1.12E-01	3.18E-04	9.01E-04	1.31E-01	5.28E-01	7.89E-01	1.22E+00	9.32E+00	1.05E-01	4.22E+00	5.63E+00	3.36E-01	3.61E-01
2004	7	24	5.72E-02	1.29E+00	1.75E-02	1.89E-01	5.24E-01	2.96E-02	1.49E-02	4.21E-01	1.11E+00	9.54E+00	6.20E+00	5.40E-01	1.11E+00	8.45E-02	1.52E-01
2004	7	25	2.85E-02	2.98E-02	1.58E-03	2.61E-02	9.77E-02	6.19E-03	5.13E-02	1.14E+00	5.88E-02	1.16E+01	2.16E+00	8.62E-01	1.46E+00	9.24E-02	6.92E-02
2004	7	26	2.04E-01	4.55E-02	5.11E-01	4.82E-02	1.06E-01	4.85E-01	2.24E-01	1.16E+00	1.05E+00	1.18E+01	5.27E-01	2.10E+00	2.16E+00	2.32E-01	2.86E-01
2004	7	27	6.41E-01	1.46E+00	5.27E-01	2.04E-01	3.12E-01	4.51E-01	1.74E-01	6.02E-01	5.87E+00	4.60E+00	3.93E+00	6.69E-01	1.12E+00	2.95E-01	1.08E+00
2004	7	28	4.51E-01	9.29E-01	2.04E-01	3.23E-01	4.20E-01	1.94E-01	5.05E-02	4.07E-01	4.77E+00	6.52E+00	3.14E+00	4.62E-01	1.13E+00	1.23E-01	7.89E-01
2004	7	29	6.92E-02	7.17E-02	1.75E-02	3.17E-03	1.09E-02	3.17E-02	2.33E-01	5.28E-01	6.71E-01	2.15E+01	2.75E-01	2.19E+00	3.95E+00	1.37E-01	1.17E-01
2004	7	30	5.46E-03	1.18E-06	5.21E-05	4.00E-07	2.64E-06	1.77E-04	7.92E-02	1.30E+00	4.64E-03	1.37E+01	1.74E-02	1.53E+00	1.53E+00	7.14E-02	1.75E-02
2004	7	31	1.07E-02	8.97E-03	3.58E-04	3.41E-01	6.15E-01	7.32E-04	7.85E-02	1.10E+00	6.06E-02	1.10E+01	3.28E+00	1.02E+00	1.55E+00	8.56E-02	2.36E-02
2004	8	1	1.43E+00	1.70E-01	1.12E+00	4.69E-02	6.94E-02	1.36E+00	1.12E+00	1.95E+00	1.15E+01	1.96E+00	3.96E-01	2.49E+00	1.93E+00	1.35E+00	1.63E+00
2004	8	2	5.95E-01	1.35E+00	4.16E-01	4.61E-01	6.51E-01	4.97E-01	4.12E-01	7.48E-01	8.49E+00	1.51E+01	5.99E+00	2.04E+00	4.14E+00	4.14E-01	8.02E-01
2004	8	3	8.92E-02	6.30E-01	3.80E-02	2.18E-01	4.01E-01	5.13E-02	6.17E-02	9.72E-01	1.69E+00	1.49E+01	6.52E+00	1.33E+00	2.80E+00	1.10E-01	2.19E-01
2004	8	4	6.18E-03	5.69E-05	4.64E-04	8.83E-06	7.65E-05	1.11E-03	7.25E-02	1.47E+00	3.02E-03	1.43E+01	9.75E-02	1.28E+00	1.71E+00	1.90E-01	1.97E-02
2004	8	5	4.75E-01	7.15E-02	4.13E-01	7.82E-03	1.03E-02	5.66E-01	4.04E-01	1.86E+00	1.75E+00	1.30E+01	2.67E-01	2.35E+00	3.10E+00	4.91E-01	6.02E-01
2004	8	6	4.13E-02	7.18E-05	9.74E-04	1.54E-03	1.39E-01	2.95E-03	7.33E-02	1.45E+00	1.24E-03	6.52E+00	1.20E+00	6.09E-01	9.61E-01	9.33E-02	7.54E-02
2004	8	7	1.07E-02	1.69E+00	4.55E-02	3.35E-02	1.63E-02	3.13E-02	3.87E-02	9.30E-01	3.56E-01	4.64E+00	1.97E+00	2.84E-01	6.40E-01	3.75E-02	2.60E-02
2004	8	8	1.19E-01	4.07E-01	8.03E-02	1.06E-01	7.63E-02	1.16E-01	1.04E-01	4.15E-01	1.45E+00	1.06E+01	2.48E-01	1.66E+00	2.36E+00	1.31E-01	1.71E-01
2004	8	9	3.46E-02	3.71E-03	2.75E-02	0.00E+00	0.00E+00	6.29E-02	1.22E-06	2.91E-04	3.20E+00	1.86E-03	2.07E-04	1.82E-06	1.44E-06	6.60E-05	7.44E-02
2004	8	10	8.88E-02	2.58E+00	1.27E-01	6.71E-02	2.61E-02	8.03E-02	1.82E-04	8.68E-03	4.33E+00	3.34E-02	5.03E-01	1.26E-03	3.21E-03	5.02E-03	1.32E-01
2004	8	11	8.26E-02	3.79E-01	3.20E-01	1.01E-02	5.12E-03	2.32E-01	1.82E-03	1.47E-02	9.80E+00	4.24E-02	1.45E-01	1.06E-02	2.03E-02	1.57E-02	2.28E-01
2004	8	12	2.21E-01	1.39E+00	4.70E-02	2.38E-01	2.49E-01	7.73E-02	1.29E-01	7.78E-01	5.88E-01	1.43E+01	7.28E+00	1.29E+00	2.34E+00	2.40E-01	4.15E-01
2004	8	13	2.72E-01	7.09E-01	9.78E-02	5.43E-02	8.61E-02	1.51E-01	3.01E-01	1.11E+00	9.63E-01	1.26E+01	1.81E+00	1.79E+00	2.75E+00	3.64E-01	3.28E-01
2004	8	14	2.02E-01	2.45E-01	1.35E-01	5.07E-02	7.49E-02	1.70E-01	3.50E-01	1.13E+00	1.84E+00	1.44E+01	5.59E-01	3.19E+00	4.24E+00	3.10E-01	2.36E-01
2004	8	15	1.96E-01	1.95E-05	1.42E-01	0.00E+00	0.00E+00	8.16E-02	0.00E+00	8.57E-03	2.43E+00	1.06E-04	8.59E-07	0.00E+00	0.00E+00	8.06E-03	3.52E-01
2004	8	16	1.32E-01	1.08E-03	3.18E-01	0.00E+00	0.00E+00	2.94E-01	2.46E-02	9.38E-02	4.66E+00	5.98E-03	1.46E-03	1.18E-02	5.70E-03	8.03E-02	1.61E-01
2004	8	17	3.95E-01	3.46E-01	8.87E-01	8.97E-02	7.40E-02	4.89E-01	7.96E-02	2.49E-01	5.47E+00	1.62E+00	2.30E-01	2.51E-01	5.53E-01	2.47E-01	5.45E-01
2004	8	18	2.92E-01	1.58E+00	4.76E-01	4.21E-01	3.79E-01	2.84E-01	7.56E-03	2.93E-01	5.20E+00	5.82E+00	5.51E+00	1.25E-01	4.26E-01	5.39E-02	6.20E-01
2004	8	19	1.90E-01	9.37E-03	4.64E-02	1.86E-02	2.60E-02	3.28E-02	8.63E-01	1.71E+00	8.94E-01	2.24E+01	1.16E-01	5.70E+00	7.80E+00	3.96E-01	2.96E-01
2004	8	20	1.89E-01	1.23E-01	1.69E-01	6.84E-02	1.83E-01	1.25E-01	1.73E-01	1.23E+00	3.84E+00	1.14E+01	1.07E+00	1.53E+00	2.50E+00	2.11E-01	3.18E-01
2004	8	21	8.20E-02	3.47E-04	4.71E-02	2.22E-06	5.76E-06	5.07E-02	1.19E-01	1.26E+00	1.31E+00	1.39E+01	6.44E-03	1.90E+00	2.93E+00	2.42E-01	1.14E-01
2004	8	22	1.97E-01	9.43E-01	2.02E-02	1.15E+00	1.37E+00	1.93E-02	3.97E-03	3.56E-01	1.49E+00	2.44E+00	7.39E+00	6.04E-03	1.45E-01	3.73E-02	5.06E-01
2004	8	23	1.52E-01	1.05E+00	1.09E-01	6.62E-01	1.24E+00	1.24E-01	1.74E-01	1.70E+00	4.19E-01	1.50E+01	5.91E+00	1.58E+00	2.90E+00	2.58E-01	1.98E-01
2004	8	24	5.32E-03	2.15E-06	8.64E-05	4.52E-07	6.43E-03	1.41E-03	1.29E-02	1.16E+00	6.35E-03	3.63E+00	4.23E-01	6.97E-02	6.89E-01	3.18E-02	2.58E-02
2004	8	25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-02	0.00E+00	1.54E-02	1.04E+00	0.00E+00	6.19E+00	3.55E-01	4.31E-01	9.36E-01	5.21E-02	0.00E+00
2004	8	26	7.83E-01	1.65E+00	1.79E-01	6.58E-02	7.83E-02	3.08E-01	1.37E+00	2.31E+00	3.02E+00	1.01E+01	2.04E+00	4.49E+00	4.32E+00	1.06E+00	9.60E-01
2004	8	27	1.84E-03	4.34E-02	7.20E-04	2.16E-02	5.41E-02	1.89E-03	2.15E-02	1.48E+00	1.29E-02	3.38E+00	8.70E-01	8.31E-02	8.80E-01	6.53E-02	3.67E-03
2004	8	28	2.19E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.13E-02	1.39E+00	9.17E-24	6.05E+00	1.31E-01	5.65E-01	6.94E-01	6.64E-02	5.33E-02
2004	8	29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-05	0.00E+00	7.86E-02	1.16E+00	9.64E-05	1.27E+01	1.82E-01	1.49E+00	7.44E-01	1.23E-01	1.56E-05
2004	8	30	4.10E-02	0.00E+00	4.70E-04	0.00E+00	4.66E-08	4.09E-03	6.50E-02	9.39E-01	4.30E-03	4.69E+00	1.74E-01	6.60E-01	1.07E+00	9.79E-02	1.36E-01
2004	8	31	5.96E-02	1.75E-03	1.48E-03	2.22E-02	2.04E-01	7.56E-03	4.92E-02	1.05E+00	1.62E-02	5.75E+00	2.64E+00	5.64E-01	1.43E+00	7.51E-02	1.76E-01
2004	9	1	2.33E-02	1.76E-02	2.16E-03	5.03E-02	7.08E-01	4.73E-03	5.25E-02	1.24E+00	8.44E-02	9.40E+00	2.75E+00	7.98E-01	1.70E+00	1.43E-01	5.84E-02
2004	9	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-04	0.00E+00	9.16E-04	4.00E-01	6.88E-31	2.42E+00	3.84E-01	9.38E-02	7.17E-01	0.00E+00	0.00E+00
2004	9	3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.07E-02	8.18E-01	4.85E-17	6.11E+00	2.99E-02	8.65E-01	7.13E-01	1.94E-02	3.13E-06
2004	9	4	1.08E-01	1.91E-05	5.08E-03	5.40E-08	9.69E-07	1.38E-02	5.78E-02	8.05E-01	1.41E-01	1.29E+01	1.30E-01	1.32E+00	7.12E-01	5.16E-02	2.46E-01
2004	9	5	8.49E-02	1.05E-01	1.65E-02	2.23E-03	5.73E-03	1.88E-02	1.67E-01	1.07E+00	5.03E-01	1.61E+01	9.31E-01	1.53E+00	3.12E+00	1.00E-01	1.68E-01
2004	9	6	4.65E-01	1.75E+00	9.60E-02	6.26E-01	1.15E+00	8.01E-02	3.18E-02	5.13E-01	3.56E+00	1.22E+01	1.40E+01	3.82E-01	1.40E+00	7.63E-02	9.39E-01
2004	9	7	7.07E-02	5.40E-01	4.58E-03	6.86E-01	1.16E+00	6.82E-03	5.18E-02	1.37E+00	1.45E-01	9.49E+00	1.57E+01	7.12E-01	1.79E+00	1.88E-01	2.11E-01
2004	9	8	4.30E-02	1.21E-04	2.61E-03	1.64E-04	2.74E-03	1.18E-02	8.11E-02	1.07E+00	4.01E-02	1.33E+01	4.90E-01	1.06E+00	1.34E+00	1.27E-01	1.18E-01
2004	9	9	7.10E-03	6.89E-05	1.84E-04	2.34E-05	1.29E-02	4.14E-04	5.61E-02	8.29E-01	1.83E-02	6.71E+00	3.34E+00	6.42E-01	9.78E-01	5.75E-02	2.01E-02
2004	9	10	1.23E-01	9.51E-01	8.98E-03	7.44E-01	1.29E+00	3.44E-02	5.13E-03	1.86E-01	3.58E-01	7.03E+00	1.52E+01	2.34E-01	7.87E-01	4.09E-02	2.61E-01
2004	9	11	5.10E-02	8.90E-02	1.24E-03	4.91E-02	3.34E-01	5.29E-03	2.10E-02	5.22E-01	1.04E-02	3.90E+00	3.44E+00	3.42E-01	4.83E-01	1.02E-01	1.25E-01
2004	9	12	1.10E-01	3.95E-01	1.65E-02	6.22E-02	1.97E-01	2.71E-02	3.27E-02	6.01E-01	1.03E+00	9.08E+00	5.30E+00	8.80E-01	1.56E+00	3.80E-02	2.43E-01
2004	9	13	6.18E-02	9.19E-01	1.05E-02	4.98E-01	9.67E-01	1.88E-02	1.88E-01	1.90E+00	2.78E-01	3.31E+01	1.17E+01	2.76E+00	4.06E+00	1.28E-01	1.57E-01
2004	9	14	4.41E-02	3.08E-06	5.28E-04	1.45E-07	1.84E-06	2.90E-03	4.01E-02	7.71E-01	1.54E-03	6.35E+00	6.36E-02	7.69E-01	9.63E-01	3.64E-02	1.14E-01
2004	9	15	3.05E-02	0.00E+00	1.58E-03	0.00E+00	2.06E-04	1.16E-02	1.41E-02	6.42E-01	1.94E-02	7.15E+00	2.32E-01	6.64E-01	1.31E+00	1.24E-02	1.24E-01
2004	9	16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-05	0.00E+00	3.26E-02	1.12E+00	0.00E+00	5.11E+00	2.64E-01	6.25E-01	1.26E+00	7.10E-02	0.00E+00

MILLENNIUM EMS Solutions Ltd.

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2004	9	17	5.17E+00	8.02E-01	1.56E+00	2.68E-01	3.92E-01	1.26E+01	6.74E+00	1.29E+01	3.73E-01	6.67E+00	7.33E+00	7.67E-01	1.04E+00	1.02E+01	7.06E+00
2004	9	18	8.40E+00	9.55E-01	1.74E+00	4.29E-01	5.33E-01	1.83E+01	9.40E+00	1.59E+01	6.08E-01	4.24E+00	1.42E+01	6.33E-01	5.45E-01	1.49E+01	1.03E+01
2004	9	19	1.05E+01	1.01E-03	6.48E+00	2.15E-05	1.32E-04	1.71E+01	4.07E+00	1.66E+01	2.51E+00	9.70E+00	6.30E-03	1.20E+00	1.57E+00	2.05E+01	1.22E+01
2004	9	20	9.91E+00	4.07E-01	5.16E+00	8.54E-02	1.07E-01	1.59E+01	6.13E+00	1.83E+01	7.45E+00	7.64E+00	9.57E-01	5.90E-01	1.00E+00	2.13E+01	1.42E+01
2004	9	21	5.24E-01	0.00E+00	7.56E-03	0.00E+00	0.00E+00	3.54E+00	2.84E+00	5.82E+00	4.32E-16	9.91E+00	1.42E-02	8.43E-01	5.66E-01	5.57E+00	7.63E-01
2004	9	22	9.13E-01	0.00E+00	3.71E-01	0.00E+00	0.00E+00	8.91E+00	4.71E+00	1.26E+01	8.81E-02	1.23E+01	2.47E-02	1.25E+00	1.21E+00	1.22E+01	1.18E+00
2004	9	23	2.63E+00	6.22E-03	4.03E+00	6.91E-04	2.84E-03	2.63E+01	1.15E+01	2.93E+01	3.44E-01	2.15E+01	6.85E-02	1.98E+00	1.04E+00	3.78E+01	4.25E+00
2004	9	24	2.45E+00	2.80E-03	1.52E+00	7.14E-04	1.59E-03	2.61E+01	1.39E+01	2.74E+01	3.29E-01	2.30E+01	7.03E-02	2.50E+00	1.27E+00	3.11E+01	3.91E+00
2004	9	25	5.46E+00	1.01E-03	2.36E+00	2.44E-05	3.56E-04	2.19E+01	1.07E+01	3.13E+01	4.01E-01	1.57E+01	7.72E-02	1.41E+00	1.36E+00	2.48E+01	7.71E+00
2004	9	26	1.42E+01	3.29E-03	8.69E+00	5.20E-04	1.06E-03	2.22E+01	4.51E+00	2.40E+01	6.71E+00	3.93E+00	8.16E-03	4.05E-01	6.00E-01	2.57E+01	1.72E+01
2004	9	27	1.67E+01	5.30E-01	9.43E+00	3.74E-02	5.59E-02	3.47E+01	6.50E+00	2.61E+01	4.58E+00	8.08E+00	6.96E-01	8.20E-01	8.39E-01	3.36E+01	2.04E+01
2004	9	28	1.15E+01	6.97E-03	6.11E+00	1.80E-03	3.62E-03	3.19E+01	7.76E+00	3.14E+01	3.58E+00	8.43E+00	1.70E-02	1.05E+00	9.94E-01	2.94E+01	1.40E+01
2004	9	29	1.64E+01	1.63E-02	9.52E+00	6.24E-04	3.11E-04	1.86E+01	9.77E-02	1.61E+01	7.14E+00	1.89E-02	6.83E-03	2.92E-02	2.29E-02	1.93E+01	1.83E+01
2004	9	30	7.92E+00	9.79E-03	6.27E+00	1.44E-03	2.89E-03	1.76E+01	4.32E+00	2.18E+01	9.60E+00	8.25E-02	2.11E-02	1.52E-01	9.36E-02	2.30E+01	1.05E+01
2004	10	1	1.72E+00	4.02E-01	9.95E-01	3.71E-02	6.33E-02	3.58E+00	2.03E+00	5.58E+00	1.91E+00	8.08E+00	2.02E+00	1.30E+00	6.51E-01	4.72E+00	2.39E+00
2004	10	2	4.37E-01	7.58E-03	5.22E-01	2.14E-02	7.55E-02	4.86E+00	2.51E+00	7.85E+00	1.20E-01	1.12E+01	3.29E-01	2.17E+00	2.85E+00	7.07E+00	6.77E-01
2004	10	3	3.09E+00	9.76E-01	1.96E+00	4.91E-01	3.88E-01	5.46E+00	1.82E+00	5.78E+00	3.41E+00	1.52E+00	4.25E+00	2.37E-01	3.17E-01	5.61E+00	4.07E+00
2004	10	4	2.50E-01	3.72E-03	3.94E-01	1.41E-03	3.77E-03	4.28E+00	2.25E+00	5.40E+00	7.05E-02	8.55E+00	2.61E-02	1.77E+00	3.87E-01	6.50E+00	2.86E-01
2004	10	5	1.02E-01	4.76E-05	1.75E-01	1.38E-06	8.42E-06	1.85E+00	8.29E-01	2.83E+00	1.31E-02	4.23E+00	4.40E-02	9.27E-01	3.38E-01	2.35E+00	2.09E-01
2004	10	6	2.23E-01	3.68E-06	1.26E-01	0.00E+00	2.52E-05	1.27E+00	3.86E-01	2.04E+00	9.81E-03	1.55E+00	1.43E-01	2.40E-01	3.98E-01	1.03E+00	3.29E-01
2004	10	7	3.37E-01	2.13E-03	2.98E-01	5.10E-04	1.90E-03	3.89E+00	2.14E+00	7.41E+00	1.50E-01	6.55E+00	1.03E-01	1.11E+00	1.81E+00	4.26E+00	6.27E-01
2004	10	8	1.23E+00	8.76E-03	4.47E-01	3.09E-01	2.24E-01	3.56E+00	1.86E+00	6.07E+00	2.14E-01	2.73E+00	6.24E+00	3.55E-01	9.02E-01	3.52E+00	1.74E+00
2004	10	9	5.19E-01	1.64E-03	2.18E-01	7.06E-04	5.44E-03	2.57E+00	1.40E+00	4.16E+00	1.36E-01	1.96E+00	2.00E-01	4.06E-01	1.02E+00	2.25E+00	8.09E-01
2004	10	10	1.85E-01	2.79E-06	1.68E-01	0.00E+00	1.15E-05	2.54E+00	9.35E-01	4.59E+00	6.50E-02	3.12E+00	5.04E-02	8.02E-01	5.80E-01	2.60E+00	3.07E-01
2004	10	11	4.52E-02	0.00E+00	2.67E-03	0.00E+00	0.00E+00	4.27E-01	3.21E-01	1.02E+00	3.35E-16	2.93E+00	2.77E-02	4.37E-01	2.50E-01	5.82E-01	6.40E-02
2004	10	12	9.70E-01	1.03E-01	5.15E-01	8.47E-03	2.04E-02	2.09E+00	1.47E+00	4.31E+00	1.71E+00	5.12E+00	6.41E-01	7.11E-01	1.16E+00	3.95E+00	1.38E+00
2004	10	13	7.22E-01	3.85E-01	4.60E-01	2.39E-01	3.48E-01	3.07E+00	1.59E+00	3.84E+00	3.32E-01	6.33E+00	3.85E+00	8.11E-01	8.53E-01	3.15E+00	1.03E+00
2004	10	14	2.70E+00	9.00E-01	1.35E+00	2.19E-01	3.61E-01	3.42E+00	1.04E+00	4.68E+00	2.23E+00	5.15E+00	2.02E+00	6.63E-01	5.10E-01	4.93E+00	3.66E+00
2004	10	15	3.62E+00	6.52E-01	2.14E+00	3.81E-01	7.10E-01	4.86E+00	1.24E+00	5.77E+00	4.27E+00	1.57E+00	6.57E+00	8.08E-02	2.23E-01	5.43E+00	4.38E+00
2004	10	16	1.07E+00	1.86E-05	1.49E+00	8.09E-07	2.92E-02	1.94E+00	2.57E-01	2.19E+00	3.24E+00	2.01E+00	1.36E+00	2.68E-01	5.68E-01	2.04E+00	1.32E+00
2004	10	17	8.25E-01	2.89E-06	5.63E-01	0.00E+00	0.00E+00	1.08E+00	3.62E-02	1.06E+00	1.99E+00	3.52E-06	5.19E-06	0.00E+00	4.01E-10	2.10E+00	1.05E+00
2004	10	18	1.23E+00	8.03E-02	6.62E-01	1.64E-02	2.40E-02	3.53E+00	1.09E+00	4.20E+00	2.00E+00	1.77E+00	2.57E-01	2.66E-01	4.98E-01	3.43E+00	1.53E+00
2004	10	19	1.01E+00	3.34E-01	4.53E-01	1.26E-01	2.05E-01	1.06E+00	4.20E-01	1.43E+00	1.85E+00	9.39E-01	2.58E+00	2.04E-02	3.68E-02	2.32E+00	1.26E+00
2004	10	20	5.28E+00	3.71E-02	3.41E+00	1.00E-01	4.60E-01	6.60E+00	2.27E+00	7.09E+00	4.45E+00	7.40E+00	2.20E+00	9.68E-01	1.95E+00	6.31E+00	6.30E+00
2004	10	21	1.68E+00	1.71E+00	6.48E-01	2.85E-01	5.83E-01	4.25E+00	2.22E+00	6.34E+00	6.06E-01	2.25E+00	6.06E+00	1.43E-01	5.90E-01	4.79E+00	2.54E+00
2004	10	22	5.75E-01	2.05E-03	1.68E-01	1.21E-02	7.57E-02	9.84E-01	4.66E-01	1.25E+00	2.72E-02	1.40E+00	9.42E-01	1.87E-01	4.71E-01	1.09E+00	7.78E-01
2004	10	23	3.18E-02	0.00E+00	4.85E-02	0.00E+00	0.00E+00	1.24E+00	4.55E-01	1.86E+00	4.02E-04	2.14E+00	9.39E-02	3.57E-01	4.88E-01	1.28E+00	1.42E-01
2004	10	24	1.63E-01	0.00E+00	6.45E-02	0.00E+00	0.00E+00	9.15E-01	4.70E-01	1.95E+00	9.07E-04	1.52E+00	6.50E-02	3.65E-01	4.65E-01	9.32E-01	3.74E-01
2004	10	25	7.02E-01	2.04E-01	5.35E-01	1.10E-02	2.13E-02	1.88E+00	1.84E+00	4.24E+00	6.07E-01	7.65E+00	9.83E-01	9.45E-01	5.93E-01	3.85E+00	1.13E+00
2004	10	26	3.16E+00	7.61E-01	2.29E+00	1.28E-01	2.43E-01	7.13E+00	3.64E+00	1.05E+01	4.48E+00	1.27E+01	1.90E+00	2.63E+00	3.55E+00	1.14E+01	4.60E+00
2004	10	27	1.83E+00	1.24E-01	2.09E+00	2.09E-01	3.98E-01	6.48E+00	2.85E+00	8.40E+00	1.84E+00	1.04E+01	3.50E+00	9.73E-01	1.38E+00	7.77E+00	2.42E+00
2004	10	28	2.76E+00	2.83E-01	1.95E+00	6.49E-02	1.16E-01	7.26E+00	3.00E+00	8.05E+00	3.19E+00	8.24E+00	1.05E+00	1.33E+00	1.54E+00	7.97E+00	4.13E+00
2004	10	29	1.31E+00	1.54E-01	9.94E-01	3.78E-02	7.62E-02	3.80E+00	2.20E+00	5.63E+00	1.46E+00	6.04E+00	6.74E-01	8.16E-01	1.23E+00	5.36E+00	1.74E+00
2004	10	30	6.85E-02	0.00E+00	2.36E-02	0.00E+00	1.15E-05	8.61E-01	4.69E-01	1.60E+00	4.05E-04	2.36E+00	8.38E-02	4.69E-01	3.10E-01	9.15E-01	1.57E-01
2004	10	31	2.91E-01	6.76E-05	2.33E-01	2.16E-06	4.26E-05	3.63E+00	1.62E+00	5.71E+00	5.22E-02	8.08E+00	2.69E-03	1.95E+00	4.29E-01	4.13E+00	5.21E-01
2004	11	1	5.78E-01	4.03E-04	2.52E-01	4.07E-05	1.60E-04	2.51E+00	1.40E+00	3.69E+00	3.35E-02	5.69E+00	6.37E-02	1.15E+00	4.99E-01	4.04E+00	7.38E-01
2004	11	2	3.66E-01	2.20E-04	1.44E-01	3.40E-05	1.20E-04	2.61E+00	7.38E-01	4.07E+00	2.38E-02	2.57E+00	9.92E-02	4.44E-01	4.86E-01	2.27E+00	7.60E-01
2004	11	3	1.96E+00	8.03E-04	1.11E+00	3.99E-05	1.39E-04	4.22E+00	1.88E+00	6.79E+00	1.06E+00	6.58E+00	3.66E-03	1.71E+00	8.85E-01	4.91E+00	2.37E+00
2004	11	4	5.53E-02	0.00E+00	7.59E-04	0.00E+00	0.00E+00	3.92E-01	3.48E-01	1.04E+00	1.67E-16	2.91E+00	5.37E-03	4.28E-01	1.61E-01	6.38E-01	8.43E-02
2004	11	5	1.34E-01	0.00E+00	8.36E-03	0.00E+00	3.53E-10	7.03E-01	3.57E-01	1.34E+00	7.19E-06	1.24E+00	6.66E-02	5.77E-01	1.77E-01	8.95E-01	1.42E-01
2004	11	6	2.01E-01	2.95E-01	1.15E-01	2.81E-02	4.54E-02	7.72E-01	9.10E-01	1.80E+00	1.61E-01	4.28E+00	1.05E+00	8.13E-01	9.29E-01	1.13E+00	2.86E-01
2004	11	7	3.06E+00	1.72E+00	1.64E+00	1.59E-01	1.19E-01	3.15E+00	1.09E+00	4.26E+00	2.07E+00	1.28E+00	2.25E+00	2.07E-01	3.47E-01	4.03E+00	3.96E+00
2004	11	8	9.56E-01	1.23E-03	8.24E-01	1.05E-04	4.21E-04	5.60E+00	1.85E+00	6.52E+00	1.06E-01	6.84E+00	1.16E-02	1.38E+00	3.86E-01	7.43E+00	1.29E+00
2004	11	9	1.93E+00	4.42E-04	1.69E+00	5.53E-05	1.38E-04	4.85E+00	1.47E+00	5.88E+00	3.63E+00	5.28E+00	2.21E-03	9.29E-01	4.99E-01	5.69E+00	2.54E+00
2004	11	10	2.76E+00	3.59E-01	1.50E+00	6.17E-02	1.02E-01	3.78E+00	1.43E+00	4.97E+00	4.05E+00	4.65E+00	1.15E+00	5.63E-01	6.22E-01	6.07E+00	3.32E+00
2004	11	11	3.33E+00	3.31E-02	2.61E+00	4.93E-03	8.75E-03	5.46E+00	2.01E+00	5.88E+00	5.52E+00	2.56E+00	1.66E-01	5.85E-01	7.46E-01	6.31E+00	4.24E+00
2004	11	12	3.87E-01	3.21E-02	5.17E-01	8.34E-03	3.52E-02	6.47E+00	3.13E+00	1.05E+01	2.10E-01	1.48E+01	1.24E-01	2.06E+00	2.81E+00	7.10E+00	5.21E-01
2004	11	13	3.29E-01	3.41E-04	2.63E-01	5.64E-05	1.44E-04	3.53E+00	1.64E+00	4.60E+00	2.53E-02	9.54E+00	3.50E-03	1.77E+00	1.07E+00	4.07E+00	4.13E-01
2004	11	14	2.80E-01	6.68E-05	1.91E-01	5.40E-06	3.38E-05	1.66E+00	1.04E+00	2.76E+00	7.11E-03	4.80E+00	1.78E-02	7.31E-01	2.31E-01	2.04E+00	3.75E-01
2004	11	15	7.68E-02	0.00E+00	7.03E-03	0.00E+00	2.67E-11	4.08E-01	4.32E-01	1.33E+00	9.72E-19	1.68E+00	5.56E-02	6.39E-01	2.29E-01	6.87E-01	1.14E-01
2004	11	16	6.55E-02	0.00E+00	7.66E-03	0.00E+00	0.00E+00	6.01E-01	7.21E-01	1.51E+00	5.93E-04	5.20E+00	3.85E-02	1.11E+00	3.67E-01	8.37E-01	9.62E-02
2004	11	17	5.43E-01	2.29E-04	3.99E-01	3.19E-05	2.58E-03	1.32E+00	1.16E+00	2.18E+00	2.81E-02	4.99E+00	9.90E-02	8.43E-01	6.08E-01	1.61E+00	8.21E-01
2004	11	18	8.93E-02	0.00E+00	1.42E-02	0.00E+00	0.00E+00	6.65E-01	5.39E-01	1.51E+00	9.90E-19	2.40E+00	5.31E-02	6.27E-01	3.41E-01	8.79E-01	1.75E-01
2004	11	19	2.02E+00	5.61E-01	8.04E-01	1.47E-01	2.03E-01	5.15E+00	2.25E+00	8.36E+00	2.77E+00	8.04E+00	1.42E+00	1.20E+00	1.02E+00	6.72E+00	3.03E+00
2004	11	20	3.63E-01	2.88E-03	2.08E-01	6.48E-04	1.55E-03	2.60E+00	1.22E+00	5.18E+00	4.11E-02	7.64E+00	6.48E-03	2.18E+00	3.08E+00	3.76E+00	6.39E-01
2004	11	21	5.47E-02	0.00E+00	1.03E-03	0.00E+00	0.00E+00	3.67E-01	4.04E-01	1.17E+00	8.83E-17	3.66E+00	1.35E-02	4.48E-01	2.44E-01	6.79E-01	8.28E-02
2004	11	22	1.81E+00	3.71E-01	9.79E-01	7.07E-02	9.77E-02	4.98E+00	1.97E+00	7.35E+00	1.90E+00	6.64E+00	2.37E+00	1.30E+00	1.30E+00	5.51E+00	2.54E+00
2004	11	23	2.79E-01	1.38E-03	3.96E-01	2.58E-04	5.30E-04	3.30E+00	1.86E+00	5.99E+00	5.33E-02	1.16E+01	5.50E-03	1.61E+00	4.14E-01	5.17E+00	5.78E-01
2004	11	24	4.44E-02	0.00E+00	1.13E-03	0.00E+00	0.00E+00	3.41E-01	3.67E-01	1.11E+00	1.54E-17	1.12E+00	1.67E-02	7.32E-01	2.11E-01	5.60E-01	6.85E-02
2004	11	25	1.21E+00	1.04E+00	3.55E-01	2.75E-01	3.41E-01	3.23E+00	2.49E+00	5.42E+00	3.65E-01	1.24E+01	3.15E+00	1.82E+00	1.91E+00	4.87E+00	1.57E+00
2004	11	26	7.77E-01	1.12E-04	3.61E-01	3.47E-05	9.24E-05	3.13E+00	1.51E+00	4.63E+00	3.93E-02	6.90E+00	5.34E-03	1.07E+00	1.01E+00	4.00E+00	9.77E-01
2004	11	27	2.03E+00	1.88E-03	1.32E+00	3.29E-04	8.40E-04	4.90E+00	2.44E+00	8.19E+00	2.50E+00	1.07E+01	1.14E-02	2.14E+00	1.52E+00	6.35E+00	2.87E+00
2004	11	28	3.23E-01	5.39E-03	3.27E-01	1.79E-03	3.11E-03	4.16E+00	2.81E+00	7.98E+00	9.90E-02	1.38E+01	9.86E-03	1.20E+00	2.01E+00	6.43E+00	3.83E-01
2004	11	29	6.84E-02	0.00E+00	3.56E-04	0.00E+00	0.00E+00	3.26E-01	3.77E-01	9.86E-01	3.87E-16	5.06E+00	2.03E-04	3.47E-01	2.39E-01	6.38E-01	1.04E-01
2004	11	30	8.23E-02	0.00E+00	5.70E-04	0.00E+00	0.00E+00	4.64E-01	6.46E-01	1.53E+00	7.16E-18	7.93E+00	1.36E-04	6.01E-01	3.07E-01	9.77E-01	1.31E-01
2004	12	1	9.36E-02	0.00E+00	2.41E-03	0.00E+00	0.00E+00	7.08E-01	8.25E-01	2.74E+00	3.90E-18	8.78E+00	2.05E-05	8.76E-01	3.52E-01	1.37E+00	1.74E-01
2004	12	2	1.15E-01	0.00E+00	2.57E-02	0.00E+00	0.00E+00	5.73E-01	4.07E-01	1.32E+00	6.87E-04	1.57E+00	7.81E-03	5.48E-01	2.19E-01	8.45E-01	2.37E-01
2004	12	3	4.95E-02	0.00E+00	8.90E-04	0.00E+00	7.18E-05	2.91E-01	3.10E-01	7.49E-01	9.10E-17	2.34E+00	2.16E-02	4.58E-01	1.97E-01	5.11E-01	7.04E-02
2004	12	4	1.15E+00	5.17E-03	3.67E-01	4.26E-02	3.83E-01	2.49E+00	2.15E+00	4.40E+00	1.17E-01	5.64E+00	3.39E+00	5.67E-01	1.07E+00	3.05E+00	1.95E+00
2004	12	5	1.92E+00	2.31E-01	5.59E-01	1.76E-01	1.84E-01	3.85E+00	1.54E+00	4.89E+00	1.94E-01	2.27E+00	3.75E+00	6.83E-02	5.13E-01	3.21E+00	2.77E+00
2004	12	6	2.61E+00	1.01E+00	8.23E-01	3.38E-01	9.00E-01	3.74E+00	2.76E+00	5.17E+00	5.29E-01	3.72E+00	6.84E+00	1.00E-01	2.14E-01	4.53E+00	3.69E+00
2004	12	7	3.43E+00	1.25E+00	2.10E+00	4.86E-01	7.07E-01	5.64E+00	2.76E+00	8.12E+00	3.50E+00	6.74E+00	5.42E+00	5.99E-01	1.23E+00	8.17E+00	4.62E+00
2004	12	8	4.41E+00	5.83E-01	1.63E+00	2.02E-01	3.90E-01	4.62E+00	1.27E+00	5.14E+00	4.21E+00	1.77E+00	6.13E+00	2.77E-01	3.03E-01	5.05E+00	5.61E+00
2004	12	9	1.24E-01	0.00E+00	6.43E-03	0.00E+00	0.00E+00	5.88E-01	8.73E-01	2.02E+00	1.12E-17	4.51E+00	1.29E-02	1.17E+00	2.66E-01	1.20E+00	1.96E-01
2004	12	10	2.60E-01	0.00E+00	5.08E-02	0.00E+00	1.92E-04	1.40E+00	5.95E-01	1.84E+00	2.73E-02	3.49E+00	1.40E-01	7.17E-01	5.55E-01	1.11E+00	5.39E-01
2004	12	11	3.10E-01	5.19E-04	1.54E-01	6.95E-05	1.87E-04	2.54E+00	1.31E+00	4.97E+00	5.58E-02	6.11E+00	7.07E-02	7.85E-01	1.22E+00	3.67E+00	4.72E-01
2004	12	12	1.70E+00	5.16E-01	1.02E+00	1.06E-01	1.72E-01	6.82E+00	4.34E+00	1.19E+01	1.47E+00	1.21E+01	1.61E+00	3.03E+00	2.21E+00	1.14E+01	2.23E+00
2004	12	13	1.74E+00	4.18E-01	9.52E-01	7.88E-02	8.84E-02	4.70E+00	2.19E+00	7.60E+00	1.05E+00	7.23E+00	2.21E+00	7.60E-01	7.14E-01	6.67E+00	2.74E+00
2004	12	14	7.32E-02	0.00E+00	1.35E-03	0.00E+00	0.00E+00	4.38E-01	6.00E-01	1.63E+00	5.82E-17	3.49E+00	1.06E-02	9.92E-01	2.27E-01	8.53E-01	1.21E-01
2004	12	15	5.51E-02	0.00E+00	8.73E-04	0.00E+00	0.00E+00	4.68E-01	6.11E-01	1.59E+00	1.28E-16	6.98E+00	6.96E-04	7.28E-01	5.18E-01	9.01E-01	9.05E-02

Year	Month	Day	Baseline R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2004	9	17	5.15E+00	2.28E-02	1.55E+00	1.53E-02	2.48E-02	1.26E+01	6.71E+00	1.20E+01	3.16E-01	1.09E-01	6.26E-02	1.82E-01	1.38E-01	1.02E+01	7.01E+00
2004	9	18	8.18E+00	7.72E-02	1.73E+00	5.00E-02	6.18E-02	1.83E+01	9.38E+00	1.51E+01	4.87E-01	2.17E-01	1.39E-01	2.98E-01	2.52E-01	1.49E+01	9.75E+00
2004	9	19	1.02E+01	1.01E-03	6.20E+00	2.15E-05	1.32E-04	1.70E+01	3.99E+00	1.61E+01	8.83E-02	8.50E-03	2.94E-03	2.59E-02	1.25E-02	2.04E+01	1.17E+01
2004	9	20	9.89E+00	1.44E-02	5.10E+00	4.82E-03	4.32E-03	1.59E+01	6.08E+00	1.78E+01	1.21E-01	1.62E-02	1.04E-02	3.79E-02	2.23E-02	2.12E+01	1.41E+01
2004	9	21	5.24E-01	0.00E+00	7.56E-03	0.00E+00	0.00E+00	3.54E+00	2.76E+00	5.06E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.57E+00	7.63E-01
2004	9	22	9.11E-01	0.00E+00	3.71E-01	0.00E+00	0.00E+00	8.91E+00	4.64E+00	1.17E+01	8.81E-02	1.00E-02	5.31E-04	5.44E-02	2.69E-02	1.22E+01	1.18E+00
2004	9	23	2.40E+00	5.99E-03	4.02E+00	6.61E-04	2.78E-03	2.63E+01	1.14E+01	2.83E+01	3.35E-01	5.84E-02	2.29E-02	1.48E-01	9.16E-02	3.77E+01	3.72E+00
2004	9	24	2.43E+00	2.80E-03	1.52E+00	7.14E-04	1.59E-03	2.61E+01	1.38E+01	2.58E+01	3.27E-01	6.32E-02	1.40E-02	2.14E-01	1.22E-01	3.09E+01	3.85E+00
2004	9	25	5.42E+00	1.01E-03	2.35E+00	2.44E-05	3.54E-04	2.19E+01	1.06E+01	3.04E+01	3.59E-01	6.19E-02	1.38E-02	1.76E-01	1.08E-01	2.48E+01	7.61E+00
2004	9	26	1.38E+01	3.29E-03	7.39E+00	5.20E-04	1.06E-03	2.12E+01	4.47E+00	2.36E+01	1.98E-01	2.15E-02	7.90E-03	5.82E-02	3.50E-02	2.56E+01	1.65E+01
2004	9	27	1.62E+01	3.66E-02	9.29E+00	1.47E-02	2.13E-02	3.46E+01	6.47E+00	2.55E+01	5.09E-01	1.30E-01	6.62E-02	2.21E-01	1.68E-01	3.35E+01	1.95E+01
2004	9	28	9.95E+00	5.36E-03	5.57E+00	1.66E-03	3.40E-03	3.11E+01	7.08E+00	2.93E+01	2.68E-01	4.11E-02	1.45E-02	1.10E-01	6.82E-02	2.82E+01	1.20E+01
2004	9	29	1.57E+01	6.63E-03	7.83E+00	4.51E-04	3.09E-04	1.73E+01	9.68E-02	1.61E+01	1.75E-01	1.80E-02	6.65E-03	2.81E-02	2.21E-02	1.93E+01	1.72E+01
2004	9	30	7.43E+00	9.36E-03	5.36E+00	1.44E-03	2.87E-03	1.64E+01	4.29E+00	2.12E+01	2.68E-01	5.23E-02	1.94E-02	1.36E-01	8.44E-02	2.29E+01	9.80E+00
2004	10	1	1.56E+00	4.90E-03	9.75E-01	1.26E-03	2.46E-03	3.55E+00	1.96E+00	4.39E+00	8.12E-02	2.36E-02	1.05E-02	5.10E-02	3.40E-02	4.61E+00	1.98E+00
2004	10	2	3.30E-01	1.33E-03	5.13E-01	3.27E-04	7.61E-04	4.85E+00	2.30E+00	6.34E+00	6.29E-02	8.35E-03	3.28E-03	2.95E-02	1.56E-02	6.84E+00	4.45E-01
2004	10	3	2.65E+00	1.79E-02	1.77E+00	9.90E-03	1.53E-02	5.33E+00	1.80E+00	5.25E+00	1.71E-01	6.03E-02	3.61E-02	9.41E-02	7.48E-02	5.52E+00	3.21E+00
2004	10	4	2.50E-01	3.65E-03	3.94E-01	1.06E-03	2.33E-03	4.27E+00	2.15E+00	3.60E+00	7.02E-02	2.07E-02	9.17E-03	5.34E-02	3.31E-02	6.32E+00	2.85E-01
2004	10	5	8.12E-02	3.04E-05	1.74E-01	8.59E-07	5.44E-06	1.85E+00	7.87E-01	2.28E+00	1.21E-02	1.97E-03	3.41E-04	8.80E-03	3.81E-03	2.32E+00	1.55E-01
2004	10	6	2.15E-01	3.68E-06	1.26E-01	0.00E+00	4.95E-06	1.26E+00	3.78E-01	1.45E+00	8.66E-03	1.54E-03	2.13E-04	7.81E-03	2.73E-03	1.03E+00	3.10E-01
2004	10	7	3.35E-01	2.13E-03	2.98E-01	5.10E-04	1.83E-03	3.89E+00	2.05E+00	5.68E+00	1.48E-01	3.28E-02	1.03E-02	7.00E-02	5.54E-02	4.18E+00	6.17E-01
2004	10	8	1.20E+00	7.53E-03	4.41E-01	4.77E-03	9.37E-03	3.54E+00	1.83E+00	4.70E+00	1.72E-01	5.53E-02	2.57E-02	9.69E-02	7.48E-02	3.42E+00	1.65E+00
2004	10	9	5.16E-01	1.56E-03	2.15E-01	6.85E-04	2.61E-03	2.55E+00	1.37E+00	3.17E+00	1.30E-01	3.24E-02	1.24E-02	4.94E-02	4.21E-02	2.22E+00	8.03E-01
2004	10	10	1.82E-01	2.79E-06	1.68E-01	0.00E+00	1.15E-05	2.54E+00	8.61E-01	3.36E+00	6.29E-02	7.95E-03	7.34E-04	3.02E-02	2.00E-02	2.55E+00	2.98E-01
2004	10	11	4.52E-02	0.00E+00	2.67E-03	0.00E+00	0.00E+00	4.27E-01	2.92E-01	6.29E-01	0.00E+00	0.00E+00	0.00E+00	5.03E-06	0.00E+00	5.75E-01	6.40E-02
2004	10	12	9.14E-01	5.92E-04	4.66E-01	5.78E-05	1.87E-04	2.03E+00	1.40E+00	3.35E+00	2.23E-02	5.19E-03	1.64E-03	1.74E-02	9.54E-03	3.87E+00	1.24E+00
2004	10	13	6.25E-01	1.15E-02	4.51E-01	4.72E-03	7.57E-03	3.06E+00	1.52E+00	3.12E+00	9.66E-02	3.68E-02	2.07E-02	6.15E-02	4.86E-02	3.06E+00	7.95E-01
2004	10	14	2.49E+00	7.41E-03	1.24E+00	3.62E-03	5.51E-03	3.30E+00	9.82E-01	4.34E+00	1.50E-01	3.46E-02	1.52E-02	7.12E-02	5.03E-02	4.90E+00	3.22E+00
2004	10	15	3.27E+00	1.47E-02	1.88E+00	6.22E-03	1.00E-02	4.68E+00	1.22E+00	5.13E+00	1.50E-01	4.35E-02	2.44E-02	6.98E-02	5.41E-02	5.38E+00	3.71E+00
2004	10	16	9.61E-01	1.85E-05	6.76E-01	8.09E-07	6.57E-05	1.31E+00	2.21E-01	2.05E+00	1.63E-02	8.58E-03	1.55E-03	1.32E-02	1.12E-02	1.96E+00	1.21E+00
2004	10	17	8.25E-01	0.00E+00	5.25E-01	0.00E+00	0.00E+00	1.02E+00	3.62E-02	1.06E+00	2.56E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E+00	1.05E+00
2004	10	18	1.22E+00	2.00E-03	6.27E-01	6.08E-04	1.13E-03	3.47E+00	1.05E+00	3.32E+00	5.98E-02	1.19E-02	4.31E-03	2.84E-02	1.98E-02	3.39E+00	1.50E+00
2004	10	19	1.00E+00	8.46E-03	4.27E-01	4.98E-03	1.10E-02	1.02E+00	4.19E-01	1.40E+00	2.29E-02	1.62E-02	1.84E-02	1.52E-02	1.58E-02	2.32E+00	1.25E+00
2004	10	20	4.14E+00	1.42E-02	2.63E+00	5.53E-03	1.14E-02	5.64E+00	1.98E+00	5.84E+00	2.11E-01	6.27E-02	3.43E-02	8.38E-02	7.20E-02	5.81E+00	4.59E+00
2004	10	21	1.59E+00	4.27E-02	6.31E-01	1.36E-02	1.64E-02	4.18E+00	2.18E+00	5.33E+00	1.76E-01	6.64E-02	4.35E-02	9.52E-02	7.69E-02	4.64E+00	2.38E+00
2004	10	22	5.58E-01	2.03E-03	1.66E-01	1.65E-03	3.35E-03	9.70E-01	4.60E-01	9.18E-01	2.54E-02	9.66E-03	5.39E-03	2.14E-02	1.39E-02	1.08E+00	7.42E-01
2004	10	23	3.18E-02	0.00E+00	4.85E-02	0.00E+00	0.00E+00	1.24E+00	4.41E-01	1.25E+00	4.02E-04	1.53E-05	0.00E+00	3.43E-03	3.02E-04	1.27E+00	1.42E-01
2004	10	24	1.10E-01	0.00E+00	6.45E-02	0.00E+00	0.00E+00	9.15E-01	4.64E-01	1.17E+00	9.07E-04	1.95E-05	0.00E+00	3.83E-03	4.67E-04	9.23E-01	2.55E-01
2004	10	25	6.59E-01	1.88E-03	5.29E-01	1.62E-04	4.53E-04	1.87E+00	1.77E+00	3.32E+00	5.40E-02	1.21E-02	4.54E-03	2.71E-02	1.79E-02	3.84E+00	9.89E-01
2004	10	26	2.42E+00	2.64E-02	2.05E+00	9.77E-03	1.43E-02	6.85E+00	3.33E+00	9.07E+00	2.36E-01	8.05E-02	4.38E-02	1.52E-01	1.07E-01	1.09E+01	3.29E+00
2004	10	27	1.49E+00	9.67E-03	1.23E+00	4.68E-03	7.94E-03	5.67E+00	2.78E+00	7.19E+00	1.27E-01	4.17E-02	2.02E-02	9.47E-02	6.37E-02	7.59E+00	1.84E+00
2004	10	28	1.65E+00	6.24E-03	1.35E+00	1.59E-03	2.96E-03	6.22E+00	2.71E+00	6.83E+00	1.09E-01	2.93E-02	1.31E-02	6.64E-02	4.29E-02	7.33E+00	2.66E+00
2004	10	29	1.10E+00	1.55E-02	8.77E-01	5.58E-03	9.22E-03	3.73E+00	2.12E+00	4.84E+00	1.36E-01	4.88E-02	2.67E-02	9.00E-02	6.59E-02	5.18E+00	1.27E+00
2004	10	30	6.85E-02	0.00E+00	2.36E-02	0.00E+00	0.00E+00	8.61E-01	4.39E-01	1.09E+00	4.05E-04	2.24E-05	0.00E+00	3.01E-03	6.66E-04	9.13E-01	1.57E-01
2004	10	31	2.54E-01	6.76E-05	2.33E-01	2.16E-06	4.26E-05	3.63E+00	1.50E+00	4.12E+00	5.21E-02	6.50E-03	9.78E-04	2.77E-02	1.47E-02	4.05E+00	4.26E-01
2004	11	1	5.66E-01	4.03E-04	2.52E-01	4.07E-05	1.60E-04	2.51E+00	1.31E+00	2.63E+00	3.18E-02	6.51E-03	1.68E-03	2.58E-02	1.38E-02	3.88E+00	6.96E-01
2004	11	2	3.65E-01	2.20E-04	1.44E-01	3.40E-05	1.20E-04	2.61E+00	7.01E-01	2.73E+00	2.38E-02	4.09E-03	9.93E-04	1.82E-02	8.56E-03	2.20E+00	7.57E-01
2004	11	3	1.74E+00	6.82E-04	1.08E+00	3.47E-05	1.23E-04	4.13E+00	1.66E+00	5.30E+00	9.39E-02	1.26E-02	2.78E-03	4.49E-02	2.55E-02	4.74E+00	2.00E+00
2004	11	4	5.53E-02	0.00E+00	7.59E-04	0.00E+00	0.00E+00	3.92E-01	3.08E-01	5.76E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.36E-01	8.43E-02
2004	11	5	1.34E-01	0.00E+00	8.36E-03	0.00E+00	0.00E+00	7.03E-01	3.32E-01	1.09E+00	7.19E-06	0.00E+00	0.00E+00	2.54E-04	4.33E-05	8.17E-01	1.42E-01
2004	11	6	1.91E-01	1.39E-03	1.06E-01	8.76E-04	1.10E-03	7.59E-01	8.48E-01	1.42E+00	2.23E-02	3.99E-03	2.04E-03	1.07E-02	6.23E-03	1.12E+00	2.75E-01
2004	11	7	3.03E+00	2.74E-02	1.58E+00	6.79E-03	7.27E-03	3.02E+00	1.07E+00	4.11E+00	1.09E-01	2.84E-02	2.09E-02	3.59E-02	2.97E-02	4.02E+00	3.88E+00
2004	11	8	8.80E-01	1.10E-03	8.11E-01	8.86E-05	3.64E-04	5.53E+00	1.75E+00	5.06E+00	9.49E-02	1.94E-02	5.22E-03	4.50E-02	3.04E-02	7.29E+00	1.07E+00
2004	11	9	1.64E+00	4.21E-04	1.35E+00	5.14E-05	1.30E-04	4.52E+00	1.29E+00	5.21E+00	4.26E-02	6.96E-03	1.91E-03	1.71E-02	1.15E-02	5.47E+00	2.01E+00
2004	11	10	2.38E+00	6.36E-03	1.42E+00	1.86E-03	3.76E-03	3.68E+00	1.37E+00	4.44E+00	9.33E-02	3.00E-02	1.40E-02	6.21E-02	4.27E-02	5.94E+00	2.65E+00
2004	11	11	2.77E+00	1.23E-02	2.19E+00	3.41E-03	6.04E-03	4.84E+00	1.96E+00	5.10E+00	1.69E-01	4.82E-02	2.30E-02	9.21E-02	6.69E-02	6.15E+00	3.24E+00
2004	11	12	3.63E-01	8.29E-03	5.06E-01	3.64E-03	5.85E-03	6.46E+00	2.96E+00	8.43E+00	1.14E-01	3.26E-02	1.59E-02	7.69E-02	5.18E-02	6.80E+00	4.78E-01
2004	11	13	3.14E-01	3.41E-04	2.63E-01	5.64E-05	1.44E-04	3.53E+00	1.48E+00	3.46E+00	2.53E-02	3.97E-03	1.01E-03	2.10E-02	1.00E-02	3.99E+00	3.74E-01
2004	11	14	2.38E-01	6.68E-05	1.91E-01	5.40E-06	3.38E-05	1.66E+00	9.97E-01	2.18E+00	6.97E-03	1.14E-03	3.23E-04	4.50E-03	2.13E-03	2.01E+00	3.02E-01
2004	11	15	7.68E-02	0.00E+00	7.03E-03	0.00E+00	0.00E+00	4.08E-01	4.14E-01	8.78E-01	0.00E+00	0.00E+00	0.00E+00	2.01E-04	2.19E-07	6.86E-01	1.14E-01
2004	11	16	6.55E-02	0.00E+00	7.66E-03	0.00E+00	0.00E+00	6.01E-01	6.78E-01	1.06E+00	5.93E-04	1.62E-05	0.00E+00	5.14E-03	1.34E-03	8.37E-01	9.62E-02
2004	11	17	4.85E-01	1.92E-04	3.92E-01	2.95E-05	1.33E-04	1.30E+00	1.15E+00	2.01E+00	2.19E-02	3.79E-03	1.08E-03	2.53E-02	8.15E-03	1.61E+00	6.82E-01
2004	11	18	8.93E-02	0.00E+00	1.42E-02	0.00E+00	0.00E+00	6.65E-01	4.87E-01	1.12E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-03	3.36E-05	8.42E-01	1.75E-01
2004	11	19	1.52E+00	8.85E-03	5.74E-01	2.79E-03	5.48E-03	4.80E+00	2.09E+00	6.55E+00	1.20E-01	3.76E-02	1.88E-02	7.79E-02	5.29E-02	6.39E+00	2.29E+00
2004	11	20	3.62E-01	2.88E-03	2.08E-01	6.48E-04	1.55E-03	2.60E+00	1.07E+00	4.34E+00	3.91E-02	1.26E-02	6.32E-03	2.53E-02	1.76E-02	3.62E+00	6.32E-01
2004	11	21	5.47E-02	0.00E+00	1.03E-03	0.00E+00	0.00E+00	3.67E-01	3.52E-01	4.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.79E-01	8.28E-02
2004	11	22	1.59E+00	1.20E-02	8.05E-01	3.84E-03	6.15E-03	4.82E+00	1.86E+00	5.77E+00	1.44E-01	3.63E-02	1.93E-02	7.05E-02	5.08E-02	5.31E+00	2.15E+00
2004	11	23	2.28E-01	1.38E-03	3.96E-01	2.58E-04	5.30E-04	3.30E+00	1.73E+00	4.21E+00	5.26E-02	8.70E-03	3.24E-03	2.53E-02	1.50E-02	5.02E+00	4.26E-01
2004	11	24	4.44E-02	0.00E+00	1.13E-03	0.00E+00	0.00E+00	3.41E-01	3.53E-01	5.63E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.60E-01	6.85E-02
2004	11	25	1.18E+00	8.33E-03	3.49E-01	6.66E-03	8.62E-03	3.20E+00	2.37E+00	4.03E+00	1.36E-01	4.49E-02	2.15E-02	7.57E-02	5.83E-02	4.75E+00	1.53E+00
2004	11	26	7.28E-01	1.10E-04	3.54E-01	3.47E-05	9.16E-05	3.10E+00	1.43E+00	3.65E+00	2.04E-02	2.95E-03	6.65E-04	1.29E-02	6.48E-03	3.92E+00	8.53E-01
2004	11	27	1.71E+00	1.87E-03	1.06E+00	3.29E-04	8.40E-04	4.35E+00	2.19E+00	7.09E+00	1.05E-01	2.04E-02	6.20E-03	4.15E-02	3.15E-02	6.05E+00	2.43E+00
2004	11	28	3.19E-01	5.39E-03	3.27E-01	1.79E-03	3.11E-03	4.16E+00	2.66E+00	6.19E+00	7.75E-02	2.05E-02	9.83E-03	4.64E-02	3.21E-02	6.18E+00	3.65E-01
2004	11	29	6.84E-02	0.00E+00	3.56E-04	0.00E+00	0.00E+00	3.26E-01	3.01E-01	6.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.37E-01	1.04E-01
2004	11	30	8.23E-02	0.00E+00	5.70E-04	0.00E+00	0.00E+00	4.64E-01	5.31E-01	7.69E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.77E-01	1.31E-01
2004	12	1	9.36E-02	0.00E+00	2.41E-03	0.00E+00	0.00E+00	7.08E-01	7.00E-01	1.64E+00	0.00E+00	0.00E+00	0.00E+00	4.89E-04	0.00E+00	1.37E+00	1.74E-01
2004	12	2	1.14E-01	0.00E+00	2.57E-02	0.00E+00	0.00E+00	5.73E-01	3.70E-01	9.38E-01	6.27E-04	0.00E+00	0.00E+00	2.46E-04	1.98E-05	8.43E-01	2.36E-01
2004	12	3	4.95E-02	0.00E+00	8.90E-04	0.00E+00	0.00E+00	2.91E-01	2.71E-01	5.27E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.09E-01	7.04E-02
2004	12	4	1.05E+00	5.07E-03	3.66E-01	4.46E-03	1.24E-02	2.48E+00	2.06E+00	3.68E+00	9.55E-02	4.00E-02	2.71E-02	4.69E-02	4.19E-02	2.99E+00	1.68E+00
2004	12	5	1.86E+00	1.40E-02	5.35E-01	1.02E-02	1.59E-02	3.73E+00	1.53E+00	4.19E+00	1.68E-01	5.24E-02	3.47E-02	5.28E-02	4.87E-02	3.18E+00	2.61E+00
2004	12	6	2.57E+00	4.73E-02	8.19E-01	2.41E-02	3.95E-02	3.67E+00	2.75E+00	4.90E+00	2.09E-01	1.06E-01	8.34E-02	8.30E-02	8.82E-02	4.50E+00	3.56E+00
2004	12	7	3.32E+00	3.58E-02	2.02E+00	1.92E-02	2.88E-02	5.45E+00	2.71E+00	7.10E+00	2.26E-01	9.62E-02	6.19E-02	1.25E-01	1.12E-01	8.07E+00	4.26E+00
2004	12	8	4.04E+00	2.25E-02	1.58E+00	8.54E-03	1.01E-02	4.53E+00	1.27E+00	4.73E+00	1.54E-01	4.17E-02	2.91E-02	5.16E-02	4.58E-02	5.01E+00	4.92E+00
2004	12	9	1.24E-01	0.00E+00	6.43E-03	0.00E+00	0.00E+00	5.88E-01	8.07E-01	1.11E+00	0.00E+00	0.00E+00	0.00E+00	4.28E-06	0.00E+00	1.20E+00	1.96E-01
2004	12	10	2.60E-01	0.00E+00	5.08E-02	0.00E+00	1.24E-08	1.40E+00	5.61E-01	1.31E+00	2.48E-02	6.20E-03	3.78E-04	1.71E-02	8.27E-03	1.11E+00	5.39E-01
2004	12	11	3.06E-01	5.19E-04	1.54E-01	6.95E-05	1.80E-04	2.54E+00	1.25E+00	4.27E+00	4.69E-02	1.23E-02	1.79E-03	1.48E-02	1.06E-02	3.64E+00	4.54E-01
2004	12	12	1.07E+00	1.16E-02	8.35E-01	3.13E-03	6.67E-03	6.57E+00	3.78E+00	9.27E+00	1.70E-01	5.14E-02	2.51E-02	1.08E-01	7.48E-02	1.06E+01	1.44E+00
2004	12	13	1.43E+00	8.35E-03	9.36E-01	2.97E-03	4.54E-03	4.68E+00	2.12E+00	6.36E+00	1.02E-01	3.10E-02	1.55E-02	5.47E-02	4.10E-02	6.46E+00	2.00E+00
2004	12	14	7.32E-02	0.00E+00	1.35E-03	0.00E+00	0.00E+00	4.38E-01	5.52E-01	9.37E-01	0.00E+00	0.00E+00	0.00E+00	1.62E-05	0.00E+00	8.53E-01	1.21E-01
2004	12	15	5.51E-02	0.00E+00	8.73E-04	0.00E+00	0.00E+00	4.68E-01	5.26E-01	9.43E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.01E-01	9.05E-02

Year	Month	Day	Project R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2004	9	17	2.19E-02	7.79E-01	6.73E-03	2.53E-01	3.67E-01	2.26E-02	3.03E-02	8.97E-01	5.63E-02	6.57E+00	7.27E+00	5.85E-01	9.00E-01	1.34E-02	4.60E-02
2004	9	18	2.22E-01	8.77E-01	8.86E-03	3.79E-01	4.71E-01	1.99E-02	1.89E-02	8.37E-01	1.21E-01	4.02E+00	1.41E+01	3.35E-01	2.92E-01	7.70E-02	5.28E-01
2004	9	19	2.94E-01	2.47E-06	2.78E-01	0.00E+00	0.00E+00	1.76E-01	8.27E-02	5.23E-01	2.43E+00	9.69E+00	3.36E-03	1.17E+00	1.56E+00	9.57E-02	4.65E-01
2004	9	20	2.72E-02	3.92E-01	5.83E-02	8.06E-02	1.03E-01	6.58E-02	4.96E-02	5.22E-01	7.33E+00	7.62E+00	9.47E-01	5.52E-01	9.79E-01	2.19E-02	5.89E-02
2004	9	21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.43E-02	7.54E-01	4.32E-16	9.91E+00	1.42E-02	8.43E-01	5.66E-01	1.51E-03	0.00E+00
2004	9	22	1.22E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.82E-02	9.04E-01	4.49E-16	1.23E+01	2.42E-02	1.20E+00	1.18E+00	3.12E-02	3.31E-03
2004	9	23	2.26E-01	2.25E-04	7.44E-03	3.03E-05	6.81E-05	1.68E-02	5.72E-02	1.00E+00	9.64E-03	2.14E+01	4.56E-02	1.83E+00	9.48E-01	1.47E-01	5.30E-01
2004	9	24	2.04E-02	0.00E+00	4.58E-06	0.00E+00	0.00E+00	3.60E-05	1.40E-01	1.64E+00	1.62E-03	2.30E+01	5.63E-02	2.28E+00	1.15E+00	1.66E-01	5.77E-02
2004	9	25	4.39E-02	3.47E-06	4.88E-03	0.00E+00	1.90E-06	6.34E-02	6.34E-02	9.16E-01	4.21E-02	1.56E+01	6.34E-02	1.24E+00	1.25E+00	8.15E-02	9.57E-02
2004	9	26	4.07E-01	4.20E-06	1.30E+00	0.00E+00	4.10E-09	1.04E+00	4.32E-02	3.71E-01	6.51E+00	3.91E+00	2.65E-04	3.47E-01	5.65E-01	8.56E-02	7.30E-01
2004	9	27	4.75E-01	4.94E-01	1.41E-01	2.27E-02	3.47E-02	1.22E-01	3.26E-02	5.58E-01	4.07E+00	7.95E+00	6.30E-01	6.00E-01	6.70E-01	1.11E-01	8.59E-01
2004	9	28	1.54E+00	1.61E-03	5.40E-01	1.43E-04	2.23E-04	7.94E-01	6.80E-01	2.09E+00	3.31E+00	8.39E+00	2.44E-03	9.42E-01	9.26E-01	1.20E+00	2.01E+00
2004	9	29	7.11E-01	9.67E-03	1.69E+00	1.73E-04	2.31E-06	1.29E+00	8.82E-04	3.61E-02	6.97E+00	8.59E-04	1.79E-04	1.07E-03	8.11E-04	2.79E-02	1.17E+00
2004	9	30	4.89E-01	4.34E-04	9.10E-01	4.55E-06	1.50E-05	1.14E+00	2.73E-02	6.06E-01	9.33E+00	3.03E-02	1.70E-03	1.58E-02	9.26E-03	1.05E-01	6.56E-01
2004	10	1	1.69E-01	3.97E-01	2.03E-02	3.59E-02	6.09E-02	3.59E-02	7.19E-02	1.19E+00	1.83E+00	8.05E+00	2.01E+00	1.25E+00	6.17E-01	1.11E-01	4.13E-01
2004	10	2	1.07E-01	6.25E-03	8.84E-03	2.11E-02	7.47E-02	1.87E-02	2.16E-01	1.50E+00	5.70E-02	1.12E+01	3.26E-01	2.15E+00	2.83E+00	2.22E-01	2.32E-01
2004	10	3	4.39E-01	9.58E-01	1.89E-01	4.81E-01	3.73E-01	1.22E-01	1.89E-02	5.22E-01	3.24E+00	1.46E+00	4.22E+00	1.43E-01	2.42E-01	9.11E-02	8.56E-01
2004	10	4	3.11E-04	6.35E-05	1.89E-05	3.52E-04	1.44E-03	4.68E-05	9.66E-02	1.80E+00	2.60E-04	8.52E+00	1.69E-02	1.72E+00	3.54E-01	1.86E-01	5.14E-04
2004	10	5	2.09E-02	1.72E-05	9.22E-04	5.26E-07	2.98E-06	2.16E-03	4.22E-02	5.44E-01	9.91E-04	4.23E+00	4.36E-02	9.18E-01	3.34E-01	3.15E-02	5.34E-02
2004	10	6	8.23E-03	0.00E+00	7.42E-04	0.00E+00	2.02E-05	3.19E-03	7.25E-03	5.85E-01	1.15E-03	1.55E+00	1.43E-01	2.32E-01	3.95E-01	1.33E-03	1.88E-02
2004	10	7	2.21E-03	0.00E+00	0.00E+00	0.00E+00	6.48E-05	1.29E-06	8.94E-02	1.73E+00	1.79E-03	6.52E+00	9.31E-02	1.04E+00	1.75E+00	7.81E-02	1.03E-02
2004	10	8	3.44E-02	1.23E-03	5.83E-03	3.04E-01	2.14E-01	2.03E-02	3.28E-02	1.36E+00	4.22E-02	2.68E+00	6.22E+00	2.58E-01	8.27E-01	1.07E-01	9.40E-02
2004	10	9	2.78E-03	7.55E-05	2.63E-03	2.15E-05	2.82E-03	1.25E-02	3.52E-02	9.92E-01	6.37E-03	1.93E+00	1.87E-01	3.57E-01	9.79E-01	3.74E-02	5.75E-03
2004	10	10	3.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.46E-06	7.36E-02	1.23E+00	2.12E-03	3.12E+00	4.96E-02	7.71E-01	5.60E-01	4.56E-02	8.87E-03
2004	10	11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.87E-02	3.90E-01	3.35E-16	2.93E+00	2.77E-02	4.37E-01	2.50E-01	6.85E-03	0.00E+00
2004	10	12	5.67E-02	1.03E-01	4.95E-02	8.41E-03	2.02E-02	6.11E-02	6.78E-02	9.55E-01	1.68E+00	5.12E+00	6.39E-01	6.94E-01	1.15E+00	7.51E-02	1.46E-01
2004	10	13	9.68E-02	3.73E-01	9.26E-03	2.35E-01	3.40E-01	1.43E-02	6.45E-02	7.29E-01	2.35E-01	6.29E+00	3.83E+00	7.49E-01	8.05E-01	8.12E-02	2.37E-01
2004	10	14	2.11E-01	8.93E-01	1.13E-01	2.15E-01	3.55E-01	1.15E-01	5.50E-02	3.38E-01	2.08E+00	5.12E+00	2.01E+00	5.92E-01	4.60E-01	3.44E-02	4.30E-01
2004	10	15	3.44E-01	6.37E-01	2.60E-01	3.75E-01	7.00E-01	1.81E-01	1.61E-02	6.44E-01	4.12E+00	1.52E+00	6.55E+00	1.10E-02	1.69E-01	5.21E-02	6.69E-01
2004	10	16	1.06E-01	7.65E-08	8.19E-01	0.00E+00	2.91E-02	6.33E-01	3.60E-02	1.35E-01	3.22E+00	2.00E+00	1.36E+00	2.55E-01	5.56E-01	7.85E-02	1.10E-01
2004	10	17	0.00E+00	2.89E-06	3.80E-02	0.00E+00	0.00E+00	6.28E-02	0.00E+00	0.00E+00	1.99E+00	3.52E-06	5.19E-06	0.00E+00	4.01E-10	0.00E+00	0.00E+00
2004	10	18	7.44E-03	7.83E-02	3.55E-02	1.58E-02	2.29E-02	5.71E-02	3.67E-02	8.83E-01	1.94E+00	1.76E+00	2.53E-01	2.37E-01	4.79E-01	4.43E-02	2.62E-02
2004	10	19	2.56E-03	3.25E-01	2.54E-02	1.21E-01	1.94E-01	4.16E-02	7.24E-04	2.61E-02	1.83E+00	9.23E-01	2.56E+00	5.19E-03	2.10E-02	1.83E-03	6.97E-03
2004	10	20	1.13E+00	2.29E-02	7.81E-01	9.49E-02	4.49E-01	9.61E-01	2.84E-01	1.24E+00	4.24E+00	7.33E+00	2.17E+00	8.84E-01	1.88E+00	5.00E-01	1.71E+00
2004	10	21	9.05E-02	1.67E+00	1.67E-02	2.72E-01	5.66E-01	6.55E-02	4.01E-02	1.02E+00	4.30E-01	2.19E+00	6.02E+00	4.80E-02	5.13E-01	1.53E-01	1.59E-01
2004	10	22	1.68E-02	1.80E-05	2.48E-03	1.05E-02	7.23E-02	1.40E-02	6.13E-03	3.32E-01	1.78E-03	1.39E+00	9.37E-01	1.66E-01	4.57E-01	8.97E-03	3.65E-02
2004	10	23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-02	6.17E-01	0.00E+00	2.14E+00	9.39E-02	3.54E-01	4.88E-01	1.18E-02	0.00E+00
2004	10	24	5.30E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.53E-07	5.99E-03	7.82E-01	6.72E-28	1.52E+00	6.50E-02	3.61E-01	4.64E-01	9.22E-03	1.19E-01
2004	10	25	4.29E-02	2.02E-01	5.90E-03	1.08E-02	2.09E-02	1.01E-02	7.11E-02	9.28E-01	5.53E-01	7.63E+00	9.78E-01	9.18E-01	5.75E-01	1.52E-02	1.38E-01
2004	10	26	7.44E-01	7.35E-01	2.37E-01	1.18E-01	2.29E-01	2.72E-01	3.14E-01	1.45E+00	4.25E+00	1.26E+01	1.86E+00	2.47E+00	3.44E+00	4.53E-01	1.30E+00
2004	10	27	3.36E-01	1.14E-01	8.54E-01	2.04E-01	3.90E-01	8.10E-01	7.75E-02	1.21E+00	1.71E+00	1.03E+01	3.48E+00	8.78E-01	1.32E+00	1.80E-01	5.89E-01
2004	10	28	1.11E+00	2.77E-01	5.98E-01	6.33E-02	1.14E-01	1.04E+00	2.86E-01	1.21E+00	3.08E+00	8.21E+00	1.03E+00	1.26E+00	1.49E+00	6.45E-01	1.47E+00
2004	10	29	2.12E-01	1.38E-01	1.17E-01	3.22E-02	6.70E-02	7.03E-02	7.98E-02	7.94E-01	1.32E+00	5.99E+00	6.47E-01	7.26E-01	1.17E+00	1.81E-01	4.73E-01
2004	10	30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-05	0.00E+00	2.98E-02	5.07E-01	4.26E-30	2.36E+00	8.38E-02	4.66E-01	3.09E-01	2.13E-03	0.00E+00
2004	10	31	3.75E-02	0.00E+00	2.57E-04	0.00E+00	0.00E+00	2.15E-03	1.29E-01	1.59E+00	1.02E-04	8.08E+00	1.71E-03	1.92E+00	4.14E-01	7.75E-02	9.48E-02
2004	11	1	1.14E-02	0.00E+00	4.32E-05	0.00E+00	9.93E-10	8.86E-04	9.80E-02	1.06E+00	1.69E-03	5.68E+00	6.20E-02	1.12E+00	4.85E-01	1.62E-01	4.26E-02
2004	11	2	5.13E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.68E-02	1.35E+00	7.61E-33	2.56E+00	9.82E-02	4.26E-01	4.77E-01	6.74E-02	3.08E-03
2004	11	3	2.26E-01	1.21E-04	3.41E-02	5.21E-06	1.65E-05	8.98E-02	2.26E-01	1.49E+00	9.62E-01	6.56E+00	8.74E-04	1.66E+00	8.60E-01	1.67E-01	3.79E-01
2004	11	4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.06E-02	4.62E-01	1.67E-16	2.91E+00	5.37E-03	4.28E-01	1.61E-01	1.78E-03	0.00E+00
2004	11	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.53E-10	0.00E+00	2.45E-02	2.49E-01	2.32E-17	1.24E+00	6.66E-02	5.77E-01	1.77E-01	7.80E-02	0.00E+00
2004	11	6	1.01E-02	2.94E-01	9.20E-03	2.72E-02	4.43E-02	1.29E-02	6.14E-02	3.86E-01	1.39E-01	4.28E+00	1.05E+00	8.02E-01	9.22E-01	1.49E-02	1.11E-02
2004	11	7	2.31E-02	1.69E+00	6.05E-02	1.53E-01	1.12E-01	1.35E-01	1.06E-02	1.56E-01	1.96E+00	1.25E+00	2.23E+00	1.71E-01	3.17E-01	1.13E-02	7.22E-02
2004	11	8	7.62E-02	1.37E-04	1.35E-02	1.66E-05	5.75E-05	6.18E-02	1.01E-01	1.46E+00	1.14E-02	6.82E+00	6.37E-03	1.34E+00	3.55E-01	1.38E-01	2.20E-01
2004	11	9	2.95E-01	2.07E-05	3.41E-01	3.86E-06	7.87E-06	3.29E-01	1.87E-01	6.75E-01	3.59E+00	5.27E+00	3.04E-04	9.12E-01	4.88E-01	2.15E-01	5.32E-01
2004	11	10	3.80E-01	3.52E-01	8.29E-02	5.99E-02	9.81E-02	9.23E-02	5.91E-02	5.32E-01	3.96E+00	4.62E+00	1.14E+00	5.01E-01	5.79E-01	1.29E-01	6.75E-01
2004	11	11	5.52E-01	2.08E-02	4.13E-01	1.52E-03	2.71E-03	6.16E-01	5.71E-02	7.82E-01	5.35E+00	2.51E+00	1.43E-01	4.93E-01	6.79E-01	1.65E-01	9.96E-01
2004	11	12	2.38E-02	2.38E-02	1.09E-02	4.69E-03	2.93E-02	1.08E-02	1.73E-01	2.07E+00	9.61E-02	1.48E+01	1.08E-01	1.98E+00	2.75E+00	2.99E-01	4.27E-02
2004	11	13	1.49E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-01	1.14E+00	0.00E+00	9.53E+00	2.49E-03	1.75E+00	1.06E+00	7.18E-02	3.84E-02
2004	11	14	4.20E-02	0.00E+00	7.22E-05	0.00E+00	0.00E+00	3.64E-04	4.04E-02	5.79E-01	1.42E-04	4.80E+00	1.75E-02	7.26E-01	2.29E-01	3.09E-02	7.30E-02
2004	11	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-11	0.00E+00	1.84E-02	4.47E-01	9.72E-19	1.68E+00	5.56E-02	6.39E-01	2.29E-01	3.28E-04	0.00E+00
2004	11	16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.23E-02	4.53E-01	7.25E-19	5.20E+00	3.85E-02	1.10E+00	3.66E-01	0.00E+00	0.00E+00
2004	11	17	5.73E-02	3.71E-05	6.94E-03	2.37E-06	2.45E-03	1.42E-02	1.27E-02	1.66E-01	6.18E-03	4.98E+00	9.79E-02	8.18E-01	6.00E-01	4.33E-03	1.39E-01
2004	11	18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.15E-02	3.92E-01	9.90E-19	2.40E+00	5.31E-02	6.25E-01	3.41E-01	3.72E-02	0.00E+00
2004	11	19	4.97E-01	5.52E-01	2.30E-01	1.44E-01	1.97E-01	3.47E-01	1.66E-01	1.82E+00	2.65E+00	8.01E+00	1.40E+00	1.12E+00	9.63E-01	3.33E-01	7.34E-01
2004	11	20	1.19E-03	0.00E+00	5.42E-11	0.00E+00	0.00E+00	8.82E-13	1.54E-01	8.38E-01	2.00E-03	7.63E+00	1.58E-04	2.16E+00	3.06E+00	1.44E-01	7.03E-03
2004	11	21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.21E-02	7.37E-01	8.83E-17	3.66E+00	1.35E-02	4.48E-01	2.44E-01	0.00E+00	0.00E+00
2004	11	22	2.23E-01	3.59E-01	1.73E-01	6.69E-02	9.16E-02	1.61E-01	1.08E-01	1.58E+00	1.76E+00	6.60E+00	2.35E+00	1.23E+00	1.25E+00	2.00E-01	3.98E-01
2004	11	23	5.16E-02	0.00E+00	2.99E-04	0.00E+00	0.00E+00	1.41E-03	1.23E-01	1.77E+00	7.05E-04	1.16E+01	2.26E-03	1.59E+00	3.99E-01	1.47E-01	1.52E-01
2004	11	24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-02	5.45E-01	1.54E-17	1.12E+00	1.67E-02	7.32E-01	2.11E-01	0.00E+00	0.00E+00
2004	11	25	2.57E-02	1.03E+00	6.01E-03	2.68E-01	3.33E-01	3.19E-02	1.27E-01	1.40E+00	2.28E-01	1.24E+01	3.13E+00	1.74E+00	1.85E+00	1.16E-01	3.81E-02
2004	11	26	4.93E-02	2.30E-06	7.25E-03	0.00E+00	8.31E-07	2.70E-02	7.87E-02	9.86E-01	1.89E-02	6.90E+00	4.67E-03	1.06E+00	1.00E+00	8.01E-02	1.25E-01
2004	11	27	3.20E-01	5.63E-06	2.62E-01	0.00E+00	1.05E-07	5.46E-01	2.50E-01	1.10E+00	2.40E+00	1.07E+01	5.19E-03	2.09E+00	1.49E+00	2.99E-01	4.42E-01
2004	11	28	4.41E-03	0.00E+00	5.44E-08	0.00E+00	0.00E+00	1.86E-07	1.57E-01	1.80E+00	2.15E-02	1.38E+01	3.65E-05	1.15E+00	1.98E+00	2.50E-01	1.80E-02
2004	11	29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.58E-02	3.86E-01	3.87E-16	5.06E+00	2.03E-04	3.47E-01	2.39E-01	6.04E-04	0.00E+00
2004	11	30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-01	7.63E-01	7.16E-18	7.93E+00	1.36E-04	6.01E-01	3.07E-01	0.00E+00	0.00E+00
2004	12	1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-01	1.10E+00	3.90E-18	8.78E+00	2.05E-05	8.76E-01	3.52E-01	1.50E-03	0.00E+00
2004	12	2	1.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.85E-04	3.65E-02	3.85E-01	5.98E-05	1.57E+00	7.81E-03	5.47E-01	2.19E-01	1.73E-03	2.19E-04
2004	12	3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.18E-05	0.00E+00	3.85E-02	2.22E-01	9.10E-17	2.34E+00	2.16E-02	4.58E-01	1.97E-01	1.89E-03	0.00E+00
2004	12	4	9.41E-02	1.04E-04	6.77E-04	3.81E-02	3.71E-01	8.37E-03	8.22E-02	7.19E-01	2.18E-02	5.60E+00	3.36E+00	5.20E-01	1.03E+00	6.81E-02	2.71E-01
2004	12	5	6.32E-02	2.17E-01	2.33E-02	1.65E-01	1.68E-01	1.13E-01	8.35E-03	6.99E-01	2.64E-02	2.21E+00	3.72E+00	1.55E-02	4.64E-01	2.23E-02	1.53E-01
2004	12	6	4.03E-02	9.66E-01	4.24E-03	3.14E-01	8.61E-01	7.14E-02	7.56E-03	2.76E-01	3.20E-01	3.62E+00	6.76E+00	1.74E-02	1.26E-01	3.32E-02	1.27E-01
2004	12	7	1.09E-01	1.21E+00	7.54E-02	4.67E-01	6.78E-01	1.90E-01	5.10E-02	1.02E+00	3.28E+00	6.64E+00	5.36E+00	4.73E-01	1.12E+00	9.72E-02	3.61E-01
2004	12	8	3.66E-01	5.61E-01	5.00E-02	1.93E-01	3.80E-01	8.94E-02	6.34E-03	4.16E-01	4.05E+00	1.73E+00	6.10E+00	2.25E-01	2.58E-01	3.35E-02	6.90E-01
2004	12	9	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.63E-02	9.10E-01	1.12E-17	4.51E+00	1.29E-02	1.17E+00	2.66E-01	2.69E-03	0.00E+00
2004	12	10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-04	0.00E+00	3.37E-02	5.32E-01	2.53E-03	3.48E+00	1.39E-01	7.00E-01	5.46E-01	8.33E-05	0.00E+00
2004	12	11	3.44E-03	0.00E+00	0.00E+00	0.00E+00	7.33E-06	0.00E+00	5.10E-02	6.97E-01	8.95E-03	6.10E+00	6.89E-02	7.71E-01	1.21E+00	3.26E-02	1.75E-02
2004	12	12	6.34E-01	5.05E-01	1.83E-01	1.03E-01	1.65E-01	2.52E-01	5.57E-01	2.65E+00	1.30E+00	1.20E+01	1.58E+00	2.92E+00	2.13E+00	8.45E-01	7.82E-01
2004	12	13	3.10E-01	4.10E-01	1.67E-02	7.59E-02	8.39E-02	2.46E-02	6.72E-02	1.25E+00	9.51E-01	7.19E+00	2.20E+00	7.06E-01	6.73E-01	2.03E-01	7.34E-01
2004	12	14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.82E-02	6.95E-01	5.82E-17	3.49E+00	1.06E-02	9.91E-01	2.27E-01	0.00E+00	0.00E+00
2004	12	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.57E-02	6.45E-01	1.28E-16	6.98E+00	6.96E-04	7.28E-01	5.18E-01	0.00E+00	0.00E+00

MILLENNIUM
EMS Solutions Ltd.

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application															Baseline															Project														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2004	12	16	7.96E-02	0.00E+00	5.32E-04	0.00E+00	0.00E+00	3.59E-01	3.93E-01	1.08E+00	3.29E-16	3.98E+00	2.21E-03	4.92E-01	2.35E-01	6.88E-01	1.12E-01	7.96E-02	0.00E+00	5.32E-04	0.00E+00	0.00E+00	3.59E-01	3.33E-01	6.77E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.75E-01	1.12E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.02E-02	4.03E-01	3.29E-16	3.98E+00	2.21E-03	4.92E-01	2.35E-01	1.26E-02	0.00E+00
2004	12	17	1.65E-01	0.00E+00	3.57E-02	0.00E+00	0.00E+00	8.39E-01	5.74E-01	1.77E+00	2.74E-16	7.17E+00	7.28E-05	4.34E-01	2.67E-01	1.18E+00	2.50E-01	1.59E-01	0.00E+00	3.57E-02	0.00E+00	0.00E+00	8.39E-01	4.89E-01	1.23E+00	0.00E+00	0.00E+00	0.00E+00	9.84E-05	0.00E+00	1.17E+00	2.36E-01	5.67E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.56E-02	5.35E-01	2.74E-16	7.17E+00	7.28E-05	4.33E-01	2.67E-01	1.40E-02	1.40E-02
2004	12	18	6.34E-02	0.00E+00	4.49E-04	0.00E+00	0.00E+00	3.52E-01	3.38E-01	1.15E+00	3.17E-16	5.62E+00	1.63E-03	3.84E-01	2.64E-01	6.82E-01	1.04E-01	6.34E-02	0.00E+00	4.49E-04	0.00E+00	0.00E+00	3.52E-01	2.81E-01	7.73E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.74E-01	1.04E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.76E-02	3.78E-01	3.17E-16	5.62E+00	1.63E-03	3.84E-01	2.64E-01	7.75E-03	0.00E+00
2004	12	19	6.11E-02	0.00E+00	1.13E-02	0.00E+00	4.65E-05	5.27E-01	2.50E-01	6.73E-01	6.82E-04	9.88E-01	8.25E-02	2.93E-01	2.85E-01	4.64E-01	1.62E-01	6.11E-02	0.00E+00	1.13E-02	0.00E+00	0.00E+00	5.27E-01	2.42E-01	5.47E-01	6.82E-04	1.84E-04	3.39E-07	3.88E-03	1.69E-03	4.60E-01	1.62E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E-05	0.00E+00	7.97E-03	1.27E-01	1.95E-18	9.88E-01	8.25E-02	2.89E-01	2.83E-01	3.74E-03	0.00E+00
2004	12	20	1.26E-01	0.00E+00	1.93E-03	0.00E+00	0.00E+00	8.38E-01	7.63E-01	2.32E+00	6.99E-05	4.95E+00	9.31E-06	9.23E-01	2.26E-01	1.44E+00	1.87E-01	1.26E-01	0.00E+00	1.93E-03	0.00E+00	0.00E+00	8.38E-01	6.71E-01	1.44E+00	6.99E-05	0.00E+00	0.00E+00	2.70E-04	1.27E-05	1.44E+00	1.87E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.21E-02	8.76E-01	4.68E-18	4.95E+00	9.31E-06	9.23E-01	2.26E-01	3.99E-03	0.00E+00
2004	12	21	1.71E+00	7.53E-01	8.74E-01	2.19E-01	2.17E-01	3.76E+00	2.44E+00	6.47E+00	1.98E+00	8.97E+00	5.72E+00	1.57E+00	1.85E+00	4.90E+00	2.48E+00	1.42E+00	1.78E-02	6.69E-01	7.51E-03	7.76E-03	3.50E+00	2.13E+00	5.08E+00	7.49E-02	2.28E-02	1.94E-02	2.47E-02	2.07E-02	4.61E+00	2.15E+00	2.87E-01	7.35E-01	2.05E-01	2.12E-01	2.09E-01	2.60E-01	3.06E-01	1.39E+00	1.90E+00	8.95E+00	5.70E+00	1.54E+00	1.83E+00	2.89E-01	3.35E-01
2004	12	22	4.30E+00	5.22E-01	3.04E+00	1.41E-01	2.24E-01	6.05E+00	2.98E+00	7.19E+00	7.90E+00	2.23E+00	2.13E+00	1.12E+00	1.17E+00	6.90E+00	5.72E+00	3.46E+00	1.66E-02	2.27E+00	5.74E-03	9.15E-03	5.31E+00	2.33E+00	6.08E+00	2.27E-01	6.22E-02	3.22E-02	1.09E-01	8.03E-02	6.24E+00	4.55E+00	8.40E-01	5.05E-01	7.65E-01	1.35E-01	2.15E-01	7.38E-01	6.50E-01	1.11E+00	7.67E+00	2.17E+00	2.09E+00	1.01E+00	1.09E+00	6.54E-01	1.16E+00
2004	12	23	1.97E-01	4.16E-03	1.70E-01	4.25E-03	6.84E-03	1.94E+00	1.02E+00	2.94E+00	4.56E-02	6.48E+00	9.92E-03	1.10E+00	2.76E-01	2.82E+00	2.58E-01	1.89E-01	3.81E-03	1.70E-01	1.33E-03	2.15E-03	1.94E+00	9.22E-01	1.74E+00	4.50E-02	1.35E-02	6.63E-03	2.58E-02	1.91E-02	2.75E+00	2.35E-01	7.97E-03	3.52E-04	3.52E-04	2.92E-03	4.69E-03	4.86E-04	9.86E-02	1.21E+00	6.76E-04	6.46E+00	3.29E-03	1.08E+00	2.57E-01	7.23E-02	2.33E-02
2004	12	24	1.29E-01	0.00E+00	3.65E-02	0.00E+00	0.00E+00	3.94E-01	3.79E-01	1.17E+00	1.35E-03	3.44E+00	8.30E-04	5.14E-01	2.27E-01	7.80E-01	1.86E-01	1.28E-01	0.00E+00	3.65E-02	0.00E+00	0.00E+00	3.94E-01	3.41E-01	6.79E-01	1.35E-03	2.37E-06	0.00E+00	1.78E-04	6.23E-05	7.79E-01	1.85E-01	1.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.28E-04	3.73E-02	4.91E-01	2.10E-16	3.44E+00	8.30E-04	5.14E-01	2.27E-01	6.53E-04	8.39E-04
2004	12	25	1.50E+00	1.47E+00	3.59E-01	4.14E-01	5.93E-01	3.08E+00	4.09E+00	8.06E+00	7.78E-01	1.33E+01	7.36E+00	2.24E+00	1.60E+00	6.81E+00	2.14E+00	1.37E+00	1.37E-02	3.15E-01	1.12E-02	1.68E-02	3.02E+00	3.89E+00	6.51E+00	8.24E-02	4.46E-02	2.74E-02	9.19E-02	6.43E-02	6.58E+00	1.78E+00	1.37E-01	1.45E+00	4.39E-02	4.03E-01	5.76E-01	5.45E-02	2.00E-01	1.56E+00	6.96E-01	1.33E+01	7.33E+00	2.15E+00	1.53E+00	2.30E-01	3.57E-01
2004	12	26	2.79E+00	8.46E-01	1.33E+00	2.91E-01	3.40E-01	2.88E+00	6.77E-01	3.83E+00	3.09E+00	4.98E-01	1.66E+00	1.07E-01	1.63E-01	3.85E+00	3.70E+00	2.39E+00	1.78E-02	1.27E+00	8.93E-03	1.21E-02	2.83E+00	6.62E-01	3.73E+00	8.54E-02	3.39E-02	2.32E-02	5.74E-02	4.25E-02	3.81E+00	2.96E+00	4.10E-01	8.28E-01	6.42E-02	2.82E-01	3.28E-01	5.35E-02	1.48E-02	1.00E-01	3.00E+00	4.64E-01	1.64E+00	4.98E-02	1.21E-01	3.94E-02	7.34E-01
2004	12	27	9.74E-01	3.17E-01	6.43E-01	3.82E-02	6.04E-02	5.14E+00	2.78E+00	8.20E+00	7.04E-01	1.37E+01	1.09E+00	1.40E+00	1.29E+00	6.67E+00	1.25E+00	9.15E-01	7.69E-03	6.30E-01	2.29E-03	4.11E-03	5.12E+00	2.60E+00	6.43E+00	1.04E-01	3.20E-02	1.54E-02	6.37E-02	4.52E-02	6.42E+00	1.10E+00	5.85E-02	3.09E-01	1.32E-02	3.59E-02	5.63E-02	1.75E-02	1.78E-01	1.78E+00	6.01E-01	1.36E+01	1.08E+00	1.34E+00	1.25E+00	2.42E-01	1.51E-01
2004	12	28	2.43E-01	1.54E-04	4.63E-01	1.81E-05	8.02E-05	4.58E+00	1.97E+00	5.27E+00	4.10E-02	7.17E+00	8.12E-03	1.79E+00	2.96E-01	6.49E+00	3.89E-01	1.99E-01	1.54E-04	4.62E-01	1.81E-05	8.02E-05	4.58E+00	1.84E+00	3.67E+00	4.05E-02	6.89E-03	1.32E-03	2.72E-02	1.39E-02	6.39E+00	2.83E-01	4.39E-02	0.00E+00	1.17E-03	0.00E+00	0.00E+00	3.61E-03	1.26E-01	1.60E+00	4.28E-04	7.16E+00	6.80E-03	1.76E+00	2.82E-01	9.48E-02	1.06E-01
2004	12	29	1.51E+00	5.09E-02	6.84E-01	4.77E-01	1.32E+00	5.85E+00	3.48E+00	7.94E+00	3.38E-01	9.58E+00	1.33E+01	9.60E-01	7.59E-01	5.93E+00	2.10E+00	1.41E+00	2.25E-02	6.82E-01	1.53E-02	2.52E-02	5.84E+00	3.40E+00	6.31E+00	2.30E-01	9.73E-02	5.66E-02	1.35E-01	1.15E-01	5.70E+00	1.83E+00	1.03E-01	2.84E-02	1.87E-03	4.62E-01	1.29E+00	7.61E-03	7.35E-02	1.63E+00	1.09E-01	9.48E+00	1.33E+01	8.25E-01	6.44E-01	2.31E-01	2.72E-01
2004	12	30	4.51E-01	7.37E-02	2.87E-01	4.36E-03	1.51E-02	7.22E-01	2.63E-01	1.32E+00	5.89E-01	6.29E-02	1.66E-01	1.94E-02	2.85E-02	1.53E+00	5.90E-01	4.48E-01	2.90E-03	2.77E-01	1.61E-03	2.51E-03	6.92E-01	2.60E-01	1.32E+00	3.20E-03	2.79E-03	3.20E-03	2.78E-03	2.61E-03	1.53E+00	5.86E-01	3.21E-03	7.08E-02	1.03E-02	2.75E-03	1.26E-02	3.04E-02	3.15E-03	3.57E-03	5.85E-01	6.01E-02	1.63E-01	1.66E-02	2.59E-02	3.00E-03	3.38E-03
2004	12	31	7.58E-01	0.00E+00	6.55E-01	0.00E+00	0.00E+00	9.80E-01	4.13E-02	7.14E-01	2.16E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E+00	9.72E-01	7.58E-01	0.00E+00	5.86E-01	0.00E+00	0.00E+00	8.94E-01	4.13E-02	7.14E-01	4.63E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E+00	9.72E-01	0.00E+00	0.00E+00	6.96E-02	0.00E+00	0.00E+00	8.60E-02	0.00E+00	0.00E+00	2.16E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2005	1	1	1.93E+00	1.91E-03	1.25E+00	1.25E-04	5.19E-04	3.08E+00	8.13E-01	4.88E+00	4.35E+00	3.25E-01	2.40E-02	3.07E-01	1.92E-01	5.08E+00	2.63E+00	1.84E+00	8.50E-04	1.18E+00	1.12E-04	4.53E-04	2.99E+00	7.53E-01	4.64E+00	3.75E-02	7.79E-03	2.61E-03	1.84E-02	1.20E-02	5.05E+00	2.44E+00	9.27E-02	1.06E-03	7.05E-02	1.29E-05	6.68E-05	8.91E-02	5.98E-02	2.44E-01	4.31E+00	3.17E-01	2.14E-02	2.89E-01	1.80E-01	3.16E-02	1.89E-01
2005	1	2	5.13E-01	7.11E-03	3.49E-01	1.46E-03	9.45E-03	7.10E+00	4.79E+00	1.17E+01	3.37E-01	1.92E+01	4.44E-01	1.65E+00	1.18E+00	1.09E+01	6.68E-01	4.78E-01	3.31E-03	3.47E-01	9.83E-04	2.24E-03	7.09E+00	4.57E+00	8.95E+00	9.61E-02	2.38E-02	9.72E-03	5.99E-02	3.76E-02	1.05E+01	5.68E-01	3.55E-02	3.79E-03	1.89E-03	4.80E-04	7.21E-03	4.31E-03	2.17E-01	2.72E+00	2.41E-01	1.91E+01	4.34E-01	1.59E+00	1.14E+00	3.87E-01	1.00E-01
2005	1	3	1.85E+00	3.41E-03	1.17E+00	9.98E-04	1.88E-03	5.05E+00	2.51E+00	8.21E+00	3.83E+00	9.02E+00	6.60E-03	1.13E+00	2.08E+00	7.19E+00	2.33E+00	1.74E+00	3.37E-03	1.01E+00	9.98E-04	1.88E-03	4.90E+00	2.23E+00	6.76E+00	5.87E-02	1.31E-02	6.35E-03	3.24E-02	2.07E-02	6.79E+00	2.16E+00	1.16E-01	3.29E-05	1.59E-01	0.00E+00	0.00E+00	1.50E-01	2.77E-01	1.45E+00	3.77E+00	9.01E+00	2.54E-04	1.10E+00	2.06E+00	4.00E-01	1.74E-01
2005	1	4	3.84E+00	1.05E-01	2.86E+00	4.78E-03	8.94E-03	5.19E+00	1.20E+00	5.91E+00	5.26E+00	1.52E+00	4.20E-01	5.40E-01	6.25E-01	6.51E+00	5.06E+00	2.90E+00	1.02E-02	2.51E+00	3.18E-03	5.11E-03	4.89E+00	1.13E+00	5.50E+00	1.34E-01	3.44E-02	1.78E-02	6.14E-02	4.45E-02	6.38E+00	3.47E+00	9.48E-01	9.43E-02	3.47E-01	1.59E-03	3.82E-03	2.93E-01	7.94E-02	4.07E-01	5.12E+00	1.49E+00	4.02E-01	4.78E-01	5.81E-01	1.24E-01	1.58E+00
2005	1	5	3.17E-01	2.78E-03	7.88E-02	5.96E-04	1.30E-03	3.21E+00	2.42E+00	5.72E+00	4.30E-02	9.78E+00	8.77E-03	1.26E+00	6.09E-01	5.61E+00	3.61E-01	3.16E-01	1.30E-03	7.81E-02	4.54E-04	9.26E-04	3.20E+00	2.27E+00	3.99E+00	3.59E-02	8.44E-03	3.29E-03	3.16E-02	1.66E-02	5.47E+00	3.60E-01	6.85E-04	1.48E-03	7.34E-04	1.42E-04	3.75E-04	5.10E-04	1.47E-01	1.72E+00	7.12E-03	9.77E+00	5.47E-03	1.23E+00	5.92E-01	1.38E-01	7.51E-04
2005	1	6	1.47E+00	6.80E-03	9.13E-01	3.07E-05	2.31E-04	1.74E+00	7.47E-01	2.14E+00	1.51E+00	4.65E+00	1.00E-01	7.23E-01	7.02E-01	2.05E+00	1.74E+00	1.35E+00	1.52E-03	7.31E-01	2.98E-05	2.02E-04	1.58E+00	6.94E-01	1.63E+00	3.98E-02	1.05E-02	4.67E-03	1.40E-02	1.21E-02	2.00E+00	1.57E+00	1.18E-01	5.28E-03	1.82E-01	8.62E-07	2.91E-05	1.66E-01	5.32E-02	5.13E-01	1.47E+00	4.64E+00	9.55E-02	7.09E-01	6.90E-01	4.93E-02	1.72E-01
2005	1	7	2.68E+00	1.58E-06	1.65E+00	0.00E+00	0.00E+00	2.70E+00	7.58E-03	1.96E+00	2.24E+00	1.64E-04	1.03E-05	5.46E-04	2.95E-04	2.48E+00	2.86E+00	2.34E+00	1.58E-06	1.48E+00	0.00E+00	0.00E+00	2.57E+00	7.58E-03	1.95E+00	6.62E-03	1.61E-04	1.03E-05	5.45E-04	2.95E-04	2.48E+00	2.36E+00	3.42E-01	0.00E+00	1.71E-01	0.00E+00	0.00E+00	1.34E-01	7.07E-06	1.10E-02	2.24E+00	3.00E-06	0.00E+00	8.47E-07	2.93E-08	3.88E-03	5.05E-01
2005	1	8	3.14E+00	6.97E-07	2.53E+00	0.00E+00	0.00E+00	3.15E+00	4.35E-02	2.58E+00	9.54E+00	2.03E-04	9.79E-06	2.26E-04	9.75E-05	3.69E+00	3.70E+00	3.10E+00	0.00E+00	1.96E+00	0.00E+00	0.00E+00	2.72E+00	4.35E-02	2.58E+00	1.78E-03	5.62E-05	2.86E-06	2.26E-04	9.74E-05	3.69E+00	3.60E+00	4.07E-02	6.97E-07	5.64E-01	0.00E+00	0.00E+00	4.34E-01	0.00E+00	1.25E-06	9.54E+00	1.47E-04	6.93E-06	4.87E-09	2.52E-08	4.30E-07	1.00E-01
2005	1	9	4.65E+00	2.24E-01	2.49E+00	9.46E-02	1.58E-01	5.59E+00	1.66E+00	5.57E+00	7.90E+00	8.58E+00	1.27E+00	5.05E-01	4.07E-01	6.76E+00	5.81E+00	4.33E+00	2.64E-03	2.28E+00	1.03E-03	1.98E-03	5.29E+00	1.62E+00	5.34E+00	7.58E-02	1.65E-02	6.64E-03	3.85E-02	2.61E-02	6.67E+00	5.16E+00	3.18E-01	2.21E-01	2.15E-01	9.36E-02	1.56E-01	3.05E-01	3.23E-02	2.30E-01	7.82E+00	8.56E+00	1.26E+00	4.67E-01	3.81E-01	9.19E-02	6.43E-01
2005	1	10	6.21E-01	2.21E-05	2.59E-01	4.82E-07	8.25E-06	1.89E+00	1.02E+00	3.20E+00	6.30E-02	6.53E+00	7.55E-03	1.33E+00	4.01E-01	2.34E+00	9.97E-01	5.32E-01	1.08E-05	2.43E-01	4.77E-07	5.54E-06	1.84E+00	9.68E-01	2.52E+00	2.32E-02	4.19E-03	5.32E-04	1.39E-02	8.23E-03	2.32E+00	7.35E-01	8.95E-02	1.13E-05	1.65E-02	5.13E-09	2.71E-06	4.89E-02	5.40E-02	6.87E-01	3.99E-02	6.53E+00	7.02E-03	1.31E+00	3.93E-01	2.44E-02	2.62E-01
2005	1	11	3.71E-02	0.00E+00	2.41E-02	0.00E+00	0.00E+00	1.11E+00	5.67E-01	2.95E+00	2.18E-02	3.27E+00	1.30E-02	1.13E+00	2.69E-01	1.33E+00	1.21E-01	3.71E-02	0.00E+00	2.41E-02	0.00E+00	0.00E+00	1.11E+00	5.41E-01	2.12E+00	2.18E-02	7.88E-04	2.04E-05	1.02E-02	3.11E-03	1.33E+00	1.21E-01	4.69E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-02	8.28E-01	3.60E-18	3.27E+00	1.30E-02	1.12E+00	2.66E-01	3.21E-03	5.95E-04
2005	1	12	6.36E-01	1.10E-01	4.12E-01	2.09E-02	2.50E-02	1.20E+00	2.49E-01	1.29E+00	7.14E-01	4.26E-01	1.22E+00	1.14E-01	2.67E-01	1.87E+00	8.68E-01	6.14E-01	3.89E-03	3.79E-01	1.72E-03	2.16E-03	1.15E+00	2.30E-01	1.19E+00	8.23E-03	4.98E-03	5.36E-03	9.38E-03	5.47E-03	1.85E+00	8.27E-01	2.16E-02	1.06E-01	3.30E-02	1.92E-02	2.29E-02	5.48E-02	1.91E-02	1.04E-01	7.06E-01	4.21E-01	1.22E+00	1.05E-01	2.62E-01	1.54E-02	4.09E-02
2005	1	13	3.23E+00	9.38E-01	1.48E+00	3.78E-01	4.82E-01	7.24E+00	4.20E+00	1.03E+01	2.28E+00	1.07E+01	4.55E+00	4.50E+00	4.38E+00	1.04E+01	4.18E+00	2.50E+00	1.82E-02	1.16E+00	9.31E-03	1.57E-02	6.82E+00	3.07E+00	8.02E+00	1.69E-01	6.09E-02	3.38E-02	1.18E-01	8.35E-02	9.46E+00	3.06E+00	7.35E-01	9.20E-01	3.21E-01	3.69E-01	4.66E-01	4.23E-01	1.14E+00	2.29E+00	2.11E+00	1.06E+01	4.51E+00	4.38E+00	4.29E+00	9.28E-01	1.12E+00
2005	1	14	7.69E-01	4.04E-02	4.83E-01	1.25E-02	1.72E-02	5.94E+00	3.74E+00	1.00E+01	3.78E-01	1.71E+01	1.10E-01	3.30E+00	5.18E+00	9.08E+00	9.52E-01	6.67E-01	6.23E-03	4.02E-01	2.05E-03	3.97E-03	5.87E+00	3.35E+00	7.77E+00	9.28E-02	2.66E-02	1.31E-02	6.65E-02	4.21E-02	8.82E+00	7.96E-01	1.02E-01	3.42E-02	8.08E-02	1.05E-02	1.33E-02	7.85E-02	3.89E-01	2.24E+00	2.85E-01	1.71E+01	9.66E-02	3.24E+00	5.14E+00	2.64E-01	1.56E-01
2005	1	15	4.94E-01	2.96E-04	3.98E-01	4.16E-05	1.28E-04	5.55E+00	2.62E+00	7.60E+00	5.39E-02	1.34E+01	2.89E-03	1.36E+00	4.16E-01	6.91E+00	8.61E-01	4.36E-01	2.96E-04	3.93E-01	4.16E-05	1.28E-04	5.54E+00	2.45E+00	5.99E+00	5.25E-02	7.64E-03	1.76E-03	3.08E-02	1.59E-02	6.70E+00	7.16E-01	5.72E-02	0.00E+00	5.55E-03	0.00E+00	0.00E+00	1.56E-02	1.63E-01	1.61E+00	1.36E-03	1.34E+01	1.13E-03	1.33E+00	4.01E-01	2.10E-01	1.45E-01
2005	1	16	1.66E-01	0.00E+00	3.75E-03	0.00E+00	0.00E+00	6.63E-01	5.76E-01	1.78E+00	2.58E-05	4.70E+00	2.75E-03	8.58E-01	2.37E-01	1.04E+00	2.41E-01	1.66E-01	0.00E+00	3.75E-03	0.00E+00	0.00E+00	6.63E-01	5.16E-01	1.43E+00	2.58E-05	4.33E-07	0.00E+00	7.36E-04	4.97E-05	1.00E+00	2.41E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.01E-02	3.44E-01	9.91E-17	4.70E+00	2.75E-03	8.57E-01	2.37E-01	3.52E-02	0.00E+00
2005	1	17	1.89E-02	0.00E+00	1.10E-02	0.00E+00	9.61E-12	5.19E-01	2.43E-01	1.22E+00	1.87E-05	1.30E+00	4.18E-02	3.57E-01	2.27E-01	4.89E-01	8.06E-02	1.89E-02	0.00E+00	1.10E-02	0.00E+00	0.00E+00	5.19E-01	2.38E-01	7.22E-01	1.87E-05	0.00E+00	0.00E+00	2.45E-03	3.23E-04	4.89E-01	8.06E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.61E-12	0.00E+00	5.05E-03	4.94E-01	2.87E-17	1.30E+00	4.18E-02	3.55E-01	2.26E-01	2.98E-06	0.00E+00
2005	1	18	3.50E-02	0.00E+00	9.55E-03	0.00E+00	0.00E+00	4.82E-01	4.20E-01	1.21E+00	3.96E-20	2.75E+00	2.67E-02	6.02E-01	3.23E-01	6.63E-01	8.15E-02	3.50E-02	0.00E+00	9.55E-03	0.00E+00	0.00E+00	4.82E-01	3.96E-01	5.96E-01	0.00E+00	0.00E+00	0.00E+00	1.46E-03	3.79E-05	6.63E-01	8.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.40E-02	6.14E-01	3.96E-20	2.75E+00	2.67E-02	6.01E-01	3.23E-01	0.00E+00	0.00E+00
2005	1	19	6.00E-02	0.00E+00	3.70E-02	0.00E+00	0.00E+00	1.03E+00	1.92E-01	6.79E-01	1.23E-02	8.63E-01	7.21E-02	6.52E-02	3.65E-01	6.00E-01	2.31E-01	6.00E-02	0.00E+00	3.70E-02	0.00E+00	0.00E+00	1.03E+00	1.92E-01	6.78E-01	1.23E-02	3.68E-04	5.41E-06	6.35E-03	2.86E-03	6.00E-01	2.31E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.05E-04	0.00E+00	1.33E-03	3.59E-05	8.63E-01	7.21E-02	5.89E-02	3.62E-01	0.00E+00	0.00E+00
2005	1	20	1.67E-01	1.64E-05	1.03E-01	4.37E-07	3.79E-05	1.26E+00	4.35E-01	2.10E+00	2.84E-02	1.41E+00	8.43E-02	4.03E-01	4.73E-01	1.08E+00	3.77E-01	1.52E-01	3.45E-06	9.78E-02	1.03E-07	2.84E-05	1.24E+00	4.30E-01	1.77E+00	2.50E-02	4.66E-03	9.20E-04	1.23E-02	6.20E-03	1.07E+00	3.56E-01	1.46E-02	1.29E-05	5.26E-03	3.34E-07	9.49E-06	1.72E-02	5.02E-03	3.25E-01	3.42E-03	1.40E+00	8.34E-02	3.91E-01	4.67E-01	6.33E-03	2.12E-02
2005	1	21	2.15E+00	9.29E-01	1.00E+00	2.30E-02	2.09E-02	2.97E+00	1.11E+00	4.41E+00	1.22E+00	1.49E+00	2.31E+00	2.41E-01	1.84E-01	4.36E+00	3.10E+00	2.04E+00	3.47E-03	9.76E-01	5.52E-04	9.28E-04	2.90E+00	1.09E+00	4.17E+00	5.68E-02	1.39E-02	6.15E-03	2.52E-02	1.79E-02	4.33E+00	2.82E+00	1.14E-01	9.26E-01	2.75E-02	2.24E-02	2.00E-02	6.34E-02	2.75E-02	2.39E-01	1.17E+00	1.48E+00	2.30E+00	2.16E-01	1.66E-01	2.64E-02	2.89E-01
2005	1	22	2.39E-01	3.75E-02	1.55E-01	4.44E-02	8.27E-02	1.86E+00	1.25E+00	3.61E+00	8.14E-02	5.40E+00	4.77E-01	9.60E-01	4.90E-01	3.18E+00	2.89E-01	2.30E-01	5.15E-03	1.54E-01	2.18E-03	3.86E-03	1.86E+00	1.15E+00	2.67E+00	4.97E-02	2.05E-02	1.06E-02	4.41E-02	3.01E-02	3.07E+00	2.75E-01	9.03E-03	3.24E-02	1.25E-03	4.22E-02	7.88E-02	1.73E-03	1.02E-01	9.35E-01	3.17E-02	5.38E+00	4.67E-01	9.16E-01	4.60E-01	1.07E-01	1.45E-02
2005	1	23	9.43E-02	0.00E+00	1.42E-03	0.00E+00	0.00E+00	4.53E-01	5.17E-01	1.33E+00	2.93E-17	5.05E+00	8.78E-03	7.73E-01	2.58E-01	9.36E-01	1.30E-01	9.43E-02	0.00E+00	1.42E-03	0.00E+00	0.00E+00	4.53E-01	4.64E-01	8.05E-01	0.00E+00	0.00E+00	0.00E+00	4.30E-06	0.00E+00	8.54E-01	1.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.35E-02	5.23E-01	2.93E-17	5.05E+00	8.78E-03	7.73E-01	2.58E-01	8.15E-02	0.00E+00
2005	1	24	1.70E-01	0.00E+00	3.98E-02	0.00E+00	0.00E+00	1.37E+00	1.25E+00	3.25E+00	7.01E-04	5.23E+00	1.00E-02	1.20E+00	2.80E-01	2.36E+00	2.33E-01	1.69E-01	0.00E+00	3.98E-02	0.00E+00	0.00E+00	1.37E+00	1.17E+00	2.38E+00	7.01E-04	4.14E-04	0.00E+00	5.16E-03	1.47E-03	2.35E+00	2.27E-01	1.24E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.74E-02	8.69E-01	4.35E-18	5.23E+00	1.00E-02	1.19E+00	2.79E-01	1.33E-02	5.70E-03
2005	1	25	4.73E+00	1.74E+00	2.69E+00	6.36E-01	8.92E-01	7.08E+00	2.83E+00	9.06E+00	6.79E+00	1.37E+01	4.73E+00	1.46E+00	1.56E+00	9.41E+00	6.40E+00	4.28E+00	2.85E-02	2.55E+00	1.69E-02	2.31E-02	6.89E+00	2.71E+00	8.01E+00	2.76E-01	8.23E-02	4.69E-02	1.25E-01	1.01E-01	9.23E+00	5.44E+00	4.53E-01	1.71E+00	1.37E-01	6.20E-01	8.69E-01	1.88E-01	1.26E-01	1.04E+00	6.52E+00	1.36E+01	4.68E+00	1.33E+00	1.46E+00	1.81E-01	9.64E-01
2005	1	26	1.28E+00	3.31E-01	9.98E-01	1.37E-01	2.05E-01	9.24E+00	5.96E+00	1.22E+01	6.77E-01	3.42E+01	9.01E-01	4.93E+00	6.00E+00	1.33E+01	1.92E+00	1.05E+00	4.60E-02	9.77E-01	2.33E-02	3.43E-02	9.21E+00	5.65E+00	9.46E+00	3.21E-01	1.29E-01	7.55E-02	2.15E-01	1.66E-01	1.28E+01	1.34E+00	2.31E-01	2.85E-01	2.16E-02	1.14E-01	1.71E-01	3.61E-02	3.12E-01	2.73E+00	3.57E-01	3.41E+01	8.26E-01	4.71E+00	5.83E+00	4.80E-01	5.78E-01
2005	1	27	4.28E-01	1.93E-03	4.51E-01	4.45E-04	1.25E-03	5.06E+00	2.68E+00	7.08E+00	1.04E-01	9.38E+00	1.07E-02	2.08E+00	3.81E-01	6.31E+00	5.91E-01	3.89E-01	1.93E-03	4.51E-01	4.45E-04	1.25E-03	5.06E+00	2.55E+00	5.13E+00	1.01E-01	2.16E-02	7.67E-03	4.88E-02	3.35E-02	6.22E+00	4.96E-01	3.86E-02	0.00E+00	2.65E-06	0.00E+00	0.00E+00	3.56E-04	1.22E-01	1.95E+00	3.47E-03	9.36E+00	3.05E-03	2.03E+00	3.47E-01	8.95E-02	9.54E-02
2005	1	28	9.38E-01	1.35E-01	6.33E-01	3.15E-01	4.38E-01	6.33E+00	4.42E+00	8.11E+00	2.48E-01	2.07E+01	5.59E+00	2.29E+00	1.67E+00	1.01E+01	1.31E+00	8.77E-01	4.98E-03	6.31E-01	5.57E-03	8.58E-03	6.32E+00	4.28E+00	5.99E+00	1.36E-01	4.09E-02	1.61E-02	1.02E-01	6.82E-02	9.90E+00	1.16E+00	6.10E-02	1.30E-01	2.34E-03	3.09E-01	4.30E-01	8.64E-03	1.44E-01	2.12E+00	1.12E-01	2.06E+01	5.57E+00	2.19E+00	1.61E+00	2.39E-01	1.49E-01
2005	1	29	6.29E-02	0.00E+00	4.22E-03	0.00E+00	0.00E+00	5.80E-01	6.65E-01	1.66E+00	5.15E-06	2.72E+00	3.21E-02	1.11E+00	2.80E-01	8.74E-01	9.71E-02	6.29E-02	0.00E+00	4.22E-03	0.00E+00	0.00E+00	5.80E-01	6.40E-01	9.90E-01	5.15E-06	0.00E+00	0.00E+00	4.34E-04	2.22E-05	8.74E-01	9.71E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.54E-02	6.73E-01	3.93E-21	2.72E+00	3.21E-02	1.11E+00	2.80E-01	0.00E+00	0.00E+00
2005	1	30	8.96E-02	0.00E+00	1.30E-03	0.00E+00	0.00E+00	4.95E-01	5.82E-01	1.69E+00	3.78E-17	3.76E+00	7.45E-03	8.45E-01	2.97E-01	8.48E-01	1.22E-01	8.96E-02	0.00E+00	1.30E-03	0.00E+00	0.00E+00	4.95E-01	5.27E-01	9.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.48E-01	1.22E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.50E-02	7.65E-01	3.78E-17	3.76E+00	7.45E-03	8.45E-01	2.97E-01	3.92E-04	0.00E+00
2005	1	31	6.76E-02	0.00E+00	1.90E-03	0.00E+00	1.54E-10	4.51E-01	4.81E-01	1.35E+00	4.21E-18	2.26E+00	4.02E-02	5.94E-01	2.10E-01	7.47E-01	1.18E-01	6.76E-02	0.00E+00	1.90E-03	0.00E+00	0.00E+00	4.51E-01	4.38E-01	5.93E-01	0.00E+00	0.00E+00	0.00E+00	5.00E-05	0.00E+00	7.47E-01	1.18E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E-10	0.00E+00	4.29E-02	7.53E-01	4.21E-18	2.26E+00	4.02E-02	5.94E-01	2.10E-01	0.00E+00	0.00E+00
2005	2	1	2.33E-02	0.00E+00	5.60E-03	0.00E+00	0.00E+00	4.64E-01	3.81E-01	1.21E+00	1.75E-17	2.27E+00	1.89E-02	5.92E-01	2.78E-01	6.05E-01	6.99E-02	2.33E-02	0.00E+00	5.60E-03	0.00E+00	0.00E+00	4.64E-01	3.63E-01	7.76E-01	0.00E+00	0.00E+00	0.00E+00	4.08E-04	3.11E-06	6.05E-01	6.99E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E-02	4.37E-01	1.75E-17	2.27E+00	1.89E-02	5.91E-01	2.78E-01	0.00E+00	0.00E+00
2005	2	2	2.32E-01	2.13E-06	3.82E-02	1.03E-06	1.02E-04	1.24E+00	3.93E-01	2.84E+00	2.45E-02	1.27E+00	1.47E-01	3.02E-01	3.38E-01	1.30E+00	4.05E-01	2.32E-01	2.13E-06	3.82E-02	1.03E-06	4.86E-05	1.24E+00	3.91E-01	1.64E+00	2.45E-02	4.19E-03	3.93E-04	6.76E-03	9.23E-03	1.29E+00	4.05E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.33E-05	0.00E+00	2.69E-03	1.20E+00	1.66E-21	1.26E+00	1.46E-01	2.95E-01	3.28E-01	9.26E-03	0.00E+00
2005	2	3	1.49E-02	0.00E+00	1.41E-02	0.00E+00	0.00E+00	4.51E-01	2.78E-01	1.02E+00	4.74E-19	1.09E+00	5.21E-02	2.96E-01	2.60E-01	4.59E-01	9.07E-02	1.49E-02	0.00E+00	1.41E-02	0.00E+00	0.00E+00	4.51E-01	2.77E-01	7.07E-01	0.00E+00	0.00E+00	0.00E+00	4.85E-03	8.54E-05	4.59E-01	9.07E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-03	3.16E-01	4.74E-19	1.09E+00	5.21E-02	2.91E-01	2.60E-01	0.00E+00	0.00E+00
2005	2	4	1.34E+00	8.18E-04	3.17E-01	7.94E-04	1.15E-01	2.23E+00	7.99E-01	3.25E+00	8.95E-02	1.92E+00	1.90E+00	1.66E-01	1.75E-01	2.42E+00	1.86E+00	1.27E+00	7.32E-04	3.11E-01	7.48E-04	7.43E-03	2.20E+00	7.95E-01	2.77E+00	6.48E-02	2.72E-02	2.13E-02	2.26E-02	2.69E-02	2.39E+00	1.68E+00	7.12E-02	8.60E-05	6.01E-03	4.61E-05	1.08E-01	3.26E-02	3.68E-03	4.74E-01	2.46E-02	1.89E+00	1.88E+00	1.44E-01	1.48E-01	2.91E-02	1.75E-01
2005	2	5	7.61E-01	1.06E-01	3.73E-01	8.21E-02	5.37E-02	1.14E+00	2.65E-01	2.78E+00	5.58E-01	1.46E-02	1.02E-01	8.06E-03	9.96E-03	2.34E+00	1.04E+00	7.57E-01	4.45E-03	3.60E-01	4.35E-03	3.56E-03	1.10E+00	2.62E-01	2.78E+00	4.91E-03	3.26E-03	5.20E-03	2.04E-03	2.34E-03	2.34E+00	1.03E+00	3.38E-03	1.01E-01	1.31E-02	7.78E-02	5.01E-02	4.22E-02	3.13E-03	3.44E-03	5.53E-01	1.13E-02	9.72E-02	6.03E-03	7.62E-03	3.25E-03	7.81E-03
2005	2	6	2.34E+00	4.76E-01	1.52E+00	5.97E-03	4.32E-03	2.74E+00	2.82E-01	3.82E+00	4.81E+00	3.05E-01	1.47E-01	2.57E-02	4.67E-02	3.75E+00	3.17E+00	2.20E+00	7.16E-03	1.41E+00	1.37E-03	1.18E-03	2.63E+00	2.80E-01	3.76E+00	3.19E-02	5.97E-03	4.79E-03	8.90E-03	6.51E-03	3.71E+00	2.93E+00	1.36E-01	4.69E-01	1.07E-01	4.59E-03	3.14E-03	1.15E-01	1.54E-03	5.66E-02	4.78E+00	2.99E-01	1.42E-01	1.68E-02	4.02E-02	3.82E-02	2.42E-01
2005	2	7	1.14E+00	1.81E-01	7.85E-01	1.98E-01	4.23E-01	4.88E+00	3.55E+00	8.13E+00	1.82E+00	1.24E+01	6.76E+00	4.02E+00	4.61E+00	7.41E+00	1.69E+00	6.12E-01	1.26E-02	6.45E-01	5.40E-03	9.04E-03	4.67E+00	2.60E+00	6.15E+00	1.48E-01	4.74E-02	2.29E-02	1.28E-01	8.01E-02	6.75E+00	8.52E-01	5.28E-01	1.68E-01	1.40E-01	1.93E-01	4.14E-01	2.06E-01	9.43E-01	1.98E+00	1.67E+00	1.23E+01	6.74E+00	3.90E+00	4.53E+00	6.61E-01	8.34E-01
2005	2	8	1.46E+00	4.49E-04	1.21E+00	4.71E-05	1.44E-04	4.27E+00	2.81E+00	6.50E+00	1.77E-01	1.45E+01	1.50E-02	1.74E+00	1.73E+00	6.39E+00	2.09E+00	1.28E+00	3.00E-04	1.18E+00	1.84E-05	8.27E-05	4.17E+00	2.67E+00	5.73E+00	3.67E-02	4.53E-03	1.14E-03	1.79E-02	8.72E-03	6.35E+00	1.66E+00	1.71E-01	1.49E-04	3.73E-02	2.87E-05	6.09E-05	9.47E-02	1.40E-01	7.75E-01	1.40E-01	1.45E+01	1.39E-02	1.72E+00	1.72E+00	4.05E-02	4.26E-01
2005	2	9	3.81E-01	6.18E-06	1.08E-01	7.97E-08	2.52E-06	1.05E+00	7.28E-01	1.98E+00	2.81E-02	6.31E+00	1.86E-03	7.53E-01	2.21E-01	1.32E+00	5.66E-01	3.66E-01	6.18E-06	1.06E-01	7.97E-08	2.52E-06	1.03E+00	6.51E-01	1.35E+00	2.42E-02	1.75E-03	1.24E-04	1.03E-02	4.92E-03	1.31E+00	5.25E-01	1.52E-02	0.00E+00	2.72E-03	0.00E+00	0.00E+00	2.15E-02	7.70E-02	6.31E-01	3.93E-03	6.31E+00	1.73E-03	7.43E-01	2.16E-01	1.53E-02	4.08E-02
2005	2	10	6.65E-02	0.00E+00	2.94E-02	0.00E+00	0.00E+00	1.32E+00	6.84E-01	2.76E+00	5.52E-03	5.19E+00	1.69E-03	7.50E-01	2.60E-01	1.54E+00	1.09E-01	6.65E-02	0.00E+00	2.94E-02	0.00E+00	0.00E+00	1.32E+00	6.01E-01	1.84E+00	5.52E-03	8.95E-05	0.00E+00	4.63E-03	1.26E-03	1.54E+00	1.09E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.27E-02	9.19E-01	1.90E-15	5.19E+00	1.69E-03	7.46E-01	2.58E-01	7.20E-03	0.00E+00
2005	2	11	2.89E-01	1.61E-04	3.18E-01	8.66E-06	8.72E-05	4.97E+00	2.12E+00	7.00E+00	5.98E-02	7.48E+00	2.15E-02	1.52E+00	3.30E-01	6.51E+00	4.30E-01	2.69E-01	1.61E-04	3.17E-01	8.66E-06	8.71E-05	4.96E+00	2.00E+00	5.08E+00	5.79E-02	8.11E-03	1.37E-03	4.61E-02	2.15E-02	6.42E+00	3.67E-01	1.99E-02	4.74E-08	1.18E-03	0.00E+00	3.32E-08	1.14E-02	1.21E-01	1.92E+00	1.89E-03	7.48E+00	2.01E-02	1.47E+00	3.08E-01	8.74E-02	6.28E-02
2005	2	12	4.45E-01	4.48E-04	2.36E-01	1.06E-04	4.50E-04	1.62E+00	1.03E+00	2.78E+00	4.60E-02	1.99E+00	3.52E-02	7.93E-01	3.94E-01	2.04E+00	6.25E-01	3.95E-01	4.44E-04	2.34E-01	1.05E-04	4.41E-04	1.61E+00	9.99E-01	2.03E+00	3.41E-02	9.43E-03	2.81E-03	2.09E-02	1.53E-02	2.03E+00	5.17E-01	4.99E-02	4.36E-06	1.90E-03	5.14E-07	8.13E-06	1.36E-02	2.86E-02	7.53E-01	1.19E-02	1.98E+00	3.24E-02	7.73E-01	3.79E-01	1.45E-02	1.08E-01
2005	2	13	3.42E-01	0.00E+00	8.20E-02	0.00E+00	0.00E+00	2.19E+00	7.17E-01	3.59E+00	9.79E-03	1.78E+00	1.16E-01	5.16E-01	7.50E-01	1.70E+00	6.73E-01	3.35E-01	0.00E+00	8.20E-02	0.00E+00	0.00E+00	2.19E+00	7.01E-01	2.80E+00	9.79E-03	1.09E-03	2.32E-05	2.34E-02	7.36E-03	1.69E+00	6.35E-01	7.10E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-02	7.87E-01	0.00E+00	1.78E+00	1.16E-01	4.93E-01	7.43E-01	4.41E-03	3.82E-02
2005	2	14	2.03E+00	1.53E-03	9.32E-01	1.27E-03	5.16E-03	6.39E+00	4.09E+00	8.07E+00	4.48E-01	2.01E+01	6.66E-02	1.55E+00	2.07E+00	8.20E+00	2.75E+00	1.80E+00	9.95E-04	9.15E-01	1.66E-04	6.22E-04	6.34E+00	3.99E+00	6.69E+00	7.41E-02	1.45E-02	3.81E-03	5.53E-02	2.87E-02	7.98E+00	2.30E+00	2.25E-01	5.38E-04	1.68E-02	1.10E-03	4.53E-03	4.97E-02	1.04E-01	1.38E+00	3.74E-01	2.01E+01	6.28E-02	1.49E+00	2.04E+00	2.23E-01	4.49E-01
2005	2	15	3.35E-01	1.34E-03	1.40E-01	1.86E-04	6.18E-04	5.37E+00	3.42E+00	8.10E+00	5.09E-02	1.42E+01	4.64E-03	1.49E+00	8.27E-01	8.24E+00	3.63E-01	3.35E-01	1.32E-03	1.40E-01	1.78E-04	5.95E-04	5.37E+00	3.27E+00	5.84E+00	5.08E-02	1.10E-02	4.37E-03	3.36E-02	1.88E-02	8.00E+00	3.62E-01	1.13E-04	2.10E-05	7.29E-05	8.41E-06	2.22E-05	8.63E-05	1.52E-01	2.26E+00	9.44E-05	1.42E+01	2.69E-04	1.46E+00	8.08E-01	2.42E-01	1.33E-04
2005	2	16	3.41E-01	3.40E-03	2.19E-01	8.39E-04	1.77E-03	4.55E+00	2.11E+00	7.07E+00	5.75E-02	9.62E+00	9.03E-03	8.87E-01	6.12E-01	5.40E+00	4.88E-01	3.07E-01	3.40E-03	2.19E-01	8.39E-04	1.77E-03	4.55E+00	2.00E+00	5.46E+00	5.75E-02	1.43E-02	6.85E-03	3.33E-02	2.19E-02	5.32E+00	3.52E-01	3.39E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.38E-04	1.11E-01	1.61E+00	1.59E-05	9.61E+00	2.18E-03	8.54E-01	5.90E-01	8.34E-02	1.36E-01
2005	2	17	2.95E+00	8.62E-02	1.70E+00	5.07E-03	1.25E-02	6.26E+00	2.22E+00	8.27E+00	3.06E+00	1.04E+01	4.63E-01	1.19E+00	2.22E+00	7.19E+00	3.62E+00	2.64E+00	2.00E-03	1.61E+00	2.72E-04	7.28E-04	6.10E+00	2.07E+00	7.39E+00	7.03E-02	1.20E-02	4.92E-03	2.95E-02	1.81E-02	6.97E+00	3.03E+00	3.10E-01	8.42E-02	9.62E-02	4.80E-03	1.18E-02	1.56E-01	1.45E-01	8.79E-01	2.99E+00	1.04E+01	4.58E-01	1.16E+00	2.21E+00	2.22E-01	5.95E-01
2005	2	18	2.25E+00	1.57E-01	1.82E+00	1.97E-02	2.92E-02	5.47E+00	2.41E+00	6.73E+00	1.40E+00	1.41E+01	3.64E-01	1.87E+00	1.73E+00	5.76E+00	2.88E+00	1.85E+00	7.58E-03	1.77E+00	2.43E-03	4.45E-03	5.43E+00	2.33E+00	5.91E+00	1.80E-01	4.25E-02	1.70E-02	8.55E-02	6.38E-02	5.62E+00	2.17E+00	3.95E-01	1.49E-01	5.12E-02	1.73E-02	2.48E-02	4.17E-02	8.87E-02	8.29E-01	1.22E+00	1.40E+01	3.47E-01	1.78E+00	1.67E+00	1.42E-01	7.14E-01
2005	2	19	1.90E+00	3.06E-01	1.33E+00	5.40E-02	9.78E-02	3.01E+00	1.15E+00	3.28E+00	4.24E+00	4.53E+00	7.07E-01	3.37E-01	2.69E-01	5.30E+00	2.47E+00	1.85E+00	7.47E-03	1.20E+00	3.27E-03	5.55E-03	2.88E+00	1.13E+00	3.03E+00	5.43E-02	2.11E-02	1.29E-02	3.36E-02	2.64E-02	5.26E+00	2.37E+00	4.78E-02	2.98E-01	1.30E-01	5.07E-02	9.22E-02	1.38E-01	1.62E-02	2.45E-01	4.19E+00	4.50E+00	6.94E-01	3.03E-01	2.43E-01	4.19E-02	1.02E-01
2005	2	20	1.59E+00	2.04E-02	1.33E+00	1.39E-02	6.95E-02	4.81E+00	3.24E+00	7.24E+00	3.78E+00	1.03E+01	7.10E-01	2.74E+00	2.79E+00	7.82E+00	2.45E+00	1.39E+00	1.11E-02	1.16E+00	3.81E-03	6.17E-03	4.67E+00	2.93E+00	6.38E+00	1.45E-01	3.89E-02	1.95E-02	8.09E-02	5.33E-02	7.69E+00	1.86E+00	1.99E-01	9.26E-03	1.70E-01	1.01E-02	6.33E-02	1.40E-01	3.04E-01	8.65E-01	3.64E+00	1.03E+01	6.91E-01	2.66E+00	2.74E+00	1.25E-01	5.85E-01
2005	2	21	4.67E-01	7.35E-04	2.05E-01	1.26E-04	4.07E-04	5.93E+00	3.71E+00	8.06E+00	5.66E-02	1.82E+01	3.48E-03	1.45E+00	1.29E+00	8.06E+00	5.90E-01	4.52E-01	6.93E-04	2.04E-01	1.19E-04	3.78E-04	5.93E+00	3.54E+00	6.06E+00	5.49E-02	1.00E-02	3.18E-03	3.47E-02	1.84E-02	7.82E+00	5.53E-01	1.44E-02	4.20E-05	1.05E-03	7.32E-06	2.93E-05	1.28E-03	1.69E-01	2.01E+00	1.65E-03	1.82E+01	2.92E-04	1.42E+00	1.28E+00	2.36E-01	3.70E-02
2005	2	22	1.21E+00	1.82E-01	5.02E-01	1.01E-01	1.91E-01	5.64E+00	3.39E+00	5.69E+00	1.93E-01	1.58E+01	1.58E+00	2.09E+00	1.20E+00	8.24E+00	1.56E+00	1.13E+00	9.46E-04	4.95E-01	1.24E-04	5.20E-04	5.61E+00	3.23E+00	3.94E+00	6.18E-02	1.26E-02	3.98E-03	4.55E-02	2.42E-02	8.06E+00	1.38E+00	8.10E-02	1.82E-01	6.83E-03	1.01E-01	1.90E-01	2.83E-02	1.59E-01	1.75E+00	1.31E-01	1.58E+01	1.57E+00	2.04E+00	1.17E+00	1.84E-01	1.76E-01
2005	2	23	4.34E-01	1.24E-03	1.17E-01	1.47E-04	5.53E-04	5.13E+00	2.59E+00	7.41E+00	5.18E-02	1.23E+01	6.58E-03	1.21E+00	1.45E+00	6.16E+00	5.21E-01	4.14E-01	1.24E-03	1.17E-01	1.47E-04	5.53E-04	5.13E+00	2.42E+00	5.40E+00	5.18E-02	1.31E-02	4.91E-03	3.20E-02	2.02E-02	6.03E+00	4.39E-01	2.07E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-01	2.00E+00	0.00E+00	1.23E+01	1.66E-03	1.18E+00	1.43E+00	1.35E-01	8.20E-02
2005	2	24	2.53E-01	1.04E-03	1.39E-01	1.03E-04	4.47E-04	4.89E+00	2.37E+00	7.13E+00	3.89E-02	8.64E+00	1.19E-02	1.07E+00	5.05E-01	6.21E+00	3.53E-01	2.53E-01	1.04E-03	1.39E-01	1.03E-04	4.47E-04	4.89E+00	2.24E+00	5.26E+00	3.89E-02	1.07E-02	4.16E-03	2.37E-02	1.57E-02	6.09E+00	3.53E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-01	1.86E+00	0.00E+00	8.63E+00	7.76E-03	1.05E+00	4.90E-01	1.23E-01	0.00E+00
2005	2	25	7.54E-01	6.58E-04	3.54E-01	5.37E-05	2.26E-04	5.91E+00	3.01E+00	6.39E+00	7.57E-02	1.14E+01	3.57E-03	1.77E+00	3.38E-01	8.78E+00	9.43E-01	7.20E-01	6.57E-04	3.51E-01	5.37E-05	2.25E-04	5.89E+00	2.87E+00	4.44E+00	7.34E-02	1.31E-02	3.35E-03	3.89E-02	2.31E-02	8.63E+00	8.62E-01	3.45E-02	3.79E-07	2.57E-03	0.00E+00	7.92E-07	2.40E-02	1.44E-01	1.95E+00	2.33E-03	1.14E+01	2.16E-04	1.73E+00	3.14E-01	1.55E-01	8.04E-02
2005	2	26	3.23E+00	3.75E-01	1.78E+00	1.65E-01	1.11E-01	5.27E+00	1.98E+00	7.54E+00	4.46E+00	2.39E+00	4.70E-01	4.16E-01	4.65E-01	7.18E+00	4.13E+00	2.56E+00	1.24E-02	1.55E+00	7.36E-03	1.00E-02	4.97E+00	1.76E+00	6.54E+00	1.10E-01	2.89E-02	1.89E-02	4.49E-02	3.50E-02	6.86E+00	3.16E+00	6.72E-01	3.63E-01	2.37E-01	1.58E-01	1.01E-01	3.06E-01	2.23E-01	9.95E-01	4.35E+00	2.36E+00	4.51E-01	3.71E-01	4.30E-01	3.26E-01	9.63E-01
2005	2	27	1.39E+00	1.29E-01	1.09E+00	3.24E-01	6.31E-01	6.42E+00	4.00E+00	8.87E+00	2.08E+00	1.45E+01	4.98E+00	1.58E+00	2.26E+00	8.88E+00	2.01E+00	1.18E+00	1.50E-02	9.74E-01	5.98E-03	9.81E-03	6.32E+00	3.77E+00	7.08E+00	1.71E-01	5.12E-02	2.70E-02	1.01E-01	7.12E-02	8.56E+00	1.59E+00	2.15E-01	1.14E-01	1.15E-01	3.18E-01	6.21E-01	9.71E-02	2.31E-01	1.79E+00	1.91E+00	1.44E+01	4.95E+00	1.48E+00	2.19E+00	3.17E-01	4.19E-01
2005	2	28	6.84E-01	3.18E-03	3.69E-01	7.49E-04	1.85E-03	5.55E+00	3.46E+00	6.76E+00	7.94E-02	1.31E+01	8.93E-02	1.46E+00	8.38E-01	8.64E+00	8.34E-01	6.42E-01	3.18E-03	3.68E-01	7.49E-04	1.81E-03	5.54E+00	3.35E+00	4.80E+00	7.43E-02	1.97E-02	8.50E-03	5.94E-02	3.35E-02	8.45E+00	7.37E-01	4.20E-02	0.00E+00	1.25E-03	0.00E+00	3.81E-05	5.25E-03	1.13E-01	1.95E+00	5.19E-03	1.30E+01	8.08E-02	1.40E+00	8.04E-01	1.96E-01	9.63E-02
2005	3	1	3.04E-01	1.74E-05	1.60E-01	0.00E+00	2.50E-05	2.41E+00	1.84E+00	4.77E+00	4.50E-02	7.64E+00	2.72E-03	1.66E+00	2.79E-01	3.87E+00	4.46E-01	2.88E-01	1.74E-05	1.60E-01	0.00E+00	2.50E-05	2.41E+00	1.77E+00	3.57E+00	4.41E-02	6.60E-03	9.94E-04	3.57E-02	1.80E-02	3.84E+00	3.85E-01	1.56E-02	0.00E+00	1.98E-04	0.00E+00	0.00E+00	1.45E-03	7.33E-02	1.21E+00	9.02E-04	7.63E+00	1.73E-03	1.63E+00	2.61E-01	2.70E-02	6.12E-02
2005	3	2	1.25E+00	6.27E-04	9.81E-01	9.10E-05	2.74E-04	4.83E+00	2.62E+00	4.71E+00	7.14E-02	1.27E+01	6.35E-03	1.47E+00	3.85E-01	4.77E+00	1.72E+00	1.04E+00	3.88E-04	9.56E-01	6.35E-05	2.02E-04	4.77E+00	2.52E+00	3.79E+00	6.06E-02	1.29E-02	3.17E-03	4.02E-02	2.29E-02	4.69E+00	1.30E+00	2.04E-01	2.40E-04	2.52E-02	2.75E-05	7.13E-05	5.43E-02	9.64E-02	9.20E-01	1.09E-02	1.27E+01	3.19E-03	1.43E+00	3.62E-01	7.21E-02	4.14E-01
2005	3	3	6.00E-01	9.96E-02	4.08E-01	7.28E-02	1.20E-01	6.96E+00	4.46E+00	1.11E+01	3.58E-01	1.44E+01	7.89E-01	1.68E+00	2.36E+00	1.01E+01	7.40E-01	5.49E-01	5.73E-03	3.92E-01	1.54E-03	3.41E-03	6.93E+00	4.25E+00	8.84E+00	1.13E-01	2.92E-02	1.36E-02	6.91E-02	4.46E-02	9.77E+00	6.20E-01	5.12E-02	9.39E-02	1.57E-02	7.13E-02	1.17E-01	2.81E-02	2.08E-01	2.25E+00	2.45E-01	1.43E+01	7.75E-01	1.61E+00	2.31E+00	3.24E-01	1.19E-01
2005	3	4	3.73E-01	5.12E-03	1.68E-01	1.39E-03	2.82E-03	3.81E+00	3.15E+00	6.18E+00	6.64E-02	1.09E+01	4.18E-02	1.44E+00	3.63E-01	6.62E+00	4.77E-01	3.73E-01	5.12E-03	1.68E-01	1.39E-03	2.82E-03	3.81E+00	3.00E+00	4.13E+00	6.64E-02	1.99E-02	1.03E-02	4.36E-02	2.91E-02	6.47E+00	4.77E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-01	2.05E+00	5.89E-38	1.09E+01	3.14E-02	1.40E+00	3.34E-01	1.52E-01	9.84E-06
2005	3	5	3.29E-02	0.00E+00	7.62E-03	0.00E+00	0.00E+00	4.20E-01	4.29E-01	8.82E-01	2.38E-19	3.62E+00	4.21E-02	3.78E-01	2.59E-01	6.32E-01	4.59E-02	3.29E-02	0.00E+00	7.62E-03	0.00E+00	0.00E+00	4.20E-01	3.84E-01	5.11E-01	0.00E+00	0.00E+00	0.00E+00	4.39E-04	1.63E-07	6.32E-01	4.59E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.51E-02	3.70E-01	2.38E-19	3.62E+00	4.21E-02	3.78E-01	2.59E-01	0.00E+00	0.00E+00
2005	3	6	6.08E-01	7.09E-02	4.36E-01	3.17E-03	1.43E-02	2.08E+00	1.76E+00	2.69E+00	1.66E+00	1.17E+01	2.39E-01	1.34E+00	1.75E+00	2.95E+00	7.31E-01	4.88E-01	7.93E-05	3.86E-01	2.48E-06	1.71E-05	2.00E+00	1.58E+00	2.20E+00	2.16E-02	3.22E-03	6.57E-04	1.39E-02	7.02E-03	2.79E+00	5.78E-01	1.20E-01	7.08E-02	5.01E-02	3.17E-03	1.43E-02	7.61E-02	1.76E-01	4.92E-01	1.64E+00	1.17E+01	2.38E-01	1.32E+00	1.75E+00	1.63E-01	1.53E-01
2005	3	7	3.37E-01	1.94E-03	2.10E-01	3.41E-04	8.03E-04	2.29E+00	1.61E+00	3.98E+00	4.71E-02	9.66E+00	9.58E-03	8.09E-01	3.46E-01	2.48E+00	4.77E-01	3.05E-01	1.93E-03	2.10E-01	3.22E-04	7.50E-04	2.29E+00	1.52E+00	2.93E+00	4.45E-02	1.07E-02	4.53E-03	2.15E-02	1.52E-02	2.43E+00	4.10E-01	3.28E-02	1.27E-05	4.60E-05	1.88E-05	5.33E-05	2.80E-04	9.86E-02	1.05E+00	2.55E-03	9.65E+00	5.04E-03	7.88E-01	3.31E-01	5.18E-02	6.78E-02
2005	3	8	2.37E-01	1.19E-03	1.16E-01	2.13E-04	5.45E-04	2.76E+00	1.75E+00	5.59E+00	2.77E-02	8.66E+00	3.00E-02	1.19E+00	2.15E+00	3.88E+00	3.00E-01	2.32E-01	1.19E-03	1.16E-01	2.13E-04	5.45E-04	2.76E+00	1.64E+00	4.44E+00	2.76E-02	7.59E-03	3.24E-03	1.59E-02	1.10E-02	3.80E+00	2.83E-01	4.46E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-01	1.15E+00	9.21E-05	8.65E+00	2.68E-02	1.17E+00	2.14E+00	7.53E-02	1.77E-02
2005	3	9	9.35E-01	0.00E+00	2.67E-01	0.00E+00	0.00E+00	2.07E+00	1.87E+00	4.30E+00	6.14E-01	1.13E+01	4.44E-03	1.22E+00	1.20E+00	3.32E+00	1.05E+00	9.17E-01	0.00E+00	2.63E-01	0.00E+00	0.00E+00	2.04E+00	1.75E+00	3.59E+00	2.31E-02	2.37E-03	8.41E-05	1.96E-02	7.72E-03	3.19E+00	1.01E+00	1.81E-02	0.00E+00	3.79E-03	0.00E+00	0.00E+00	3.46E-02	1.17E-01	7.06E-01	5.90E-01	1.13E+01	4.35E-03	1.20E+00	1.19E+00	1.23E-01	3.47E-02
2005	3	10	5.22E-01	4.26E-03	2.50E-01	1.17E-03	2.21E-03	3.88E+00	2.58E+00	8.13E+00	6.78E-02	1.13E+01	8.96E-03	2.46E+00	3.31E+00	5.79E+00	8.75E-01	4.94E-01	4.26E-03	2.47E-01	1.17E-03	2.21E-03	3.87E+00	2.46E+00	6.62E+00	6.26E-02	1.65E-02	8.38E-03	3.78E-02	2.42E-02	5.59E+00	7.91E-01	2.89E-02	2.29E-08	2.08E-03	0.00E+00	3.32E-09	1.15E-02	1.23E-01	1.51E+00	5.13E-03	1.13E+01	5.87E-04	2.43E+00	3.29E+00	1.98E-01	8.45E-02
2005	3	11	2.54E-01	7.37E-07	7.25E-02	0.00E+00	0.00E+00	5.81E-01	9.54E-01	1.26E+00	6.26E-02	6.52E+00	1.16E-02	5.43E-01	4.95E-01	8.64E-01	3.25E-01	2.54E-01	0.00E+00	7.25E-02	0.00E+00	0.00E+00	5.80E-01	9.23E-01	1.09E+00	1.18E-02	4.14E-04	1.09E-05	3.19E-03	1.14E-03	8.52E-01	3.25E-01	5.97E-05	7.37E-07	1.26E-07	0.00E+00	0.00E+00	8.89E-04	3.09E-02	1.68E-01	5.08E-02	6.52E+00	1.16E-02	5.40E-01	4.94E-01	1.22E-02	1.08E-04
2005	3	12	2.82E+00	1.36E-03	1.04E+00	1.44E-04	5.12E-04	4.84E+00	2.28E+00	7.02E+00	4.03E+00	5.55E+00	9.11E-03	1.40E+00	1.21E+00	5.88E+00	3.72E+00	2.00E+00	1.33E-03	9.39E-01	1.44E-04	4.99E-04	4.61E+00	1.61E+00	5.60E+00	8.00E-02	1.64E-02	4.56E-03	4.75E-02	2.99E-02	5.01E+00	2.70E+00	8.22E-01	2.63E-05	9.82E-02	5.65E-08	1.29E-05	2.31E-01	6.62E-01	1.42E+00	3.95E+00	5.54E+00	4.54E-03	1.35E+00	1.18E+00	8.70E-01	1.02E+00
2005	3	13	2.16E+00	4.21E-03	8.78E-01	7.95E-04	1.87E-03	5.42E+00	2.97E+00	9.10E+00	1.20E+00	4.70E+00	9.37E-03	1.13E+00	1.15E+00	8.40E+00	2.50E+00	1.23E+00	4.20E-03	7.33E-01	7.95E-04	1.87E-03	5.08E+00	2.26E+00	7.10E+00	7.69E-02	1.92E-02	8.85E-03	4.44E-02	2.91E-02	7.49E+00	1.29E+00	9.35E-01	7.19E-06	1.45E-01	5.65E-08	2.20E-06	3.44E-01	7.14E-01	1.99E+00	1.13E+00	4.68E+00	5.24E-04	1.09E+00	1.12E+00	9.15E-01	1.21E+00
2005	3	14	1.22E+00	2.33E-02	8.72E-01	2.77E-03	5.23E-03	5.02E+00	3.21E+00	8.54E+00	2.07E+00	9.25E+00	3.34E-02	1.58E+00	2.12E+00	8.35E+00	1.62E+00	1.09E+00	6.21E-03	7.48E-01	1.81E-03	3.25E-03	4.82E+00	2.94E+00	7.29E+00	8.06E-02	2.13E-02	1.11E-02	4.41E-02	3.11E-02	8.00E+00	1.43E+00	1.29E-01	1.71E-02	1.24E-01	9.59E-04	1.99E-03	1.95E-01	2.74E-01	1.25E+00	1.99E+00	9.23E+00	2.23E-02	1.53E+00	2.08E+00	3.42E-01	1.85E-01
2005	3	15	4.42E+00	1.49E+00	2.36E+00	3.59E-01	2.35E-01	5.10E+00	1.87E+00	7.85E+00	6.28E+00	4.18E+00	4.37E+00	1.04E+00	6.87E-01	8.05E+00	6.18E+00	3.84E+00	3.12E-02	2.31E+00	1.96E-02	2.33E-02	5.03E+00	1.80E+00	7.07E+00	1.80E-01	5.57E-02	3.77E-02	8.08E-02	6.57E-02	8.01E+00	5.04E+00	5.79E-01	1.46E+00	5.10E-02	3.40E-01	2.12E-01	6.80E-02	6.28E-02	7.82E-01	6.10E+00	4.12E+00	4.33E+00	9.60E-01	6.21E-01	4.45E-02	1.14E+00

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2005	3	16	5.61E-01	1.51E+00	3.47E-01	1.57E-01	9.77E-02	3.74E+00	2.14E+00	5.48E+00	5.10E-01	5.24E+00	1.25E+00	8.42E-01	6.62E-01	4.59E+00	6.73E-01
2005	3	17	2.08E+00	3.49E-02	1.85E+00	4.67E-07	5.15E-06	2.55E+00	3.86E-01	3.00E+00	4.10E+00	1.59E-02	8.90E-02	2.78E-03	1.66E-03	3.99E+00	2.73E+00
2005	3	18	3.02E+00	1.38E+00	1.77E+00	8.98E-02	9.71E-02	3.64E+00	7.16E-01	3.07E+00	9.57E+00	1.10E+00	1.16E+00	2.85E-01	3.66E-01	4.70E+00	4.34E+00
2005	3	19	3.12E+00	2.73E-05	2.25E+00	0.00E+00	4.27E-07	3.17E+00	2.29E-02	1.72E+00	2.50E+00	4.58E-04	9.98E-05	7.78E-04	5.57E-04	3.16E+00	3.38E+00
2005	3	20	3.02E+00	9.34E-01	1.74E+00	4.37E-01	9.72E-01	4.05E+00	2.22E+00	4.81E+00	3.78E+00	7.05E+00	8.67E+00	2.16E+00	2.78E+00	4.34E+00	4.44E+00
2005	3	21	5.43E-01	4.08E-03	5.72E-01	3.64E-03	1.48E-01	4.37E+00	2.72E+00	6.64E+00	1.51E-01	1.03E+01	9.02E-01	1.25E+00	1.02E+00	5.36E+00	1.07E+00
2005	3	22	1.36E+00	5.59E-02	9.33E-01	8.57E-03	1.56E-02	4.36E+00	2.00E+00	5.03E+00	2.34E+00	7.18E+00	2.35E-01	1.20E+00	1.30E+00	6.50E+00	1.87E+00
2005	3	23	2.44E+00	1.47E-06	1.80E+00	0.00E+00	0.00E+00	2.32E+00	4.33E-03	1.61E+00	4.04E+00	7.83E-05	1.67E-05	3.27E-05	3.85E-05	2.76E+00	2.66E+00
2005	3	24	2.51E+00	3.01E-01	1.50E+00	2.69E-02	4.43E-02	3.19E+00	6.14E-01	3.33E+00	5.48E+00	5.76E-01	8.66E-01	1.35E-01	2.03E-01	3.85E+00	3.37E+00
2005	3	25	1.64E-01	2.00E-02	1.49E-01	1.77E-02	2.79E-02	3.18E+00	1.39E+00	3.80E+00	5.57E-02	4.72E+00	6.28E-02	1.27E+00	4.10E-01	4.48E+00	1.91E-01
2005	3	26	5.14E-02	0.00E+00	3.20E-02	0.00E+00	4.30E-03	9.16E-01	3.18E-01	1.59E+00	8.51E-04	1.11E+00	1.09E-01	2.34E-01	2.87E-01	6.67E-01	1.32E-01
2005	3	27	5.23E-01	1.26E-01	5.54E-01	2.15E-01	6.45E-01	4.49E+00	2.04E+00	6.16E+00	1.37E-01	4.60E+00	4.96E+00	5.66E-01	1.17E+00	4.33E+00	8.99E-01
2005	3	28	6.28E-01	2.66E-03	4.53E-01	7.71E-04	2.62E-03	5.74E+00	2.42E+00	7.59E+00	1.67E-01	3.18E+00	2.49E-01	9.37E-01	8.01E-01	4.69E+00	8.73E-01
2005	3	29	1.29E-01	0.00E+00	8.65E-02	0.00E+00	1.49E-07	1.96E+00	9.38E-01	3.29E+00	1.71E-02	1.92E+00	7.09E-02	7.65E-01	6.97E-01	1.64E+00	2.84E-01
2005	3	30	2.23E-01	9.74E-04	9.23E-02	1.22E-03	6.40E-03	1.87E+00	1.84E+00	5.21E+00	9.81E-02	8.11E+00	1.32E-01	2.06E+00	2.56E+00	2.82E+00	4.66E-01
2005	3	31	4.80E-01	4.55E-04	4.90E-01	6.58E-05	2.73E-04	3.52E+00	2.46E+00	4.70E+00	6.06E-02	1.10E+01	9.06E-02	1.06E+00	4.52E-01	5.48E+00	7.68E-01
2005	4	1	2.57E-01	0.00E+00	2.37E-02	0.00E+00	2.38E-04	8.24E-01	1.93E-01	5.66E-01	1.28E-02	1.28E+00	1.46E-01	1.48E-01	3.17E-01	6.45E-01	4.60E-01
2005	4	2	1.16E-01	0.00E+00	7.90E-02	2.91E-07	5.39E-04	9.44E-01	1.52E+00	2.39E+00	1.15E-04	6.86E+00	1.12E-01	1.35E+00	4.31E-01	1.76E+00	2.08E-01
2005	4	3	2.10E+00	8.90E-01	1.62E+00	7.97E-02	1.51E-01	4.48E+00	3.43E+00	7.05E+00	1.98E+00	8.11E+00	3.61E+00	1.99E+00	2.35E+00	6.77E+00	2.68E+00
2005	4	4	8.39E-02	3.04E-03	4.40E-02	1.17E-02	3.47E-02	1.06E+00	7.48E-01	3.06E+00	4.03E-04	5.84E+00	1.13E-01	1.32E+00	7.60E-01	1.28E+00	1.51E-01
2005	4	5	2.33E-02	0.00E+00	5.87E-02	0.00E+00	0.00E+00	7.84E-01	6.32E-01	2.12E+00	2.96E-03	2.35E+00	6.15E-02	7.66E-01	3.91E-01	8.79E-01	8.41E-02
2005	4	6	1.71E+00	4.51E-01	1.29E+00	2.38E-02	3.62E-02	2.69E+00	1.50E+00	4.70E+00	1.66E+00	3.52E+00	1.35E+00	4.25E-01	4.76E-01	3.39E+00	2.31E+00
2005	4	7	1.33E+00	3.80E-01	3.43E-01	4.45E-01	2.63E-01	3.49E+00	1.37E+00	3.83E+00	2.42E-01	2.69E+00	6.25E+00	3.62E-01	6.28E-01	3.12E+00	1.76E+00
2005	4	8	7.65E-02	1.68E-05	1.69E-01	2.61E-08	1.73E-05	2.49E+00	5.44E-01	2.48E+00	1.39E-02	2.33E+00	9.48E-02	4.17E-01	3.92E-01	1.93E+00	2.13E-01
2005	4	9	5.59E-01	2.17E-03	6.19E-01	2.59E-04	7.14E-04	5.14E+00	2.26E+00	6.86E+00	1.32E-01	1.36E+01	1.32E-02	1.94E+00	2.39E+00	6.81E+00	8.83E-01
2005	4	10	1.01E+00	1.75E-02	7.34E-01	3.56E-02	1.13E-01	6.64E+00	3.08E+00	6.91E+00	2.53E-01	1.44E+01	6.01E-01	1.87E+00	2.60E+00	6.97E+00	1.39E+00
2005	4	11	7.41E-01	5.83E-03	4.17E-01	3.05E-02	3.69E-01	4.19E+00	1.33E+00	4.47E+00	1.33E-01	2.79E+00	1.96E+00	2.32E-01	8.53E-01	2.76E+00	1.08E+00
2005	4	12	1.47E+00	4.46E-01	9.96E-01	9.01E-02	1.88E-01	3.55E+00	1.97E+00	5.16E+00	1.19E+00	8.07E+00	4.43E+00	1.60E+00	3.62E+00	3.70E+00	2.08E+00
2005	4	13	1.34E+00	2.61E-02	8.89E-01	1.09E-03	2.66E-03	4.16E+00	1.85E+00	6.55E+00	1.57E+00	5.11E+00	5.52E-02	1.07E+00	1.12E+00	5.10E+00	1.97E+00
2005	4	14	2.80E-01	5.36E-05	4.56E-02	1.20E-08	5.71E-07	2.40E+00	8.99E-01	3.77E+00	5.20E-02	4.71E+00	2.67E-02	8.95E-01	1.01E+00	2.70E+00	4.34E-01
2005	4	15	9.03E-02	0.00E+00	7.83E-02	0.00E+00	1.67E-04	1.20E+00	3.37E-01	1.81E+00	1.21E-02	1.23E+00	1.34E-01	2.09E-01	4.27E-01	1.11E+00	4.25E-01
2005	4	16	3.98E-01	9.76E-05	9.67E-02	2.31E-03	1.04E-01	2.83E+00	5.52E-01	3.60E+00	9.46E-02	1.53E+00	7.10E-01	6.19E-02	6.28E-01	1.83E+00	6.54E-01
2005	4	17	1.04E-01	1.10E-05	7.31E-02	0.00E+00	1.87E-05	2.04E+00	5.26E-01	2.52E+00	3.71E-02	1.71E+00	7.98E-02	4.85E-01	4.53E-01	1.25E+00	2.96E-01
2005	4	18	2.52E+00	6.79E-04	1.34E+00	2.52E-05	9.01E-05	4.21E+00	1.12E+00	6.09E+00	2.97E+00	3.39E+00	1.30E-02	6.44E-01	4.33E-01	4.38E+00	3.16E+00
2005	4	19	2.98E+00	9.76E-04	1.97E+00	6.44E-05	1.63E-04	3.43E+00	3.08E-01	3.40E+00	2.09E+00	1.58E-02	3.30E-03	2.38E-02	1.68E-02	4.31E+00	3.54E+00
2005	4	20	2.80E+00	4.82E-03	2.31E+00	9.69E-04	1.98E-03	3.45E+00	4.11E-01	3.80E+00	3.46E+00	4.41E-02	9.18E-03	7.56E-02	4.09E-02	4.53E+00	3.81E+00
2005	4	21	3.65E+00	4.04E-02	2.16E+00	7.73E-04	1.24E-03	3.76E+00	5.69E-01	5.51E+00	5.88E+00	4.12E-02	3.72E-02	3.58E-02	2.49E-02	5.91E+00	5.02E+00
2005	4	22	2.57E+00	2.85E-01	1.74E+00	5.70E-02	8.77E-02	5.01E+00	2.09E+00	7.36E+00	2.37E+00	7.16E+00	5.67E-01	1.35E+00	2.11E+00	7.24E+00	3.56E+00
2005	4	23	1.90E+00	1.93E-01	1.00E+00	4.08E-02	6.49E-02	4.38E+00	1.55E+00	5.95E+00	1.50E+00	5.52E+00	6.83E-01	8.79E-01	9.42E-01	5.63E+00	2.49E+00
2005	4	24	3.19E+00	1.54E-03	2.28E+00	1.27E-04	3.23E-04	3.71E+00	4.30E-02	2.77E+00	1.45E+00	6.45E-03	2.91E-03	1.26E-02	9.18E-03	3.21E+00	3.57E+00
2005	4	25	3.34E+00	9.35E-02	1.50E+00	2.31E-03	9.98E-03	3.91E+00	1.40E+00	5.38E+00	3.68E+00	2.02E+00	4.08E-01	3.60E-01	5.31E-01	6.22E+00	4.10E+00
2005	4	26	2.74E+00	8.58E-03	1.08E+00	1.04E-03	3.36E-03	2.76E+00	5.58E-01	3.83E+00	1.50E+00	2.98E-01	2.12E-02	2.95E-01	1.88E-01	3.88E+00	3.34E+00
2005	4	27	1.70E+00	0.00E+00	9.38E-01	0.00E+00	0.00E+00	1.48E+00	5.75E-02	1.47E+00	2.67E+00	2.97E-05	0.00E+00	7.82E-05	2.55E-05	2.72E+00	2.10E+00
2005	4	28	3.25E+00	2.31E-01	2.18E+00	4.82E-03	1.12E-02	3.82E+00	1.14E+00	3.95E+00	5.34E+00	7.44E-01	5.61E-01	2.39E-01	2.82E-01	4.96E+00	4.08E+00
2005	4	29	2.38E+00	5.92E-01	1.11E+00	1.04E-01	1.88E-01	3.56E+00	1.79E+00	4.23E+00	3.35E+00	5.91E+00	4.01E+00	1.10E+00	1.86E+00	3.94E+00	3.40E+00
2005	4	30	5.45E-01	2.94E-06	3.82E-01	0.00E+00	0.00E+00	7.51E-01	3.78E-01	1.45E+00	1.35E+00	2.27E-04	3.34E-05	5.11E-05	1.13E-05	2.18E+00	7.16E-01
2005	5	1	5.05E+00	6.71E-03	2.82E+00	0.00E+00	0.00E+00	6.92E+00	1.23E+00	9.01E+00	2.30E+00	2.49E-03	1.07E-01	1.56E-04	1.20E-04	1.27E+01	6.50E+00
2005	5	2	1.16E+01	5.41E-01	7.84E+00	5.56E-03	8.75E-03	1.79E+01	3.48E+00	1.94E+01	3.38E+00	4.05E-01	1.29E+00	2.28E-01	2.03E-01	2.32E+01	1.43E+01
2005	5	3	1.59E+00	1.61E-01	9.91E-01	9.03E-02	1.71E-01	1.85E+01	6.92E+00	2.30E+01	5.72E-01	6.01E+00	2.43E+00	6.73E-01	1.72E+00	1.81E+01	1.99E+00
2005	5	4	5.33E+00	1.49E+00	1.93E+00	3.69E-01	2.57E-01	2.84E+01	1.11E+01	3.00E+01	9.37E-01	1.42E+01	9.91E+00	2.08E+00	2.15E+00	2.75E+01	8.94E+00
2005	5	5	6.45E+00	4.73E-01	2.80E+00	2.44E-01	3.62E-01	2.87E+01	1.17E+01	2.73E+01	2.85E+00	2.15E+01	3.46E+00	1.87E+00	2.05E+00	3.12E+01	7.83E+00
2005	5	6	3.54E+00	1.81E-01	1.25E+00	1.03E-01	2.21E-01	2.17E+01	1.25E+01	2.71E+01	9.12E-01	2.60E+01	1.96E+00	2.71E+00	3.28E+00	3.08E+01	6.09E+00
2005	5	7	1.37E+01	4.09E-01	6.83E+00	3.85E-02	8.11E-02	2.16E+01	7.50E+00	2.48E+01	7.79E+00	2.73E+00	1.11E+00	1.15E+00	1.37E+00	2.29E+01	1.68E+01
2005	5	8	1.16E+01	1.82E-03	5.99E+00	7.62E-06	3.73E-05	1.32E+01	4.78E-02	1.41E+01	5.56E+00	1.30E-02	4.68E-03	1.59E-02	1.48E-02	1.84E+01	1.38E+01
2005	5	9	1.41E+01	2.80E-03	8.09E+00	2.30E-04	5.18E-04	1.79E+01	8.93E-02	1.38E+01	3.92E+00	1.12E-02	4.22E-03	1.86E-02	1.36E-02	1.79E+01	1.50E+01
2005	5	10	1.05E+01	3.17E-05	5.84E+00	0.00E+00	1.79E-07	1.57E+01	2.05E-02	1.26E+01	2.73E+00	2.64E-03	3.49E-04	8.06E-03	5.04E-03	1.40E+01	1.13E+01
2005	5	11	1.21E+01	6.21E-01	7.39E+00	7.92E-02	1.32E-01	2.22E+01	8.13E+00	2.55E+01	4.91E+00	1.37E+01	1.39E+00	3.70E+00	5.85E+00	2.83E+01	1.52E+01
2005	5	12	6.05E+00	9.32E-01	2.89E+00	1.04E-01	1.64E-01	2.59E+01	1.11E+01	2.62E+01	2.66E+00	1.18E+01	3.88E+00	1.79E+00	1.44E+00	3.68E+01	8.58E+00
2005	5	13	1.25E+01	1.01E-01	6.01E+00	5.15E-02	8.30E-02	2.54E+01	7.36E+00	2.94E+01	7.67E+00	5.66E+00	4.13E-01	1.11E+00	1.29E+00	3.39E+01	1.62E+01
2005	5	14	6.68E+00	4.71E-01	3.98E+00	9.26E-02	1.75E-01	2.03E+01	5.45E+00	1.93E+01	2.51E+00	6.30E+00	1.78E+00	7.23E-01	1.54E+00	1.78E+01	8.74E+00
2005	5	15	5.27E+00	9.65E-01	2.01E+00	1.08E-01	1.63E-01	1.80E+01	4.49E+00	1.78E+01	3.86E-01	6.64E+00	3.23E+00	7.07E-01	9.02E-01	1.56E+01	7.81E+00
2005	5	16	1.73E+00	4.37E-03	6.82E-01	8.09E-04	8.21E-03	1.45E+01	3.52E+00	1.49E+01	2.28E-01	8.00E+00	4.30E-01	7.90E-01	1.20E+00	1.27E+01	2.91E+00
2005	5	17	1.97E-01	0.00E+00	5.75E-02	0.00E+00	2.42E-11	4.17E+00	1.58E+00	5.41E+00	6.75E-07	2.58E+00	1.62E-01	3.95E-01	5.12E-01	3.35E+00	3.65E-01
2005	5	18	7.25E-01	5.40E-06	6.43E-01	9.29E-03	9.76E-02	7.15E+00	2.86E+00	8.00E+00	3.49E-02	5.06E+00	4.54E-01	5.07E-01	7.75E-01	6.52E+00	1.31E+00
2005	5	19	1.17E+00	0.00E+00	3.78E-01	0.00E+00	2.68E-04	6.77E+00	1.62E+00	7.68E+00	2.86E-02	2.16E+00	3.24E-01	1.56E-01	5.99E-01	5.11E+00	2.26E+00
2005	5	20	5.02E-01	8.73E-02	7.05E-02	5.72E-02	8.87E-02	4.66E+00	2.16E+00	6.53E+00	3.26E-03	4.65E+00	1.01E+00	6.22E-01	5.53E-01	4.59E+00	7.92E-01
2005	5	21	1.63E+00	2.04E-03	7.31E-01	2.14E-04	1.48E-03	9.85E+00	4.08E+00	1.07E+01	1.92E-01	3.98E+00	2.26E-01	5.47E-01	1.16E+00	9.75E+00	2.98E+00
2005	5	22	4.14E-01	4.14E-04	5.92E-02	3.04E-04	1.40E-03	3.63E+00	1.43E+00	3.75E+00	2.01E-02	2.72E+00	2.62E-01	4.20E-01	5.28E-01	3.07E+00	8.69E-01
2005	5	23	1.13E-01	7.09E-05	4.16E-01	1.33E-06	2.89E-05	1.05E+01	2.63E+00	1.17E+01	1.52E-01	5.46E+00	6.89E-02	6.39E-01	7.72E-01	6.81E+00	8.26E-01
2005	5	24	2.69E+00	7.92E-03	1.17E+00	1.50E-04	5.60E-03	1.98E+01	5.62E+00	2.09E+01	7.24E-01	1.70E+01	4.17E-01	2.04E+00	3.02E+00	1.93E+01	4.26E+00
2005	5	25	4.66E+00	2.20E-01	1.64E+00	1.52E-02	2.95E-02	2.51E+01	1.07E+01	3.18E+01	2.82E+00	1.87E+01	9.34E-01	3.60E+00	6.26E+00	2.42E+01	6.68E+00
2005	5	26	1.11E+01	6.27E-02	4.74E+00	7.08E-03	1.36E-02	1.89E+01	2.67E+00	2.27E+01	5.02E+00	6.70E-01	1.83E-01	7.84E-01	6.51E-01	2.22E+01	1.39E+01
2005	5	27	8.56E+00	3.86E-01	4.28E+00	8.01E-02	2.24E-01	2.28E+01	1.03E+01	2.91E+01	3.80E+00	1.52E+01	2.19E+00	1.55E+00	2.51E+00	3.71E+01	1.26E+01
2005	5	28	1.11E+01	9.61E-04	6.52E+00	2.49E-06	1.28E-05	1.44E+01	2.07E-01	1.09E+01	2.32E+00	1.11E-02	2.71E-03	1.97E-02	1.48E-02	1.67E+01	1.25E+01
2005	5	29	1.26E+01	6.03E-03	6.56E+00	1.24E-05	5.98E-05	1.68E+01	5.58E-01	1.83E+01	2.18E+00	1.02E-01	7.43E-02	1.98E-02	1.43E-02	2.38E+01	1.61E+01
2005	5	30	8.48E+00	1.45E+00	4.60E+00	3.99E-01	5.42E-01	2.70E+01	9.78E+00	3.30E+01	2.71E+00	9.43E+00	4.78E+00	9.97E-01	1.59E+00	3.95E+01	1.20E+01
2005	5	31	4.15E+00	2.88E-01	1.71E+00	7.16E-01	1.36E+00	2.03E+01	9.18E+00	1.41E+01	6.00E-01	9.65E+00	1.09E+01	6.90E-01	1.19E+00	1.48E+01	5.10E+00
2005	6	1	2.50E+00	9.27E-06	1.47E+00	2.84E-08	2.94E-07	1.57E+01	2.54E+00	1.58E+01	1.33E+00	5.70E+00	1.25E-02	9.77E-01	1.28E+00	1.67E+01	6.22E+00
2005	6	2	4.21E+00	1.11E-03	1.45E+00	1.50E-04	3.98E-04	1.63E+01	2.15E+00	2.46E+01	9.76E-02	1.67E+00	3.16E-03	2.66E+00	1.80E+00	1.42E+01	7.64E+00
2005	6	3	2.58E+00	3.80E-03	1.30E+00	9.79E-04	1.82E-02	2.06E+01	5.18E+00	3.09E+01	3.72E-01	8.14E+00	1.22E+00	1.29E+00	1.02E+00	2.39E+01	6.57E+00
2005	6	4	4.10E+00	3.58E-01	1.40E+00	5.68E-03	1.03E-02	1.35E+01	3.50E+00	1.38E+01	1.40E+00	9.59E+00	4.70E-01	9.34E-01	1.61E+00	1.54E+01	5.34E+00
2005	6	5	3.61E+00	7.55E-01	1.95E+00	2.45E-01	3.36E-01	2.02E+01	8.40E+00	2.08E+01	2.16E+00	1.66E+01	1.98E+00	2.18E+00	3.40E+00	2.43E+01	4.48E+00
2005	6	6	6.63E-01	0.00E+00	2.36E-01	0.00E+00	0.00E+00	1.07E+01	3.47E+00	1.48E+01	1.10E-02	1.29E+01	6.98E-03	1.92E+00	2.16E+00	1.30E+01	1.05E+00
2005	6	7	1.32E+00	0.00E+00	2.34E-01	0.00E+00	0.00E+00	1.13E+01	2.46E+00	1.20E+01	8.01E-03	3.96E+00	7.21E-02	6.16E-01	7.34E-01	8.23E+00	2.67E+00
2005	6	8	8.65E-01	2.14E-03	1.55E+00	1.25E-04	5.26E-04	2.02E+01	4.52E+00	2.16E+01	3.07E-01	8.50E+00	1.01E-01	8.36E-01	1.26E+00	2.08E+01	2.87E+00
2005	6	9	3.88E+00	2.42E-02	1.59E+00	1.96E-02	9.58E-02	1.55E+01	4.72E+00	1.99E+01	5.11E-01	7.05E+00	2.43E+00	4.77E-01	1.52E+00	1.23E+01	8.01E+00
2005	6	10	1.38E+00	3.40E-04	6.28E-01	3.56E-05	1.64E-04	1.47E+01	4.64E+00	1.40E+01	1.15E-01	9.80E+00	7.92E-02	1.42E+00	7.73E-01	1.45E+01	1.83E+00
2005	6	11	1.93E+00	3.59E-03	1.77E+00	5.20E-04	2.46E-03	2.23E+01	5.44E+00	1.62E+01	4.52E-01	1.09E+01	2.17E-01	9.46E-01	1.10E+00	2.15E+01	3.10E+00
2005	6	12	1.24E+00	2.22E-03	8.46E-01	2.19E-04	9.10E-04	1.83E+01	3.77E+00	1.64E+01	2.45E-01	4.43E+00	1.43E-01	4.68E-01	1.08E+00	1.25E+01	2.29E+00
2005	6	13	4.63E-01	9.54E-04	7.71E-01	1.21E-04	7.83E-04	1.12E+01	2.11E+00	1.11E+01	2.78E-01	2.96E+00	2.23E-01	3.74E-01	7.52E-01	7.74E+00	1.64E+00

Year	Month	Day	Baseline R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2005	3	16	5.54E-01	2.09E-02	3.22E-01	4.53E-03	5.91E-03	3.72E+00	2.06E+00	4.33E+00	5.73E-02	1.81E-02	1.45E-02	4.67E-02	2.79E-02	4.49E+00	6.66E-01
2005	3	17	1.93E+00	1.93E-05	1.39E+00	1.56E-08	1.54E-07	2.12E+00	3.86E-01	2.99E+00	9.29E-03	5.65E-04	6.93E-05	2.48E-03	1.02E-03	3.99E+00	2.50E+00
2005	3	18	2.79E+00	2.84E-02	1.54E+00	6.85E-03	8.99E-03	3.40E+00	6.75E-01	2.87E+00	1.51E-01	4.86E-02	3.15E-02	6.72E-02	5.52E-02	4.62E+00	3.88E+00
2005	3	19	2.71E+00	2.73E-05	2.07E+00	0.00E+00	4.27E-07	3.04E+00	2.29E-02	1.72E+00	1.05E-02	4.58E-04	9.98E-05	7.78E-04	5.57E-04	3.16E+00	2.71E+00
2005	3	20	2.43E+00	1.96E-02	1.47E+00	1.74E-02	2.74E-02	3.80E+00	1.90E+00	3.89E+00	1.50E-01	7.35E-02	4.49E-02	1.07E-01	8.79E-02	3.95E+00	3.40E+00
2005	3	21	4.54E-01	3.99E-03	5.72E-01	1.84E-03	4.73E-03	4.37E+00	2.66E+00	5.34E+00	1.36E-01	4.49E-02	1.75E-02	8.14E-02	6.15E-02	5.19E+00	8.76E-01
2005	3	22	1.23E+00	3.10E-03	8.25E-01	8.30E-04	1.48E-03	4.24E+00	1.87E+00	4.16E+00	8.20E-02	2.07E-02	7.40E-03	4.55E-02	3.10E-02	6.33E+00	1.60E+00
2005	3	23	2.30E+00	0.00E+00	1.54E+00	0.00E+00	0.00E+00	2.12E+00	4.30E-03	1.61E+00	4.04E-03	3.92E-07	0.00E+00	4.84E-06	2.13E-06	2.76E+00	2.46E+00
2005	3	24	2.20E+00	2.86E-03	1.40E+00	6.14E-04	1.12E-03	3.09E+00	6.08E-01	3.19E+00	4.68E-02	1.10E-02	5.11E-03	2.09E-02	1.50E-02	3.83E+00	2.75E+00
2005	3	25	1.60E-01	2.61E-03	1.47E-01	9.04E-04	2.00E-03	3.17E+00	1.31E+00	2.57E+00	4.82E-02	1.54E-02	7.12E-03	3.48E-02	2.31E-02	4.39E+00	1.88E-01
2005	3	26	5.14E-02	0.00E+00	3.20E-02	0.00E+00	0.00E+00	9.16E-01	3.15E-01	1.11E+00	8.51E-04	4.50E-05	0.00E+00	5.87E-03	6.94E-04	6.66E-01	1.32E-01
2005	3	27	5.06E-01	6.11E-03	5.53E-01	1.02E-02	1.74E-02	4.49E+00	2.01E+00	4.55E+00	1.27E-01	4.48E-02	2.19E-02	8.01E-02	6.11E-02	4.21E+00	8.30E-01
2005	3	28	6.28E-01	2.66E-03	4.53E-01	7.71E-04	2.31E-03	5.74E+00	2.33E+00	5.79E+00	1.67E-01	3.74E-02	1.14E-02	1.08E-01	6.98E-02	4.56E+00	8.73E-01
2005	3	29	1.29E-01	0.00E+00	8.65E-02	0.00E+00	1.45E-07	1.96E+00	8.99E-01	2.45E+00	1.71E-02	1.43E-03	1.91E-05	1.76E-02	5.89E-03	1.63E+00	2.84E-01
2005	3	30	1.70E-01	3.47E-08	8.97E-02	3.43E-08	5.27E-05	1.87E+00	1.55E+00	3.89E+00	2.20E-02	5.95E-03	6.42E-04	4.72E-02	1.94E-02	2.71E+00	4.05E-01
2005	3	31	4.22E-01	2.69E-04	4.86E-01	2.13E-05	1.57E-04	3.51E+00	2.39E+00	3.64E+00	5.34E-02	8.51E-03	2.01E-03	3.20E-02	1.70E-02	5.36E+00	6.23E-01
2005	4	1	2.57E-01	0.00E+00	2.37E-02	0.00E+00	2.09E-07	8.24E-01	1.87E-01	4.81E-01	1.28E-02	1.69E-03	8.37E-05	9.27E-03	7.20E-03	6.45E-01	4.60E-01
2005	4	2	1.16E-01	0.00E+00	7.90E-02	2.91E-07	2.24E-06	9.44E-01	1.44E+00	1.72E+00	1.15E-04	5.65E-06	9.64E-07	4.62E-03	4.41E-04	1.76E+00	2.08E-01
2005	4	3	1.84E+00	1.88E-02	1.49E+00	3.07E-03	5.76E-03	4.37E+00	3.34E+00	6.09E+00	1.64E-01	5.75E-02	2.83E-02	1.20E-01	8.09E-02	6.69E+00	2.19E+00
2005	4	4	8.39E-02	3.40E-05	4.39E-02	7.16E-05	1.52E-04	1.06E+00	6.94E-01	2.18E+00	7.64E-05	1.78E-04	1.22E-04	1.20E-03	2.86E-04	1.25E+00	1.51E-01
2005	4	5	2.33E-02	0.00E+00	5.87E-02	0.00E+00	0.00E+00	7.84E-01	6.12E-01	1.61E+00	2.96E-03	2.81E-04	0.00E+00	1.19E-02	3.65E-03	8.79E-01	8.41E-02
2005	4	6	1.51E+00	3.25E-03	1.27E+00	1.06E-03	1.46E-03	2.67E+00	1.48E+00	3.97E+00	9.06E-02	1.58E-02	5.62E-03	3.90E-02	2.38E-02	3.32E+00	1.84E+00
2005	4	7	1.15E+00	2.35E-02	3.37E-01	1.69E-02	1.78E-02	3.48E+00	1.35E+00	3.18E+00	1.69E-01	7.56E-02	4.70E-02	8.92E-02	8.18E-02	3.00E+00	1.31E+00
2005	4	8	7.65E-02	1.68E-05	1.69E-01	2.61E-08	2.69E-06	2.49E+00	5.13E-01	2.02E+00	1.39E-02	1.48E-03	2.09E-04	1.08E-02	3.64E-03	1.89E+00	2.13E-01
2005	4	9	4.66E-01	2.16E-03	6.16E-01	2.57E-04	7.03E-04	5.13E+00	2.16E+00	5.18E+00	8.06E-02	1.66E-02	5.87E-03	3.79E-02	2.53E-02	6.59E+00	6.48E-01
2005	4	10	9.09E-01	1.11E-02	7.30E-01	4.17E-03	7.16E-03	6.63E+00	2.98E+00	5.52E+00	1.88E-01	5.26E-02	2.39E-02	1.06E-01	7.52E-02	6.74E+00	1.14E+00
2005	4	11	7.26E-01	5.67E-03	4.17E-01	4.07E-03	8.08E-03	4.19E+00	1.29E+00	3.19E+00	1.21E-01	4.06E-02	1.94E-02	8.17E-02	6.32E-02	2.62E+00	1.03E+00
2005	4	12	1.21E+00	1.37E-03	8.68E-01	1.08E-03	1.85E-03	3.37E+00	1.81E+00	4.27E+00	8.89E-02	1.94E-02	4.82E-03	5.87E-02	4.37E-02	3.54E+00	1.64E+00
2005	4	13	1.15E+00	1.00E-03	6.84E-01	4.26E-05	2.28E-04	3.97E+00	1.64E+00	5.45E+00	1.13E-01	1.85E-02	4.33E-03	4.52E-02	3.17E-02	4.88E+00	1.67E+00
2005	4	14	2.63E-01	1.93E-06	3.40E-02	1.20E-08	5.41E-07	2.39E+00	8.08E-01	2.80E+00	4.09E-02	2.47E-03	1.39E-04	1.58E-02	7.70E-03	2.65E+00	4.16E-01
2005	4	15	7.53E-02	0.00E+00	7.83E-02	0.00E+00	7.96E-08	1.20E+00	3.31E-01	1.34E+00	1.21E-02	7.77E-04	2.97E-06	9.74E-03	4.82E-03	1.11E+00	3.86E-01
2005	4	16	3.93E-01	9.76E-05	9.67E-02	6.28E-05	6.20E-04	2.83E+00	5.26E-01	2.58E+00	9.42E-02	2.13E-02	4.02E-03	4.80E-02	4.03E-02	1.77E+00	6.44E-01
2005	4	17	1.04E-01	1.10E-05	7.31E-02	0.00E+00	9.22E-06	2.04E+00	4.88E-01	1.85E+00	3.71E-02	3.71E-03	4.70E-04	2.12E-02	1.11E-02	1.16E+00	2.96E-01
2005	4	18	1.83E+00	6.79E-04	1.24E+00	2.52E-05	9.01E-05	4.12E+00	9.66E-01	4.94E+00	7.15E-02	1.04E-02	2.73E-03	2.97E-02	1.78E-02	3.91E+00	2.22E+00
2005	4	19	2.51E+00	9.76E-04	1.63E+00	6.44E-05	1.63E-04	3.10E+00	2.92E-01	3.27E+00	6.64E-02	1.12E-02	3.30E-03	2.37E-02	1.68E-02	4.24E+00	2.79E+00
2005	4	20	2.43E+00	4.82E-03	1.84E+00	9.69E-04	1.98E-03	3.01E+00	3.94E-01	3.58E+00	8.35E-02	1.92E-02	9.16E-03	3.63E-02	2.63E-02	4.46E+00	3.20E+00
2005	4	21	3.29E+00	3.13E-03	1.90E+00	7.68E-04	1.23E-03	3.43E+00	5.60E-01	5.33E+00	9.88E-02	1.54E-02	6.12E-03	3.33E-02	2.23E-02	5.85E+00	4.40E+00
2005	4	22	2.22E+00	1.29E-02	1.68E+00	4.55E-03	7.71E-03	4.94E+00	1.99E+00	6.55E+00	1.64E-01	5.20E-02	2.54E-02	9.24E-02	7.05E-02	7.07E+00	2.94E+00
2005	4	23	1.39E+00	1.24E-02	6.71E-01	4.98E-03	7.07E-03	4.03E+00	1.39E+00	4.96E+00	1.07E-01	3.61E-02	1.98E-02	6.31E-02	4.69E-02	5.29E+00	1.70E+00
2005	4	24	2.71E+00	1.53E-03	1.44E+00	1.27E-04	3.23E-04	2.76E+00	4.25E-02	2.65E+00	3.65E-02	6.40E-03	2.89E-03	1.25E-02	9.11E-03	3.11E+00	2.81E+00
2005	4	25	2.33E+00	4.02E-03	1.21E+00	4.58E-04	1.32E-03	3.58E+00	1.28E+00	4.50E+00	1.28E-01	2.67E-02	1.11E-02	5.44E-02	3.76E-02	5.56E+00	2.87E+00
2005	4	26	1.66E+00	1.46E-03	7.37E-01	2.63E-04	7.15E-04	2.57E+00	4.86E-01	3.43E+00	4.59E-02	1.24E-02	4.87E-03	2.67E-02	1.84E-02	3.70E+00	2.12E+00
2005	4	27	1.58E+00	0.00E+00	8.34E-01	0.00E+00	0.00E+00	1.41E+00	5.74E-02	1.47E+00	1.76E-03	8.55E-06	0.00E+00	7.38E-05	2.37E-05	2.71E+00	1.91E+00
2005	4	28	2.90E+00	1.15E-02	1.85E+00	1.41E-03	3.03E-03	3.54E+00	1.11E+00	3.80E+00	1.57E-01	4.07E-02	2.07E-02	7.07E-02	5.25E-02	4.90E+00	3.45E+00
2005	4	29	1.96E+00	1.77E-02	1.00E+00	6.26E-03	9.05E-03	3.40E+00	1.45E+00	3.70E+00	1.37E-01	4.79E-02	2.75E-02	8.34E-02	6.19E-02	3.64E+00	2.64E+00
2005	4	30	5.45E-01	0.00E+00	3.54E-01	0.00E+00	0.00E+00	7.11E-01	3.78E-01	1.45E+00	2.71E-03	0.00E+00	0.00E+00	5.00E-05	1.06E-06	2.18E+00	7.16E-01
2005	5	1	5.00E+00	0.00E+00	2.80E+00	0.00E+00	0.00E+00	6.89E+00	1.23E+00	9.01E+00	7.70E-02	4.75E-05	0.00E+00	1.47E-04	9.25E-05	1.27E+01	6.40E+00
2005	5	2	1.12E+01	3.21E-02	7.64E+00	4.46E-03	7.77E-03	1.78E+01	3.47E+00	1.92E+01	6.75E-01	1.03E-01	4.77E-02	1.93E-01	1.37E-01	2.31E+01	1.37E+01
2005	5	3	1.58E+00	3.03E-02	9.90E-01	1.60E-02	2.64E-02	1.85E+01	6.88E+00	2.18E+01	5.52E-01	1.57E-01	6.97E-02	2.67E-01	2.34E-01	1.80E+01	1.97E+00
2005	5	4	5.18E+00	5.75E-02	1.90E+00	2.79E-02	3.76E-02	2.83E+01	1.08E+01	2.87E+01	7.01E-01	2.05E-01	1.12E-01	3.88E-01	2.81E-01	2.72E+01	8.71E+00
2005	5	5	6.28E+00	3.65E-02	2.66E+00	2.36E-02	3.81E-02	2.86E+01	1.16E+01	2.62E+01	5.94E-01	1.84E-01	9.10E-02	3.51E-01	2.50E-01	3.10E+01	7.54E+00
2005	5	6	3.41E+00	1.12E-02	1.15E+00	5.47E-03	1.09E-02	2.16E+01	1.23E+01	2.58E+01	3.71E-01	9.42E-02	3.62E-02	2.45E-01	1.53E-01	3.05E+01	5.89E+00
2005	5	7	1.27E+01	4.05E-02	6.32E+00	1.18E-02	2.09E-02	2.10E+01	7.22E+00	2.39E+01	5.96E-01	1.57E-01	7.92E-02	2.92E-01	2.13E-01	2.23E+01	1.53E+01
2005	5	8	1.13E+01	1.82E-03	5.92E+00	7.62E-06	3.73E-05	1.31E+01	4.78E-02	1.41E+01	8.85E-02	1.30E-02	4.68E-03	1.59E-02	1.48E-02	1.84E+01	1.32E+01
2005	5	9	1.33E+01	2.78E-03	7.59E+00	2.30E-04	5.18E-04	1.75E+01	8.88E-02	1.38E+01	1.55E-01	1.05E-02	4.05E-03	1.71E-02	1.26E-02	1.79E+01	1.37E+01
2005	5	10	1.00E+01	3.17E-05	5.55E+00	0.00E+00	1.79E-07	1.53E+01	2.05E-02	1.26E+01	3.81E-02	2.64E-03	3.49E-04	8.06E-03	5.04E-03	1.40E+01	1.02E+01
2005	5	11	1.15E+01	1.99E-02	7.12E+00	4.00E-03	8.43E-03	2.20E+01	7.69E+00	2.46E+01	4.57E-01	1.09E-01	4.44E-02	2.36E-01	1.61E-01	2.79E+01	1.40E+01
2005	5	12	5.86E+00	3.42E-02	2.80E+00	9.70E-03	1.85E-02	2.57E+01	1.10E+01	2.50E+01	5.43E-01	1.62E-01	7.25E-02	3.46E-01	2.39E-01	3.65E+01	8.28E+00
2005	5	13	1.02E+01	1.61E-02	5.04E+00	5.85E-03	1.08E-02	2.37E+01	6.78E+00	2.73E+01	4.04E-01	8.54E-02	3.85E-02	1.71E-01	1.18E-01	3.24E+01	1.35E+01
2005	5	14	6.52E+00	3.27E-02	3.94E+00	1.03E-02	1.62E-02	2.03E+01	5.43E+00	1.85E+01	4.17E-01	1.08E-01	5.49E-02	2.16E-01	1.45E-01	1.77E+01	8.43E+00
2005	5	15	5.18E+00	2.09E-02	2.00E+00	6.81E-03	1.16E-02	1.79E+01	4.47E+00	1.74E+01	3.68E-01	8.91E-02	4.40E-02	1.43E-01	1.11E-01	1.56E+01	7.56E+00
2005	5	16	1.69E+00	4.36E-03	6.79E-01	7.97E-04	3.00E-03	1.45E+01	3.48E+00	1.37E+01	2.12E-01	5.12E-02	1.91E-02	9.25E-02	6.92E-02	1.27E+01	2.79E+00
2005	5	17	1.97E-01	0.00E+00	5.75E-02	0.00E+00	0.00E+00	4.17E+00	1.58E+00	4.74E+00	6.75E-07	0.00E+00	0.00E+00	1.66E-03	0.00E+00	3.35E+00	3.65E-01
2005	5	18	6.93E-01	5.40E-06	6.43E-01	2.51E-07	3.73E-06	7.15E+00	2.84E+00	7.36E+00	2.17E-02	1.72E-03	1.92E-04	1.13E-02	4.19E-03	6.50E+00	1.25E+00
2005	5	19	1.12E+00	0.00E+00	3.78E-01	0.00E+00	8.28E-07	6.77E+00	1.62E+00	7.10E+00	2.13E-02	1.40E-03	2.47E-05	5.65E-02	2.09E-02	5.11E+00	2.11E+00
2005	5	20	4.99E-01	1.30E-04	7.03E-02	1.91E-03	3.29E-03	4.66E+00	2.14E+00	5.85E+00	1.68E-03	1.73E-03	5.79E-04	1.16E-02	4.76E-03	4.56E+00	7.88E-01
2005	5	21	1.61E+00	2.04E-03	7.31E-01	2.14E-04	1.47E-03	9.85E+00	4.05E+00	1.01E+01	1.92E-01	4.53E-02	1.58E-02	7.94E-02	6.00E-02	9.71E+00	2.91E+00
2005	5	22	4.14E-01	4.14E-04	5.92E-02	3.04E-04	1.23E-03	3.63E+00	1.42E+00	3.35E+00	2.01E-02	9.90E-03	2.93E-03	3.27E-02	2.60E-02	3.07E+00	8.69E-01
2005	5	23	1.12E-01	7.09E-05	4.16E-01	1.33E-06	2.89E-05	1.05E+01	2.60E+00	1.09E+01	1.52E-01	2.21E-02	3.05E-03	5.87E-02	4.13E-02	6.78E+00	8.23E-01
2005	5	24	2.65E+00	1.21E-03	1.17E+00	9.30E-05	3.67E-04	1.98E+01	5.50E+00	1.97E+01	1.51E-01	1.78E-02	4.65E-03	9.54E-02	4.37E-02	1.91E+01	4.15E+00
2005	5	25	4.45E+00	1.66E-02	1.47E+00	4.28E-03	7.94E-03	2.49E+01	1.04E+01	3.04E+01	7.15E-01	1.41E-01	4.68E-02	3.61E-01	2.34E-01	2.39E+01	6.42E+00
2005	5	26	1.04E+01	1.03E-02	4.51E+00	1.58E-03	3.46E-03	1.86E+01	2.18E+00	2.17E+01	4.34E-01	7.62E-02	2.66E-02	1.86E-01	1.20E-01	2.15E+01	1.30E+01
2005	5	27	8.36E+00	5.37E-02	4.19E+00	1.68E-02	2.75E-02	2.27E+01	1.03E+01	2.84E+01	6.69E-01	1.85E-01	9.34E-02	3.55E-01	2.50E-01	3.70E+01	1.22E+01
2005	5	28	1.06E+01	9.56E-04	6.26E+00	2.49E-06	1.28E-05	1.43E+01	2.07E-01	1.08E+01	1.26E-01	1.10E-02	2.70E-03	1.97E-02	1.48E-02	1.67E+01	1.16E+01
2005	5	29	1.21E+01	9.78E-04	6.23E+00	1.24E-05	5.98E-05	1.65E+01	5.57E-01	1.81E+01	1.59E-01	9.89E-03	2.87E-03	1.98E-02	1.42E-02	2.38E+01	1.53E+01
2005	5	30	8.30E+00	4.32E-02	4.58E+00	1.38E-02	2.16E-02	2.70E+01	9.75E+00	3.22E+01	5.51E-01	1.52E-01	7.33E-02	3.19E-01	2.19E-01	3.93E+01	1.16E+01
2005	5	31	4.08E+00	4.40E-02	1.71E+00	2.90E-02	4.91E-02	2.03E+01	9.15E+00	1.33E+01	3.83E-01	1.78E-01	9.87E-02	3.67E-01	2.51E-01	1.47E+01	4.90E+00
2005	6	1	2.24E+00	5.58E-06	1.44E+00	0.00E+00	0.00E+00	1.57E+01	2.44E+00	1.48E+01	2.64E-02	1.29E-03	1.50E-04	2.03E-02	4.18E-03	1.65E+01	5.91E+00
2005	6	2	3.88E+00	1.04E-03	1.45E+00	1.49E-04	3.90E-04	1.63E+01	1.27E+00	2.35E+01	5.57E-02	8.27E-03	2.73E-03	2.45E-02	1.37E-02	1.36E+01	7.14E+00
2005	6	3	2.44E+00	9.15E-04	1.29E+00	6.92E-05	3.57E-04	2.06E+01	4.50E+00	2.98E+01	1.57E-01	2.01E-02	5.30E-03	6.26E-02	3.67E-02	2.36E+01	6.33E+00
2005	6	4	3.98E+00	5.39E-03	1.38E+00	3.32E-04	1.09E-03	1.35E+01	3.46E+00	1.31E+01	3.12E-01	5.12E-02	1.43E-02	1.25E-01	8.50E-02	1.53E+01	5.12E+00
2005	6	5	3.51E+00	3.72E-02	1.89E+00	1.67E-02	2.34E-02	2.01E+01	8.19E+00	1.97E+01	3.68E-01	1.20E-01	6.48E-02	2.17E-01	1.62E-01	2.41E+01	4.32E+00
2005	6	6	6.58E-01	0.00E+00	2.36E-01	0.00E+00	0.00E+00	1.07E+01	3.40E+00	1.35E+01	9.66E-03	4.69E-04	3.23E-07	4.91E-03	1.76E-03	1.30E+01	1.03E+00
2005	6	7	1.32E+00	0.00E+00	2.34E-01	0.00E+00	0.00E+00	1.13E+01	2.44E+00	1.08E+01	8.01E-03	4.76E-04	0.00E+00	1.40E-02	2.81E-03	8.20E+00	2.67E+00
2005	6	8	8.10E-01	2.12E-03	1.55E+00	1.25E-04	5.26E-04	2.02E+01	4.49E+00	2.05E+01	3.04E-01	5.78E-02	1.59E-02	8.89E-02	7.63E-02	2.06E+01	2.72E+00
2005	6	9	3.81E+00	4.20E-03	1.58E+00	4.35E-04	2.48E-03	1.55E+01	4.70E+00	1.91E+01	4.68E-01	8.91E-02	2.74E-02	1.43E-01	1.25E-01	1.23E+01	7.77E+00
2005	6	10	1.38E+00	3.39E-04	6.28E-01	3.54E-05	1.63E-04	1.47E+01	4.57E+00	1.28E+01	1.15E-01	1.39E-02	2.48E-03	1.36E-01	5.54E-02	1.44E+01	1.80E+00
2005	6	11	1.87E+00	3.55E-03	1.77E+00	5.09E-04	1.89E-03	2.23E+01	5.41E+00	1.52E+01	4.30E-01	7.49E-02	1.95E-02	1.68E-01	1.27E-01	2.14E+01	2.96E+00
2005	6	12	1.24E+00	2.22E-03	8.46E-01	2.19E-04	9.10E-04	1.83E+01	3.73E+00	1.51E+01	2.45E-01	4.11E-02	1.03E-02	1.40E-01	8.24E-02	1.24E+01	2.27E+00
2005	6	13	4.57E-01	9.54E-04	7.71E-01	1.21E-04	7.83E-04	1.12E+01	2.08E+00	1.04E+01	2.78E-01	5.31E-02	1.33E-02	6.60E-02	7.20E-02	7.70E+00	1.62E+00

Year	Month	Day	Project R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2005	3	16	6.93E-03	1.49E+00	2.47E-02	1.53E-01	9.17E-02	2.12E-02	8.14E-02	1.16E+00	4.52E-01	5.22E+00	1.23E+00	7.95E-01	6.34E-01	9.21E-02	6.86E-03
2005	3	17	1.51E-01	3.49E-02	4.56E-01	4.51E-07	5.00E-06	4.32E-01	5.86E-05	1.29E-02	4.09E+00	1.53E-02	8.89E-02	2.93E-04	6.45E-04	6.34E-03	2.33E-01
2005	3	18	2.28E-01	1.35E+00	2.33E-01	8.29E-02	8.81E-02	2.37E-01	4.03E-02	2.01E-01	9.42E+00	1.05E+00	1.13E+00	2.17E-01	3.11E-01	7.92E-02	4.54E-01
2005	3	19	4.05E-01	0.00E+00	1.73E-01	0.00E+00	0.00E+00	1.28E-01	0.00E+00	9.92E-06	2.49E+00	4.62E-08	0.00E+00	0.00E+00	0.00E+00	5.19E-06	6.65E-01
2005	3	20	5.90E-01	9.15E-01	2.61E-01	4.20E-01	9.45E-01	2.44E-01	3.17E-01	9.22E-01	3.63E+00	6.98E+00	8.63E+00	2.05E+00	2.69E+00	3.94E-01	1.04E+00
2005	3	21	8.86E-02	9.75E-05	1.55E-05	1.79E-03	1.43E-01	2.13E-04	6.50E-02	1.29E+00	1.47E-02	1.03E+01	8.84E-01	1.17E+00	9.61E-01	1.73E-01	1.97E-01
2005	3	22	1.38E-01	5.28E-02	1.08E-01	7.74E-03	1.41E-02	1.26E-01	1.34E-01	8.71E-01	2.26E+00	7.16E+00	2.28E-01	1.16E+00	1.27E+00	1.72E-01	2.66E-01
2005	3	23	1.32E-01	1.47E-06	2.59E-01	0.00E+00	0.00E+00	1.95E-01	2.95E-05	4.56E-03	4.04E+00	7.79E-05	1.67E-05	2.78E-05	3.63E-05	1.23E-03	2.01E-01
2005	3	24	3.18E-01	2.98E-01	1.05E-01	2.63E-02	4.31E-02	9.96E-02	5.72E-03	1.47E-01	5.43E+00	5.65E-01	8.61E-01	1.14E-01	1.88E-01	2.04E-02	6.29E-01
2005	3	25	3.53E-03	1.74E-02	1.78E-03	1.68E-02	2.59E-02	2.40E-03	8.84E-02	1.24E+00	7.50E-03	4.71E+00	5.56E-02	1.23E+00	3.87E-01	8.94E-02	3.96E-03
2005	3	26	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.30E-03	0.00E+00	3.44E-03	4.78E-01	2.05E-22	1.11E+00	1.09E-01	2.28E-01	2.86E-01	1.53E-03	0.00E+00
2005	3	27	1.70E-02	1.20E-01	5.14E-04	2.05E-01	6.28E-01	1.42E-03	3.74E-02	1.61E+00	9.19E-03	4.56E+00	4.94E+00	4.86E-01	1.11E+00	1.23E-01	6.86E-02
2005	3	28	1.01E-07	4.57E-08	3.51E-08	8.02E-08	3.17E-04	5.20E-08	9.34E-02	1.80E+00	7.09E-05	3.14E+00	2.37E-01	8.29E-01	7.31E-01	1.35E-01	1.08E-07
2005	3	29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.36E-09	0.00E+00	3.94E-02	8.41E-01	5.89E-20	1.92E+00	7.09E-02	7.47E-01	6.92E-01	7.60E-03	0.00E+00
2005	3	30	5.22E-02	9.74E-04	2.60E-03	1.22E-03	6.35E-03	6.54E-03	2.87E-01	1.32E+00	7.61E-02	8.10E+00	1.31E-01	2.01E+00	2.54E+00	1.10E-01	6.10E-02
2005	3	31	5.71E-02	1.86E-04	3.32E-03	4.45E-05	1.16E-04	8.99E-03	7.00E-02	1.07E+00	7.21E-03	1.10E+01	8.86E-02	1.03E+00	4.35E-01	1.17E-01	1.45E-01
2005	4	1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E-04	0.00E+00	5.93E-03	8.57E-02	2.67E-18	1.28E+00	1.46E-01	1.39E-01	3.10E-01	1.28E-04	0.00E+00
2005	4	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.37E-04	0.00E+00	7.31E-02	6.79E-01	8.16E-34	6.86E+00	1.12E-01	1.34E+00	4.30E-01	6.49E-03	0.00E+00
2005	4	3	2.55E-01	8.71E-01	1.37E-01	7.66E-02	1.45E-01	1.06E-01	9.30E-02	9.55E-01	1.82E+00	8.05E+00	3.58E+00	1.87E+00	2.26E+00	8.00E-02	4.99E-01
2005	4	4	2.23E-05	3.01E-03	1.07E-05	1.17E-02	3.45E-02	1.76E-05	5.36E-02	8.83E-01	3.26E-04	5.84E+00	1.13E-01	1.32E+00	7.60E-01	2.65E-02	9.30E-05
2005	4	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-02	5.07E-01	3.38E-17	2.35E+00	6.15E-02	7.54E-01	3.88E-01	0.00E+00	0.00E+00
2005	4	6	1.93E-01	4.47E-01	1.71E-02	2.27E-02	3.47E-02	2.07E-02	2.59E-02	7.27E-01	1.57E+00	3.50E+00	1.35E+00	3.86E-01	4.52E-01	6.37E-02	4.75E-01
2005	4	7	1.82E-01	3.56E-01	5.38E-03	4.28E-01	2.46E-01	1.01E-02	1.88E-02	6.44E-01	7.24E-02	2.61E+00	6.21E+00	2.73E-01	5.46E-01	1.13E-01	4.50E-01
2005	4	8	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-05	0.00E+00	3.09E-02	4.60E-01	2.13E-18	2.33E+00	9.46E-02	4.06E-01	3.88E-01	3.66E-02	0.00E+00
2005	4	9	9.29E-02	1.30E-05	2.83E-03	1.87E-06	1.13E-05	6.80E-03	1.00E-01	1.69E+00	5.18E-02	1.35E+01	7.29E-03	1.90E+00	2.36E+00	2.20E-01	2.35E-01
2005	4	10	1.01E-01	6.38E-03	4.01E-03	3.14E-02	1.06E-01	7.80E-03	1.01E-01	1.39E+00	6.51E-02	1.43E+01	5.77E-01	1.76E+00	2.52E+00	2.27E-01	2.53E-01
2005	4	11	1.47E-02	1.63E-04	1.07E-04	2.64E-02	3.61E-01	4.60E-04	3.81E-02	1.29E+00	1.14E-02	2.75E+00	1.94E+00	1.50E-01	7.90E-01	1.44E-01	4.88E-02
2005	4	12	2.65E-01	4.45E-01	1.28E-01	8.90E-02	1.86E-01	1.79E-01	1.62E-01	8.88E-01	1.11E+00	8.05E+00	4.42E+00	1.54E+00	3.58E+00	1.57E-01	4.39E-01
2005	4	13	1.87E-01	2.51E-02	2.05E-01	1.04E-03	2.44E-03	1.87E-01	2.07E-01	1.09E+00	1.46E+00	5.10E+00	5.08E-02	1.02E+00	1.09E+00	2.21E-01	2.94E-01
2005	4	14	1.72E-02	5.17E-05	1.15E-02	0.00E+00	3.03E-08	1.11E-02	9.08E-02	9.72E-01	1.11E-02	4.71E+00	2.65E-02	8.79E-01	9.98E-01	5.93E-02	1.76E-02
2005	4	15	1.50E-02	0.00E+00	0.00E+00	0.00E+00	1.67E-04	0.00E+00	5.30E-03	4.68E-01	7.27E-21	1.23E+00	1.34E-01	1.99E-01	4.22E-01	4.57E-03	3.84E-02
2005	4	16	5.06E-03	0.00E+00	0.00E+00	2.25E-03	1.03E-01	0.00E+00	2.60E-02	1.01E+00	4.58E-04	1.51E+00	7.06E-01	1.40E-02	5.87E-01	5.89E-02	1.04E-02
2005	4	17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.52E-06	0.00E+00	3.76E-02	6.77E-01	3.19E-26	1.71E+00	7.93E-02	4.64E-01	4.42E-01	9.30E-02	0.00E+00
2005	4	18	6.90E-01	2.88E-09	1.04E-01	0.00E+00	0.00E+00	8.83E-02	1.49E-01	1.15E+00	2.90E+00	3.38E+00	1.02E-02	6.15E-01	4.15E-01	4.74E-01	9.39E-01
2005	4	19	4.69E-01	0.00E+00	3.33E-01	0.00E+00	0.00E+00	3.32E-01	1.62E-02	1.26E-01	2.02E+00	4.60E-03	0.00E+00	2.05E-05	2.07E-05	7.80E-02	7.51E-01
2005	4	20	3.72E-01	1.64E-06	4.67E-01	0.00E+00	0.00E+00	4.44E-01	1.61E-02	2.18E-01	3.38E+00	2.49E-02	1.88E-05	3.92E-02	1.46E-02	6.78E-02	6.14E-01
2005	4	21	3.58E-01	3.73E-02	2.65E-01	4.84E-06	1.21E-05	3.22E-01	8.87E-03	1.75E-01	5.78E+00	2.58E-02	3.11E-02	2.50E-03	2.61E-03	6.02E-02	6.19E-01
2005	4	22	3.44E-01	2.72E-01	6.43E-02	5.25E-02	7.99E-02	6.40E-02	1.00E-01	8.04E-01	2.21E+00	7.11E+00	5.42E-01	1.26E+00	2.04E+00	1.73E-01	6.18E-01
2005	4	23	5.15E-01	1.80E-01	3.30E-01	3.58E-02	5.79E-02	3.51E-01	1.61E-01	9.88E-01	1.39E+00	5.48E+00	6.64E-01	8.16E-01	8.95E-01	3.32E-01	7.89E-01
2005	4	24	4.84E-01	5.93E-06	8.38E-01	6.58E-09	1.70E-07	9.51E-01	5.20E-04	1.26E-01	1.42E+00	5.25E-05	1.53E-05	1.12E-04	7.36E-05	1.07E-01	7.65E-01
2005	4	25	1.01E+00	8.94E-02	2.95E-01	1.85E-03	8.66E-03	3.32E-01	1.17E-01	8.74E-01	3.56E+00	2.00E+00	3.97E-01	3.05E-01	4.93E-01	6.62E-01	1.23E+00
2005	4	26	1.08E+00	7.12E-03	3.43E-01	7.81E-04	2.65E-03	1.86E-01	7.26E-02	3.98E-01	1.45E+00	2.86E-01	1.63E-02	2.69E-01	1.69E-01	1.84E-01	1.22E+00
2005	4	27	1.18E-01	0.00E+00	1.03E-01	0.00E+00	0.00E+00	6.63E-02	4.13E-05	9.52E-03	2.67E+00	2.11E-05	0.00E+00	4.45E-06	1.81E-06	7.14E-03	1.89E-01
2005	4	28	3.47E-01	2.20E-01	3.22E-01	3.41E-03	8.14E-03	2.82E-01	2.17E-02	1.47E-01	5.19E+00	7.04E-01	5.41E-01	1.68E-01	2.29E-01	5.50E-02	6.31E-01
2005	4	29	4.19E-01	5.74E-01	1.04E-01	9.80E-02	1.79E-01	1.69E-01	3.41E-01	5.34E-01	3.21E+00	5.86E+00	3.98E+00	1.01E+00	1.80E+00	3.00E-01	7.59E-01
2005	4	30	1.26E-05	2.94E-06	2.86E-02	0.00E+00	0.00E+00	3.98E-02	0.00E+00	3.40E-06	1.35E+00	2.27E-04	3.34E-05	1.15E-06	1.02E-05	2.93E-06	3.26E-04
2005	5	1	5.55E-02	6.71E-03	1.93E-02	0.00E+00	0.00E+00	3.22E-02	0.00E+00	1.47E-03	2.22E+00	2.44E-03	1.07E-01	8.82E-06	2.80E-05	5.75E-04	1.07E-01
2005	5	2	3.31E-01	5.09E-01	2.03E-01	1.10E-03	9.82E-04	1.59E-01	4.33E-03	2.59E-01	2.71E+00	3.02E-01	1.24E+00	3.44E-02	6.66E-02	5.86E-02	5.53E-01
2005	5	3	1.09E-02	1.30E-01	1.22E-03	7.43E-02	1.45E-01	2.44E-03	4.53E-02	1.18E+00	2.07E-02	5.85E+00	2.36E+00	4.06E-01	1.48E+00	1.49E-01	2.06E-02
2005	5	4	1.57E-01	1.43E+00	3.48E-02	3.41E-01	2.19E-01	5.66E-02	3.13E-01	1.24E+00	2.36E-01	1.40E+01	9.80E+00	1.69E+00	1.87E+00	3.22E-01	2.30E-01
2005	5	5	1.79E-01	4.36E-01	1.46E-01	2.20E-01	3.24E-01	1.37E-01	8.48E-02	1.12E+00	2.26E+00	2.13E+01	3.37E+00	1.52E+00	1.80E+00	2.40E-01	2.96E-01
2005	5	6	1.32E-01	1.69E-01	1.02E-01	9.74E-02	2.10E-01	1.06E-01	2.04E-01	1.31E+00	5.42E-01	2.59E+01	1.92E+00	2.47E+00	3.13E+00	2.45E-01	2.00E-01
2005	5	7	9.87E-01	3.68E-01	5.12E-01	2.66E-02	6.02E-02	5.62E-01	2.75E-01	8.47E-01	7.20E+00	2.58E+00	1.03E+00	8.57E-01	1.16E+00	5.21E-01	1.49E+00
2005	5	8	2.62E-01	0.00E+00	6.29E-02	0.00E+00	0.00E+00	8.72E-02	7.72E-08	1.93E-04	5.47E+00	2.80E-06	0.00E+00	1.83E-05	2.94E-05	4.10E-05	5.14E-01
2005	5	9	7.56E-01	1.41E-05	5.06E-01	0.00E+00	5.67E-10	3.26E-01	4.92E-04	4.52E-02	3.77E+00	7.81E-04	1.74E-04	1.47E-03	9.52E-04	2.85E-02	1.27E+00
2005	5	10	5.49E-01	0.00E+00	2.94E-01	0.00E+00	0.00E+00	3.63E-01	0.00E+00	4.06E-02	2.69E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.76E-02	1.04E+00
2005	5	11	6.45E-01	6.01E-01	2.69E-01	7.53E-02	1.23E-01	2.37E-01	4.33E-01	9.17E-01	4.45E+00	1.36E+01	1.34E+00	3.47E+00	5.69E+00	3.68E-01	1.18E+00
2005	5	12	1.95E-01	8.98E-01	9.16E-02	9.47E-02	1.46E-01	1.07E-01	1.13E-01	1.18E+00	2.12E+00	1.16E+01	3.81E+00	1.44E+00	1.20E+00	2.66E-01	3.07E-01
2005	5	13	2.34E+00	8.54E-02	9.68E-01	4.57E-02	7.22E-02	1.70E+00	5.83E-01	2.07E+00	7.26E+00	5.58E+00	3.75E-01	9.37E-01	1.17E+00	1.48E+00	2.75E+00
2005	5	14	1.61E-01	4.38E-01	4.09E-02	8.23E-02	1.58E-01	2.77E-02	2.59E-02	7.82E-01	2.09E+00	6.19E+00	1.73E+00	5.07E-01	1.39E+00	7.19E-02	3.12E-01
2005	5	15	8.99E-02	9.44E-01	1.23E-02	1.01E-01	1.51E-01	3.85E-02	1.75E-02	4.40E-01	1.81E-02	6.55E+00	3.19E+00	5.64E-01	7.91E-01	4.05E-02	2.52E-01
2005	5	16	3.94E-02	1.16E-05	3.06E-03	1.19E-05	5.20E-03	1.05E-02	4.27E-02	1.15E+00	1.59E-02	7.95E+00	4.11E-01	6.97E-01	1.13E+00	6.66E-02	1.24E-01
2005	5	17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-11	0.00E+00	8.22E-03	6.70E-01	3.68E-19	2.58E+00	1.62E-01	3.94E-01	5.12E-01	1.32E-03	0.00E+00
2005	5	18	3.15E-02	0.00E+00	1.42E-07	9.29E-03	9.76E-02	3.77E-04	2.31E-02	6.40E-01	1.32E-02	5.06E+00	4.54E-01	4.96E-01	7.71E-01	1.19E-02	6.01E-02
2005	5	19	5.02E-02	0.00E+00	2.57E-04	0.00E+00	2.67E-04	1.11E-03	2.70E-03	5.81E-01	7.29E-03	2.16E+00	3.24E-01	9.90E-02	5.78E-01	6.47E-03	1.53E-01
2005	5	20	3.17E-03	8.71E-02	1.16E-04	5.53E-02	8.54E-02	7.52E-04	2.20E-02	6.83E-01	1.58E-03	4.65E+00	1.01E+00	6.10E-01	5.49E-01	2.63E-02	4.23E-03
2005	5	21	1.87E-02	0.00E+00	6.57E-05	0.00E+00	6.42E-06	3.79E-04	2.47E-02	5.98E-01	5.14E-04	3.93E+00	2.10E-01	4.68E-01	1.10E+00	3.79E-02	6.57E-02
2005	5	22	1.20E-04	0.00E+00	0.00E+00	0.00E+00	1.66E-04	0.00E+00	1.07E-02	4.00E-01	1.20E-15	2.71E+00	2.59E-01	3.87E-01	5.02E-01	2.21E-03	4.13E-04
2005	5	23	2.58E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.02E-02	7.66E-01	2.54E-16	5.43E+00	6.59E-02	5.80E-01	7.31E-01	2.94E-02	2.74E-03
2005	5	24	4.60E-02	6.71E-03	5.09E-04	5.71E-05	5.23E-03	2.58E-03	1.17E-01	1.26E+00	5.72E-01	1.70E+01	4.12E-01	1.94E+00	2.98E+00	1.36E-01	1.08E-01
2005	5	25	2.12E-01	2.04E-01	1.71E-01	1.10E-02	2.16E-02	1.92E-01	3.15E-01	1.41E+00	2.10E+00	1.86E+01	8.87E-01	3.24E+00	6.03E+00	3.27E-01	2.66E-01
2005	5	26	6.71E-01	5.24E-02	2.29E-01	5.51E-03	1.01E-02	2.31E-01	4.85E-01	9.83E-01	4.59E+00	5.94E-01	1.57E-01	5.99E-01	5.32E-01	7.38E-01	9.05E-01
2005	5	27	1.99E-01	3.33E-01	9.59E-02	6.34E-02	1.96E-01	7.95E-02	7.35E-02	6.08E-01	3.13E+00	1.50E+01	2.10E+00	1.19E+00	2.26E+00	1.31E-01	4.26E-01
2005	5	28	5.55E-01	4.51E-06	2.55E-01	9.54E-10	6.69E-09	1.43E-01	6.90E-05	2.17E-02	2.20E+00	8.98E-05	9.59E-06	4.82E-05	2.66E-05	1.24E-02	9.09E-01
2005	5	29	5.00E-01	5.05E-03	3.31E-01	0.00E+00	0.00E+00	2.19E-01	4.37E-04	1.15E-01	2.02E+00	9.25E-02	7.14E-02	6.69E-05	1.05E-04	3.43E-02	8.20E-01
2005	5	30	1.81E-01	1.40E+00	2.05E-02	3.85E-01	5.21E-01	3.45E-02	3.22E-02	8.39E-01	2.16E+00	9.28E+00	4.71E+00	6.78E-01	1.37E+00	1.43E-01	4.03E-01
2005	5	31	6.78E-02	2.44E-01	9.31E-04	6.87E-01	1.31E+00	2.49E-03	2.89E-02	7.61E-01	2.17E-01	9.47E+00	1.08E+01	3.23E-01	9.41E-01	1.43E-01	2.03E-01
2005	6	1	2.61E-01	3.69E-06	2.71E-02	2.84E-08	2.94E-07	7.24E-02	9.60E-02	1.05E+00	1.30E+00	5.70E+00	1.23E-02	9.57E-01	1.28E+00	1.63E-01	3.13E-01
2005	6	2	3.27E-01	7.36E-05	3.01E-03	1.50E-06	7.64E-06	6.25E-03	8.77E-01	1.14E+00	4.19E-02	1.66E+00	4.27E-04	2.64E+00	1.79E+00	5.92E-01	4.98E-01
2005	6	3	1.47E-01	2.88E-03	3.41E-03	9.10E-04	1.79E-02	1.05E-02	6.76E-01	1.06E+00	2.15E-01	8.12E+00	1.22E+00	1.23E+00	9.84E-01	3.40E-01	2.45E-01
2005	6	4	1.20E-01	3.53E-01	2.43E-02	5.35E-03	9.19E-03	4.01E-02	4.64E-02	6.73E-01	1.08E+00	9.53E+00	4.56E-01	8.09E-01	1.52E+00	7.40E-02	2.23E-01
2005	6	5	1.05E-01	7.17E-01	5.91E-02	2.28E-01	3.13E-01	7.71E-02	2.10E-01	1.12E+00	1.79E+00	1.64E+01	1.92E+00	1.96E+00	3.24E+00	2.30E-01	1.58E-01
2005	6	6	4.71E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.74E-02	1.34E+00	1.37E-03	1.29E+01	6.98E-03	1.92E+00	2.16E+00	6.14E-02	2.40E-02
2005	6	7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-02	1.13E+00	0.00E+00	3.96E+00	7.21E-02	6.02E-01	7.31E-01	2.56E-02	0.00E+00
2005	6	8	5.49E-02	1.59E-05	3.45E-03	9.84E-08	8.54E-07	6.34E-03	3.03E-02	1.08E+00	2.69E-03	8.44E+00	8.50E-02	7.47E-01	1.19E+00	1.17E-01	1.52E-01
2005	6	9	7.48E-02	2.00E-02	9.10E-03	1.92E-02	9.34E-02	2.62E-02	2.41E-02	7.83E-01	4.34E-02	6.96E+00	2.41E+00	3.33E-01	1.40E+00	4.60E-02	2.37E-01
2005	6	10	5.00E-03	8.38E-07	7.15E-06	1.84E-07	1.08E-06	1.67E-05	7.35E-02	1.21E+00	2.07E-05	9.79E+00	7.67E-02	1.29E+00	7.18E-01	7.96E-02	2.52E-02
2005	6	11	5.13E-02	4.42E-05	2.51E-03	1.07E-05	5.70E-04	5.94E-03	3.06E-02	1.08E+00	2.24E-02	1.08E+01	1.97E-01	7.79E-01	9.70E-01	1.16E-01	1.39E-01
2005	6	12	2.54E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.47E-02	1.21E+00	0.00E+00	4.39E+00	1.33E-01	3.27E-01	9.93E-01	5.97E-02	1.11E-02
2005	6	13	5.95E-03	0.00E+00	0.00E+00	0.00E+00	1.23E-07	0.00E+00	2.56E-02	7.22E-01	3.52E-25	2.90E+00	2.10E-01	3.08E-01	6.80E-01	3.37E-02	1.93E-02

MILLENNIUM EMS Solutions Ltd.

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application															Baseline															Project														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2005	6	14	2.73E+00	7.50E-01	1.47E+00	1.30E-01	1.92E-01	1.90E+01	5.89E+00	1.63E+01	3.78E-01	1.03E+01	2.98E+00	1.06E+00	8.87E-01	2.51E+01	3.84E+00	2.69E+00	1.59E-02	1.47E+00	1.11E-02	1.60E-02	1.90E+01	5.85E+00	1.56E+01	3.19E-01	8.56E-02	3.83E-02	1.86E-01	1.29E-01	2.49E+01	3.70E+00	4.22E-02	7.34E-01	8.57E-04	1.19E-01	1.76E-01	3.52E-03	3.77E-02	6.80E-01	5.94E-02	1.02E+01	2.94E+00	8.70E-01	7.57E-01	1.20E-01	1.40E-01
2005	6	15	1.69E+00	4.58E-04	4.23E-01	1.48E-04	1.04E-03	9.11E+00	4.87E+00	1.04E+01	2.56E-01	7.71E+00	1.87E-01	6.90E-01	1.29E+00	8.35E+00	2.87E+00	1.68E+00	3.94E-04	4.23E-01	1.36E-04	9.85E-04	9.10E+00	4.86E+00	9.88E+00	2.54E-01	4.97E-02	1.30E-02	9.55E-02	7.05E-02	8.33E+00	2.85E+00	8.13E-03	6.42E-05	3.47E-04	1.24E-05	5.53E-05	1.21E-03	1.28E-02	4.99E-01	1.90E-03	7.66E+00	1.74E-01	5.94E-01	1.22E+00	1.88E-02	1.87E-02
2005	6	16	6.37E+00	1.30E-01	4.64E+00	2.95E-02	1.16E-01	1.71E+01	6.43E+00	1.83E+01	3.77E+00	7.49E+00	1.25E+00	1.01E+00	1.65E+00	2.14E+01	7.92E+00	6.04E+00	3.32E-02	4.32E+00	1.11E-02	2.24E-02	1.68E+01	6.33E+00	1.77E+01	5.26E-01	1.55E-01	7.73E-02	2.70E-01	2.08E-01	2.12E+01	7.37E+00	3.29E-01	9.69E-02	3.23E-01	1.84E-02	9.37E-02	3.84E-01	9.61E-02	6.28E-01	3.24E+00	7.34E+00	1.17E+00	7.38E-01	1.44E+00	1.88E-01	5.53E-01
2005	6	17	6.48E+00	2.75E-03	3.52E+00	1.00E-03	2.98E-03	1.15E+01	6.61E-01	1.22E+01	4.62E+00	1.32E+00	2.40E-01	4.65E-02	1.79E-01	1.19E+01	9.08E+00	6.45E+00	1.48E-04	2.92E+00	6.28E-05	9.63E-04	1.09E+01	6.59E-01	1.21E+01	7.50E-02	1.62E-02	7.79E-03	1.90E-02	2.05E-02	1.19E+01	8.98E+00	3.13E-02	2.60E-03	5.95E-01	9.39E-04	2.01E-03	5.56E-01	1.17E-03	1.26E-01	4.55E+00	1.31E+00	2.32E-01	2.75E-02	1.58E-01	1.46E-02	9.19E-02
2005	6	18	7.66E-01	1.19E-06	9.15E-02	4.19E-07	3.14E-04	7.47E+00	9.97E-01	6.34E+00	2.78E-01	1.84E+00	3.23E-01	8.25E-02	5.37E-01	3.58E+00	2.22E+00	7.66E-01	1.19E-06	9.15E-02	4.19E-07	1.31E-04	7.47E+00	9.97E-01	5.95E+00	2.78E-01	2.09E-02	2.03E-03	4.57E-02	2.97E-02	3.57E+00	2.22E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-04	0.00E+00	3.77E-04	3.87E-01	8.39E-25	1.82E+00	3.21E-01	3.68E-02	5.07E-01	8.40E-03	0.00E+00
2005	6	19	5.06E-01	2.00E-03	5.57E-01	1.36E-04	8.83E-04	1.10E+01	3.82E+00	1.08E+01	1.82E-01	2.97E+00	2.02E-01	4.18E-01	9.99E-01	1.02E+01	1.74E+00	4.91E-01	2.00E-03	5.57E-01	1.36E-04	8.82E-04	1.10E+01	3.80E+00	1.01E+01	1.74E-01	3.60E-02	1.26E-02	7.18E-02	4.95E-02	1.02E+01	1.69E+00	1.56E-02	0.00E+00	0.00E+00	0.00E+00	9.21E-07	0.00E+00	2.08E-02	6.25E-01	8.39E-03	2.93E+00	1.90E-01	3.46E-01	9.49E-01	3.44E-02	5.81E-02
2005	6	20	6.25E+00	1.57E+00	3.22E+00	4.02E-02	1.16E-01	2.41E+01	8.73E+00	2.65E+01	5.45E-01	1.46E+01	1.81E+00	1.35E+00	1.65E+00	2.97E+01	8.69E+00	6.09E+00	1.73E-02	3.21E+00	1.94E-03	3.57E-03	2.41E+01	8.67E+00	2.55E+01	4.42E-01	9.16E-02	3.20E-02	2.13E-01	1.41E-01	2.96E+01	8.37E+00	1.57E-01	1.55E+00	7.38E-03	3.83E-02	1.12E-01	1.38E-02	5.65E-02	1.00E+00	1.04E-01	1.45E+01	1.77E+00	1.14E+00	1.51E+00	1.32E-01	3.19E-01
2005	6	21	3.23E+00	6.61E-01	1.84E+00	1.05E-01	2.07E-01	2.29E+01	7.60E+00	2.77E+01	1.48E+00	8.73E+00	2.50E+00	2.70E+00	3.88E+00	2.76E+01	4.68E+00	3.04E+00	4.81E-02	1.72E+00	1.41E-02	2.41E-02	2.28E+01	7.33E+00	2.66E+01	5.15E-01	1.63E-01	8.50E-02	3.16E-01	2.28E-01	2.73E+01	4.45E+00	1.88E-01	6.13E-01	1.23E-01	9.07E-02	1.83E-01	1.60E-01	2.67E-01	1.15E+00	9.68E-01	8.57E+00	2.41E+00	2.39E+00	3.66E+00	3.86E-01	2.38E-01
2005	6	22	3.18E-01	5.94E-04	1.76E-01	8.71E-03	1.57E-02	3.98E+00	1.03E+00	3.23E+00	1.63E-03	1.98E+00	4.14E-01	5.14E-02	6.05E-01	2.70E+00	1.47E+00	3.18E-01	8.08E-05	1.76E-01	1.46E-04	1.95E-04	3.98E+00	1.03E+00	3.11E+00	1.63E-03	1.38E-04	5.47E-05	2.27E-02	4.32E-03	2.70E+00	1.47E+00	0.00E+00	5.13E-04	0.00E+00	8.57E-03	1.55E-02	0.00E+00	8.08E-04	1.24E-01	2.30E-07	1.98E+00	4.14E-01	2.88E-02	6.00E-01	6.38E-03	0.00E+00
2005	6	23	1.70E+00	0.00E+00	7.40E-01	0.00E+00	0.00E+00	7.96E+00	5.46E+00	1.28E+01	4.02E-02	1.13E+01	1.58E-02	1.16E+00	9.12E-01	1.12E+01	2.21E+00	1.66E+00	0.00E+00	7.40E-01	0.00E+00	0.00E+00	7.96E+00	5.39E+00	1.20E+01	2.41E-02	7.46E-04	1.37E-05	1.71E-02	5.65E-03	1.11E+01	2.11E+00	3.84E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.36E-04	6.56E-02	8.26E-01	1.60E-02	1.13E+01	1.58E-02	1.15E+00	9.07E-01	4.51E-02	1.07E-01
2005	6	24	4.36E+00	2.61E-01	1.84E+00	3.23E-01	6.29E-01	2.68E+01	1.22E+01	2.29E+01	9.94E-01	1.47E+01	7.56E+00	1.48E+00	3.05E+00	2.00E+01	7.36E+00	4.28E+00	4.54E-02	1.84E+00	1.85E-02	3.02E-02	2.68E+01	1.21E+01	2.18E+01	6.35E-01	1.89E-01	9.33E-02	3.31E-01	2.54E-01	1.99E+01	7.17E+00	8.10E-02	2.15E-01	1.67E-03	3.05E-01	5.98E-01	4.61E-03	5.56E-02	1.15E+00	3.59E-01	1.45E+01	7.47E+00	1.15E+00	2.80E+00	1.45E-01	1.88E-01
2005	6	25	4.24E+00	1.95E-01	1.76E+00	2.65E-01	5.37E-01	2.32E+01	9.45E+00	1.92E+01	7.06E-01	8.42E+00	7.69E+00	8.17E-01	1.02E+00	1.65E+01	5.82E+00	4.14E+00	3.69E-02	1.76E+00	2.01E-02	3.50E-02	2.32E+01	9.40E+00	1.80E+01	6.11E-01	1.76E-01	8.65E-02	3.28E-01	2.37E-01	1.64E+01	5.53E+00	9.31E-02	1.58E-01	1.67E-03	2.45E-01	5.02E-01	4.11E-03	4.94E-02	1.15E+00	9.56E-02	8.25E+00	7.61E+00	4.90E-01	7.79E-01	1.13E-01	2.85E-01
2005	6	26	9.68E+00	1.20E-02	5.53E+00	2.08E-04	7.88E-04	1.68E+01	3.20E+00	2.19E+01	4.81E+00	9.85E-01	4.08E-02	4.62E-01	3.68E-01	2.63E+01	1.24E+01	9.37E+00	5.45E-03	5.16E+00	2.06E-04	7.53E-04	1.66E+01	3.10E+00	2.13E+01	3.47E-01	4.85E-02	1.25E-02	1.25E-01	7.60E-02	2.62E+01	1.19E+01	3.18E-01	6.51E-03	3.69E-01	2.53E-06	3.54E-05	2.52E-01	1.00E-01	5.29E-01	4.47E+00	9.36E-01	2.83E-02	3.37E-01	2.92E-01	1.56E-01	5.35E-01
2005	6	27	1.20E+01	3.02E-01	6.02E+00	6.50E-02	4.49E-02	1.84E+01	2.74E+00	2.28E+01	6.28E+00	9.14E-01	2.19E+00	1.45E-01	1.20E-01	2.60E+01	1.65E+01	1.18E+01	1.66E-02	5.87E+00	3.70E-03	6.39E-03	1.83E+01	2.73E+00	2.25E+01	4.66E-01	7.68E-02	3.26E-02	1.40E-01	1.01E-01	2.59E+01	1.60E+01	2.15E-01	2.86E-01	1.50E-01	6.13E-02	3.85E-02	1.15E-01	4.61E-03	2.97E-01	5.81E+00	8.37E-01	2.16E+00	4.95E-03	1.85E-02	8.21E-02	5.38E-01
2005	6	28	5.65E+00	9.19E-02	1.52E+00	2.36E-02	2.21E-02	1.56E+01	3.61E+00	2.17E+01	1.09E+00	1.10E+01	1.89E-01	1.31E+00	1.75E+00	1.91E+01	7.10E+00	5.59E+00	3.05E-03	1.46E+00	1.96E-03	3.37E-03	1.55E+01	3.55E+00	2.08E+01	2.74E-01	4.47E-02	1.21E-02	1.01E-01	6.78E-02	1.90E+01	6.95E+00	6.34E-02	8.89E-02	5.63E-02	2.16E-02	1.88E-02	7.66E-02	5.24E-02	9.14E-01	8.12E-01	1.09E+01	1.77E-01	1.21E+00	1.68E+00	1.27E-01	1.57E-01
2005	6	29	4.09E+00	6.04E-03	2.38E+00	1.13E-03	6.82E-03	1.92E+01	8.63E+00	2.39E+01	6.63E-01	1.73E+01	1.73E-01	3.07E+00	5.18E+00	2.17E+01	5.85E+00	3.94E+00	5.99E-03	2.38E+00	1.11E-03	4.59E-03	1.91E+01	8.50E+00	2.27E+01	4.36E-01	9.43E-02	3.44E-02	1.88E-01	1.31E-01	2.16E+01	5.47E+00	1.48E-01	4.85E-05	4.40E-03	2.18E-05	2.24E-03	1.47E-02	1.25E-01	1.22E+00	2.27E-01	1.72E+01	1.38E-01	2.88E+00	5.05E+00	1.38E-01	3.82E-01
2005	6	30	2.69E+00	9.06E-05	6.53E-01	3.43E-05	4.02E-03	1.41E+01	3.56E+00	1.42E+01	4.13E-01	3.88E+00	3.69E-01	4.44E-01	9.61E-01	1.19E+01	4.18E+00	2.68E+00	5.33E-05	6.52E-01	3.16E-05	7.60E-04	1.41E+01	3.52E+00	1.32E+01	4.11E-01	7.20E-02	1.13E-02	1.63E-01	1.30E-01	1.19E+01	4.16E+00	8.76E-03	3.73E-05	9.08E-04	2.73E-06	3.26E-03	3.44E-03	3.61E-02	9.89E-01	2.45E-03	3.81E+00	3.58E-01	2.81E-01	8.30E-01	5.17E-02	2.36E-02
2005	7	1	2.57E+00	9.16E-04	1.23E+00	2.92E-04	2.04E-03	1.40E+01	6.60E+00	1.57E+01	1.53E-01	8.41E+00	2.63E-01	8.49E-01	1.35E+00	1.43E+01	4.10E+00	2.50E+00	9.16E-04	1.23E+00	2.91E-04	1.26E-03	1.40E+01	6.53E+00	1.50E+01	1.21E-01	2.51E-02	6.69E-03	1.19E-01	5.99E-02	1.43E+01	3.92E+00	7.17E-02	3.40E-07	0.00E+00	1.60E-06	7.85E-04	3.86E-04	6.47E-02	7.46E-01	3.22E-02	8.39E+00	2.56E-01	7.30E-01	1.29E+00	8.25E-02	1.83E-01
2005	7	2	1.16E+00	4.06E-04	8.58E-01	8.96E-05	9.16E-04	2.11E+01	4.63E+00	2.12E+01	2.64E-01	6.07E+00	1.55E-01	7.21E-01	1.22E+00	1.89E+01	2.63E+00	1.15E+00	4.02E-04	8.57E-01	8.89E-05	9.05E-04	2.11E+01	4.58E+00	2.02E+01	2.61E-01	5.23E-02	9.85E-03	1.31E-01	9.83E-02	1.88E+01	2.59E+00	1.43E-02	4.60E-06	1.67E-04	7.16E-07	1.10E-05	1.21E-03	5.24E-02	1.06E+00	2.18E-03	6.02E+00	1.46E-01	5.89E-01	1.12E+00	1.05E-01	4.08E-02
2005	7	3	1.99E+00	1.05E-03	2.40E+00	8.47E-05	5.47E-04	2.25E+01	6.03E+00	2.24E+01	1.61E-01	8.74E+00	5.51E-02	9.73E-01	1.19E+00	2.72E+01	2.68E+00	1.87E+00	9.74E-04	2.39E+00	7.60E-05	5.21E-04	2.25E+01	5.99E+00	2.17E+01	1.51E-01	3.10E-02	7.66E-03	1.03E-01	5.76E-02	2.71E+01	2.38E+00	1.20E-01	7.24E-05	4.90E-03	8.73E-06	2.66E-05	1.23E-02	4.68E-02	7.12E-01	9.46E-03	8.71E+00	4.74E-02	8.70E-01	1.13E+00	1.03E-01	2.97E-01
2005	7	4	1.18E+00	9.25E-04	1.22E+00	1.11E-04	6.78E-04	1.77E+01	5.86E+00	1.71E+01	4.25E-01	6.24E+00	1.53E-01	9.07E-01	1.35E+00	1.40E+01	2.24E+00	1.14E+00	9.25E-04	1.22E+00	1.11E-04	6.78E-04	1.77E+01	5.78E+00	1.60E+01	4.25E-01	7.01E-02	1.41E-02	1.78E-01	1.24E-01	1.39E+01	2.18E+00	3.63E-02	2.65E-08	3.47E-05	4.90E-08	1.78E-07	5.57E-04	7.35E-02	1.14E+00	5.79E-04	6.17E+00	1.39E-01	7.29E-01	1.23E+00	6.17E-02	5.88E-02
2005	7	5	5.10E+00	1.57E-03	2.01E+00	9.52E-03	4.30E-01	1.54E+01	6.93E+00	1.77E+01	3.93E-01	7.93E+00	2.84E+00	9.03E-01	1.08E+00	1.58E+01	6.13E+00	4.85E+00	1.46E-03	2.00E+00	9.18E-04	6.70E-03	1.53E+01	6.87E+00	1.68E+01	3.71E-01	8.87E-02	1.94E-02	1.91E-01	1.33E-01	1.58E+01	5.67E+00	2.45E-01	1.16E-04	3.60E-03	8.60E-03	4.23E-01	7.72E-03	6.13E-02	8.64E-01	2.18E-02	7.84E+00	2.82E+00	7.12E-01	9.45E-01	4.15E-02	4.67E-01
2005	7	6	2.06E+00	2.45E-04	6.03E-01	4.48E-04	1.68E-02	7.37E+00	1.76E+00	6.82E+00	8.45E-02	2.58E+00	3.68E-01	1.18E-01	6.06E-01	6.12E+00	3.64E+00	1.98E+00	2.41E-04	6.01E-01	1.12E-04	9.41E-04	7.36E+00	1.76E+00	6.56E+00	8.28E-02	2.00E-02	5.09E-03	6.76E-02	3.95E-02	6.10E+00	3.48E+00	7.29E-02	3.46E-06	2.07E-03	3.36E-04	1.59E-02	4.12E-03	4.89E-03	2.68E-01	1.63E-03	2.56E+00	3.63E-01	5.02E-02	5.67E-01	2.45E-02	1.63E-01
2005	7	7	1.28E+00	2.25E-03	6.22E-01	2.57E-04	1.57E-03	1.12E+01	4.70E+00	1.24E+01	1.79E-01	6.95E+00	2.28E-01	7.37E-01	1.19E+00	1.02E+01	2.29E+00	1.26E+00	2.22E-03	6.21E-01	2.51E-04	1.25E-03	1.12E+01	4.67E+00	1.18E+01	1.49E-01	3.50E-02	1.29E-02	9.11E-02	5.70E-02	1.01E+01	2.22E+00	2.36E-02	3.22E-05	6.92E-04	5.80E-06	3.14E-04	2.23E-03	2.65E-02	5.66E-01	3.05E-02	6.92E+00	2.15E-01	6.46E-01	1.13E+00	3.84E-02	7.32E-02
2005	7	8	6.07E-01	2.03E-03	5.53E-01	6.57E-04	3.28E-02	1.51E+01	3.82E+00	1.27E+01	3.70E-01	3.56E+00	5.47E-01	3.49E-01	1.13E+00	1.22E+01	1.37E+00	6.02E-01	2.03E-03	5.53E-01	6.57E-04	2.42E-03	1.51E+01	3.77E+00	1.17E+01	3.70E-01	8.22E-02	1.99E-02	1.94E-01	1.47E-01	1.21E+01	1.36E+00	4.50E-03	1.35E-06	4.60E-06	6.20E-07	3.04E-02	9.08E-06	4.97E-02	9.94E-01	2.19E-04	3.48E+00	5.27E-01	1.55E-01	9.80E-01	6.91E-02	8.72E-03
2005	7	9	6.49E-01	0.00E+00	9.04E-02	0.00E+00	4.67E-06	4.83E+00	2.18E+00	7.23E+00	9.48E-04	4.03E+00	1.83E-01	5.16E-01	6.47E-01	6.08E+00	9.08E-01	6.49E-01	0.00E+00	9.04E-02	0.00E+00	0.00E+00	4.83E+00	2.16E+00	6.82E+00	9.48E-04	1.96E-04	0.00E+00	1.22E-02	3.36E-03	6.02E+00	9.08E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.67E-06	0.00E+00	2.77E-02	4.08E-01	1.97E-14	4.03E+00	1.83E-01	5.03E-01	6.44E-01	6.28E-02	0.00E+00
2005	7	10	3.38E-01	0.00E+00	1.02E-01	0.00E+00	9.21E-05	6.38E+00	2.68E+00	7.92E+00	1.40E-03	5.25E+00	1.46E-01	7.75E-01	6.60E-01	6.99E+00	6.41E-01	3.38E-01	0.00E+00	1.02E-01	0.00E+00	0.00E+00	6.38E+00	2.66E+00	7.12E+00	1.40E-03	1.49E-04	3.20E-07	3.82E-03	1.23E-03	6.96E+00	6.41E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.21E-05	0.00E+00	1.80E-02	7.97E-01	0.00E+00	5.25E+00	1.46E-01	7.71E-01	6.59E-01	2.89E-02	0.00E+00
2005	7	11	1.28E+00	1.35E-03	1.01E+00	8.78E-06	9.11E-05	1.05E+01	4.18E+00	1.53E+01	1.11E-01	7.23E+00	1.08E-01	6.73E-01	1.01E+00	1.20E+01	2.59E+00	1.22E+00	1.35E-03	1.01E+00	8.78E-06	8.73E-05	1.05E+01	4.16E+00	1.46E+01	7.63E-02	9.77E-03	3.33E-03	7.01E-02	2.34E-02	1.20E+01	2.45E+00	5.89E-02	0.00E+00	1.42E-03	0.00E+00	3.82E-06	3.44E-03	2.05E-02	6.84E-01	3.51E-02	7.22E+00	1.05E-01	6.03E-01	9.91E-01	3.30E-02	1.44E-01
2005	7	12	1.83E+00	1.84E-03	8.09E-01	1.18E-03	7.22E-02	2.01E+01	7.47E+00	1.95E+01	5.07E-01	9.47E+00	5.40E-01	1.39E+00	1.40E+00	2.04E+01	2.99E+00	1.82E+00	1.70E-03	8.08E-01	6.26E-04	2.83E-03	2.01E+01	7.37E+00	1.81E+01	5.02E-01	8.36E-02	1.94E-02	2.37E-01	1.48E-01	2.03E+01	2.97E+00	9.20E-03	1.40E-04	2.63E-04	5.56E-04	6.93E-02	3.29E-03	9.88E-02	1.38E+00	5.22E-03	9.39E+00	5.21E-01	1.15E+00	1.25E+00	1.20E-01	2.41E-02
2005	7	13	6.90E-01	9.31E-05	9.55E-01	7.83E-04	1.27E-02	8.77E+00	3.20E+00	1.02E+01	3.58E-02	7.22E+00	1.20E-01	8.65E-01	6.30E-01	1.08E+01	1.14E+00	6.46E-01	9.31E-05	9.52E-01	7.16E-07	1.71E-05	8.77E+00	3.18E+00	9.68E+00	3.56E-02	4.99E-03	1.31E-03	9.45E-03	6.96E-03	1.08E+01	1.04E+00	4.39E-02	0.00E+00	3.59E-03	7.82E-04	1.27E-02	8.60E-03	2.13E-02	4.83E-01	2.46E-04	7.22E+00	1.19E-01	8.56E-01	6.23E-01	8.36E-03	9.77E-02
2005	7	14	1.45E+00	2.71E-03	9.77E-01	2.88E-04	1.36E-03	1.86E+01	9.30E+00	2.93E+01	3.94E-01	1.85E+01	8.61E-02	2.02E+00	2.87E+00	2.13E+01	2.77E+00	1.44E+00	2.70E-03	9.75E-01	2.88E-04	1.34E-03	1.86E+01	9.22E+00	2.78E+01	3.92E-01	6.80E-02	1.85E-02	1.87E-01	1.21E-01	2.12E+01	2.73E+00	1.48E-02	4.92E-06	2.13E-03	3.94E-07	2.11E-05	6.89E-03	8.56E-02	1.52E+00	2.48E-03	1.84E+01	6.75E-02	1.83E+00	2.75E+00	6.69E-02	3.69E-02
2005	7	15	7.47E-01	1.81E-03	6.83E-01	2.41E-04	1.88E-03	1.50E+01	6.36E+00	1.74E+01	3.97E-01	1.01E+01	2.14E-01	1.44E+00	1.14E+00	1.81E+01	1.27E+00	7.47E-01	1.81E-03	6.83E-01	2.41E-04	1.36E-03	1.50E+01	6.29E+00	1.62E+01	3.97E-01	7.73E-02	1.97E-02	2.02E-01	1.33E-01	1.80E+01	1.27E+00	1.54E-04	0.00E+00	0.00E+00	0.00E+00	5.20E-04	0.00E+00	6.59E-02	1.21E+00	0.00E+00	1.00E+01	1.94E-01	1.24E+00	1.01E+00	7.80E-02	4.60E-04
2005	7	16	4.37E+00	2.79E-01	1.15E+00	3.90E-02	8.78E-02	1.72E+01	9.31E+00	2.58E+01	1.75E+00	1.30E+01	2.75E+00	1.15E+00	1.32E+00	2.05E+01	7.72E+00	4.17E+00	5.04E-03	1.06E+00	1.20E-03	3.61E-03	1.71E+01	9.18E+00	2.51E+01	2.33E-01	4.68E-02	1.80E-02	1.15E-01	7.16E-02	2.03E+01	7.30E+00	2.01E-01	2.74E-01	8.23E-02	3.78E-02	8.42E-02	1.12E-01	1.27E-01	7.27E-01	1.52E+00	1.29E+01	2.73E+00	1.03E+00	1.24E+00	2.34E-01	4.12E-01
2005	7	17	3.31E+00	1.98E-01	1.34E+00	2.06E-01	5.07E-01	1.90E+01	1.00E+01	2.81E+01	1.94E+00	1.65E+01	2.43E+00	4.04E+00	5.53E+00	2.37E+01	6.38E+00	2.76E+00	6.85E-03	1.24E+00	2.03E-03	5.44E-03	1.89E+01	8.88E+00	2.64E+01	7.44E-01	1.17E-01	3.23E-02	2.85E-01	1.97E-01	2.28E+01	5.69E+00	5.54E-01	1.91E-01	9.44E-02	2.04E-01	5.02E-01	1.80E-01	1.17E+00	1.66E+00	1.20E+00	1.64E+01	2.40E+00	3.75E+00	5.34E+00	8.62E-01	6.85E-01
2005	7	18	7.97E-01	2.41E-03	4.79E-01	2.76E-04	1.02E-02	1.27E+01	3.41E+00	1.22E+01	2.25E-01	4.66E+00	6.83E-01	7.52E-01	8.10E-01	1.14E+01	1.41E+00	7.97E-01	2.40E-03	4.79E-01	2.70E-04	3.01E-03	1.27E+01	3.35E+00	1.13E+01	2.25E-01	4.34E-02	1.42E-02	1.28E-01	7.90E-02	1.13E+01	1.41E+00	0.00E+00	5.77E-06	0.00E+00	6.33E-06	7.23E-03	0.00E+00	6.25E-02	9.30E-01	7.76E-05	4.62E+00	6.69E-01	6.24E-01	7.32E-01	5.71E-02	1.52E-06
2005	7	19	1.46E+00	4.62E-01	7.42E-01	1.10E-01	2.29E-01	8.07E+00	3.12E+00	1.22E+01	3.46E-01	7.18E+00	1.69E+00	5.95E-01	1.21E+00	1.34E+01	2.00E+00	1.45E+00	2.04E-02	7.39E-01	8.48E-03	1.36E-02	8.07E+00	3.09E+00	1.18E+01	1.80E-01	5.28E-02	3.00E-02	8.37E-02	6.86E-02	1.34E+01	1.99E+00	5.30E-03	4.42E-01	3.67E-03	1.02E-01	2.16E-01	7.15E-03	3.24E-02	4.44E-01	1.66E-01	7.12E+00	1.66E+00	5.12E-01	1.14E+00	5.83E-02	1.06E-02
2005	7	20	2.34E+00	1.39E-01	1.12E+00	2.51E-02	4.16E-02	5.64E+00	2.21E+00	7.93E+00	3.87E-01	3.58E+00	1.64E-01	2.56E-01	3.22E-01	9.61E+00	2.98E+00	2.33E+00	6.79E-03	1.12E+00	1.89E-03	1.40E-03	5.63E+00	2.20E+00	7.86E+00	1.58E-02	3.06E-03	2.61E-03	3.05E-03	2.23E-03	9.60E+00	2.93E+00	1.20E-02	1.32E-01	3.24E-03	2.32E-02	4.02E-02	9.54E-03	1.12E-02	6.61E-02	3.71E-01	3.58E+00	1.62E-01	2.53E-01	3.20E-01	5.12E-03	4.94E-02
2005	7	21	6.93E+00	1.36E-02	3.49E+00	8.06E-05	3.17E-04	1.81E+01	6.13E+00	2.66E+01	3.28E+00	6.12E+00	1.01E-01	1.42E+00	1.59E+00	2.68E+01	9.27E+00	6.45E+00	1.12E-03	3.32E+00	8.00E-05	3.14E-04	1.78E+01	5.81E+00	2.54E+01	2.73E-01	3.47E-02	7.96E-03	1.06E-01	6.28E-02	2.64E+01	8.56E+00	4.78E-01	1.25E-02	1.71E-01	6.23E-07	3.12E-06	2.64E-01	3.13E-01	1.14E+00	3.01E+00	6.08E+00	9.31E-02	1.31E+00	1.53E+00	3.94E-01	7.08E-01
2005	7	22	3.90E+00	5.46E-01	2.20E+00	7.04E-02	1.61E-01	1.96E+01	6.76E+00	2.13E+01	1.85E+00	8.79E+00	1.89E+00	1.21E+00	2.04E+00	1.72E+01	6.52E+00	3.83E+00	3.21E-02	2.18E+00	1.01E-02	1.94E-02	1.95E+01	6.73E+00	2.07E+01	4.81E-01	1.49E-01	6.80E-02	2.88E-01	2.17E-01	1.71E+01	6.34E+00	7.12E-02	5.14E-01	1.62E-02	6.04E-02	1.42E-01	2.40E-02	3.59E-02	6.43E-01	1.37E+00	8.64E+00	1.82E+00	9.24E-01	1.82E+00	1.06E-01	1.75E-01
2005	7	23	2.17E-01	0.00E+00	1.68E-01	0.00E+00	0.00E+00	5.99E+00	2.69E+00	6.37E+00	6.49E-02	3.69E+00	9.00E-02	7.23E-01	4.65E-01	7.77E+00	6.76E-01	2.17E-01	0.00E+00	1.68E-01	0.00E+00	0.00E+00	5.99E+00	2.67E+00	5.89E+00	6.49E-02	5.53E-03	4.85E-04	1.60E-02	1.06E-02	7.76E+00	6.76E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.18E-02	4.78E-01	1.75E-17	3.69E+00	8.95E-02	7.07E-01	4.54E-01	1.65E-02	0.00E+00
2005	7	24	4.94E+00	1.97E-01	3.31E+00	6.35E-02	6.45E-02	1.78E+01	5.53E+00	2.58E+01	2.42E+00	6.41E+00	1.78E-01	1.27E+00	7.58E-01	2.38E+01	7.06E+00	4.08E+00	2.38E-02	2.99E+00	8.29E-03	9.28E-03	1.74E+01	4.89E+00	2.41E+01	2.91E-01	6.94E-02	2.76E-02	1.64E-01	1.15E-01	2.29E+01	6.02E+00	8.60E-01	1.73E-01	3.20E-01	5.52E-02	5.53E-02	4.19E-01	6.42E-01	1.66E+00	2.13E+00	6.34E+00	1.51E-01	1.11E+00	6.43E-01	9.03E-01	1.04E+00
2005	7	25	1.06E+01	8.71E-01	4.20E+00	6.60E-02	9.73E-02	1.77E+01	3.31E+00	1.93E+01	3.12E+00	1.47E+00	3.02E+00	1.52E-01	3.23E-01	2.06E+01	1.46E+01	1.03E+01	1.77E-02	4.08E+00	5.65E-03	6.11E-03	1.76E+01	3.31E+00	1.89E+01	3.54E-01	6.88E-02	2.95E-02	1.27E-01	9.51E-02	2.06E+01	1.41E+01	2.56E-01	8.53E-01	1.11E-01	6.03E-02	9.12E-02	5.86E-02	5.75E-03	3.62E-01	2.77E+00	1.40E+00	2.99E+00	2.51E-02	2.28E-01	2.51E-02	5.33E-01
2005	7	26	2.47E+00	2.68E-03	1.57E+00	1.11E-03	5.73E-03	2.93E+01	9.15E+00	2.88E+01	3.87E-01	1.51E+01	1.29E-01	2.68E+00	2.75E+00	3.72E+01	4.09E+00	2.41E+00	2.64E-03	1.57E+00	8.68E-04	2.80E-03	2.93E+01	8.87E+00	2.72E+01	2.64E-01	4.58E-02	1.25E-02	1.52E-01	9.02E-02	3.69E+01	4.00E+00	6.45E-02	4.48E-05	1.16E-04	2.42E-04	2.92E-03	1.16E-03	2.81E-01	1.58E+00	1.22E-01	1.50E+01	1.16E-01	2.53E+00	2.66E+00	3.48E-01	8.94E-02
2005	7	27	2.42E+00	8.81E-02	1.34E+00	1.25E-03	2.51E-03	1.92E+01	6.04E+00	2.77E+01	6.28E-01	1.15E+01	2.58E-01	1.38E+00	9.42E-01	3.24E+01	3.61E+00	2.40E+00	3.69E-03	1.34E+00	7.18E-04	1.60E-03	1.92E+01	5.97E+00	2.66E+01	2.07E-01	3.45E-02	9.62E-03	1.43E-01	7.69E-02	3.22E+01	3.54E+00	2.55E-02	8.44E-02	4.99E-03	5.34E-04	9.14E-04	1.02E-02	6.71E-02	1.16E+00	4.21E-01	1.15E+01	2.48E-01	1.24E+00	8.65E-01	1.98E-01	6.46E-02
2005	7	28	2.06E+00	1.18E-01	1.30E+00	9.21E-02	2.03E-01	2.56E+01	8.89E+00	2.18E+01	3.32E-01	1.71E+01	1.22E+00	1.59E+00	1.87E+00	3.22E+01	3.00E+00	2.06E+00	5.15E-03	1.30E+00	1.82E-03	4.70E-03	2.56E+01	8.82E+00	2.07E+01	3.14E-01	6.84E-02	1.81E-02	2.25E-01	1.41E-01	3.20E+01	2.99E+00	6.21E-03	1.13E-01	7.05E-05	9.03E-02	1.98E-01	1.17E-04	6.65E-02	1.13E+00	1.85E-02	1.70E+01	1.20E+00	1.36E+00	1.73E+00	2.13E-01	1.14E-02
2005	7	29	3.66E+00	1.66E-02	1.10E+00	3.95E-03	7.29E-02	1.19E+01	7.38E+00	1.57E+01	3.18E-01	1.10E+01	1.08E+00	7.90E-01	1.28E+00	1.62E+01	5.46E+00	3.64E+00	1.15E-02	1.10E+00	3.12E-03	1.27E-02	1.19E+01	7.33E+00	1.52E+01	2.69E-01	1.04E-01	5.44E-02	1.36E-01	1.20E-01	1.61E+01	5.40E+00	2.02E-02	5.02E-03	2.67E-04	8.24E-04	6.02E-02	4.42E-03	4.96E-02	5.19E-01	4.96E-02	1.09E+01	1.03E+00	6.54E-01	1.16E+00	5.89E-02	6.49E-02
2005	7	30	1.84E+00	3.51E-03	1.43E+00	1.48E-03	5.80E-02	1.77E+01	9.46E+00	3.01E+01	5.35E-01	1.68E+01	9.27E-01	1.90E+00	1.63E+00	2.06E+01	3.58E+00	1.83E+00	3.43E-03	1.43E+00	9.28E-04	4.45E-03	1.77E+01	9.38E+00	2.88E+01	5.09E-01	1.16E-01	3.45E-02	2.72E-01	1.86E-01	2.05E+01	3.54E+00	9.59E-03	7.21E-05	3.16E-05	5.54E-04	5.35E-02	1.16E-04	7.79E-02	1.26E+00	2.61E-02	1.66E+01	8.92E-01	1.63E+00	1.44E+00	9.68E-02	3.91E-02
2005	7	31	3.99E+00	2.34E-02	1.04E+00	3.82E-01	4.29E-01	1.68E+01	8.58E+00	2.05E+01	7.07E-01	5.93E+00	7.93E+00	9.66E-01	1.27E+00	1.64E+01	5.49E+00	3.95E+00	2.29E-02	1.04E+00	1.58E-02	2.86E-02	1.68E+01	8.52E+00	1.95E+01	6.66E-01	1.93E-01	9.20E-02	3.18E-01	2.40E-01	1.63E+01	5.39E+00	3.67E-02	4.41E-04	3.83E-04	3.66E-01	4.00E-01	1.96E-03	6.76E-02	9.51E-01	4.06E-02	5.74E+00	7.84E+00	6.48E-01	1.03E+00	1.02E-01	1.06E-01
2005	8	1	1.88E+00	3.43E-03	9.67E-01	2.79E-03	9.54E-02	1.73E+01	8.61E+00	2.67E+01	4.42E-01	5.92E+00	1.15E+00	8.83E-01	1.77E+00	1.86E+01	3.15E+00	1.88E+00	3.39E-03	9.67E-01	2.45E-03	9.56E-03	1.73E+01	8.51E+00	2.52E+01	4.23E-01	1.06E-01	3.10E-02	2.40E-01	1.65E-01	1.86E+01	3.15E+00	1.20E-03	4.01E-05	3.73E-05	3.38E-04	8.58E-02	8.96E-05	9.84E-02	1.52E+00	1.99E-02	5.81E+00	1.12E+00	6.43E-01	1.61E+00	7.01E-02	4.55E-03
2005	8	2	6.33E+00	3.21E-03	3.21E+00	3.08E-04	1.85E-03	1.79E+01	1.07E+01	2.12E+01	3.53E+00	1.76E+01	8.54E-02	3.77E+00	4.80E+00	2.25E+01	8.20E+00	6.03E+00	2.74E-03	3.17E+00	2.68E-04	1.10E-03	1.78E+01	1.01E+01	2.03E+01	3.64E-01	7.09E-02	2.08E-02	1.74E-01	1.13E-01	2.22E+01	7.79E+00	2.96E-01	4.62E-04	4.74E-02	3.93E-05	7.46E-04	1.14E-01	6.35E-01	9.20E-01	3.16E+00	1.75E+01	6.46E-02	3.60E+00	4.69E+00	3.13E-01	4.10E-01
2005	8	3	1.15E+01	1.98E-01	5.80E+00	4.29E-02	5.65E-02	1.73E+01	1.51E+00	2.34E+01	4.54E+00	3.42E+00	5.24E-01	2.99E-01	8.31E-01	2.25E+01	1.48E+01	1.10E+01	6.91E-03	5.36E+00	1.63E-03	1.66E-03	1.70E+01	1.48E+00	2.31E+01	4.23E-01	2.69E-02	1.03E-02	5.54E-02	3.65E-02	2.25E+01	1.41E+01	4.40E-01	1.91E-01	4.41E-01	4.13E-02	5.48E-02	3.06E-01	2.69E-02	3.35E-01	4.12E+00	3.40E+00	5.14E-01	2.44E-01	7.95E-01	9.67E-02	7.27E-01
2005	8	4	1.16E+01	2.73E+00	5.11E+00	1.17E-01	1.30E-01	2.47E+01	8.13E+00	2.90E+01	2.17E+00	8.10E+00	6.77E+00	9.62E-01	9.68E-01	2.26E+01	1.70E+01	1.14E+01	8.35E-02	5.09E+00	2.39E-02	3.53E-02	2.47E+01	8.11E+00	2.85E+01	9.72E-01	2.58E-01	1.33E-01	4.23E-01	3.31E-01	2.26E+01	1.65E+01	2.30E-01	2.65E+00	1.76E-02	9.27E-02	9.49E-02	3.23E-02	2.47E-02	5.00E-01	1.19E+00	7.84E+00	6.63E+00	5.39E-01	6.37E-01	5.82E-02	5.48E-01
2005	8	5	1.34E+00	2.91E-03	1.15E+00	6.11E-04	1.82E-03	2.08E+01	9.87E+00	3.04E+01	4.33E-01	1.97E+01	5.30E-02	2.13E+00	1.75E+00	2.77E+01	3.03E+00	1.33E+00	2.89E-03	1.15E+00	4.97E-04	1.72E-03	2.08E+01	9.78E+00	2.88E+01	4.33E-01	7.50E-02	1.63E-02	2.51E-01	1.50E-01	2.75E+01	2.97E+00	1.47E-02	2.65E-05	1.26E-05	1.14E-04	9.35E-05	1.65E-05	8.93E-02	1.59E+00	3.80E-05	1.96E+01	3.67E-02	1.88E+00	1.60E+00	1.15E-01	6.15E-02
2005	8	6	2.93E+00	4.52E-01	1.47E+00	6.71E-02	7.38E-02	2.21E+01	1.08E+01	3.02E+01	9.97E-01	1.39E+01	4.08E-01	4.50E+00	4.62E+00	2.40E+01	3.52E+00	2.70E+00	1.85E-02	1.43E+00	7.29E-03	9.03E-03	2.21E+01	1.04E+01	2.85E+01	4.81E-01	9.61E-02	3.55E-02	2.40E-01	1.52E-01	2.37E+01	3.21E+00	2.25E-01	4.33E-01	4.23E-02	5.98E-02	6.47E-02	7.53E-02	4.25E-01	1.71E+00	5.17E-01	1.38E+01	3.72E-01	4.26E+00	4.47E+00	3.30E-01	3.12E-01
2005	8	7	4.92E+00	3.27E-03	2.22E+00	4.36E-04	5.80E-04	1.78E+01	6.13E+00	2.30E+01	2.44E+00	1.15E+01	1.40E-02	2.11E+00	1.69E+00	2.41E+01	6.23E+00	4.85E+00	4.33E-04	2.16E+00	2.02E-05	2.61E-04	1.77E+01	5.99E+00	2.20E+01	3.15E-01	5.12E-02	1.04E-02	1.70E-01	9.92E-02	2.40E+01	6.13E+00	6.50E-02	2.84E-03	5.17E-02	4.15E-04	3.19E-04	5.44E-02	1.35E-01	1.02E+00	2.12E+00	1.15E+01	3.61E-03	1.94E+00	1.59E+00	1.34E-01	1.03E-01
2005	8	8	8.19E+00	1.75E-04	4.48E+00	1.14E-06	1.32E-05	1.01E+01	7.55E-01	1.24E+01	5.13E+00	8.19E-03	1.53E-03	1.67E-02	1.03E-02	1.76E+01	1.16E+01	7.99E+00	1.04E-04	3.37E+00	1.14E-06	1.32E-05	9.16E+00	7.54E-01	1.24E+01	7.82E-02	4.16E-03	5.40E-04	1.38E-02	7.74E-03	1.76E+01	1.13E+01	2.02E-01	7.16E-05	1.11E+00	0.00E+00	0.00E+00	9.12E-01	8.51E-04	7.20E-02	5.05E+00	4.02E-03	9.88E-04	2.84E-03	2.54E-03	2.29E-02	3.21E-01
2005	8	9	8.39E+00	1.69E-02	3.94E+00	6.18E-03	4.32E-03	7.90E+00	2.71E-01	1.14E+01	6.61E+00	3.06E-03	4.55E-03	2.63E-03	2.41E-03	1.54E+01	1.09E+01	8.37E+00	9.72E-03	3.89E+00	5.50E-03	4.26E-03	7.83E+00	2.71E-01	1.14E+01	4.73E-02	2.69E-03	4.33E-03	2.49E-03	2.17E-03	1.54E+01	1.08E+01	2.22E-02	7.16E-03	4.60E-02	6.75E-04	5.77E-05	6.98E-02	5.09E-05	1.61E-03	6.56E+00	3.76E-04	2.24E-04	1.42E-04	2.38E-04	1.55E-03	5.80E-02
2005	8	10	7.46E+00	8.01E-04	4.47E+00	0.00E+00	0.00E+00	9.31E+00	2.89E-01	7.89E+00	4.81E+00	5.33E-05	2.00E-03	4.26E-06	1.49E-06	1.67E+01	9.42E+00	7.35E+00	0.00E+00	3.92E+00	0.00E+00	0.00E+00	9.08E+00	2.89E-01	7.88E+00	1.80E-03	5.45E-07	0.00E+00	4.20E-06	1.47E-06	1.67E+01	9.21E+00	1.03E-01	8.01E-04	5.49E-01	0.00E+00	0.00E+00	2.34E-01	5.49E-06	8.23E-03	4.81E+00	5.28E-05	2.00E-03	5.25E-08	2.06E-08	3.47E-03	2.07E-01
2005	8	11	1.20E+01	4.97E-01	6.16E+00	7.94E-02	1.25E-01	1.80E+01	3.61E+00	1.98E+01	8.07E+00	7.06E+00	8.46E-01	1.36E+00	2.56E+00	2.35E+01	1.57E+01	1.17E+01	7.23E-03	5.87E+00	2.02E-03	3.04E-03	1.77E+01	3.37E+00	1.95E+01	2.31E-01	2.12E-02	9.80E-03	9.44E-02	4.05E-02	2.32E+01	1.52E+01	3.05E-01	4.90E-01	2.90E-01	7.73E-02	1.22E-01	2.94E-01	2.36E-01	2.56E-01	7.84E+00	7.04E+00	8.36E-01	1.27E+00	2.52E+00	2.43E-01	5.42E-01
2005	8	12	1.61E+01	2.78E-03	8.53E+00	3.39E-05	9.16E-05	2.10E+01	2.52E-01	1.93E+01	5.93E+00	1.97E-02	5.75E-03	4.86E-02	3.12E-02	2.42E+01	1.87E+01	1.55E+01	2.74E-03	7.74E+00	3.34E-05	9.11E-05	2.04E+01	2.49E-01	1.91E+01	1.68E-01	1.94E-02	5.70E-03	4.78E-02	3.08E-02	2.41E+01	1.77E+01	5.60E-01	4.44E-05	7.89E-01	4.84E-07	4.48E-07	6.01E-01	2.85E-03	1.23E-01	5.76E+00	3.52E-04	4.62E-05	7.82E-04	4.02E-04	6.42E-02	9.84E-01
2005	8	13	3.26E+00	5.25E-02	2.02E+00	1.59E-02	5.48E-02	2.60E+01	1.05E+01	2.88E+01	1.48E+00	2.92E+01	2.83E-01	3.07E+00	6.07E+00	2.85E+01	6.57E+00	3.18E+00	2.31E-02	1.90E+00	7.17E-03	1.34E-02	2.59E+01	1.04E+01	2.75E+01	6.04E-01	1.40E-01	5.37E-02	3.19E-01	2.19E-01	2.83E+01	6.45E+00	7.84E-02	2.93E-02	1.17E-01	8.70E-03	4.14E-02	8.27E-02	1.57E-01	1.25E+00	8.75E-01	2.91E+01	2.30E-01	2.75E+00	5.85E+00	2.04E-01	1.22E-01
2005	8	14	1.29E+00	1.53E-03	1.10E+00	1.06E-04	4.75E-04	1.76E+01	5.07E+00	1.68E+01	1.21E+00	9.67E+00	1.31E-01	1.32E+00	7.41E-01	1.89E+01	1.76E+00	1.28E+00	1.53E-03	1.08E+00	1.06E-04	4.72E-04	1.76E+01	5.01E+00	1.58E+01	3.87E-01	4.33E-02	8.88E-03	1.54E-01	9.34E-02	1.89E+01	1.74E+00	1.46E-02	2.04E-06	2.45E-02	0.00E+00	2.82E-06	1.84E-02	6.48E-02	1.00E+00	8.21E-01	9.63E+00	1.22E-01	1.17E+00	6.47E-01	7.46E-02	2.42E-02
2005	8	15	4.05E+00	1.85E+00	1.76E+00	5.41E-01	1.01E+00	1.26E+01	6.19E+00	2.01E+01	2.06E+00	8.76E+00	6.75E+00	7.34E-01	1.29E+00	1.63E+01	5.58E+00	3.94E+00	7.74E-02	1.67E+00	3.83E-02	4.72E-02	1.24E+01	6.12E+00	1.97E+01	2.89E-01	1.20E-01	9.34E-02	1.86E-01	1.37E-01	1.62E+01	5.35E+00	1.15E-01	1.77E+00	8.47E-02	5.03E-01	9.59E-01	1.02E-01	7.18E-02	3.67E-01	1.77E+00	8.64E+00	6.66E+00	5.48E-01	1.15E+00	1.03E-01	2.25E-01
2005	8	16	1.84E+00	2.92E+00	6.53E-01	3.78E-01	6.00E-01	3.85E+00	3.42E+00	8.96E+00	2.28E-01	5.36E+00	8.59E+00	2.04E-01	6.04E-01	7.95E+00	2.67E+00	1.84E+00	8.68E-02	6.53E-01	4.07E-02	4.87E-02	3.85E+00	3.41E+00	8.94E+00	2.12E-01	1.07E-01	1.05E-01	1.17E-01	9.91E-02	7.94E+00	2.66E+00	2.40E-04	2.83E+00	1.38E-06	3.37E-01	5.52E-01	7.69E-05	2.10E-03	2.09E-02	1.54E-02	5.26E+00	8.49E+00	8.68E-02	5.05E-01	1.05E-02	1.06E-02
2005	8	17	8.21E+00	1.15E+00	3.58E+00	2.72E-01	4.57E-01	8.49E+00	2.61E+00	1.52E+01	4.06E+00	1.75E+00	2.40E+00	1.35E-01	2.18E-01	1.54E+01	1.07E+01	7.99E+00	3.57E-02	3.32E+00	1.87E-02	2.98E-02	8.23E+00	2.60E+00	1.52E+01	1.19E-01	6.00E-02	5.51E-02	6.86E-02	6.09E-02	1.53E+01	1.03E+01	2.16E-01	1.11E+00	2.52E-01	2.53E-01	4.27E-01	2.58E-01	1.04E-02	5.74E-02	3.94E+00	1.69E+00	2.34E+00	6.69E-02	1.57E-01	6.32E-02	3.43E-01
2005	8	18	1.41E+01	8.07E-01	6.67E+00	1.22E-01	1.78E-01	2.40E+01	7.16E+00	2.39E+01	9.16E+00	5.18E+00	2.01E+00	9.86E-01	1.31E+00	2.70E+01	1.75E+01	1.38E+01	1.79E-02	6.18E+00	5.20E-03	9.31E-03	2.36E+01	6.89E+00	2.34E+01	5.77E-01	9.25E-02	3.81E-02	1.76E-01	1.27E-01	2.67E+01	1.69E+01	3.65E-01	7.90E-01	4.89E-01	1.17E-01	1.69E-01	3.55E-01	2.72E-01	5.50E-01	8.58E+00	5.09E+00	1.97E+00	8.10E-01	1.19E+00	2.33E-01	6.06E-01
2005	8	19	2.32E+00	4.18E-01	2.08E+00	9.08E-02	1.39E-01	3.02E+01	1.27E+01	3.57E+01	1.38E+00	2.11E+01	2.28E+00	2.47E+00	3.46E+00	3.23E+01	3.26E+00	2.21E+00	4.07E-02	2.02E+00	1.31E-02	2.44E-02	3.02E+01	1.25E+01	3.41E+01	7.69E-01	2.19E-01	9.87E-02	4.09E-01	3.05E-01	3.21E+01	3.09E+00	1.10E-01	3.77E-01	6.17E-02	7.78E-02	1.15E-01	6.44E-02	1.47E-01	1.57E+00	6.10E-01	2.09E+01	2.18E+00	2.06E+00	3.16E+00	2.23E-01	1.71E-01
2005	8	20	3.65E+00	1.15E-02	2.28E+00	2.14E-03	6.27E-03	2.28E+01	9.60E+00	2.60E+01	6.73E-01	1.19E+01	1.84E-01	1.73E+00	1.70E+00	2.18E+01	4.74E+00	3.57E+00	1.12E-02	2.28E+00	2.06E-03	5.45E-03	2.28E+01	9.51E+00	2.46E+01	5.33E-01	1.14E-01	3.93E-02	2.70E-01	1.77E-01	2.16E+01	4.56E+00	8.42E-02	2.68E-04	4.13E-03	7.08E-05	8.24E-04	7.93E-03	8.99E-02	1.44E+00	1.40E-01	1.18E+01	1.45E-01	1.46E+00	1.52E+00	1.27E-01	1.79E-01
2005	8	21	2.84E+00	5.30E-03	1.80E+00	1.54E-03	7.93E-02	2.12E+01	9.27E+00	2.15E+01	3.18E-01	1.04E+01	1.42E+00	9.09E-01	1.66E+00	3.20E+01	4.47E+00	2.79E+00	5.18E-03	1.79E+00	1.47E-03	4.54E-03	2.12E+01	9.20E+00	2.02E+01	3.08E-01	7.26E-02	2.22E-02	1.92E-01	1.26E-01	3.18E+01	4.35E+00	4.88E-02	1.23E-04	1.68E-03	7.07E-05	7.47E-02	1.29E-02	6.65E-02	1.29E+00	1.09E-02	1.03E+01	1.40E+00	7.17E-01	1.54E+00	1.68E-01	1.14E-01
2005	8	22	9.57E+00	5.88E-02	4.36E+00	8.61E-04	8.25E-03	1.95E+01	5.10E+00	2.56E+01	4.62E+00	5.81E+00	3.58E-01	6.80E-01	7.17E-01	2.96E+01	1.25E+01	9.41E+00	1.39E-02	4.32E+00	7.28E-04	3.44E-03	1.95E+01	5.05E+00	2.51E+01	5.68E-01	1.18E-01	3.95E-02	2.68E-01	1.86E-01	2.95E+01	1.22E+01	1.59E-01	4.49E-02	3.89E-02	1.33E-04	4.81E-03	6.11E-02	4.62E-02	5.48E-01	4.05E+00	5.69E+00	3.19E-01	4.13E-01	5.31E-01	6.28E-02	3.64E-01
2005	8	23	3.37E+00	1.32E-01	8.23E-01	2.54E-01	5.28E-01	1.77E+01	6.74E+00	2.49E+01	9.22E-01	3.61E+00	4.83E+00	1.68E+00	1.69E+00	2.03E+01	5.12E+00	3.28E+00	2.74E-02	7.80E-01	1.79E-02	2.65E-02	1.76E+01	6.62E+00	2.35E+01	5.28E-01	1.61E-01	7.33E-02	2.60E-01	2.11E-01	2.01E+01	4.97E+00	9.13E-02	1.04E-01	4.29E-02	2.36E-01	5.02E-01	8.33E-02	1.24E-01	1.32E+00	3.94E-01	3.45E+00	4.76E+00	1.42E+00	1.48E+00	2.17E-01	1.50E-01
2005	8	24	2.26E+00	2.75E-04	1.32E+00	1.27E-05	5.33E-05	1.94E+01	6.25E+00	3.91E+01	2.09E-01	8.46E+00	2.20E-03	5.26E+00	5.25E+00	2.77E+01	5.35E+00	2.22E+00	2.74E-04	1.32E+00	1.27E-05	5.33E-05	1.94E+01	6.09E+00	3.80E+01	1.90E-01	1.37E-02	1.97E-03	6.73E-02	3.12E-02	2.75E+01	5.25E+00	3.44E-02	3.65E-07	1.55E-03	0.00E+00	0.00E+00	5.28E-03	1.64E-01	1.12E+00	1.81E-02	8.45E+00	2.30E-04	5.20E+00	5.22E+00	1.64E-01	1.01E-01
2005	8	25	1.74E+00	1.10E-03	1.11E+00	7.66E-05	5.63E-04	2.30E+01	1.08E+01	2.50E+01	6.50E-01	1.88E+01	3.29E-02	2.03E+00	1.85E+00	2.76E+01	2.94E+00	1.73E+00	1.10E-03	1.11E+00	7.66E-05	5.61E-04	2.30E+01	1.07E+01	2.38E+01	6.48E-01	9.86E-02	1.80E-02	2.85E-01	1.85E-01	2.74E+01	2.92E+00	5.36E-03	0.00E+00	8.66E-08	0.00E+00	2.48E-06	2.64E-05	8.10E-02	1.19E+00	1.27E-03	1.87E+01	1.49E-02	1.74E+00	1.67E+00	1.41E-01	1.97E-02
2005	8	26	1.74E+00	1.75E-03	1.18E+00	2.00E-04	6.70E-04	2.28E+01	6.27E+00	2.28E+01	4.42E-01	1.05E+01	8.23E-02	1.60E+00	9.55E-01	2.25E+01	2.30E+00	1.73E+00	1.75E-03	1.18E+00	2.00E-04	6.70E-04	2.28E+01	6.18E+00	2.14E+01	4.41E-01	7.09E-02	1.61E-02	2.01E-01	1.27E-01	2.24E+01	2.27E+00	8.45E-03	0.00E+00	4.04E-04	0.00E+00	0.00E+00	1.70E-03	9.02E-02	1.43E+00	9.19E-04	1.04E+01	6.62E-02	1.39E+00	8.28E-01	1.18E-01	2.58E-02
2005	8	27	2.25E+00	3.31E-03	1.57E+00	1.61E-03	1.88E-02	2.86E+01	1.13E+01	3.26E+01	5.43E-01	1.95E+01	3.06E-01	2.13E+00	2.65E+00	2.78E+01	3.37E+00	2.22E+00	3.23E-03	1.57E+00	6.25E-04	2.57E-03	2.86E+01	1.12E+01	3.09E+01	4.98E-01	8.64E-02	2.32E-02	2.52E-01	1.53E-01	2.76E+01	3.29E+00	3.13E-02	8.01E-05	7.49E-04	9.86E-04	1.62E-02	1.68E-03	1.06E-01	1.75E+00	4.52E-02	1.94E+01	2.83E-01	1.88E+00	2.50E+00	1.55E-01	7.53E-02
2005	8	28	8.49E+00	6.99E-01	2.71E+00	4.53E-02	7.84E-02	2.07E+01	7.93E+00	2.56E+01	6.63E-01	7.74E+00	1.44E+00	1.07E+00	1.15E+00	2.84E+01	1.14E+01	8.37E+00	3.14E-02	2.71E+00	4.21E-03	8.29E-03	2.07E+01	7.84E+00	2.45E+01	5.13E-01	1.37E-01	5.52E-02	3.47E-01	2.11E-01	2.83E+01	1.11E+01	1.20E-01	6.67E-01	4.07E-03	4.11E-02	7.01E-02	8.21E-03	8.40E-02	1.14E+00	1.50E-01	7.60E+00	1.38E+00	7.22E-01	9.43E-01	1.28E-01	2.84E-01
2005	8	29	4.35E+00	2.45E-01	8.96E-01	3.46E-01	1.24E-01	1.52E+01	4.55E+00	9.51E+00	6.31E-01	3.19E+00	6.63E+00	5.70E-01	5.07E-01	7.22E+00	5.45E+00	4.24E+00	5.80E-02	8.94E-01	4.01E-02	4.46E-02	1.52E+01	4.54E+00	9.14E+00	6.10E-01	2.51E-01	1.32E-01	2.96E-01	2.70E-01	7.15E+00	5.20E+00	1.11E-01	1.87E-01	1.47E-03	3.06E-01	7.92E-02	5.84E-03	1.10E-02	3.64E-01	2.08E-02	2.94E+00	6.50E+00	2.74E-01	2.37E-01	6.66E-02	2.49E-01
2005	8	30	9.78E-01	0.00E+00	4.73E-01	0.00E+00	0.00E+00	9.88E+00	2.96E+00	1.43E+01	1.33E-01	6.89E+00	2.17E-02	1.01E+00	7.02E-01	1.05E+01	1.51E+00	9.24E-01	0.00E+00	4.73E-01	0.00E+00	0.00E+00	9.88E+00	2.91E+00	1.34E+01	1.26E-01	7.59E-03	4.07E-04	6.07E-02	2.81E-02	1.05E+01	1.37E+00	5.36E-02	0.00E+00	1.59E-04	0.00E+00	0.00E+00	2.19E-03	5.15E-02	9.34E-01	6.80E-03	6.88E+00	2.13E-02	9.51E-01	6.74E-01	4.58E-02	1.38E-01
2005	8	31	2.66E+00	3.20E-03	1.26E+00	1.26E-04	8.48E-04	1.82E+01	7.97E+00	2.28E+01	3.78E-01	1.42E+01	4.34E-02	1.50E+00	1.47E+00	2.32E+01	4.52E+00	2.62E+00	3.20E-03	1.26E+00	1.26E-04	8.48E-04	1.82E+01	7.90E+00	2.16E+01	3.65E-01	5.07E-02	1.44E-02	1.43E-01	8.99E-02	2.31E+01	4.41E+00	4.37E-02	0.00E+00	9.64E-04	0.00E+00	0.00E+00	8.74E-03	6.91E-02	1.15E+00	1.33E-02	1.42E+01	2.90E-02	1.36E+00	1.38E+00	9.81E-02	1.07E-01
2005	9	1	2.98E+00	2.98E-03	1.16E+00	8.33E-04	8.42E-03	2.64E+01	1.24E+01	2.68E+01	5.83E-01	1.46E+01	4.99E-01	1.79E+00	1.86E+00	2.82E+01	3.88E+00	2.98E+00	2.97E-03	1.16E+00	8.25E-04	4.52E-03	2.64E+01	1.23E+01	2.50E+01	5.81E-01	1.19E-01	3.16E-02	3.04E-01	2.20E-01	2.80E+01	3.87E+00	1.35E-03	1.40E-05	8.42E-05	7.32E-06	3.90E-03	3.27E-04	1.08E-01	1.80E+00	2.12E-03	1.45E+01	4.67E-01	1.49E+00	1.64E+00	1.33E-01	3.64E-03
2005	9	2	6.79E+00	7.24E-02	2.83E+00	3.66E-01	6.70E-01	2.79E+01	1.31E+01	2.82E+01	7.63E-01	9.84E+00	1.16E+01	1.14E+00	1.90E+00	3.05E+01	8.52E+00	6.76E+00	3.75E-02	2.83E+00	2.73E-02	4.89E-02	2.79E+01	1.30E+01	2.69E+01	7.36E-01	2.50E-01	1.19E-01	4.73E-01	3.46E-01	3.03E+01	8.43E+00	3.11E-02	3.49E-02	8.49E-04	3.39E-01	6.21E-01	2.44E-03	5.98E-02	1.32E+00	2.66E-02	9.59E+00	1.15E+01	6.70E-01	1.55E+00	2.08E-01	8.33E-02
2005	9	3	2.00E+00	7.46E-03	7.63E-01	3.82E-03	5.82E-02	1.33E+01	8.12E+00	2.01E+01	4.07E-01	6.31E+00	1.14E+00	1.13E+00	1.51E+00	1.28E+01	3.13E+00	2.00E+00	7.43E-03	7.63E-01	3.65E-03	1.22E-02	1.33E+01	8.03E+00	1.92E+01	4.04E-01	1.22E-01	4.54E-02	2.59E-01	1.88E-01	1.27E+01	3.13E+00	2.98E-03	2.31E-05	4.93E-05	1.62E-04	4.59E-02	1.83E-04	9.48E-02	8.41E-01	2.61E-03	6.19E+00	1.09E+00	8.68E-01	1.33E+00	7.96E-02	6.28E-03
2005	9	4	6.57E+00	2.05E-01	2.33E+00	9.94E-02	3.52E-01	2.05E+01	1.11E+01	2.31E+01	1.18E+00	9.67E+00	4.82E+00	1.01E+00	1.88E+00	2.00E+01	1.01E+01	6.55E+00	5.55E-02	2.32E+00	1.72E-02	3.22E-02	2.04E+01	1.11E+01	2.21E+01	6.15E-01	1.70E-01	1.07E-01	2.26E-01	1.86E-01	2.00E+01	1.00E+01	1.72E-02	1.49E-01	7.39E-03	8.22E-02	3.20E-01	3.80E-02	5.93E-02	9.96E-01	5.64E-01	9.50E+00	4.71E+00	7.82E-01	1.70E+00	4.72E-02	5.51E-02
2005	9	5	6.96E+00	6.42E-01	3.10E+00	1.02E-01	1.73E-01	2.40E+01	1.49E+01	2.84E+01	1.77E+00	2.20E+01	4.25E+00	2.65E+00	3.46E+00	2.85E+01	9.21E+00	6.83E+00	3.28E-02	3.06E+00	8.34E-03	1.58E-02	2.39E+01	1.47E+01	2.70E+01	5.49E-01	1.33E-01	6.72E-02	3.11E-01	1.94E-01	2.84E+01	8.99E+00	1.29E-01	6.09E-01	3.96E-02	9.40E-02	1.57E-01	6.41E-02	1.61E-01	1.38E+00	1.22E+00	2.18E+01	4.18E+00	2.34E+00	3.27E+00	9.94E-02	2.27E-01
2005	9	6	8.59E+00	7.14E-01	3.85E+00	1.21E-01	1.61E-01	3.23E+01	1.27E+01	4.51E+01	3.34E+00	1.24E+01	1.50E+00	4.76E+00	5.33E+00	3.36E+01	1.14E+01	8.24E+00	3.62E-02	3.71E+00	1.31E-02	2.06E-02	3.21E+01	1.20E+01	4.34E+01	9.34E-01	1.89E-01	7.78E-02	3.79E-01	2.67E-01	3.32E+01	1.09E+01	3.48E-01	6.78E-01	1.44E-01	1.08E-01	1.40E-01	2.07E-01	6.66E-01	1.72E+00	2.41E+00	1.22E+01	1.43E+00	4.38E+00	5.06E+00	4.34E-01	4.89E-01
2005	9	7	7.77E+00	1.19E+00	3.53E+00	1.90E-01	3.04E-01	2.48E+01	1.47E+01	3.18E+01	2.58E+00	1.65E+01	4.61E+00	1.94E+00	2.90E+00	2.69E+01	9.87E+00	7.68E+00	8.17E-02	3.50E+00	2.68E-02	4.30E-02	2.48E+01	1.46E+01	3.10E+01	1.05E+00	3.14E-01	1.58E-01	5.50E-01	4.12E-01	2.68E+01	9.65E+00	8.93E-02	1.11E+00	3.18E-02	1.64E-01	2.61E-01	5.00E-02	5.45E-02	8.62E-01	1.53E+00	1.62E+01	4.45E+00	1.39E+00	2.49E+00	9.96E-02	2.22E-01
2005	9	8	3.51E+00	3.70E-03	1.61E+00	1.53E-03	1.65E-01	1.75E+01	1.01E+01	2.41E+01	6.58E-01	1.25E+01	2.09E+00	1.36E+00	1.43E+00	1.65E+01	5.45E+00	3.38E+00	3.69E-03	1.61E+00	1.23E-03	5.67E-03	1.75E+01	1.00E+01	2.30E+01	6.43E-01	1.25E-01	2.80E-02	2.64E-01	2.21E-01	1.64E+01	5.17E+00	1.33E-01	8.90E-06	3.98E-04	3.04E-04	1.60E-01	1.27E-03	8.00E-02	1.15E+00	1.46E-02	1.24E+01	2.06E+00	1.10E+00	1.21E+00	6.06E-02	2.79E-01
2005	9	9	1.25E+01	3.23E-01	7.61E+00	1.93E-01	2.66E-01	1.37E+01	4.64E+00	1.57E+01	1.16E+01	2.63E+00	1.87E+00	3.85E-01	5.68E-01	2.17E+01	1.47E+01	1.22E+01	3.18E-02	7.03E+00	1.36E-02	1.53E-02	1.31E+01	4.59E+00	1.54E+01	2.08E-01	5.61E-02	3.48E-02	6.63E-02	6.11E-02	2.17E+01	1.44E+01	3.21E-01	2.91E-01	5.78E-01	1.79E-01	2.51E-01	5.22E-01	5.21E-02	2.35E-01	1.14E+01	2.57E+00	1.84E+00	3.19E-01	5.07E-01	7.59E-02	3.33E-01
2005	9	10	4.99E+00	1.02E-04	2.14E+00	3.32E-06	1.90E-05	1.90E+01	4.19E+00	2.63E+01	8.65E-01	1.10E+01	8.58E-04	2.28E+00	2.13E+00	2.36E+01	5.84E+00	4.47E+00	1.02E-04	2.03E+00	3.32E-06	1.90E-05	1.87E+01	3.77E+00	2.48E+01	3.74E-02	2.41E-03	4.40E-04	1.41E-02	6.46E-03	2.32E+01	5.24E+00	5.25E-01	3.42E-13	1.17E-01	0.00E+00	0.00E+00	2.53E-01	4.20E-01	1.49E+00	8.28E-01	1.10E+01	4.18E-04	2.26E+00	2.12E+00	4.15E-01	5.99E-01
2005	9	11	1.75E+00	5.69E-04	6.77E-01	6.77E-05	1.94E-04	1.79E+01	8.15E+00	2.20E+01	1.54E-01	1.59E+01	3.09E-01	1.85E+00	2.86E+00	3.02E+01	2.98E+00	1.75E+00	5.69E-04	6.77E-01	6.77E-05	1.89E-04	1.79E+01	8.10E+00	2.07E+01	1.48E-01	1.82E-02	2.18E-03	5.64E-02	3.53E-02	3.00E+01	2.98E+00	1.64E-06	0.00E+00	0.00E+00	0.00E+00	5.27E-06	1.89E-05	4.64E-02	1.29E+00	5.99E-03	1.58E+01	3.06E-01	1.80E+00	2.83E+00	1.90E-01	4.11E-04

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application															Baseline															Project														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2005	9	12	1.01E+01	9.08E-03	4.74E+00	7.12E-04	2.93E-03	2.65E+01	4.89E+00	3.10E+01	3.07E+00	6.50E+00	2.57E-01	5.97E-01	1.46E+00	2.77E+01	1.25E+01	9.63E+00	8.26E-03	4.54E+00	6.89E-04	2.03E-03	2.63E+01	4.76E+00	3.01E+01	4.67E-01	1.02E-01	3.09E-02	1.46E-01	1.21E-01	2.74E+01	1.17E+01	4.29E-01	8.24E-04	2.05E-01	2.22E-05	9.07E-04	1.62E-01	1.26E-01	9.12E-01	2.60E+00	6.40E+00	2.26E-01	4.51E-01	1.34E+00	3.56E-01	7.66E-01
2005	9	13	3.99E+00	1.71E-01	2.82E+00	4.78E-02	7.95E-02	1.96E+01	1.09E+01	2.22E+01	2.19E+00	2.11E+01	5.49E-01	3.35E+00	3.92E+00	2.19E+01	4.97E+00	3.67E+00	6.03E-02	2.62E+00	2.36E-02	3.74E-02	1.94E+01	1.06E+01	2.10E+01	5.58E-01	1.90E-01	1.09E-01	3.42E-01	2.47E-01	2.15E+01	4.49E+00	3.13E-01	1.10E-01	2.02E-01	2.41E-02	4.21E-02	1.70E-01	3.13E-01	1.25E+00	1.63E+00	2.09E+01	4.40E-01	3.00E+00	3.67E+00	3.76E-01	4.83E-01
2005	9	14	3.02E+00	8.81E-03	2.21E+00	1.42E-03	4.31E-03	1.82E+01	8.77E+00	2.47E+01	4.67E-01	1.41E+01	3.84E-01	1.37E+00	1.31E+00	2.34E+01	5.04E+00	2.93E+00	7.99E-03	2.21E+00	1.38E-03	3.90E-03	1.82E+01	8.72E+00	2.34E+01	4.12E-01	7.33E-02	2.44E-02	1.73E-01	1.26E-01	2.33E+01	4.77E+00	8.72E-02	8.14E-04	2.55E-03	4.35E-05	4.15E-04	1.26E-02	5.53E-02	1.25E+00	5.54E-02	1.40E+01	3.59E-01	1.19E+00	1.18E+00	8.79E-02	2.68E-01
2005	9	15	1.46E+01	1.13E+00	6.14E+00	2.06E-01	2.17E-01	1.86E+01	5.92E+00	2.49E+01	7.82E+00	4.26E+00	1.72E+00	6.70E-01	1.15E+00	3.31E+01	1.98E+01	1.43E+01	4.88E-02	5.92E+00	1.92E-02	2.45E-02	1.84E+01	5.83E+00	2.45E+01	6.62E-01	1.75E-01	7.44E-02	2.72E-01	2.18E-01	3.30E+01	1.94E+01	2.50E-01	1.08E+00	2.24E-01	1.87E-01	1.93E-01	2.42E-01	9.79E-02	3.88E-01	7.16E+00	4.08E+00	1.64E+00	3.98E-01	9.34E-01	1.23E-01	3.95E-01
2005	9	16	1.60E+01	3.14E-01	9.56E+00	4.36E-02	7.66E-02	1.91E+01	4.02E+00	2.28E+01	1.11E+01	1.03E+00	5.93E-01	6.53E-01	6.67E-01	2.38E+01	2.05E+01	1.55E+01	4.40E-02	8.73E+00	1.14E-02	1.74E-02	1.83E+01	3.79E+00	2.24E+01	5.58E-01	1.24E-01	6.60E-02	1.98E-01	1.54E-01	2.34E+01	1.99E+01	4.86E-01	2.70E-01	8.37E-01	3.22E-02	5.92E-02	7.99E-01	2.23E-01	4.31E-01	1.05E+01	9.06E-01	5.27E-01	4.55E-01	5.14E-01	3.16E-01	6.46E-01
2005	9	17	6.72E+00	8.66E-01	3.10E+00	3.82E-01	4.99E-01	2.49E+01	1.40E+01	3.21E+01	3.64E+00	2.44E+01	8.61E+00	2.97E+00	5.06E+00	2.14E+01	1.00E+01	6.30E+00	4.86E-02	2.69E+00	2.12E-02	3.84E-02	2.46E+01	1.37E+01	3.04E+01	1.18E+00	3.14E-01	1.21E-01	6.73E-01	4.76E-01	2.10E+01	9.52E+00	4.16E-01	8.17E-01	4.03E-01	3.61E-01	4.60E-01	3.33E-01	3.50E-01	1.62E+00	2.46E+00	2.41E+01	8.49E+00	2.29E+00	4.58E+00	3.67E-01	5.12E-01
2005	9	18	2.28E+00	6.57E-03	1.92E+00	1.00E-03	2.14E-03	1.61E+01	7.20E+00	1.68E+01	3.19E-01	1.17E+01	1.88E-01	1.66E+00	9.18E-01	1.95E+01	3.24E+00	2.18E+00	6.56E-03	1.91E+00	1.00E-03	2.14E-03	1.61E+01	7.13E+00	1.58E+01	3.17E-01	7.32E-02	2.29E-02	1.77E-01	1.17E-01	1.94E+01	3.02E+00	9.50E-02	4.65E-06	6.98E-03	3.80E-08	4.37E-06	1.58E-02	7.31E-02	9.63E-01	2.30E-03	1.16E+01	1.65E-01	1.48E+00	8.01E-01	5.20E-02	2.25E-01
2005	9	19	3.03E-01	0.00E+00	7.41E-02	0.00E+00	0.00E+00	4.37E+00	2.23E+00	4.67E+00	7.62E-04	3.51E+00	1.45E-01	5.16E-01	5.50E-01	3.80E+00	7.70E-01	3.03E-01	0.00E+00	7.41E-02	0.00E+00	0.00E+00	4.37E+00	2.21E+00	4.47E+00	7.62E-04	2.25E-05	0.00E+00	4.21E-03	5.44E-04	3.80E+00	7.70E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-02	1.97E-01	2.01E-19	3.51E+00	1.45E-01	5.12E-01	5.50E-01	2.17E-05	0.00E+00
2005	9	20	7.94E+00	4.91E-03	3.60E+00	2.95E-04	1.86E-03	1.51E+01	1.22E+01	2.29E+01	5.38E-01	1.44E+01	3.21E-01	1.72E+00	2.38E+00	2.22E+01	1.03E+01	7.91E+00	4.76E-03	3.57E+00	2.86E-04	1.39E-03	1.50E+01	1.22E+01	2.23E+01	2.55E-01	4.73E-02	1.59E-02	1.05E-01	7.05E-02	2.22E+01	1.02E+01	2.64E-02	1.55E-04	2.85E-02	9.19E-06	4.68E-04	1.07E-01	5.58E-02	5.98E-01	2.84E-01	1.43E+01	3.05E-01	1.61E+00	2.31E+00	1.51E-02	8.81E-02
2005	9	21	8.93E+00	9.80E-01	3.24E+00	1.41E-01	2.23E-01	2.75E+01	1.06E+01	4.00E+01	2.62E+00	1.40E+01	2.65E+00	6.19E+00	7.39E+00	4.08E+01	1.36E+01	8.75E+00	3.09E-02	3.22E+00	4.59E-03	7.86E-03	2.75E+01	9.75E+00	3.86E+01	7.75E-01	1.40E-01	5.45E-02	2.82E-01	1.93E-01	4.06E+01	1.33E+01	1.77E-01	9.49E-01	2.44E-02	1.37E-01	2.15E-01	3.91E-02	8.11E-01	1.34E+00	1.84E+00	1.38E+01	2.60E+00	5.91E+00	7.20E+00	2.62E-01	3.25E-01
2005	9	22	9.12E+00	6.50E-01	4.14E+00	3.46E-01	6.89E-01	2.33E+01	9.97E+00	1.92E+01	9.17E+00	1.98E+01	4.88E+00	1.95E+00	4.02E+00	2.27E+01	1.21E+01	9.02E+00	9.34E-02	3.32E+00	4.87E-02	7.55E-02	2.26E+01	9.90E+00	1.85E+01	8.83E-01	3.11E-01	1.83E-01	4.89E-01	3.87E-01	2.26E+01	1.20E+01	1.03E-01	5.57E-01	8.16E-01	2.98E-01	6.14E-01	7.15E-01	6.70E-02	6.98E-01	8.29E+00	1.95E+01	4.70E+00	1.46E+00	3.63E+00	1.34E-01	1.85E-01
2005	9	23	1.59E+01	1.11E+00	9.62E+00	2.03E-01	2.83E-01	2.59E+01	5.83E+00	2.43E+01	1.15E+01	2.63E+00	6.62E+00	4.46E-01	4.65E-01	2.61E+01	1.91E+01	1.54E+01	4.67E-02	7.84E+00	1.55E-02	2.71E-02	2.42E+01	5.81E+00	2.39E+01	7.09E-01	1.86E-01	9.61E-02	3.19E-01	2.44E-01	2.60E+01	1.83E+01	5.27E-01	1.06E+00	1.78E+00	1.87E-01	2.56E-01	1.75E+00	1.30E-02	4.57E-01	1.08E+01	2.45E+00	6.52E+00	1.27E-01	2.20E-01	1.19E-01	7.66E-01
2005	9	24	4.25E+00	9.37E-01	2.39E+00	1.21E-01	1.53E-01	2.80E+01	1.23E+01	3.72E+01	1.46E+00	9.19E+00	4.61E+00	2.84E+00	2.34E+00	3.60E+01	6.58E+00	3.49E+00	4.20E-02	2.25E+00	1.45E-02	1.81E-02	2.77E+01	1.14E+01	3.46E+01	6.67E-01	1.58E-01	6.99E-02	3.35E-01	2.27E-01	3.49E+01	5.63E+00	7.56E-01	8.95E-01	1.37E-01	1.07E-01	1.35E-01	2.32E-01	9.54E-01	2.54E+00	7.94E-01	9.04E+00	4.54E+00	2.51E+00	2.12E+00	1.14E+00	9.45E-01
2005	9	25	4.11E+00	5.26E-03	2.54E+00	6.37E-04	1.56E-03	1.55E+01	7.74E+00	1.83E+01	2.22E-01	1.48E+01	4.32E-02	1.49E+00	7.07E-01	1.97E+01	6.03E+00	4.06E+00	5.23E-03	2.51E+00	6.37E-04	1.55E-03	1.55E+01	7.67E+00	1.76E+01	2.10E-01	4.16E-02	1.35E-02	1.18E-01	7.24E-02	1.96E+01	5.88E+00	5.14E-02	3.32E-05	2.19E-02	0.00E+00	7.00E-06	5.64E-02	6.91E-02	6.77E-01	1.12E-02	1.47E+01	2.97E-02	1.37E+00	6.35E-01	2.98E-02	1.52E-01
2005	9	26	4.13E+00	1.24E-03	1.28E+00	7.80E-05	7.02E-04	9.49E+00	4.73E+00	1.24E+01	4.02E-01	7.34E+00	1.48E-01	7.37E-01	1.09E+00	1.10E+01	6.68E+00	4.10E+00	1.19E-03	1.27E+00	7.46E-05	6.69E-04	9.44E+00	4.70E+00	1.22E+01	3.70E-01	6.10E-02	1.25E-02	9.97E-02	9.61E-02	1.10E+01	6.58E+00	2.91E-02	5.10E-05	1.65E-02	3.46E-06	3.28E-05	5.12E-02	3.34E-02	1.99E-01	3.19E-02	7.28E+00	1.36E-01	6.37E-01	9.90E-01	9.61E-03	9.47E-02
2005	9	27	7.40E+00	1.28E+00	4.26E+00	2.80E-01	3.97E-01	1.52E+01	6.36E+00	1.77E+01	2.74E+00	3.08E+00	7.37E+00	3.46E-01	4.37E-01	2.09E+01	9.57E+00	7.33E+00	4.02E-02	4.10E+00	1.30E-02	2.18E-02	1.51E+01	6.34E+00	1.75E+01	4.97E-01	1.53E-01	7.77E-02	2.71E-01	2.00E-01	2.08E+01	9.44E+00	6.53E-02	1.24E+00	1.53E-01	2.67E-01	3.75E-01	7.24E-02	2.50E-02	2.31E-01	2.25E+00	2.92E+00	7.29E+00	7.47E-02	2.37E-01	5.06E-02	1.34E-01
2005	9	28	1.59E+00	1.96E-02	8.25E-01	8.25E-03	1.82E-02	9.20E+00	4.80E+00	1.53E+01	3.70E-01	8.42E+00	1.94E-01	1.31E+00	1.05E+00	1.09E+01	2.26E+00	1.58E+00	1.94E-02	8.25E-01	7.15E-03	1.20E-02	9.20E+00	4.72E+00	1.42E+01	3.27E-01	8.43E-02	4.12E-02	1.95E-01	1.28E-01	1.08E+01	2.20E+00	1.14E-02	1.88E-04	2.98E-04	1.10E-03	6.19E-03	5.07E-04	7.85E-02	1.08E+00	4.29E-02	8.34E+00	1.53E-01	1.11E+00	9.21E-01	6.42E-02	5.78E-02
2005	9	29	8.02E-01	2.63E-05	2.64E-01	1.11E-05	2.20E-03	5.45E+00	9.59E-01	4.35E+00	7.03E-02	1.86E+00	3.67E-01	1.87E-01	3.89E-01	3.45E+00	1.69E+00	8.01E-01	2.63E-05	2.64E-01	1.11E-05	3.87E-04	5.45E+00	9.58E-01	4.26E+00	7.03E-02	2.15E-02	5.70E-03	2.09E-02	9.83E-03	3.45E+00	1.69E+00	2.48E-04	0.00E+00	0.00E+00	0.00E+00	1.81E-03	0.00E+00	1.17E-03	9.51E-02	2.88E-05	1.84E+00	3.61E-01	1.66E-01	3.79E-01	2.45E-04	1.89E-03
2005	9	30	5.48E+00	1.21E+00	1.99E+00	3.23E-01	3.34E-01	1.72E+01	8.17E+00	1.82E+01	6.84E-01	7.63E+00	1.02E+01	7.19E-01	1.16E+00	1.56E+01	7.67E+00	5.41E+00	9.67E-02	1.98E+00	2.94E-02	4.34E-02	1.72E+01	8.16E+00	1.78E+01	5.53E-01	2.10E-01	1.39E-01	2.81E-01	2.33E-01	1.56E+01	7.48E+00	6.79E-02	1.11E+00	1.11E-03	2.94E-01	2.91E-01	9.23E-03	7.59E-03	3.23E-01	1.31E-01	7.42E+00	1.00E+01	4.38E-01	9.23E-01	1.70E-02	1.88E-01
2005	10	1	1.33E+00	1.13E-02	2.81E-01	1.74E-01	2.31E-01	2.60E+00	6.71E-01	3.13E+00	1.22E-01	2.10E+00	1.76E+00	1.58E-01	4.36E-01	2.45E+00	2.11E+00	1.19E+00	7.50E-03	2.75E-01	1.17E-02	1.65E-02	2.58E+00	6.65E-01	2.77E+00	1.09E-01	3.52E-02	2.22E-02	4.34E-02	3.95E-02	2.43E+00	1.82E+00	1.38E-01	3.77E-03	6.08E-03	1.62E-01	2.15E-01	2.42E-02	5.64E-03	3.61E-01	1.38E-02	2.07E+00	1.74E+00	1.15E-01	3.96E-01	1.53E-02	2.93E-01
2005	10	2	3.38E+00	7.17E-03	2.04E+00	5.29E-04	1.81E-03	4.24E+00	2.56E+00	6.34E+00	1.99E+00	7.67E+00	1.17E-01	9.71E-01	1.35E+00	5.33E+00	4.21E+00	3.18E+00	4.10E-03	1.95E+00	4.73E-04	1.56E-03	4.07E+00	2.53E+00	5.87E+00	1.61E-01	3.73E-02	1.54E-02	5.62E-02	4.43E-02	5.29E+00	3.75E+00	1.99E-01	3.08E-03	8.99E-02	5.64E-05	2.47E-04	1.71E-01	2.80E-02	4.74E-01	1.83E+00	7.63E+00	1.02E-01	9.15E-01	1.30E+00	4.58E-02	4.66E-01
2005	10	3	3.57E+00	1.32E-03	2.00E+00	7.01E-05	1.68E-04	2.98E+00	2.71E-02	2.03E+00	4.54E+00	8.02E-03	2.93E-03	9.01E-03	7.59E-03	3.70E+00	4.42E+00	3.29E+00	8.02E-04	1.74E+00	6.75E-05	1.58E-04	2.80E+00	2.52E-02	2.02E+00	3.41E-02	3.70E-03	1.49E-03	5.69E-03	4.69E-03	3.70E+00	3.81E+00	2.83E-01	5.15E-04	2.64E-01	2.66E-06	9.46E-06	1.80E-01	1.87E-03	5.94E-03	4.51E+00	4.32E-03	1.44E-03	3.32E-03	2.89E-03	4.37E-03	6.06E-01
2005	10	4	3.50E+00	5.04E-01	1.56E+00	2.10E-02	2.43E-02	3.44E+00	8.03E-01	3.87E+00	7.29E+00	4.59E-01	2.64E+00	5.94E-02	9.80E-02	5.04E+00	4.57E+00	3.19E+00	7.67E-03	1.48E+00	1.48E-03	2.54E-03	3.35E+00	8.01E-01	3.71E+00	1.11E-01	2.80E-02	1.31E-02	5.05E-02	3.70E-02	5.01E+00	4.01E+00	3.09E-01	4.96E-01	7.52E-02	1.95E-02	2.18E-02	9.04E-02	2.93E-03	1.57E-01	7.18E+00	4.31E-01	2.62E+00	8.92E-03	6.10E-02	3.16E-02	5.59E-01
2005	10	5	3.14E+00	6.72E-01	1.54E+00	1.89E-01	2.93E-01	4.18E+00	2.90E+00	6.71E+00	2.79E+00	1.86E+01	2.75E+00	1.95E+00	2.28E+00	6.07E+00	4.07E+00	3.00E+00	2.72E-02	1.51E+00	1.22E-02	1.88E-02	4.12E+00	2.81E+00	5.73E+00	2.05E-01	7.99E-02	4.54E-02	1.40E-01	1.06E-01	5.93E+00	3.80E+00	1.44E-01	6.45E-01	3.05E-02	1.77E-01	2.75E-01	5.46E-02	8.87E-02	9.74E-01	2.59E+00	1.85E+01	2.71E+00	1.81E+00	2.18E+00	1.45E-01	2.78E-01
2005	10	6	4.02E-01	2.37E-06	7.94E-02	2.96E-06	1.61E-05	9.06E-01	8.57E-01	1.86E+00	1.78E-02	5.18E+00	7.55E-02	1.02E+00	4.35E-01	1.53E+00	5.73E-01	4.02E-01	2.21E-06	7.94E-02	2.69E-06	4.45E-06	9.06E-01	7.73E-01	1.50E+00	1.04E-02	6.12E-04	3.80E-05	4.55E-03	2.73E-03	1.50E+00	5.73E-01	4.61E-04	1.63E-07	2.65E-05	2.64E-07	1.16E-05	7.68E-06	8.40E-02	3.59E-01	7.40E-03	5.18E+00	7.55E-02	1.01E+00	4.33E-01	3.11E-02	7.69E-04
2005	10	7	5.97E-02	0.00E+00	2.35E-02	0.00E+00	3.06E-06	6.87E-01	3.79E-01	1.65E+00	1.26E-03	1.83E+00	7.21E-02	3.72E-01	3.12E-01	7.40E-01	1.27E-01	5.97E-02	0.00E+00	2.35E-02	0.00E+00	0.00E+00	6.87E-01	3.61E-01	1.09E+00	1.26E-03	1.24E-04	0.00E+00	4.80E-03	1.55E-03	7.40E-01	1.27E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.06E-06	0.00E+00	1.73E-02	5.63E-01	4.28E-22	1.83E+00	7.21E-02	3.68E-01	3.10E-01	0.00E+00	0.00E+00
2005	10	8	1.46E+00	5.74E-03	8.62E-01	2.66E-02	1.24E-01	4.58E+00	3.42E+00	8.58E+00	3.69E-01	1.76E+01	5.33E-01	1.58E+00	2.26E+00	6.24E+00	2.19E+00	1.39E+00	5.04E-03	8.51E-01	5.53E-04	1.95E-03	4.55E+00	3.35E+00	7.50E+00	1.90E-01	4.25E-02	1.62E-02	9.69E-02	6.49E-02	6.14E+00	1.95E+00	7.78E-02	7.04E-04	1.01E-02	2.60E-02	1.22E-01	3.42E-02	6.47E-02	1.08E+00	1.78E-01	1.76E+01	5.16E-01	1.48E+00	2.19E+00	9.78E-02	2.46E-01
2005	10	9	1.08E+00	4.04E-02	5.98E-01	1.91E-01	2.14E-01	4.97E+00	3.62E+00	9.97E+00	1.99E-01	1.09E+01	5.85E+00	3.67E+00	4.33E+00	5.77E+00	1.72E+00	1.07E+00	5.51E-03	5.87E-01	1.73E-03	4.50E-03	4.92E+00	3.19E+00	8.23E+00	1.70E-01	4.28E-02	1.78E-02	8.88E-02	6.28E-02	5.62E+00	1.68E+00	1.77E-02	3.49E-02	1.09E-02	1.89E-01	2.09E-01	4.57E-02	4.26E-01	1.74E+00	2.89E-02	1.09E+01	5.83E+00	3.58E+00	4.26E+00	1.54E-01	4.03E-02
2005	10	10	5.95E-02	0.00E+00	7.70E-04	0.00E+00	0.00E+00	3.71E-01	3.28E-01	1.03E+00	1.56E-16	3.53E+00	1.29E-02	4.31E-01	2.81E-01	6.37E-01	1.02E-01	5.95E-02	0.00E+00	7.70E-04	0.00E+00	0.00E+00	3.71E-01	2.81E-01	7.79E-01	0.00E+00	0.00E+00	0.00E+00	4.01E-06	8.90E-09	6.33E-01	1.02E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.72E-02	2.47E-01	1.56E-16	3.53E+00	1.29E-02	4.31E-01	2.81E-01	3.96E-03	0.00E+00
2005	10	11	1.31E+00	1.02E+00	5.64E-01	1.15E-01	1.26E-01	3.28E+00	2.57E+00	5.09E+00	5.94E-01	9.15E+00	3.54E+00	1.19E+00	1.40E+00	4.56E+00	1.68E+00	1.27E+00	1.13E-02	5.54E-01	4.28E-03	6.57E-03	3.25E+00	2.50E+00	4.23E+00	1.60E-01	4.55E-02	2.16E-02	9.70E-02	6.40E-02	4.47E+00	1.60E+00	3.86E-02	1.01E+00	1.05E-02	1.11E-01	1.19E-01	3.16E-02	6.93E-02	8.56E-01	4.34E-01	9.10E+00	3.52E+00	1.09E+00	1.34E+00	9.27E-02	8.78E-02
2005	10	12	1.28E-01	9.72E-03	1.24E-01	1.28E-02	2.16E-02	1.40E+00	1.15E+00	3.60E+00	4.52E-02	3.08E+00	1.52E-01	1.16E+00	4.20E-01	1.92E+00	1.91E-01	1.28E-01	6.75E-04	1.24E-01	3.36E-04	8.38E-04	1.40E+00	1.09E+00	2.44E+00	4.37E-02	1.11E-02	3.72E-03	3.32E-02	1.96E-02	1.91E+00	1.91E-01	9.18E-05	9.05E-03	2.98E-05	1.25E-02	2.08E-02	4.58E-05	5.58E-02	1.16E+00	1.50E-03	3.07E+00	1.48E-01	1.13E+00	4.00E-01	1.42E-02	1.14E-04
2005	10	13	4.04E-01	3.20E-05	1.67E-01	0.00E+00	6.30E-07	1.65E+00	1.02E+00	3.13E+00	8.32E-02	3.59E+00	5.71E-02	6.59E-01	3.87E-01	2.33E+00	8.04E-01	3.71E-01	3.20E-05	1.64E-01	0.00E+00	6.30E-07	1.64E+00	9.61E-01	2.02E+00	4.17E-02	3.63E-03	3.28E-04	5.35E-03	8.62E-03	2.31E+00	6.96E-01	3.25E-02	0.00E+00	3.18E-03	0.00E+00	0.00E+00	1.07E-02	5.68E-02	1.10E+00	4.15E-02	3.59E+00	5.68E-02	6.54E-01	3.79E-01	1.69E-02	1.08E-01
2005	10	14	2.79E+00	5.90E-01	2.01E+00	3.12E-02	5.38E-02	5.68E+00	2.56E+00	7.05E+00	2.46E+00	1.19E+01	7.44E-01	1.26E+00	1.01E+00	7.03E+00	4.05E+00	2.49E+00	1.03E-02	1.88E+00	5.23E-03	8.12E-03	5.59E+00	2.49E+00	5.84E+00	2.22E-01	5.97E-02	2.83E-02	1.07E-01	8.14E-02	6.88E+00	3.39E+00	3.08E-01	5.79E-01	1.28E-01	2.60E-02	4.56E-02	9.20E-02	7.12E-02	1.21E+00	2.24E+00	1.19E+01	7.15E-01	1.15E+00	9.31E-01	1.54E-01	6.54E-01
2005	10	15	1.62E+00	4.16E-01	7.42E-01	6.41E-02	1.12E-01	2.76E+00	9.15E-01	2.56E+00	1.19E+00	1.58E+00	2.49E+00	2.96E-01	3.56E-01	1.97E+00	2.09E+00	1.45E+00	1.92E-02	6.74E-01	8.39E-03	1.14E-02	2.70E+00	8.84E-01	2.30E+00	1.55E-01	6.06E-02	3.36E-02	9.32E-02	7.51E-02	1.90E+00	1.82E+00	1.69E-01	3.97E-01	6.82E-02	5.57E-02	1.00E-01	6.03E-02	3.12E-02	2.62E-01	1.04E+00	1.52E+00	2.45E+00	2.03E-01	2.81E-01	7.68E-02	2.75E-01
2005	10	16	1.08E-02	0.00E+00	9.58E-03	0.00E+00	6.57E-05	3.79E-01	2.27E-01	6.87E-01	2.34E-17	1.05E+00	9.54E-02	2.18E-01	3.01E-01	3.84E-01	1.88E-02	1.08E-02	0.00E+00	9.58E-03	0.00E+00	0.00E+00	3.79E-01	2.24E-01	5.73E-01	0.00E+00	0.00E+00	0.00E+00	2.53E-04	1.21E-06	3.84E-01	1.88E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.57E-05	0.00E+00	2.47E-03	1.14E-01	2.34E-17	1.05E+00	9.54E-02	2.18E-01	3.01E-01	0.00E+00	0.00E+00
2005	10	17	2.56E-01	1.59E-06	1.03E-01	0.00E+00	2.89E-05	1.40E+00	2.46E-01	1.52E+00	6.69E-02	9.64E-01	1.05E-01	5.37E-02	4.85E-01	1.02E+00	5.28E-01	2.55E-01	1.59E-06	1.03E-01	0.00E+00	1.22E-05	1.40E+00	2.46E-01	1.45E+00	5.91E-02	1.09E-02	1.09E-03	1.30E-02	1.37E-02	1.02E+00	5.26E-01	3.33E-04	0.00E+00	0.00E+00	0.00E+00	1.67E-05	6.63E-04	1.39E-04	7.35E-02	7.89E-03	9.53E-01	1.04E-01	4.07E-02	4.71E-01	3.40E-05	1.91E-03
2005	10	18	2.77E+00	1.48E+00	1.26E+00	1.20E-01	1.67E-01	4.84E+00	2.69E+00	7.41E+00	1.03E+00	1.03E+01	2.74E+00	1.55E+00	2.11E+00	5.42E+00	3.70E+00	2.70E+00	2.57E-02	1.24E+00	1.05E-02	1.49E-02	4.78E+00	2.60E+00	6.69E+00	2.67E-01	8.42E-02	4.29E-02	1.53E-01	1.12E-01	5.37E+00	3.58E+00	6.39E-02	1.46E+00	2.50E-02	1.09E-01	1.52E-01	6.09E-02	8.57E-02	7.17E-01	7.61E-01	1.02E+01	2.70E+00	1.40E+00	2.00E+00	5.45E-02	1.17E-01
2005	10	19	2.73E-01	4.39E-03	2.76E-01	2.56E-03	4.42E-03	1.59E+00	1.10E+00	3.71E+00	6.48E-02	5.79E+00	4.78E-02	1.20E+00	5.38E-01	2.09E+00	4.14E-01	2.58E-01	4.11E-03	2.76E-01	1.37E-03	2.53E-03	1.59E+00	1.04E+00	2.85E+00	6.25E-02	1.73E-02	8.84E-03	3.50E-02	2.41E-02	1.98E+00	3.43E-01	1.43E-02	2.75E-04	3.61E-04	1.19E-03	1.89E-03	1.12E-03	6.67E-02	8.65E-01	2.30E-03	5.77E+00	3.90E-02	1.16E+00	5.14E-01	1.12E-01	7.08E-02
2005	10	20	1.54E+00	2.95E-01	9.01E-01	5.87E-02	1.31E-01	3.43E+00	7.42E-01	5.00E+00	1.39E+00	1.74E+00	1.43E+00	3.56E-01	6.65E-01	4.40E+00	2.34E+00	1.35E+00	2.10E-02	8.34E-01	7.31E-03	1.24E-02	3.35E+00	6.97E-01	4.40E+00	1.01E-01	3.87E-02	2.72E-02	4.70E-02	4.37E-02	4.32E+00	1.95E+00	1.96E-01	2.74E-01	6.70E-02	5.14E-02	1.19E-01	7.59E-02	4.55E-02	6.01E-01	1.29E+00	1.70E+00	1.40E+00	3.09E-01	6.21E-01	8.59E-02	3.96E-01
2005	10	21	1.95E+00	2.50E-01	1.21E+00	3.88E-02	5.71E-02	5.77E+00	3.67E+00	8.98E+00	9.86E-01	1.66E+01	7.99E-01	2.16E+00	1.69E+00	6.61E+00	2.57E+00	1.81E+00	1.16E-02	1.17E+00	2.89E-03	5.78E-03	5.67E+00	3.56E+00	7.72E+00	2.49E-01	6.68E-02	3.01E-02	1.12E-01	8.64E-02	6.48E+00	2.31E+00	1.40E-01	2.38E-01	3.56E-02	3.59E-02	5.13E-02	1.01E-01	1.09E-01	1.26E+00	7.37E-01	1.65E+01	7.69E-01	2.04E+00	1.60E+00	1.24E-01	2.57E-01
2005	10	22	2.44E+00	6.20E-01	1.45E+00	2.52E-01	3.02E-01	4.55E+00	3.74E+00	7.73E+00	2.03E+00	1.38E+01	6.16E+00	2.05E+00	3.04E+00	5.99E+00	3.09E+00	2.31E+00	1.24E-02	1.41E+00	4.53E-03	7.25E-03	4.47E+00	3.62E+00	6.05E+00	1.50E-01	4.78E-02	2.29E-02	9.74E-02	6.76E-02	5.90E+00	2.87E+00	1.27E-01	6.07E-01	3.93E-02	2.48E-01	2.95E-01	8.09E-02	1.24E-01	1.68E+00	1.88E+00	1.38E+01	6.14E+00	1.96E+00	2.97E+00	9.01E-02	2.18E-01
2005	10	23	8.93E-01	3.19E-03	5.26E-01	9.10E-04	1.30E-03	3.78E+00	2.66E+00	6.82E+00	1.04E-01	9.76E+00	4.10E-02	1.88E+00	6.91E-01	5.44E+00	1.59E+00	8.37E-01	3.12E-03	5.20E-01	8.93E-04	1.26E-03	3.77E+00	2.53E+00	5.50E+00	6.48E-02	1.48E-02	4.61E-03	6.73E-02	3.33E-02	5.36E+00	1.44E+00	5.67E-02	7.27E-05	5.55E-03	1.69E-05	4.74E-05	1.09E-02	1.29E-01	1.32E+00	3.89E-02	9.75E+00	3.63E-02	1.81E+00	6.58E-01	7.43E-02	1.49E-01
2005	10	24	1.89E+00	3.87E-01	1.06E+00	4.03E-02	6.83E-02	3.62E+00	2.32E+00	5.30E+00	9.06E-01	9.20E+00	2.18E+00	8.38E-01	1.20E+00	4.15E+00	2.66E+00	1.83E+00	9.46E-03	1.04E+00	2.23E-03	4.11E-03	3.58E+00	2.26E+00	4.60E+00	1.98E-01	4.39E-02	1.91E-02	8.59E-02	6.11E-02	4.11E+00	2.55E+00	5.51E-02	3.77E-01	1.96E-02	3.81E-02	6.42E-02	4.67E-02	5.83E-02	6.97E-01	7.08E-01	9.16E+00	2.16E+00	7.53E-01	1.14E+00	3.77E-02	1.08E-01
2005	10	25	2.04E+00	1.22E+00	8.98E-01	2.77E-01	4.23E-01	5.86E+00	3.56E+00	8.64E+00	1.29E+00	1.05E+01	4.78E+00	1.08E+00	1.52E+00	6.95E+00	3.17E+00	1.94E+00	2.98E-02	8.86E-01	1.40E-02	2.02E-02	5.84E+00	3.50E+00	7.31E+00	2.99E-01	1.06E-01	5.50E-02	2.01E-01	1.46E-01	6.85E+00	2.94E+00	9.77E-02	1.19E+00	1.17E-02	2.63E-01	4.02E-01	1.73E-02	5.72E-02	1.32E+00	9.93E-01	1.04E+01	4.72E+00	8.82E-01	1.37E+00	9.75E-02	2.25E-01
2005	10	26	6.47E-01	2.97E-04	3.83E-01	1.60E-05	2.03E-04	3.03E+00	1.64E+00	4.49E+00	8.22E-02	5.87E+00	6.12E-02	1.12E+00	8.24E-01	3.37E+00	1.09E+00	5.99E-01	2.95E-04	3.73E-01	1.60E-05	2.02E-04	3.00E+00	1.55E+00	3.60E+00	6.36E-02	1.05E-02	2.94E-03	2.64E-02	1.76E-02	3.33E+00	9.70E-01	4.82E-02	2.21E-06	1.02E-02	0.00E+00	9.17E-07	2.83E-02	8.88E-02	8.89E-01	1.86E-02	5.86E+00	5.83E-02	1.09E+00	8.06E-01	3.83E-02	1.16E-01
2005	10	27	4.22E+00	6.32E-01	3.12E+00	3.03E-02	3.18E-02	6.31E+00	2.35E+00	7.39E+00	5.04E+00	4.47E+00	3.44E+00	1.21E+00	8.60E-01	8.05E+00	5.24E+00	3.52E+00	1.82E-02	2.24E+00	3.63E-03	6.58E-03	5.81E+00	2.20E+00	6.52E+00	3.02E-01	6.95E-02	3.25E-02	1.35E-01	9.65E-02	7.74E+00	4.10E+00	7.03E-01	6.14E-01	8.77E-01	2.67E-02	2.52E-02	5.03E-01	1.55E-01	8.69E-01	4.74E+00	4.40E+00	3.41E+00	1.07E+00	7.63E-01	3.12E-01	1.14E+00
2005	10	28	1.23E+00	6.10E-02	5.93E-01	3.31E-02	5.35E-02	2.38E+00	1.72E+00	4.87E+00	1.93E-01	5.39E+00	4.94E-01	1.01E+00	1.15E+00	2.87E+00	1.73E+00	1.15E+00	1.22E-02	5.78E-01	4.57E-03	8.77E-03	2.32E+00	1.68E+00	3.69E+00	1.18E-01	4.45E-02	2.58E-02	6.86E-02	5.42E-02	2.82E+00	1.55E+00	8.78E-02	4.88E-02	1.53E-02	2.85E-02	4.47E-02	5.47E-02	4.51E-02	1.18E+00	7.53E-02	5.35E+00	4.68E-01	9.40E-01	1.10E+00	4.29E-02	1.78E-01
2005	10	29	9.09E-02	0.00E+00	1.62E-03	0.00E+00	0.00E+00	5.10E-01	5.10E-01	1.46E+00	2.58E-17	2.35E+00	1.14E-02	8.54E-01	2.29E-01	8.10E-01	1.25E-01	9.09E-02	0.00E+00	1.62E-03	0.00E+00	0.00E+00	5.10E-01	4.70E-01	8.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.10E-01	1.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E-02	5.98E-01	2.58E-17	2.35E+00	1.14E-02	8.54E-01	2.29E-01	0.00E+00	0.00E+00
2005	10	30	2.70E-01	0.00E+00	6.53E-02	0.00E+00	0.00E+00	7.67E-01	5.98E-01	2.15E+00	6.23E-03	4.85E+00	2.00E-02	8.64E-01	4.72E-01	1.16E+00	3.58E-01	2.59E-01	0.00E+00	6.53E-02	0.00E+00	0.00E+00	7.66E-01	5.65E-01	1.40E+00	6.19E-04	0.00E+00	0.00E+00	1.29E-04	8.43E-06	1.13E+00	3.38E-01	1.11E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-04	3.29E-02	7.49E-01	5.61E-03	4.85E+00	2.00E-02	8.64E-01	4.72E-01	2.71E-02	2.01E-02
2005	10	31	1.54E-01	0.00E+00	2.14E-02	0.00E+00	4.33E-04	8.48E-01	3.71E-01	1.77E+00	3.02E-03	1.41E+00	1.21E-01	4.67E-01	3.53E-01	9.02E-01	2.86E-01	1.54E-01	0.00E+00	2.14E-02	0.00E+00	1.02E-07	8.48E-01	3.65E-01	1.08E+00	3.01E-03	7.50E-04	5.78E-05	4.25E-03	1.84E-03	9.02E-01	2.86E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.33E-04	0.00E+00	5.50E-03	6.87E-01	1.60E-05	1.41E+00	1.21E-01	4.62E-01	3.51E-01	2.04E-05	0.00E+00
2005	11	1	1.07E+00	2.27E-01	4.32E-01	1.19E-01	1.45E-01	3.42E+00	9.88E-01	4.63E+00	1.15E+00	2.16E+00	5.94E-01	3.70E-01	5.29E-01	3.70E+00	1.59E+00	1.03E+00	7.03E-03	4.25E-01	4.65E-03	6.27E-03	3.41E+00	9.60E-01	3.69E+00	7.44E-02	1.91E-02	1.00E-02	3.95E-02	3.00E-02	3.67E+00	1.48E+00	3.78E-02	2.20E-01	6.38E-03	1.15E-01	1.39E-01	7.89E-03	2.78E-02	9.43E-01	1.08E+00	2.14E+00	5.84E-01	3.30E-01	4.99E-01	3.17E-02	1.13E-01
2005	11	2	7.65E-01	1.75E-04	5.25E-01	3.32E-06	1.02E-04	2.66E+00	1.43E+00	4.35E+00	9.24E-02	6.19E+00	2.37E-02	9.18E-01	5.43E-01	3.31E+00	1.38E+00	6.40E-01	1.65E-04	5.10E-01	2.83E-06	8.77E-05	2.63E+00	1.40E+00	3.46E+00	6.89E-02	1.17E-02	2.45E-03	2.64E-02	2.00E-02	3.26E+00	1.12E+00	1.25E-01	9.93E-06	1.50E-02	4.89E-07	1.47E-05	3.44E-02	3.37E-02	8.94E-01	2.34E-02	6.18E+00	2.13E-02	8.92E-01	5.23E-01	5.10E-02	2.62E-01
2005	11	3	2.98E+00	4.34E-01	1.53E+00	6.18E-02	8.78E-02	4.22E+00	2.04E+00	5.61E+00	1.35E+00	5.12E+00	3.32E+00	6.06E-01	6.85E-01	4.56E+00	3.98E+00	2.74E+00	7.01E-03	1.51E+00	1.37E-03	2.80E-03	4.15E+00	2.01E+00	4.97E+00	1.25E-01	3.08E-02	1.45E-02	5.41E-02	4.02E-02	4.51E+00	3.53E+00	2.35E-01	4.27E-01	2.80E-02	6.04E-02	8.50E-02	6.74E-02	2.64E-02	6.38E-01	1.22E+00	5.09E+00	3.31E+00	5.52E-01	6.45E-01	5.41E-02	4.49E-01
2005	11	4	2.62E-01	2.10E-03	3.67E-02	7.25E-02	1.48E-01	1.05E+00	6.83E-01	2.46E+00	3.96E-02	1.96E+00	1.28E+00	7.12E-01	6.40E-01	1.29E+00	3.92E-01	2.62E-01	1.51E-03	3.62E-02	1.25E-03	2.33E-03	1.05E+00	6.35E-01	1.88E+00	3.67E-02	1.05E-02	4.43E-03	1.64E-02	1.42E-02	1.22E+00	3.90E-01	1.31E-04	5.91E-04	5.00E-04	7.13E-02	1.45E-01	1.08E-03	4.84E-02	5.77E-01	2.96E-03	1.95E+00	1.28E+00	6.96E-01	6.25E-01	6.72E-02	1.85E-03
2005	11	5	1.04E+00	6.64E-04	5.39E-01	2.72E-02	5.56E-02	2.25E+00	1.69E+00	4.59E+00	3.63E-01	5.11E+00	2.51E-01	8.50E-01	7.35E-01	3.10E+00	1.52E+00	9.95E-01	3.10E-04	5.34E-01	2.56E-05	5.18E-04	2.23E+00	1.64E+00	3.30E+00	5.29E-02	9.74E-03	3.68E-03	2.52E-02	1.54E-02	3.08E+00	1.38E+00	4.84E-02	3.54E-04	5.06E-03	2.72E-02	5.51E-02	2.08E-02	4.22E-02	1.29E+00	3.10E-01	5.10E+00	2.48E-01	8.25E-01	7.19E-01	2.28E-02	1.45E-01
2005	11	6	2.44E+00	5.53E-02	1.28E+00	4.96E-03	1.36E-02	2.90E+00	7.84E-01	3.23E+00	3.70E+00	1.72E+00	3.67E-01	4.66E-01	4.29E-01	3.17E+00	3.18E+00	2.14E+00	4.51E-03	1.19E+00	6.35E-04	1.50E-03	2.79E+00	7.59E-01	2.77E+00	7.17E-02	1.86E-02	8.86E-03	3.18E-02	2.42E-02	3.12E+00	2.60E+00	2.96E-01	5.08E-02	8.66E-02	4.33E-03	1.21E-02	1.06E-01	2.48E-02	4.63E-01	3.63E+00	1.70E+00	3.58E-01	4.34E-01	4.05E-01	5.14E-02	5.84E-01
2005	11	7	6.66E-01	2.81E-01	2.87E-01	1.92E-01	2.82E-01	2.80E+00	2.87E+00	6.14E+00	3.41E-01	1.24E+01	4.01E+00	2.44E+00	1.55E+00	4.21E+00	1.09E+00	6.39E-01	3.51E-03	2.86E-01	4.10E-03	6.17E-03	2.79E+00	2.75E+00	4.73E+00	5.11E-02	2.04E-02	9.96E-03	5.99E-02	3.53E-02	4.17E+00	1.01E+00	2.60E-02	2.78E-01	1.00E-03	1.88E-01	2.76E-01	2.15E-03	1.22E-01	1.41E+00	2.90E-01	1.24E+01	4.00E+00	2.38E+00	1.52E+00	3.69E-02	7.38E-02
2005	11	8	1.08E-01	3.59E-04	3.29E-02	4.73E-05	1.76E-04	1.27E+00	4.66E-01	2.07E+00	3.54E-02	3.66E+00	9.18E-03	5.53E-01	3.30E-01	9.86E-01	1.84E-01	1.08E-01	3.59E-04	3.29E-02	4.73E-05	1.76E-04	1.27E+00	4.10E-01	1.20E+00	3.54E-02	6.16E-03	1.62E-03	1.61E-02	1.08E-02	9.72E-01	1.84E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.64E-02	8.75E-01	2.56E-16	3.65E+00	7.57E-03	5.37E-01	3.19E-01	1.40E-02	0.00E+00
2005	11	9	4.53E-02	0.00E+00	7.25E-03	0.00E+00	6.58E-11	2.89E-01	2.05E-01	7.87E-01	7.99E-16	2.10E+00	2.98E-02	3.23E-01	2.05E-01	4.92E-01	5.64E-02	4.53E-02	0.00E+00	7.25E-03	0.00E+00	0.00E+00	2.89E-01	1.80E-01	6.24E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.12E-01	5.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.58E-11	0.00E+00	2.48E-02	1.62E-01	7.99E-16	2.10E+00	2.98E-02	3.23E-01	2.05E-01	7.95E-02	0.00E+00
2005	11	10	5.93E-02	0.00E+00	1.37E-02	0.00E+00	1.23E-04	4.80E-01	2.82E-01	1.12E+00	1.67E-04	1.27E+00	1.23E-01	2.01E-01	3.54E-01	6.32E-01	9.66E-02	5.93E-02	0.00E+00	1.37E-02	0.00E+00	0.00E+00	4.80E-01	2.73E-01	8.20E-01	1.67E-04	3.04E-05	0.00E+00	2.68E-03	8.03E-04	6.26E-01	9.66E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-04	0.00E+00	8.83E-03	3.03E-01	5.68E-18	1.27E+00	1.23E-01	1.98E-01	3.53E-01	5.96E-03	0.00E+00
2005	11	11	3.84E-01	8.36E-05	1.11E-01	1.06E-05	1.19E-04	1.54E+00	3.77E-01	2.63E+00	5.94E-02	1.32E+00	1.26E-01	1.67E-01	4.39E-01	1.38E+00	7.20E-01	3.81E-01	8.36E-05	1.11E-01	1.06E-05	9.96E-05	1.54E+00	3.67E-01	2.20E+00	5.67E-02	1.00E-02	2.47E-03	1.95E-02	1.68E-02	1.36E+00	6.99E-01	3.23E-03	0.00E+00	8.17E-05	0.00E+00	1.94E-05	1.26E-03	9.41E-03	4.37E-01	2.80E-03	1.31E+00	1.24E-01	1.48E-01	4.22E-01	1.15E-02	2.16E-02
2005	11	12	2.25E-01	7.21E-06	5.66E-02	8.19E-07	3.21E-05	1.51E+00	4.80E-01	2.76E+00	5.91E-02	2.08E+00	6.54E-02	4.70E-01	6.00E-01	1.13E+00	4.03E-01	2.25E-01	7.21E-06	5.64E-02	8.19E-07	3.02E-05	1.51E+00	4.61E-01	1.81E+00	5.58E-02	6.73E-03	7.95E-04	1.39E-02	1.14E-02	1.12E+00	4.01E-01	6.68E-04	0.00E+00	2.15E-04	0.00E+00	1.91E-06	5.54E-03	1.88E-02	9.47E-01	3.27E-03	2.07E+00	6.46E-02	4.56E-01	5.88E-01	1.82E-03	2.49E-03
2005	11	13	1.83E-01	2.79E-07	3.56E-02	5.21E-04	1.71E-01	8.49E-01	5.60E-01	1.94E+00	2.78E-03	2.33E+00	8.46E-01	6.08E-01	4.65E-01	1.16E+00	3.30E-01	1.83E-01	2.79E-07	3.56E-02	3.63E-05	4.32E-04	8.49E-01	5.43E-01	1.13E+00	2.78E-03	1.48E-03	4.02E-04	1.10E-02	5.09E-03	1.16E+00	3.30E-01	0.00E+00	0.00E+00	0.00E+00	4.84E-04	1.71E-01	0.00E+00	1.75E-02	8.16E-01	2.19E-20	2.33E+00	8.46E-01	5.97E-01	4.60E-01	4.98E-04	0.00E+00
2005	11	14	2.45E+00	1.15E+00	1.03E+00	5.93E-02	6.42E-02	5.25E+00	1.62E+00	6.95E+00	1.71E+00	2.44E+00	1.81E+00	6.18E-01	7.15E-01	6.08E+00	3.55E+00	1.92E+00	2.67E-02	8.31E-01	7.72E-03	1.10E-02	5.03E+00	1.55E+00	6.01E+00	1.89E-01	6.40E-02	3.73E-02	1.01E-01	7.83E-02	5.88E+00	2.74E+00	5.22E-01	1.12E+00	1.95E-01	5.16E-02	5.31E-02	2.16E-01	7.20E-02	9.35E-01	1.52E+00	2.38E+00	1.77E+00	5.17E-01	6.37E-01	2.02E-01	8.12E-01
2005	11	15	1.77E-01	3.37E-02	2.26E-01	2.08E-02	2.85E-02	2.07E+00	1.47E+00	4.45E+00	9.55E-02	9.06E+00	1.12E-01	1.52E+00	4.55E-01	3.34E+00	2.72E-01	1.65E-01	4.15E-03	2.23E-01	1.92E-03	3.05E-03	2.07E+00	1.35E+00	3.05E+00	5.76E-02	1.86E-02	8.96E-03	3.33E-02	2.56E-02	3.28E+00	2.40E-01	1.20E-02	2.96E-02	2.59E-03	1.89E-02	2.55E-02	3.63E-03	1.19E-01	1.40E+00	3.78E-02	9.04E+00	1.03E-01	1.49E+00	4.29E-01	5.50E-02	3.15E-02
2005	11	16	2.59E-01	0.00E+00	1.30E-02	0.00E+00	0.00E+00	1.27E+00	6.93E-01	2.66E+00	1.06E-02	5.57E+00	1.06E-03	7.34E-01	5.72E-01	1.93E+00	3.28E-01	2.59E-01	0.00E+00	1.30E-02	0.00E+00	0.00E+00	1.27E+00	5.98E-01	1.87E+00	1.06E-02	2.63E-04	0.00E+00	5.71E-03	1.25E-03	1.91E+00	3.28E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.52E-02	7.87E-01	3.79E-17	5.57E+00	1.06E-03	7.28E-01	5.71E-01	2.01E-02	0.00E+00
2005	11	17	1.06E+00	3.32E-03	6.21E-01	4.40E-04	1.07E-03	1.64E+00	1.42E+00	2.56E+00	4.14E-01	9.36E+00	2.47E-02	7.19E-01	9.90E-01	2.55E+00	1.59E+00	1.01E+00	3.20E-03	6.01E-01	4.33E-04	1.04E-03	1.59E+00	1.38E+00	2.29E+00	6.41E-02	1.44E-02	6.87E-03	2.31E-02	1.81E-02	2.54E+00	1.48E+00	4.96E-02	1.23E-04	2.06E-02	7.32E-06	3.58E-05	5.06E-02	4.63E-02	2.73E-01	3.50E-01	9.35E+00	1.78E-02	6.96E-01	9.72E-01	1.11E-02	1.16E-01
2005	11	18	1.64E+00	9.15E-04	9.09E-01	7.65E-05	2.99E-04	2.54E+00	2.03E+00	3.50E+00	1.68E-01	1.00E+01	7.78E-03	7.10E-01	5.68E-01	2.90E+00	2.34E+00	1.62E+00	8.16E-04	8.73E-01	6.95E-05	2.78E-04	2.41E+00	1.97E+00	3.16E+00	7.23E-02	1.33E-02	4.20E-03	2.24E-02	1.80E-02	2.86E+00	2.29E+00	1.55E-02	9.94E-05	3.56E-02	7.00E-06	2.13E-05	1.27E-01	5.80E-02	3.39E-01	9.58E-02	1.00E+01	3.58E-03	6.88E-01	5.50E-01	4.26E-02	4.40E-02
2005	11	19	2.55E+00	1.42E-03	1.17E+00	3.67E-04	6.50E-04	2.96E+00	2.18E+00	4.32E+00	9.73E-01	1.12E+01	1.28E-02	1.09E+00	8.86E-01	4.06E+00	3.54E+00	2.37E+00	1.40E-03	1.14E+00	3.66E-04	6.43E-04	2.83E+00	2.12E+00	3.96E+00	8.14E-02	1.71E-02	5.40E-03	3.97E-02	2.64E-02	4.01E+00	3.18E+00	1.83E-01	1.93E-05	2.96E-02	8.73E-07	6.99E-06	1.29E-01	5.94E-02	3.58E-01	8.91E-01	1.12E+01	7.36E-03	1.05E+00	8.59E-01	4.80E-02	3.62E-01
2005	11	20	1.48E+00	3.22E-04	9.57E-01	4.86E-05	1.08E-04	3.61E+00	1.93E+00	4.90E+00	6.46E-02	1.14E+01	3.05E-03	1.37E+00	4.31E-01	4.25E+00	2.23E+00	1.27E+00	2.95E-04	9.34E-01	4.84E-05	1.01E-04	3.54E+00	1.84E+00	4.29E+00	5.72E-02	8.26E-03	1.20E-03	2.74E-02	1.61E-02	4.20E+00	1.77E+00	2.09E-01	2.78E-05	2.34E-02	1.72E-07	6.61E-06	7.04E-02	8.74E-02	6.06E-01	7.38E-03	1.14E+01	1.85E-03	1.34E+00	4.15E-01	5.07E-02	4.62E-01
2005	11	21	1.08E+00	1.11E-04	5.60E-01	2.62E-05	8.26E-05	2.25E+00	1.40E+00	3.31E+00	1.41E-02	8.55E+00	1.32E-03	1.08E+00	1.90E-01	2.59E+00	1.54E+00	9.50E-01	1.09E-04	5.53E-01	2.61E-05	8.06E-05	2.23E+00	1.31E+00	2.91E+00	1.31E-02	2.22E-03	4.42E-04	1.45E-02	5.86E-03	2.53E+00	1.31E+00	1.32E-01	1.84E-06	7.17E-03	5.11E-08	2.05E-06	2.10E-02	8.70E-02	3.96E-01	1.06E-03	8.55E+00	8.73E-04	1.06E+00	1.84E-01	6.00E-02	2.26E-01
2005	11	22	8.82E-01	4.68E-04	6.08E-01	5.76E-05	1.28E-04	2.22E+00	1.30E+00	4.12E+00	4.74E-02	7.79E+00	2.86E-03	1.04E+00	1.65E-01	3.12E+00	1.21E+00	7.65E-01	4.43E-04	5.88E-01	5.64E-05	1.17E-04	2.17E+00	1.23E+00	3.62E+00	4.27E-02	5.28E-03	1.23E-03	1.68E-02	1.00E-02	3.11E+00	9.77E-01	1.17E-01	2.50E-05	2.03E-02	1.22E-06	1.06E-05	4.41E-02	6.37E-02	5.02E-01	4.64E-03	7.78E+00	1.63E-03	1.02E+00	1.55E-01	1.77E-02	2.31E-01
2005	11	23	4.61E-01	1.36E-04	2.37E-01	3.06E-05	1.05E-04	1.87E+00	1.41E+00	4.34E+00	2.81E-02	9.95E+00	2.44E-03	1.17E+00	7.05E-01	3.06E+00	6.89E-01	4.38E-01	1.36E-04	2.32E-01	3.06E-05	6.52E-05	1.86E+00	1.28E+00	3.21E+00	2.40E-02	3.32E-03	7.05E-04	1.32E-02	5.93E-03	2.98E+00	6.29E-01	2.34E-02	9.30E-08	4.50E-03	0.00E+00	3.97E-05	1.25E-02	1.28E-01	1.13E+00	4.08E-03	9.95E+00	1.74E-03	1.16E+00	6.99E-01	8.40E-02	6.02E-02
2005	11	24	6.06E-01	1.40E-05	2.30E-01	1.28E-06	1.21E-05	2.15E+00	1.35E+00	4.01E+00	2.39E-02	7.71E+00	5.69E-03	1.01E+00	2.49E-01	3.17E+00	8.41E-01	5.71E-01	1.40E-05	2.30E-01	1.28E-06	1.21E-05	2.15E+00	1.23E+00	3.22E+00	2.35E-02	2.22E-03	2.30E-04	1.32E-02	6.86E-03	3.08E+00	7.91E-01	3.53E-02	0.00E+00	1.30E-04	0.00E+00	0.00E+00	7.64E-04	1.26E-01	7.93E-01	3.43E-04	7.71E+00	5.46E-03	1.00E+00	2.42E-01	8.80E-02	5.05E-02
2005	11	25	1.65E+00	7.51E-01	8.68E-01	7.44E-02	1.07E-01	3.86E+00	2.26E+00	7.43E+00	2.62E+00	4.85E+00	2.16E+00	1.08E+00	1.23E+00	6.00E+00	2.32E+00	1.43E+00	1.31E-02	5.02E-01	4.73E-03	7.78E-03	3.51E+00	2.13E+00	5.75E+00	1.59E-01	5.44E-02	2.57E-02	1.18E-01	7.93E-02	5.61E+00	2.03E+00	2.12E-01	7.38E-01	3.66E-01	6.97E-02	9.92E-02	3.46E-01	1.30E-01	1.69E+00	2.46E+00	4.80E+00	2.14E+00	9.59E-01	1.15E+00	3.84E-01	2.94E-01
2005	11	26	1.82E-01	4.81E-05	8.07E-02	1.08E-06	1.33E-05	1.60E+00	7.43E-01	2.97E+00	6.44E-03	4.84E+00	6.29E-03	7.05E-01	3.02E-01	2.41E+00	3.33E-01	1.60E-01	4.81E-05	8.07E-02	1.08E-06	1.33E-05	1.60E+00	6.59E-01	1.83E+00	6.44E-03	1.33E-03	3.11E-04	2.44E-03	1.97E-03	2.39E+00	2.41E-01	2.17E-02	0.00E+00	4.19E-05	0.00E+00	0.00E+00	8.73E-04	8.44E-02	1.14E+00	1.32E-17	4.84E+00	5.97E-03	7.02E-01	3.00E-01	2.29E-02	9.17E-02
2005	11	27	4.27E+00	2.10E-04	2.38E+00	4.58E-07	3.45E-06	4.46E+00	2.38E-01	4.09E+00	9.01E+00	1.48E-02	7.93E-04	1.96E-02	1.88E-02	4.54E+00	5.11E+00	3.81E+00	1.87E-04	2.08E+00	4.42E-07	3.28E-06	3.99E+00	2.33E-01	4.05E+00	3.17E-02	2.39E-03	5.52E-04	5.63E-03	3.59E-03	4.52E+00	4.43E+00	4.57E-01	2.31E-05	3.00E-01	1.55E-08	1.69E-07	4.63E-01	5.02E-03	3.44E-02	8.98E+00	1.24E-02	2.42E-04	1.40E-02	1.52E-02	1.82E-02	6.73E-01
2005	11	28	6.45E+00	2.79E-01	3.29E+00	8.62E-04	1.66E-03	5.90E+00	7.29E-01	5.79E+00	8.38E+00	2.21E-01	4.50E-01	9.01E-02	8.64E-02	7.22E+00	7.79E+00	5.94E+00	5.82E-03	3.10E+00	5.63E-04	1.04E-03	5.64E+00	7.21E-01	5.51E+00	1.03E-01	2.10E-02	9.37E-03	3.98E-02	2.89E-02	7.13E+00	6.95E+00	5.10E-01	2.73E-01	1.84E-01	2.98E-04	6.19E-04	2.52E-01	8.29E-03	2.84E-01	8.28E+00	2.00E-01	4.40E-01	5.03E-02	5.76E-02	9.72E-02	8.44E-01
2005	11	29	1.79E+00	0.00E+00	1.11E+00	0.00E+00	0.00E+00	1.86E+00	1.04E-01	1.60E+00	5.87E+00	9.19E-08	7.58E-07	3.24E-11	1.10E-09	2.59E+00	2.25E+00	1.79E+00	0.00E+00	1.05E+00	0.00E+00	0.00E+00	1.77E+00	1.04E-01	1.60E+00	1.99E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E+00	2.24E+00	3.66E-03	0.00E+00	6.43E-02	0.00E+00	0.00E+00	9.89E-02	0.00E+00	0.00E+00	5.87E+00	9.19E-08	7.58E-07	3.24E-11	1.10E-09	0.00E+00	1.32E-02
2005	11	30	3.89E+00	1.35E+00	2.01E+00	7.83E-01	7.77E-01	3.55E+00	1.57E+00	3.85E+00	6.34E+00	2.52E+00	6.41E+00	4.34E-01	7.14E-01	4.64E+00	4.96E+00	3.81E+00	2.17E-02	1.90E+00	1.82E-02	2.87E-02	3.35E+00	1.53E+00	3.83E+00	1.44E-01	7.79E-02	5.33E-02	8.19E-02	7.93E-02	4.62E+00	4.85E+00	7.64E-02	1.33E+00	1.06E-01	7.65E-01	7.48E-01	1.94E-01	3.96E-02	2.39E-02	6.20E+00	2.44E+00	6.36E+00	3.52E-01	6.35E-01	1.67E-02	1.14E-01
2005	12	1	3.63E+00	1.03E-02	2.52E+00	1.15E-04	4.91E-04	3.31E+00	2.43E-01	2.41E+00	7.20E+00	2.05E-01	3.36E-02	2.03E-01	1.50E-01	3.77E+00	4.04E+00	3.11E+00	2.41E-04	2.03E+00	1.18E-05	3.72E-05	2.76E+00	4.11E-02	2.19E+00	9.98E-03	1.54E-03	5.13E-04	3.10E-03	2.12E-03	3.57E+00	3.37E+00	5.22E-01	1.00E-02	4.90E-01	1.03E-04	4.54E-04	5.51E-01	2.02E-01	2.17E-01	7.19E+00	2.03E-01	3.31E-02	2.00E-01	1.48E-01	2.06E-01	6.62E-01
2005	12	2	1.86E+00	2.95E+00	1.01E+00	4.58E-01	4.55E-01	3.48E+00	1.48E+00	4.54E+00	5.34E+00	5.26E+00	2.35E+00	4.64E-01	1.70E-01	5.39E+00	2.63E+00	1.83E+00	2.11E-02	9.45E-01	1.27E-02	1.54E-02	3.39E+00	1.45E+00	4.14E+00	9.96E-02	4.31E-02	2.73E-02	5.25E-02	4.91E-02	5.31E+00	2.57E+00	2.75E-02	2.93E+00	6.16E-02	4.45E-01	4.39E-01	8.68E-02	2.57E-02	4.00E-01	5.24E+00	5.21E+00	2.32E+00	4.11E-01	1.21E-01	7.92E-02	6.36E-02
2005	12	3	1.17E+00	2.19E-03	7.83E-01	4.62E-04	1.30E-03	6.21E+00	4.34E+00	1.20E+01	1.62E-01	2.37E+01	9.87E-02	2.21E+00	1.22E+00	9.25E+00	1.71E+00	1.09E+00	2.19E-03	7.77E-01	4.61E-04	1.30E-03	6.19E+00	4.17E+00	9.61E+00	1.37E-01	3.26E-02	9.23E-03	8.69E-02	5.73E-02	8.92E+00	1.50E+00	8.16E-02	8.19E-06	5.80E-03	1.19E-06	5.62E-06	2.13E-02	1.70E-01	2.34E+00	2.54E-02	2.37E+01	8.95E-02	2.12E+00	1.16E+00	3.27E-01	2.08E-01
2005	12	4	3.72E-01	2.62E-04	1.24E-01	5.50E-05	2.04E-04	2.34E+00	1.52E+00	5.99E+00	4.81E-02	9.52E+00	1.60E-03	1.18E+00	3.45E-01	3.74E+00	5.23E-01	3.52E-01	2.62E-04	1.24E-01	5.50E-05	2.04E-04	2.34E+00	1.37E+00	4.42E+00	4.81E-02	6.95E-03	1.37E-03	3.57E-02	1.78E-02	3.65E+00	4.59E-01	1.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E-01	1.57E+00	6.26E-17	9.51E+00	2.33E-04	1.15E+00	3.27E-01	9.05E-02	6.37E-02
2005	12	5	3.26E-01	0.00E+00	1.51E-01	0.00E+00	0.00E+00	6.02E-01	3.02E-01	1.47E+00	5.07E-01	1.92E+00	1.44E-03	3.45E-01	2.09E-01	1.08E+00	4.45E-01	2.59E-01	0.00E+00	1.18E-01	0.00E+00	0.00E+00	5.59E-01	2.55E-01	1.15E+00	1.29E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.94E-01	3.63E-01	6.70E-02	0.00E+00	3.31E-02	0.00E+00	0.00E+00	4.24E-02	4.64E-02	3.18E-01	5.07E-01	1.92E+00	1.44E-03	3.45E-01	2.09E-01	8.98E-02	8.15E-02
2005	12	6	4.16E+00	2.72E-01	1.45E+00	7.02E-02	1.48E-01	7.18E+00	5.17E+00	1.20E+01	2.58E+00	1.52E+01	2.05E+00	4.48E+00	4.61E+00	9.87E+00	5.24E+00	3.06E+00	1.49E-02	1.24E+00	5.47E-03	1.10E-02	6.94E+00	3.72E+00	8.72E+00	2.54E-01	8.01E-02	3.70E-02	1.67E-01	1.18E-01	8.45E+00	3.71E+00	1.11E+00	2.58E-01	2.12E-01	6.48E-02	1.37E-01	2.44E-01	1.45E+00	3.32E+00	2.32E+00	1.51E+01	2.02E+00	4.31E+00	4.50E+00	1.42E+00	1.54E+00
2005	12	7	9.60E-01	8.47E-05	4.53E-01	5.16E-06	3.92E-05	1.88E+00	1.49E+00	3.42E+00	8.62E-02	7.34E+00	2.53E-03	1.22E+00	3.22E-01	2.70E+00	1.28E+00	8.89E-01	8.47E-05	4.41E-01	5.16E-06	3.92E-05	1.82E+00	1.44E+00	2.87E+00	4.14E-02	5.39E-03	8.60E-04	2.68E-02	1.39E-02	2.68E+00	1.14E+00	7.11E-02	0.00E+00	1.14E-02	0.00E+00	0.00E+00	5.94E-02	5.13E-02	5.53E-01	4.48E-02	7.34E+00	1.67E-03	1.19E+00	3.08E-01	1.68E-02	1.38E-01
2005	12	8	2.28E-02	0.00E+00	4.12E-03	0.00E+00	0.00E+00	4.02E-01	4.02E-01	1.05E+00	5.49E-17	3.37E+00	2.54E-03	7.20E-01	2.29E-01	6.13E-01	3.72E-02	2.28E-02	0.00E+00	4.12E-03	0.00E+00	0.00E+00	4.02E-01	3.72E-01	7.43E-01	0.00E+00	0.00E+00	0.00E+00	4.46E-07	0.00E+00	6.12E-01	3.72E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-02	3.03E-01	5.49E-17	3.37E+00	2.54E-03	7.20E-01	2.29E-01	3.42E-04	0.00E+00
2005	12	9	9.30E-02	0.00E+00	1.14E-02	0.00E+00	0.00E+00	4.98E-01	3.70E-01	1.51E+00	6.61E-03	4.72E+00	2.06E-04	5.28E-01	2.52E-01	8.50E-01	2.02E-01	9.30E-02	0.00E+00	1.14E-02	0.00E+00	0.00E+00	4.98E-01	3.20E-01	1.02E+00	6.61E-03	1.64E-06	0.00E+00	1.55E-03	3.08E-04	8.48E-01	2.02E-01	5.96E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.02E-02	4.82E-01	1.98E-16	4.72E+00	2.06E-04	5.26E-01	2.51E-01	2.12E-03	5.36E-06
2005	12	10	3.55E-01	0.00E+00	1.64E-01	0.00E+00	0.00E+00	1.32E+00	6.60E-01	2.50E+00	5.08E-03	5.31E+00	1.83E-03	1.02E+00	2.32E-01	2.07E+00	4.89E-01	3.39E-01	0.00E+00	1.63E-01	0.00E+00	0.00E+00	1.31E+00	6.11E-01	2.05E+00	4.29E-03	8.92E-05	0.00E+00	3.78E-03	7.77E-04	2.03E+00	4.21E-01	1.59E-02	0.00E+00	1.35E-03	0.00E+00	0.00E+00	1.45E-02	4.89E-02	4.52E-01	7.92E-04	5.31E+00	1.83E-03	1.02E+00	2.32E-01	4.32E-02	6.80E-02

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	Baseline R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	Project R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2005	12	11	6.00E-01	0.00E+00	3.26E-01	0.00E+00	0.00E+00	2.35E+00	1.13E+00	3.38E+00	6.58E-03	7.29E+00	1.69E-03	1.21E+00	2.43E-01	2.54E+00	8.27E-01	4.60E-01	0.00E+00	3.24E-01	0.00E+00	0.00E+00	2.35E+00	1.05E+00	2.79E+00	6.36E-03	2.51E-04	6.28E-08	6.60E-03	1.57E-03	2.45E+00	5.99E-01	1.39E-01	0.00E+00	1.69E-03	0.00E+00	0.00E+00	3.08E-03	8.52E-02	5.91E-01	2.19E-04	7.29E+00	1.69E-03	1.20E+00	2.42E-01	9.41E-02	2.28E-01
2005	12	12	5.81E-01	1.44E-03	4.76E-01	1.79E-04	6.72E-04	2.91E+00	1.65E+00	4.35E+00	6.73E-02	9.98E+00	1.01E-02	1.34E+00	3.63E-01	3.99E+00	8.25E-01	5.39E-01	1.35E-03	4.64E-01	1.72E-04	6.36E-04	2.88E+00	1.52E+00	3.24E+00	6.05E-02	1.37E-02	5.11E-03	2.94E-02	2.01E-02	3.93E+00	7.32E-01	4.19E-02	9.01E-05	1.17E-02	6.95E-06	3.59E-05	2.80E-02	1.29E-01	1.12E+00	6.79E-03	9.97E+00	4.98E-03	1.31E+00	3.43E-01	6.58E-02	9.29E-02
2005	12	13	6.36E-01	0.00E+00	1.88E-01	0.00E+00	0.00E+00	1.91E+00	1.61E+00	5.15E+00	8.50E-03	1.14E+01	7.09E-06	1.26E+00	6.39E-01	3.23E+00	8.31E-01	5.99E-01	0.00E+00	1.84E-01	0.00E+00	0.00E+00	1.90E+00	1.47E+00	3.77E+00	8.37E-03	3.05E-04	5.09E-06	5.35E-03	1.52E-03	3.19E+00	7.65E-01	3.76E-02	0.00E+00	3.83E-03	0.00E+00	0.00E+00	1.05E-02	1.48E-01	1.37E+00	1.31E-04	1.14E+01	2.00E-06	1.26E+00	6.37E-01	3.23E-02	6.64E-02
2005	12	14	2.11E+00	4.42E-03	1.24E+00	7.99E-04	1.74E-03	4.67E+00	2.75E+00	6.88E+00	6.37E-01	1.84E+01	1.56E-02	1.66E+00	1.08E+00	6.31E+00	2.80E+00	1.96E+00	4.13E-03	1.21E+00	7.57E-04	1.61E-03	4.54E+00	2.64E+00	5.68E+00	1.26E-01	2.77E-02	1.12E-02	4.84E-02	3.71E-02	6.17E+00	2.46E+00	1.48E-01	2.89E-04	3.27E-02	4.15E-05	1.25E-04	1.25E-01	1.12E-01	1.21E+00	5.11E-01	1.84E+01	4.34E-03	1.61E+00	1.05E+00	1.34E-01	3.37E-01
2005	12	15	4.75E+00	1.35E-01	2.58E+00	8.66E-03	1.98E-02	7.32E+00	5.10E+00	1.02E+01	6.58E+00	1.58E+01	4.89E-01	4.36E+00	3.62E+00	1.01E+01	6.30E+00	3.14E+00	1.57E-02	1.71E+00	2.99E-03	7.15E-03	6.13E+00	3.42E+00	7.67E+00	2.71E-01	8.40E-02	3.86E-02	1.58E-01	1.14E-01	8.49E+00	4.22E+00	1.61E+00	1.19E-01	8.72E-01	5.67E-03	1.27E-02	1.19E+00	1.68E+00	2.52E+00	6.31E+00	1.57E+01	4.50E-01	4.20E+00	3.50E+00	1.58E+00	2.08E+00
2005	12	16	4.75E+00	1.09E-02	4.04E+00	2.74E-03	5.16E-03	7.06E+00	1.88E+00	9.17E+00	7.51E+00	9.66E-01	2.79E-02	4.32E-01	2.83E-01	9.61E+00	5.73E+00	3.38E+00	4.53E-03	1.89E+00	9.44E-04	1.84E-03	4.97E+00	1.55E+00	7.57E+00	1.46E-01	2.67E-02	1.05E-02	6.56E-02	4.14E-02	8.95E+00	3.89E+00	1.37E+00	6.32E-03	2.15E+00	1.80E-03	3.32E-03	2.09E+00	3.28E-01	1.61E+00	7.36E+00	9.39E-01	1.74E-02	3.66E-01	2.42E-01	6.61E-01	1.84E+00
2005	12	17	3.00E+00	2.44E-01	2.06E+00	5.41E-02	9.81E-02	7.39E+00	6.62E+00	1.32E+01	6.67E+00	2.00E+01	1.02E+00	6.15E+00	6.60E+00	1.14E+01	4.45E+00	2.27E+00	2.34E-02	1.70E+00	7.15E-03	1.24E-02	6.95E+00	5.05E+00	1.02E+01	2.77E-01	8.23E-02	4.41E-02	1.44E-01	1.07E-01	1.04E+01	3.35E+00	7.31E-01	2.20E-01	3.56E-01	4.70E-02	8.57E-02	4.40E-01	1.57E+00	2.96E+00	6.39E+00	1.99E+01	9.79E-01	6.01E+00	6.50E+00	9.56E-01	1.10E+00
2005	12	18	5.00E-01	4.26E-03	4.76E-01	1.95E-03	3.70E-03	5.20E+00	4.25E+00	1.12E+01	1.17E-01	1.70E+01	1.19E-02	2.09E+00	1.87E+00	9.64E+00	8.00E-01	4.36E-01	3.64E-03	4.75E-01	1.28E-03	2.45E-03	5.20E+00	4.04E+00	8.55E+00	1.13E-01	2.43E-02	9.61E-03	7.52E-02	4.36E-02	9.43E+00	5.65E-01	6.36E-02	6.16E-04	5.05E-04	6.70E-04	1.25E-03	9.57E-04	2.13E-01	2.66E+00	4.08E-03	1.70E+01	2.30E-03	2.01E+00	1.82E+00	2.10E-01	2.35E-01
2005	12	19	7.26E-01	1.59E-04	5.30E-01	2.12E-05	1.05E-04	3.59E+00	2.39E+00	6.03E+00	8.72E-02	1.10E+01	3.66E-03	1.62E+00	4.60E-01	4.63E+00	1.03E+00	5.96E-01	1.59E-04	5.27E-01	2.12E-05	1.05E-04	3.58E+00	2.24E+00	4.94E+00	4.77E-02	6.81E-03	1.27E-03	3.42E-02	1.76E-02	4.55E+00	7.62E-01	1.30E-01	0.00E+00	3.68E-03	0.00E+00	0.00E+00	5.44E-03	1.49E-01	1.09E+00	3.96E-02	1.10E+01	2.39E-03	1.59E+00	4.43E-01	8.37E-02	2.67E-01
2005	12	20	5.65E-01	4.65E-07	1.20E-01	1.21E-08	9.36E-07	7.75E-01	8.42E-01	1.84E+00	1.73E-02	5.24E+00	8.59E-03	1.01E+00	2.43E-01	1.42E+00	7.68E-01	4.67E-01	0.00E+00	1.19E-01	0.00E+00	0.00E+00	7.73E-01	8.12E-01	1.23E+00	1.65E-02	1.05E-03	5.26E-05	6.01E-03	3.39E-03	1.40E+00	6.25E-01	9.75E-02	4.65E-07	8.51E-04	1.21E-08	9.36E-07	2.11E-03	3.01E-02	6.05E-01	7.61E-04	5.24E+00	8.54E-03	1.00E+00	2.40E-01	2.30E-02	1.42E-01
2005	12	21	1.87E-01	0.00E+00	3.35E-02	5.95E-03	1.07E-01	7.86E-01	8.11E-01	2.37E+00	3.27E-03	9.05E+00	4.20E-01	1.02E+00	7.02E-01	1.47E+00	2.46E-01	1.87E-01	0.00E+00	3.35E-02	1.32E-06	2.34E-05	7.86E-01	7.14E-01	1.61E+00	3.27E-03	1.38E-04	6.71E-07	4.38E-03	1.37E-03	1.31E+00	2.46E-01	0.00E+00	0.00E+00	0.00E+00	5.95E-03	1.07E-01	0.00E+00	9.69E-02	7.63E-01	2.62E-18	9.05E+00	4.20E-01	1.02E+00	7.01E-01	1.56E-01	0.00E+00
2005	12	22	9.37E-02	0.00E+00	8.03E-03	0.00E+00	2.47E-08	4.96E-01	4.31E-01	1.26E+00	9.19E-06	1.04E+00	4.36E-02	6.91E-01	2.48E-01	7.85E-01	1.74E-01	9.37E-02	0.00E+00	8.03E-03	0.00E+00	0.00E+00	4.96E-01	4.12E-01	7.42E-01	9.19E-06	0.00E+00	0.00E+00	2.05E-03	1.96E-04	7.85E-01	1.74E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.47E-08	0.00E+00	1.90E-02	5.15E-01	1.23E-17	1.04E+00	4.36E-02	6.89E-01	2.48E-01	0.00E+00	0.00E+00
2005	12	23	9.66E-02	0.00E+00	1.69E-03	0.00E+00	0.00E+00	4.96E-01	5.40E-01	1.51E+00	4.96E-18	2.07E+00	1.65E-02	7.37E-01	2.41E-01	8.73E-01	1.61E-01	9.66E-02	0.00E+00	1.69E-03	0.00E+00	0.00E+00	4.96E-01	4.87E-01	9.87E-01	0.00E+00	0.00E+00	0.00E+00	6.07E-05	0.00E+00	8.72E-01	1.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.30E-02	5.26E-01	4.96E-18	2.07E+00	1.65E-02	7.37E-01	2.41E-01	6.47E-04	0.00E+00
2005	12	24	4.93E-02	0.00E+00	5.10E-03	0.00E+00	0.00E+00	2.96E-01	3.10E-01	8.89E-01	1.66E-17	2.84E+00	1.41E-02	4.44E-01	1.98E-01	5.88E-01	6.65E-02	4.93E-02	0.00E+00	5.10E-03	0.00E+00	0.00E+00	2.96E-01	2.77E-01	5.86E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.99E-01	6.65E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.34E-02	3.03E-01	1.66E-17	2.84E+00	1.41E-02	4.44E-01	1.98E-01	8.95E-02	0.00E+00
2005	12	25	2.90E-02	0.00E+00	7.92E-03	0.00E+00	5.83E-10	3.64E-01	3.11E-01	8.00E-01	3.41E-06	1.96E+00	4.95E-02	3.75E-01	2.37E-01	5.18E-01	7.82E-02	2.90E-02	0.00E+00	7.92E-03	0.00E+00	0.00E+00	3.64E-01	2.88E-01	6.23E-01	3.41E-06	0.00E+00	0.00E+00	4.72E-04	6.68E-05	5.18E-01	7.82E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.83E-10	0.00E+00	2.30E-02	1.76E-01	9.95E-17	1.96E+00	4.95E-02	3.75E-01	2.37E-01	0.00E+00	0.00E+00
2005	12	26	1.38E-01	0.00E+00	6.57E-03	0.00E+00	0.00E+00	5.66E-01	6.47E-01	1.76E+00	2.22E-18	7.91E+00	2.29E-03	7.81E-01	4.99E-01	1.16E+00	1.72E-01	1.38E-01	0.00E+00	6.57E-03	0.00E+00	0.00E+00	5.66E-01	5.58E-01	1.14E+00	0.00E+00	0.00E+00	0.00E+00	3.16E-06	0.00E+00	1.12E+00	1.72E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.83E-02	6.19E-01	2.22E-18	7.91E+00	2.29E-03	7.81E-01	4.99E-01	3.58E-02	0.00E+00
2005	12	27	1.10E-01	0.00E+00	3.97E-03	0.00E+00	0.00E+00	5.28E-01	5.07E-01	1.68E+00	4.84E-18	1.40E+00	5.02E-02	8.01E-01	2.47E-01	8.75E-01	1.58E-01	1.10E-01	0.00E+00	3.97E-03	0.00E+00	0.00E+00	5.28E-01	4.88E-01	9.59E-01	0.00E+00	0.00E+00	0.00E+00	1.52E-04	6.84E-06	8.75E-01	1.58E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-02	7.22E-01	4.84E-18	1.40E+00	5.02E-02	8.01E-01	2.47E-01	0.00E+00	0.00E+00
2005	12	28	2.79E+00	2.19E-01	1.42E+00	1.11E-02	3.15E-02	3.27E+00	1.42E+00	5.67E+00	2.60E+00	1.09E+01	5.11E-01	2.72E+00	3.01E+00	4.49E+00	3.34E+00	2.61E+00	3.47E-03	1.08E+00	2.63E-04	5.98E-04	2.86E+00	1.36E+00	4.40E+00	8.92E-02	1.90E-02	8.36E-03	2.50E-02	2.16E-02	4.28E+00	3.11E+00	1.86E-01	2.15E-01	3.35E-01	1.09E-02	3.09E-02	4.10E-01	6.11E-02	1.28E+00	2.51E+00	1.09E+01	5.03E-01	2.69E+00	2.99E+00	2.18E-01	2.31E-01
2005	12	29	2.78E-01	3.33E-02	5.36E-02	2.09E-02	3.09E-02	7.96E-01	7.39E-01	2.14E+00	1.36E-02	3.63E+00	6.54E-02	9.81E-01	3.39E-01	1.23E+00	4.00E-01	2.76E-01	9.81E-04	5.27E-02	1.37E-04	3.69E-04	7.92E-01	6.54E-01	1.53E+00	7.51E-03	2.53E-03	1.44E-03	5.12E-03	3.48E-03	1.21E+00	3.91E-01	2.61E-03	3.23E-02	9.14E-04	2.07E-02	3.06E-02	3.90E-03	8.55E-02	6.10E-01	6.05E-03	3.63E+00	6.40E-02	9.76E-01	3.35E-01	1.55E-02	8.59E-03
2005	12	30	8.02E-01	5.56E-01	4.30E-01	7.21E-01	1.27E+00	2.02E+00	2.55E+00	4.97E+00	9.83E-01	9.30E+00	8.90E+00	2.08E+00	2.51E+00	2.95E+00	1.17E+00	7.56E-01	6.78E-03	3.87E-01	1.05E-02	1.80E-02	1.98E+00	2.37E+00	3.69E+00	8.42E-02	4.96E-02	2.31E-02	1.06E-01	8.35E-02	2.88E+00	1.11E+00	4.67E-02	5.49E-01	4.26E-02	7.11E-01	1.25E+00	3.53E-02	1.78E-01	1.28E+00	8.98E-01	9.25E+00	8.87E+00	1.98E+00	2.42E+00	7.64E-02	5.23E-02
2005	12	31	1.72E+00	5.62E-02	9.60E-01	2.45E-02	5.12E-02	3.15E+00	4.18E+00	7.19E+00	1.76E+00	2.08E+01	5.99E-01	4.71E+00	2.96E+00	5.31E+00	2.47E+00	1.35E+00	3.00E-03	8.82E-01	7.33E-04	1.48E-03	3.02E+00	3.53E+00	5.64E+00	9.37E-02	2.14E-02	8.30E-03	6.01E-02	3.50E-02	4.86E+00	2.02E+00	3.67E-01	5.32E-02	7.80E-02	2.38E-02	4.97E-02	1.23E-01	6.49E-01	1.55E+00	1.67E+00	2.08E+01	5.91E-01	4.65E+00	2.92E+00	4.56E-01	4.51E-01
2006	1	1	6.70E-01	1.59E-02	4.92E-01	2.79E-02	1.74E-01	2.60E+00	2.45E+00	4.86E+00	2.63E-01	9.69E+00	2.05E+00	2.15E+00	1.30E+00	3.63E+00	9.51E-01	5.60E-01	6.34E-03	4.74E-01	3.39E-03	6.59E-03	2.57E+00	2.28E+00	3.71E+00	1.16E-01	3.83E-02	1.70E-02	7.89E-02	5.65E-02	3.55E+00	7.89E-01	1.10E-01	9.57E-03	1.86E-02	2.45E-02	1.68E-01	2.96E-02	1.68E-01	1.15E+00	1.46E-01	9.65E+00	2.03E+00	2.07E+00	1.24E+00	7.84E-02	1.62E-01
2006	1	2	7.99E-01	1.76E-03	2.49E-01	3.09E-03	2.91E-02	1.73E+00	2.07E+00	4.42E+00	6.90E-02	1.23E+01	5.85E-01	1.47E+00	1.05E+00	2.91E+00	1.17E+00	7.82E-01	2.31E-04	2.47E-01	8.78E-05	4.05E-04	1.72E+00	1.87E+00	3.52E+00	2.66E-02	4.18E-03	1.87E-03	1.07E-02	6.01E-03	2.87E+00	1.09E+00	1.68E-02	1.52E-03	2.34E-03	3.01E-03	2.87E-02	8.24E-03	1.92E-01	9.06E-01	4.24E-02	1.23E+01	5.83E-01	1.46E+00	1.05E+00	3.84E-02	7.59E-02
2006	1	3	4.13E-01	1.47E-03	1.96E-01	1.51E-03	1.14E-02	1.62E+00	1.12E+00	2.97E+00	8.29E-02	4.81E+00	7.77E-02	1.05E+00	7.22E-01	1.79E+00	6.38E-01	3.39E-01	1.31E-03	1.95E-01	2.32E-04	1.14E-03	1.62E+00	1.09E+00	2.47E+00	6.42E-02	1.52E-02	5.83E-03	3.54E-02	2.24E-02	1.77E+00	5.06E-01	7.43E-02	1.58E-04	1.63E-03	1.28E-03	1.02E-02	5.74E-03	2.92E-02	5.07E-01	1.86E-02	4.79E+00	7.18E-02	1.01E+00	6.99E-01	2.22E-02	1.32E-01
2006	1	4	1.12E-01	0.00E+00	5.23E-03	0.00E+00	0.00E+00	5.19E-01	6.18E-01	1.82E+00	2.33E-17	2.90E+00	8.39E-03	8.55E-01	2.61E-01	9.21E-01	1.84E-01	1.12E-01	0.00E+00	5.23E-03	0.00E+00	0.00E+00	5.19E-01	5.59E-01	1.02E+00	0.00E+00	0.00E+00	0.00E+00	5.33E-07	0.00E+00	9.21E-01	1.84E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.95E-02	7.93E-01	2.33E-17	2.90E+00	8.39E-03	8.55E-01	2.61E-01	0.00E+00	0.00E+00
2006	1	5	5.81E-02	0.00E+00	8.81E-04	0.00E+00	0.00E+00	3.03E-01	3.80E-01	9.07E-01	3.68E-18	1.99E+00	1.68E-02	6.21E-01	1.68E-01	6.18E-01	9.21E-02	5.81E-02	0.00E+00	8.81E-04	0.00E+00	0.00E+00	3.03E-01	3.42E-01	5.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.16E-01	9.21E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.85E-02	3.72E-01	3.68E-18	1.99E+00	1.68E-02	6.21E-01	1.68E-01	1.39E-03	0.00E+00
2006	1	6	5.24E-01	2.99E-03	3.40E-01	6.19E-04	3.12E-03	2.85E+00	1.16E+00	4.89E+00	1.14E-01	1.93E+00	2.69E-01	3.58E-01	1.06E+00	2.87E+00	9.17E-01	4.83E-01	2.70E-03	3.33E-01	5.49E-04	2.20E-03	2.84E+00	1.15E+00	3.69E+00	1.09E-01	2.42E-02	1.15E-02	4.29E-02	3.10E-02	2.82E+00	8.33E-01	4.10E-02	2.90E-04	6.86E-03	7.01E-05	9.25E-04	1.88E-02	1.87E-02	1.20E+00	5.48E-03	1.90E+00	2.57E-01	3.15E-01	1.03E+00	5.30E-02	8.42E-02
2006	1	7	2.99E+00	5.47E-01	1.36E+00	2.50E-02	2.67E-02	2.54E+00	1.25E+00	3.98E+00	4.37E+00	1.23E+00	5.07E-01	2.30E-01	3.87E-01	3.81E+00	3.73E+00	2.95E+00	4.39E-03	1.29E+00	4.58E-04	1.43E-03	2.43E+00	1.23E+00	3.61E+00	1.21E-01	1.98E-02	9.10E-03	3.48E-02	2.41E-02	3.78E+00	3.65E+00	3.53E-02	5.43E-01	7.40E-02	2.46E-02	2.52E-02	1.18E-01	2.10E-02	3.73E-01	4.25E+00	1.21E+00	4.98E-01	1.95E-01	3.63E-01	2.11E-02	8.70E-02
2006	1	8	3.57E+00	3.58E-01	1.92E+00	7.21E-02	1.39E-01	3.39E+00	1.25E+00	4.10E+00	3.60E+00	2.00E+00	1.43E+00	5.31E-01	6.76E-01	4.04E+00	4.60E+00	3.12E+00	8.91E-03	1.80E+00	2.15E-03	3.97E-03	3.29E+00	1.22E+00	3.60E+00	1.23E-01	2.87E-02	1.49E-02	5.45E-02	3.87E-02	4.00E+00	3.78E+00	4.53E-01	3.49E-01	1.19E-01	7.00E-02	1.35E-01	1.01E-01	2.60E-02	4.97E-01	3.47E+00	1.98E+00	1.42E+00	4.77E-01	6.37E-01	4.51E-02	8.14E-01
2006	1	9	3.05E-02	0.00E+00	2.57E-02	0.00E+00	5.65E-05	4.74E-01	2.79E-01	1.36E+00	3.59E-04	9.34E-01	1.07E-01	1.57E-01	2.98E-01	5.11E-01	4.97E-02	3.05E-02	0.00E+00	2.57E-02	0.00E+00	0.00E+00	4.74E-01	2.78E-01	6.83E-01	3.59E-04	7.74E-05	0.00E+00	5.10E-03	1.21E-03	5.11E-01	4.97E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.65E-05	0.00E+00	1.22E-03	6.73E-01	5.53E-33	9.34E-01	1.07E-01	1.52E-01	2.97E-01	0.00E+00	0.00E+00
2006	1	10	4.65E-01	2.69E-04	1.86E-01	6.85E-04	1.14E-01	2.12E+00	7.21E-01	3.37E+00	2.63E-02	1.57E+00	8.20E-01	1.85E-01	6.68E-01	1.95E+00	7.18E-01	4.60E-01	2.69E-04	1.86E-01	6.55E-04	1.14E-03	2.12E+00	7.06E-01	2.36E+00	2.31E-02	4.42E-03	2.05E-03	2.71E-02	1.13E-02	1.91E+00	7.06E-01	4.89E-03	0.00E+00	5.98E-06	3.02E-05	1.13E-01	7.65E-05	1.50E-02	1.01E+00	3.14E-03	1.57E+00	8.18E-01	1.58E-01	6.57E-01	3.55E-02	1.16E-02
2006	1	11	7.43E-01	2.17E-01	1.68E-01	2.18E-01	2.36E-01	2.02E+00	9.32E-01	2.76E+00	1.30E-01	2.42E+00	3.32E+00	3.66E-01	6.19E-01	1.74E+00	9.73E-01	6.99E-01	2.71E-03	1.67E-01	9.79E-03	1.26E-02	2.02E+00	9.18E-01	2.02E+00	3.45E-02	1.37E-02	7.61E-03	3.08E-02	2.37E-02	1.67E+00	9.01E-01	4.45E-02	2.14E-01	4.81E-04	2.08E-01	2.23E-01	1.89E-03	1.37E-02	7.37E-01	9.52E-02	2.40E+00	3.32E+00	3.35E-01	5.95E-01	7.01E-02	7.19E-02
2006	1	12	1.09E-01	0.00E+00	3.05E-02	0.00E+00	1.30E-04	6.70E-01	7.35E-01	2.03E+00	8.60E-03	2.09E+00	5.31E-02	9.91E-01	4.47E-01	1.01E+00	2.04E-01	1.09E-01	0.00E+00	3.05E-02	0.00E+00	0.00E+00	6.70E-01	7.15E-01	1.28E+00	8.60E-03	2.23E-04	7.35E-07	6.85E-03	3.18E-03	1.01E+00	2.04E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E-04	0.00E+00	1.96E-02	7.49E-01	8.03E-19	2.09E+00	5.31E-02	9.84E-01	4.43E-01	0.00E+00	0.00E+00
2006	1	13	3.82E-01	2.48E-03	3.51E-01	1.05E-03	8.14E-02	3.82E+00	1.76E+00	5.80E+00	1.50E-01	2.59E+00	9.61E-01	5.15E-01	9.62E-01	3.53E+00	8.78E-01	3.81E-01	2.48E-03	3.51E-01	8.51E-04	2.93E-03	3.82E+00	1.70E+00	4.27E+00	1.50E-01	3.78E-02	1.25E-02	5.81E-02	5.11E-02	3.45E+00	8.71E-01	1.17E-03	0.00E+00	0.00E+00	2.01E-04	7.84E-02	2.91E-04	5.49E-02	1.52E+00	2.83E-04	2.55E+00	9.48E-01	4.57E-01	9.11E-01	8.14E-02	6.65E-03
2006	1	14	3.68E+00	1.07E-02	1.86E+00	1.41E-03	4.23E-03	7.03E+00	2.73E+00	8.99E+00	5.14E+00	8.16E+00	1.44E-01	1.96E+00	3.28E+00	7.55E+00	4.69E+00	2.07E+00	4.98E-03	1.21E+00	7.86E-04	2.63E-03	5.94E+00	2.11E+00	6.19E+00	2.08E-01	5.11E-02	1.93E-02	8.89E-02	7.01E-02	6.34E+00	2.77E+00	1.62E+00	5.68E-03	6.57E-01	6.20E-04	1.60E-03	1.09E+00	6.21E-01	2.80E+00	4.94E+00	8.11E+00	1.25E-01	1.87E+00	3.21E+00	1.21E+00	1.92E+00
2006	1	15	1.08E+00	7.33E-03	2.78E-01	2.36E-03	6.52E-03	2.85E+00	2.31E+00	6.03E+00	6.88E-01	9.47E+00	8.13E-02	1.86E+00	1.14E+00	5.15E+00	1.35E+00	9.86E-01	2.27E-03	2.39E-01	7.76E-04	1.77E-03	2.78E+00	2.07E+00	3.84E+00	5.55E-02	1.51E-02	6.44E-03	3.98E-02	2.36E-02	5.04E+00	1.23E+00	9.55E-02	5.06E-03	3.92E-02	1.59E-03	4.75E-03	6.80E-02	2.35E-01	2.19E+00	6.32E-01	9.46E+00	7.48E-02	1.82E+00	1.12E+00	1.08E-01	1.15E-01
2006	1	16	1.78E-01	0.00E+00	1.67E-02	0.00E+00	0.00E+00	5.30E-01	5.99E-01	1.62E+00	9.30E-03	5.13E+00	5.79E-03	6.44E-01	3.05E-01	1.11E+00	2.78E-01	1.77E-01	0.00E+00	1.67E-02	0.00E+00	0.00E+00	5.30E-01	5.13E-01	1.06E+00	9.12E-03	9.82E-04	9.08E-06	3.05E-03	2.67E-03	1.08E+00	2.76E-01	5.53E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.64E-02	5.66E-01	1.79E-04	5.13E+00	5.78E-03	6.41E-01	3.02E-01	2.31E-02	1.19E-03
2006	1	17	1.04E-01	0.00E+00	2.10E-02	0.00E+00	0.00E+00	5.16E-01	4.21E-01	1.53E+00	7.37E-03	2.52E+00	3.27E-02	6.14E-01	3.04E-01	8.03E-01	1.37E-01	1.04E-01	0.00E+00	2.10E-02	0.00E+00	0.00E+00	5.16E-01	4.09E-01	9.53E-01	7.37E-03	1.93E-05	0.00E+00	9.71E-04	1.81E-04	8.01E-01	1.37E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E-02	5.73E-01	1.37E-18	2.52E+00	3.27E-02	6.13E-01	3.04E-01	2.30E-03	0.00E+00
2006	1	18	2.75E-01	2.21E-04	1.14E-01	1.06E-05	2.21E-04	2.02E+00	1.37E+00	4.44E+00	6.74E-02	1.06E+01	5.93E-03	1.21E+00	9.21E-01	2.19E+00	5.98E-01	2.75E-01	2.21E-04	1.14E-01	1.06E-05	2.21E-04	2.02E+00	1.23E+00	3.35E+00	6.74E-02	1.31E-02	3.30E-03	2.18E-02	1.88E-02	2.17E+00	5.97E-01	7.40E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-01	1.10E+00	0.00E+00	1.06E+01	2.63E-03	1.19E+00	9.02E-01	1.45E-02	1.09E-03
2006	1	19	5.15E-01	3.31E-04	2.81E-01	6.56E-06	1.27E-04	2.06E+00	1.64E+00	4.87E+00	1.59E-01	8.98E+00	2.84E-02	1.44E+00	1.01E+00	3.25E+00	8.62E-01	4.67E-01	3.06E-04	2.79E-01	5.21E-06	1.18E-04	2.05E+00	1.56E+00	3.96E+00	1.57E-01	2.16E-02	4.78E-03	3.36E-02	3.02E-02	3.22E+00	7.72E-01	4.83E-02	2.46E-05	2.05E-03	1.35E-06	9.27E-06	4.57E-03	7.95E-02	9.10E-01	1.70E-03	8.96E+00	2.36E-02	1.40E+00	9.84E-01	3.03E-02	8.98E-02
2006	1	20	1.93E+00	3.20E-01	1.02E+00	1.25E-01	2.15E-01	4.41E+00	2.52E+00	7.28E+00	3.76E+00	7.85E+00	7.79E-01	1.85E+00	1.58E+00	6.33E+00	2.55E+00	1.51E+00	1.31E-02	7.36E-01	5.89E-03	7.51E-03	4.10E+00	2.25E+00	5.72E+00	1.15E-01	3.68E-02	1.84E-02	7.87E-02	5.50E-02	6.02E+00	1.87E+00	4.28E-01	3.07E-01	2.80E-01	1.19E-01	2.08E-01	3.12E-01	2.70E-01	1.56E+00	3.65E+00	7.81E+00	7.60E-01	1.77E+00	1.53E+00	3.08E-01	6.78E-01
2006	1	21	1.50E+00	6.59E-01	9.25E-01	1.49E-01	2.37E-01	3.76E+00	2.32E+00	5.93E+00	1.14E+00	1.12E+01	2.57E+00	1.75E+00	1.08E+00	4.45E+00	2.22E+00	1.23E+00	1.79E-02	6.52E-01	6.38E-03	9.67E-03	3.53E+00	2.10E+00	4.77E+00	1.66E-01	5.08E-02	2.90E-02	8.34E-02	6.33E-02	4.25E+00	1.75E+00	2.76E-01	6.41E-01	2.73E-01	1.43E-01	2.28E-01	2.35E-01	2.19E-01	1.15E+00	9.72E-01	1.12E+01	2.54E+00	1.67E+00	1.02E+00	1.95E-01	4.68E-01
2006	1	22	7.01E-02	0.00E+00	7.09E-03	0.00E+00	1.44E-05	3.82E-01	3.90E-01	1.25E+00	6.16E-17	2.49E+00	3.60E-02	5.32E-01	2.43E-01	6.67E-01	1.01E-01	7.01E-02	0.00E+00	7.09E-03	0.00E+00	0.00E+00	3.82E-01	3.59E-01	5.94E-01	0.00E+00	0.00E+00	0.00E+00	5.28E-05	0.00E+00	6.67E-01	1.01E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-05	0.00E+00	3.14E-02	6.59E-01	6.16E-17	2.49E+00	3.60E-02	5.32E-01	2.43E-01	0.00E+00	0.00E+00
2006	1	23	8.18E-02	0.00E+00	7.74E-03	0.00E+00	0.00E+00	6.22E-01	4.06E-01	1.78E+00	3.72E-04	1.35E+00	1.91E-02	6.68E-01	2.32E-01	7.49E-01	1.38E-01	8.18E-02	0.00E+00	7.74E-03	0.00E+00	0.00E+00	6.22E-01	3.91E-01	1.04E+00	3.72E-04	9.76E-08	0.00E+00	2.05E-03	2.72E-04	7.49E-01	1.38E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-02	7.41E-01	3.67E-17	1.35E+00	1.91E-02	6.66E-01	2.31E-01	0.00E+00	0.00E+00
2006	1	24	2.24E-01	9.15E-07	4.69E-02	1.87E-05	3.81E-02	6.24E-01	6.54E-01	1.98E+00	1.71E-03	5.02E+00	4.14E-01	7.85E-01	4.27E-01	1.19E+00	3.16E-01	2.24E-01	9.15E-07	4.67E-02	1.28E-05	1.24E-04	6.18E-01	6.04E-01	1.50E+00	1.62E-03	5.19E-04	3.74E-04	1.63E-03	1.52E-03	1.18E+00	3.16E-01	9.39E-07	0.00E+00	2.18E-04	5.94E-06	3.80E-02	6.34E-03	5.01E-02	4.85E-01	9.19E-05	5.02E+00	4.14E-01	7.83E-01	4.26E-01	9.47E-03	9.92E-06
2006	1	25	3.26E-01	0.00E+00	6.05E-02	0.00E+00	3.24E-05	1.55E+00	9.89E-01	3.35E+00	4.04E-02	2.61E+00	6.66E-02	1.07E+00	6.39E-01	2.04E+00	5.12E-01	3.26E-01	0.00E+00	6.05E-02	0.00E+00	3.24E-05	1.55E+00	8.70E-01	2.61E+00	4.04E-02	5.36E-03	5.35E-04	1.46E-02	1.25E-02	1.85E+00	5.12E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E-10	0.00E+00	1.19E-01	7.40E-01	3.86E-06	2.60E+00	6.61E-02	1.06E+00	6.26E-01	1.86E-01	4.10E-10
2006	1	26	9.87E-02	0.00E+00	1.18E-01	0.00E+00	0.00E+00	1.44E+00	8.82E-01	2.55E+00	7.96E-03	1.70E+00	6.55E-02	8.02E-01	4.76E-01	1.42E+00	2.26E-01	9.86E-02	0.00E+00	1.18E-01	0.00E+00	0.00E+00	1.44E+00	8.45E-01	1.94E+00	7.96E-03	9.94E-04	1.31E-07	1.86E-02	7.10E-03	1.42E+00	2.24E-01	1.19E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.71E-02	6.13E-01	6.38E-20	1.70E+00	6.55E-02	7.84E-01	4.69E-01	3.12E-03	1.11E-03
2006	1	27	1.37E-01	0.00E+00	6.72E-02	0.00E+00	1.61E-05	1.15E+00	9.74E-01	2.63E+00	4.88E-03	4.16E+00	1.11E-01	8.98E-01	5.65E-01	1.43E+00	2.90E-01	1.37E-01	0.00E+00	6.72E-02	0.00E+00	0.00E+00	1.15E+00	8.86E-01	1.55E+00	4.88E-03	2.50E-04	0.00E+00	1.11E-02	2.37E-03	1.43E+00	2.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-05	0.00E+00	8.77E-02	1.08E+00	3.84E-37	4.16E+00	1.11E-01	8.87E-01	5.63E-01	2.18E-05	0.00E+00
2006	1	28	1.61E-01	8.31E-03	8.61E-02	1.22E-01	1.29E-01	8.53E-01	7.95E-01	2.42E+00	3.83E-02	1.95E+00	4.20E+00	5.51E-01	4.88E-01	1.11E+00	2.38E-01	1.61E-01	4.44E-03	8.61E-02	7.28E-03	8.06E-03	8.53E-01	7.82E-01	1.50E+00	3.38E-02	1.86E-02	1.08E-02	3.59E-02	2.85E-02	1.11E+00	2.38E-01	0.00E+00	3.87E-03	0.00E+00	1.15E-01	1.21E-01	0.00E+00	1.24E-02	9.20E-01	4.51E-03	1.93E+00	4.19E+00	5.15E-01	4.59E-01	4.21E-03	0.00E+00
2006	1	29	1.62E-01	7.09E-06	6.41E-02	1.09E-01	1.37E-01	1.03E+00	9.52E-01	2.57E+00	3.91E-03	4.06E+00	1.44E+00	7.62E-01	4.84E-01	1.23E+00	2.89E-01	1.62E-01	7.09E-06	6.41E-02	7.60E-04	2.81E-03	1.03E+00	8.64E-01	1.92E+00	3.91E-03	4.70E-03	9.59E-04	2.84E-02	2.03E-02	1.23E+00	2.89E-01	0.00E+00	0.00E+00	0.00E+00	1.08E-01	1.34E-01	0.00E+00	8.89E-02	6.46E-01	1.62E-19	4.05E+00	1.44E+00	7.34E-01	4.64E-01	0.00E+00	0.00E+00
2006	1	30	4.29E-01	2.43E-05	1.56E-01	2.88E-02	1.06E-01	1.92E+00	6.68E-01	3.32E+00	6.07E-02	1.88E+00	7.57E-01	8.77E-02	6.21E-01	2.15E+00	7.45E-01	4.24E-01	2.43E-05	1.56E-01	4.63E-04	2.00E-03	1.92E+00	6.60E-01	2.05E+00	5.99E-02	1.36E-02	4.79E-03	2.73E-02	1.95E-02	2.10E+00	7.30E-01	5.26E-03	0.00E+00	0.00E+00	2.83E-02	1.04E-01	7.57E-05	8.01E-03	1.27E+00	8.08E-04	1.87E+00	7.52E-01	6.03E-02	6.01E-01	4.95E-02	1.45E-02
2006	1	31	1.70E-01	0.00E+00	3.38E-02	1.67E-05	8.00E-02	9.03E-01	7.49E-01	2.77E+00	3.23E-03	2.07E+00	3.66E-01	8.52E-01	4.57E-01	1.28E+00	3.12E-01	1.70E-01	0.00E+00	3.38E-02	6.77E-06	1.76E-04	9.03E-01	7.29E-01	1.63E+00	3.23E-03	1.50E-03	3.67E-04	9.15E-03	6.33E-03	1.28E+00	3.12E-01	0.00E+00	0.00E+00	0.00E+00	9.92E-06	7.98E-02	0.00E+00	1.95E-02	1.14E+00	1.51E-19	2.07E+00	3.66E-01	8.43E-01	4.51E-01	0.00E+00	0.00E+00
2006	2	1	3.43E-02	0.00E+00	1.80E-02	0.00E+00	3.36E-03	4.38E-01	2.76E-01	8.28E-01	4.33E-04	9.93E-01	1.03E-01	2.86E-01	3.24E-01	5.45E-01	8.21E-02	3.43E-02	0.00E+00	1.80E-02	0.00E+00	0.00E+00	4.38E-01	2.72E-01	6.43E-01	4.33E-04	1.29E-04	0.00E+00	8.31E-04	7.38E-04	5.45E-01	8.21E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.36E-03	0.00E+00	3.58E-03	1.85E-01	1.46E-19	9.93E-01	1.03E-01	2.85E-01	3.23E-01	0.00E+00	0.00E+00
2006	2	2	1.12E-01	0.00E+00	1.50E-02	0.00E+00	0.00E+00	7.43E-01	6.77E-01	2.04E+00	2.46E-19	2.92E+00	2.01E-02	9.95E-01	3.42E-01	1.03E+00	1.80E-01	1.12E-01	0.00E+00	1.50E-02	0.00E+00	0.00E+00	7.43E-01	6.38E-01	1.30E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-03	6.82E-05	1.03E+00	1.80E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.89E-02	7.46E-01	2.46E-19	2.92E+00	2.01E-02	9.94E-01	3.42E-01	1.35E-03	0.00E+00
2006	2	3	7.49E-01	5.66E-03	4.79E-01	1.51E-03	2.79E-02	2.06E+00	1.96E+00	4.61E+00	2.12E-01	8.88E+00	1.22E+00	1.45E+00	9.06E-01	2.77E+00	1.21E+00	7.40E-01	3.70E-03	4.73E-01	6.15E-04	2.43E-03	2.03E+00	1.88E+00	3.58E+00	9.41E-02	2.62E-02	1.11E-02	3.68E-02	3.19E-02	2.73E+00	1.18E+00	8.76E-03	1.96E-03	5.45E-03	9.00E-04	2.54E-02	2.81E-02	7.52E-02	1.03E+00	1.18E-01	8.85E+00	1.21E+00	1.42E+00	8.74E-01	3.66E-02	3.27E-02
2006	2	4	6.31E-01	2.87E-02	2.64E-01	2.65E-01	2.66E-01	1.67E+00	6.19E-01	2.43E+00	9.31E-02	1.59E+00	4.83E+00	2.18E-01	4.62E-01	1.18E+00	9.21E-01	6.31E-01	1.05E-02	2.64E-01	7.44E-03	1.03E-02	1.66E+00	6.17E-01	1.77E+00	7.67E-02	2.21E-02	1.36E-02	4.19E-02	3.09E-02	1.18E+00	9.20E-01	1.24E-05	1.83E-02	4.88E-04	2.58E-01	2.55E-01	4.14E-03	1.50E-03	6.56E-01	1.64E-02	1.57E+00	4.81E+00	1.76E-01	4.31E-01	2.22E-03	7.50E-04
2006	2	5	1.28E-01	1.48E-07	8.08E-02	0.00E+00	0.00E+00	1.21E+00	8.93E-01	3.54E+00	3.37E-02	3.84E+00	1.32E-02	1.08E+00	3.69E-01	2.08E+00	2.40E-01	1.28E-01	1.48E-07	8.08E-02	0.00E+00	0.00E+00	1.21E+00	8.11E-01	2.52E+00	3.37E-02	3.47E-03	1.48E-04	9.58E-03	7.60E-03	2.06E+00	2.40E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.18E-02	1.02E+00	4.38E-20	3.84E+00	1.30E-02	1.07E+00	3.61E-01	2.27E-02	0.00E+00
2006	2	6	1.83E-01	0.00E+00	2.40E-02	0.00E+00	0.00E+00	6.45E-01	7.57E-01	2.19E+00	5.34E-03	8.58E+00	9.19E-04	8.53E-01	8.47E-01	1.42E+00	2.56E-01	1.83E-01	0.00E+00	2.40E-02	0.00E+00	0.00E+00	6.45E-01	6.70E-01	1.33E+00	5.34E-03	8.25E-04	5.16E-05	4.06E-03	2.04E-03	1.38E+00	2.56E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.65E-02	8.70E-01	1.20E-18	8.58E+00	8.68E-04	8.49E-01	8.45E-01	4.55E-02	1.61E-05
2006	2	7	1.35E-01	0.00E+00	2.36E-02	0.00E+00	0.00E+00	4.83E-01	4.07E-01	1.49E+00	1.48E-06	4.96E+00	6.11E-03	4.56E-01	2.54E-01	8.94E-01	1.55E-01	1.35E-01	0.00E+00	2.36E-02	0.00E+00	0.00E+00	4.83E-01	3.29E-01	1.18E+00	1.48E-06	0.00E+00	0.00E+00	1.57E-04	4.09E-05	8.26E-01	1.55E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.81E-02	3.11E-01	3.41E-16	4.96E+00	6.11E-03	4.56E-01	2.54E-01	6.81E-02	0.00E+00
2006	2	8	1.16E-01	0.00E+00	1.74E-03	0.00E+00	0.00E+00	5.78E-01	3.62E-01	1.92E+00	1.11E-16	3.89E+00	6.46E-03	3.95E-01	4.86E-01	1.06E+00	1.79E-01	1.16E-01	0.00E+00	1.74E-03	0.00E+00	0.00E+00	5.78E-01	3.14E-01	1.15E+00	0.00E+00	0.00E+00	0.00E+00	6.73E-06	0.00E+00	1.03E+00	1.79E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.85E-02	7.67E-01	1.11E-16	3.89E+00	6.46E-03	3.95E-01	4.86E-01	2.57E-02	0.00E+00
2006	2	9	2.51E+00	2.20E-03	1.78E+00	4.15E-04	9.53E-04	6.09E+00	1.80E+00	8.52E+00	6.02E+00	7.45E+00	7.14E-03	1.53E+00	2.52E+00	6.62E+00	3.15E+00	1.86E+00	2.11E-03	1.29E+00	4.14E-04	9.50E-04	5.10E+00	1.65E+00	7.22E+00	8.52E-02	1.64E-02	6.63E-03	3.30E-02	2.29E-02	6.26E+00	2.35E+00	6.49E-01	9.50E-05	4.96E-01	2.27E-07	2.78E-06	9.83E-01	1.48E-01	1.30E+00	5.94E+00	7.43E+00	5.08E-04	1.50E+00	2.49E+00	3.55E-01	8.09E-01
2006	2	10	2.44E+00	3.36E-02	1.32E+00	3.04E-02	7.80E-02	4.11E+00	1.76E+00	6.48E+00	2.36E+00	4.24E+00	1.99E-01	1.14E+00	6.00E-01	6.01E+00	3.18E+00	1.86E+00	9.03E-04	9.32E-01	9.22E-05	2.62E-04	3.68E+00	1.44E+00	5.16E+00	9.84E-02	1.40E-02	3.71E-03	3.71E-02	2.30E-02	5.59E+00	2.36E+00	5.79E-01	3.26E-02	3.89E-01	3.03E-02	7.77E-02	4.29E-01	3.20E-01	1.32E+00	2.27E+00	4.23E+00	1.95E-01	1.10E+00	5.77E-01	4.13E-01	8.12E-01
2006	2	11	4.81E-02	0.00E+00	4.22E-03	0.00E+00	0.00E+00	5.54E-01	8.82E-01	1.97E+00	0.00E+00	7.81E+00	7.87E-04	1.41E+00	4.73E-01	1.07E+00	8.47E-02	4.81E-02	0.00E+00	4.22E-03	0.00E+00	0.00E+00	5.54E-01	7.91E-01	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E+00	8.47E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.10E-02	7.64E-01	0.00E+00	7.81E+00	7.87E-04	1.41E+00	4.73E-01	0.00E+00	0.00E+00
2006	2	12	3.47E-01	0.00E+00	1.30E-01	0.00E+00	0.00E+00	1.00E+00	7.00E-01	1.99E+00	1.68E-03	6.29E+00	5.28E-04	8.78E-01	2.58E-01	1.38E+00	4.19E-01	3.26E-01	0.00E+00	1.29E-01	0.00E+00	0.00E+00	9.98E-01	6.19E-01	1.49E+00	1.66E-03	1.05E-04	0.00E+00	9.93E-04	3.75E-04	1.34E+00	3.59E-01	2.12E-02	0.00E+00	1.05E-03	0.00E+00	0.00E+00	5.23E-03	8.03E-02	4.95E-01	2.00E-05	6.29E+00	5.28E-04	8.77E-01	2.58E-01	4.12E-02	6.04E-02
2006	2	13	1.50E-01	6.43E-07	2.81E-02	0.00E+00	6.92E-09	8.65E-01	6.03E-01	3.26E+00	9.34E-03	5.79E+00	1.17E-03	5.23E-01	8.65E-01	1.83E+00	2.87E-01	1.49E-01	6.43E-07	2.81E-02	0.00E+00	6.92E-09	8.65E-01	5.52E-01	2.59E+00	8.59E-03	4.74E-04	3.36E-05	2.78E-03	1.18E-03	1.78E+00	2.83E-01	8.83E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.16E-02	6.63E-01	7.49E-04	5.79E+00	1.14E-03	5.20E-01	8.63E-01	4.76E-02	4.21E-03
2006	2	14	3.31E+00	5.66E-05	2.59E+00	4.16E-07	3.63E-06	4.53E+00	9.06E-01	4.99E+00	6.75E+00	3.88E+00	3.55E-04	1.93E+00	2.40E+00	4.86E+00	4.37E+00	2.99E+00	5.54E-05	1.51E+00	4.16E-07	3.63E-06	3.39E+00	6.84E-01	4.52E+00	2.35E-02	1.59E-03	3.37E-04	8.41E-03	3.62E-03	4.67E+00	3.84E+00	3.18E-01	1.17E-06	1.09E+00	0.00E+00	0.00E+00	1.14E+00	2.22E-01	4.64E-01	6.72E+00	3.88E+00	1.80E-05	1.92E+00	2.40E+00	1.88E-01	5.24E-01
2006	2	15	3.59E+00	7.76E-01	2.03E+00	5.28E-03	4.52E-03	3.45E+00	6.59E-01	5.04E+00	5.78E+00	5.79E-02	3.40E-01	4.80E-02	3.82E-02	5.35E+00	4.68E+00	3.28E+00	1.73E-02	1.81E+00	2.17E-03	2.54E-03	3.34E+00	6.56E-01	4.98E+00	1.10E-01	2.59E-02	1.50E-02	4.37E-02	3.10E-02	5.33E+00	4.13E+00	3.05E-01	7.58E-01	2.20E-01	3.11E-03	1.98E-03	1.10E-01	3.48E-03	5.28E-02	5.67E+00	3.20E-02	3.25E-01	4.30E-03	7.19E-03	1.50E-02	5.49E-01
2006	2	16	1.04E+00	0.00E+00	6.85E-01	0.00E+00	0.00E+00	9.95E-01	5.41E-03	6.12E-01	3.65E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E+00	1.24E+00	1.04E+00	0.00E+00	6.54E-01	0.00E+00	0.00E+00	9.61E-01	5.41E-03	6.12E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E+00	1.24E+00	0.00E+00	0.00E+00	3.10E-02	0.00E+00	0.00E+00	3.44E-02	0.00E+00	0.00E+00	3.65E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2006	2	17	3.33E+00	2.58E-01	2.35E+00	3.43E-02	9.58E-02	5.42E+00	3.13E+00	9.74E+00	6.03E+00	5.46E+00	1.18E+00	2.40E+00	2.04E+00	7.74E+00	4.25E+00	2.00E+00	4.20E-03	1.60E+00	3.75E-04	1.09E-03	4.51E+00	2.12E+00	7.51E+00	1.51E-01	3.33E-02	1.31E-02	5.93E-02	4.44E-02	6.51E+00	2.67E+00	1.34E+00	2.53E-01	7.50E-01	3.40E-02	9.47E-02	9.01E-01	1.01E+00	2.23E+00	5.88E+00	5.43E+00	1.17E+00	2.34E+00	2.00E+00	1.23E+00	1.58E+00
2006	2	18	1.84E+00	3.74E-02	9.63E-01	6.79E-03	1.89E-02	7.16E+00	4.91E+00	1.14E+01	2.47E+00	1.38E+01	1.08E-01	5.89E+00	5.35E+00	8.26E+00	2.26E+00	1.36E+00	4.09E-03	5.58E-01	6.99E-04	2.29E-03	6.70E+00	3.73E+00	8.84E+00	1.92E-01	4.17E-02	1.46E-02	1.04E-01	6.75E-02	7.52E+00	1.71E+00	4.81E-01	3.33E-02	4.04E-01	6.09E-03	1.66E-02	4.53E-01	1.18E+00	2.61E+00	2.28E+00	1.37E+01	9.36E-02	5.78E+00	5.28E+00	7.47E-01	5.55E-01
2006	2	19	2.45E-01	2.15E-03	3.19E-01	6.03E-04	1.46E-03	3.91E+00	2.23E+00	6.20E+00	1.34E-01	9.80E+00	1.20E-02	1.61E+00	3.51E-01	3.80E+00	3.28E-01	2.43E-01	1.58E-03	3.18E-01	1.72E-04	7.15E-04	3.90E+00	2.08E+00	4.71E+00	1.33E-01	2.81E-02	8.93E-03	6.69E-02	4.53E-02	3.74E+00	3.27E-01	1.68E-03	5.74E-04	1.07E-03	4.31E-04	7.40E-04	1.21E-03	1.51E-01	1.49E+00	1.45E-03	9.77E+00	3.07E-03	1.55E+00	3.06E-01	5.35E-02	1.70E-03
2006	2	20	7.52E-02	0.00E+00	7.59E-03	0.00E+00	0.00E+00	4.80E-01	5.07E-01	1.56E+00	1.30E-16	4.67E+00	2.82E-03	6.62E-01	2.30E-01	8.30E-01	1.29E-01	7.52E-02	0.00E+00	7.59E-03	0.00E+00	0.00E+00	4.80E-01	4.30E-01	1.09E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.30E-01	1.29E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.77E-02	4.68E-01	1.30E-16	4.67E+00	2.82E-03	6.62E-01	2.30E-01	0.00E+00	0.00E+00
2006	2	21	1.37E-01	1.65E-06	2.07E-02	0.00E+00	2.43E-06	7.92E-01	5.33E-01	1.95E+00	2.74E-02	3.20E+00	2.52E-02	6.99E-01	3.62E-01	9.32E-01	2.28E-01	1.37E-01	1.65E-06	2.07E-02	0.00E+00	2.43E-06	7.92E-01	4.77E-01	1.16E+00	2.74E-02	2.86E-03	2.49E-04	4.12E-03	5.00E-03	9.30E-01	2.28E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.60E-02	7.85E-01	5.69E-17	3.20E+00	2.50E-02	6.94E-01	3.57E-01	2.23E-03	0.00E+00
2006	2	22	2.25E-01	1.77E-03	3.84E-02	4.10E-04	8.81E-03	6.17E-01	5.88E-01	1.27E+00	4.23E-02	3.08E+00	7.59E-01	3.46E-01	3.63E-01	9.09E-01	3.47E-01	2.25E-01	4.06E-04	3.84E-02	7.48E-05	6.67E-04	6.17E-01	5.56E-01	9.60E-01	3.92E-02	1.03E-02	7.58E-03	1.71E-02	1.15E-02	9.09E-01	3.47E-01	0.00E+00	1.36E-03	0.00E+00	3.36E-04	8.15E-03	0.00E+00	3.14E-02	3.08E-01	3.20E-03	3.07E+00	7.52E-01	3.29E-01	3.52E-01	1.40E-06	0.00E+00
2006	2	23	2.25E+00	5.09E-01	1.50E+00	2.19E-01	1.84E-01	2.53E+00	1.09E+00	2.96E+00	1.59E+00	6.76E+00	2.17E-01	3.67E-01	6.88E-01	2.79E+00	2.76E+00	2.10E+00	2.10E-02	1.35E+00	1.66E-02	1.40E-02	2.40E+00	1.07E+00	2.86E+00	7.41E-02	2.85E-02	2.23E-02	3.29E-02	3.34E-02	2.78E+00	2.49E+00	1.52E-01	4.88E-01	1.52E-01	2.02E-01	1.70E-01	1.29E-01	1.61E-02	1.01E-01	1.51E+00	6.73E+00	1.94E-01	3.34E-01	6.55E-01	8.11E-03	2.71E-01
2006	2	24	1.29E+00	5.64E-01	9.99E-01	6.90E-02	7.05E-02	4.66E+00	2.80E+00	8.13E+00	2.36E+00	1.08E+01	1.21E+00	1.40E+00	5.09E-01	6.59E+00	1.79E+00	1.25E+00	1.73E-02	9.52E-01	5.04E-03	7.19E-03	4.61E+00	2.73E+00	6.99E+00	1.21E-01	3.22E-02	1.96E-02	5.03E-02	3.87E-02	6.51E+00	1.66E+00	4.55E-02	5.46E-01	4.66E-02	6.39E-02	6.33E-02	5.60E-02	7.13E-02	1.14E+00	2.24E+00	1.08E+01	1.19E+00	1.35E+00	4.71E-01	8.07E-02	1.37E-01
2006	2	25	2.00E+00	7.51E-02	1.22E+00	2.32E-01	2.61E-01	5.05E+00	2.63E+00	7.44E+00	4.14E+00	1.31E+01	1.48E+00	1.22E+00	1.15E+00	6.53E+00	2.43E+00	1.99E+00	8.76E-03	1.15E+00	1.20E-02	1.72E-02	4.92E+00	2.55E+00	6.00E+00	1.58E-01	4.84E-02	2.59E-02	8.12E-02	6.41E-02	6.44E+00	2.39E+00	7.01E-03	6.63E-02	6.74E-02	2.20E-01	2.44E-01	1.29E-01	8.70E-02	1.45E+00	3.98E+00	1.31E+01	1.45E+00	1.14E+00	1.09E+00	9.38E-02	3.15E-02
2006	2	26	7.56E-01	1.08E-01	2.79E-01	2.93E-02	4.43E-01	1.78E+00	1.64E+00	4.71E+00	5.85E-01	2.55E+00	3.01E+00	7.89E-01	7.60E-01	3.05E+00	1.06E+00	7.35E-01	3.38E-03	2.72E-01	3.39E-03	4.70E-03	1.76E+00	1.57E+00	3.48E+00	4.49E-02	1.58E-02	7.68E-03	3.06E-02	2.13E-02	2.93E+00	1.03E+00	2.10E-02	1.04E-01	7.17E-03	2.59E-02	4.39E-01	1.92E-02	6.91E-02	1.23E+00	5.40E-01	2.54E+00	3.00E+00	7.59E-01	7.39E-01	1.25E-01	3.65E-02
2006	2	27	1.07E+00	9.33E-03	4.48E-01	1.17E-01	1.92E-01	3.86E+00	1.81E+00	5.55E+00	1.75E-01	2.47E+00	2.02E+00	5.28E-01	9.40E-01	3.46E+00	1.49E+00	1.06E+00	6.91E-03	4.40E-01	4.16E-03	5.35E-03	3.81E+00	1.76E+00	4.29E+00	1.71E-01	4.09E-02	1.88E-02	6.46E-02	5.39E-02	3.34E+00	1.45E+00	7.47E-03	2.42E-03	7.90E-03	1.13E-01	1.87E-01	5.28E-02	4.20E-02	1.26E+00	4.37E-03	2.43E+00	2.00E+00	4.63E-01	8.86E-01	1.22E-01	3.36E-02
2006	2	28	8.06E-01	3.45E-01	4.90E-01	8.66E-02	1.51E-01	1.87E+00	1.24E+00	3.69E+00	8.68E-01	2.06E+00	1.23E+00	5.67E-01	5.80E-01	3.09E+00	1.08E+00	7.01E-01	4.64E-03	4.16E-01	1.62E-03	3.33E-03	1.77E+00	1.16E+00	3.03E+00	1.07E-01	2.56E-02	9.90E-03	4.73E-02	3.82E-02	2.99E+00	9.70E-01	1.06E-01	3.40E-01	7.46E-02	8.50E-02	1.47E-01	1.04E-01	8.71E-02	6.52E-01	7.61E-01	2.04E+00	1.22E+00	5.20E-01	5.42E-01	1.07E-01	1.15E-01
2006	3	1	2.05E+00	4.20E-01	8.86E-01	8.86E-02	1.56E-01	2.42E+00	1.08E+00	3.56E+00	1.11E+00	2.57E+00	7.04E-01	1.23E-01	7.35E-01	3.05E+00	2.58E+00	1.94E+00	4.11E-03	8.71E-01	1.41E-03	3.79E-03	2.36E+00	1.07E+00	3.40E+00	1.01E-01	4.03E-02	1.67E-02	3.08E-02	3.52E-02	3.02E+00	2.38E+00	1.10E-01	4.16E-01	1.52E-02	8.71E-02	1.52E-01	5.64E-02	6.06E-03	1.54E-01	1.01E+00	2.53E+00	6.88E-01	9.25E-02	7.00E-01	2.23E-02	2.06E-01
2006	3	2	2.61E+00	1.19E-04	1.36E+00	1.37E-06	5.16E-06	2.42E+00	1.22E-01	1.91E+00	4.30E+00	1.16E-03	7.51E-04	1.29E-03	1.04E-03	3.05E+00	3.30E+00	2.37E+00	1.10E-04	1.30E+00	1.37E-06	5.16E-06	2.32E+00	1.22E-01	1.91E+00	1.41E-02	6.80E-04	2.12E-04	1.21E-03	9.06E-04	3.05E+00	2.83E+00	2.45E-01	9.12E-06	5.75E-02	0.00E+00	0.00E+00	9.71E-02	3.22E-07	6.05E-04	4.29E+00	4.76E-04	5.39E-04	7.96E-05	1.32E-04	3.69E-04	4.73E-01
2006	3	3	2.75E+00	2.08E-03	1.69E+00	8.90E-05	1.87E-04	2.72E+00	3.91E-01	3.83E+00	8.20E+00	3.07E-02	1.12E-02	1.42E-02	9.91E-03	3.96E+00	3.61E+00	2.66E+00	1.04E-03	1.58E+00	8.90E-05	1.87E-04	2.58E+00	3.91E-01	3.81E+00	4.32E-02	6.01E-03	2.30E-03	1.37E-02	8.79E-03	3.96E+00	3.45E+00	8.37E-02	1.03E-03	1.06E-01	8.97E-10	7.16E-08	1.46E-01	2.91E-08	1.70E-02	8.16E+00	2.47E-02	8.87E-03	4.68E-04	1.11E-03	1.81E-03	1.60E-01
2006	3	4	2.50E+00	1.12E+00	1.51E+00	2.45E-01	2.66E-01	3.17E+00	1.43E+00	5.33E+00	4.72E+00	2.85E+00	2.70E+00	3.11E-01	5.50E-01	4.42E+00	3.48E+00	2.28E+00	3.06E-02	1.36E+00	1.14E-02	1.57E-02	3.01E+00	1.39E+00	4.95E+00	1.46E-01	5.42E-02	3.90E-02	5.15E-02	5.21E-02	4.37E+00	3.03E+00	2.17E-01	1.09E+00	1.52E-01	2.34E-01	2.50E-01	1.63E-01	3.77E-02	3.82E-01	4.57E+00	2.80E+00	2.66E+00	2.59E-01	4.98E-01	4.72E-02	4.54E-01
2006	3	5	1.88E+00	5.95E-01	9.50E-01	1.29E-01	1.92E-01	3.05E+00	2.09E+00	5.79E+00	7.89E-01	8.07E+00	1.71E+00	1.08E+00	6.89E-01	4.12E+00	2.58E+00	1.79E+00	1.68E-02	9.30E-01	6.07E-03	7.66E-03	3.00E+00	2.00E+00	4.91E+00	1.59E-01	3.46E-02	1.87E-02	6.18E-02	4.36E-02	4.08E+00	2.41E+00	8.61E-02	5.78E-01	1.93E-02	1.23E-01	1.85E-01	5.29E-02	8.73E-02	8.73E-01	6.30E-01	8.04E+00	1.69E+00	1.02E+00	6.45E-01	3.69E-02	1.66E-01
2006	3	6	8.63E-01	7.58E-01	4.80E-01	2.02E-01	2.89E-01	1.77E+00	1.47E+00	3.72E+00	9.44E-02	6.25E+00	4.79E+00	9.90E-01	1.32E+00	2.81E+00	1.19E+00	7.62E-01	2.17E-02	4.79E-01	1.20E-02	1.59E-02	1.77E+00	1.38E+00	2.89E+00	4.44E-02	4.19E-02	2.85E-02	7.14E-02	5.58E-02	2.62E+00	9.51E-01	1.00E-01	7.36E-01	8.28E-04	1.90E-01	2.73E-01	3.00E-03	8.97E-02	8.33E-01	4.99E-02	6.21E+00	4.76E+00	9.19E-01	1.26E+00	1.84E-01	2.34E-01
2006	3	7	1.20E-01	0.00E+00	1.12E-02	0.00E+00	0.00E+00	6.31E-01	5.34E-01	1.50E+00	1.65E-04	1.73E+00	5.10E-02	7.20E-01	3.12E-01	9.37E-01	1.67E-01	1.20E-01	0.00E+00	1.12E-02	0.00E+00	0.00E+00	6.31E-01	5.06E-01	9.10E-01	1.65E-04	0.00E+00	0.00E+00	4.06E-03	3.96E-04	9.37E-01	1.67E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-02	5.93E-01	2.76E-19	1.73E+00	5.10E-02	7.16E-01	3.12E-01	0.00E+00	0.00E+00
2006	3	8	7.44E-02	0.00E+00	5.52E-02	0.00E+00	9.87E-05	9.83E-01	6.22E-01	2.07E+00	9.62E-03	2.58E+00	9.62E-02	7.20E-01	3.48E-01	1.02E+00	1.19E-01	7.44E-02	0.00E+00	5.52E-02	0.00E+00	0.00E+00	9.83E-01	5.92E-01	1.26E+00	9.62E-03	5.78E-04	0.00E+00	1.04E-02	3.13E-03	1.02E+00	1.19E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.87E-05	0.00E+00	2.96E-02	8.03E-01	1.13E-17	2.58E+00	9.62E-02	7.09E-01	3.45E-01	6.27E-03	0.00E+00
2006	3	9	7.32E-02	0.00E+00	2.59E-02	0.00E+00	2.59E-11	6.47E-01	3.71E-01	1.45E+00	5.58E-03	1.46E+00	5.87E-02	4.34E-01	3.01E-01	7.58E-01	1.36E-01	7.32E-02	0.00E+00	2.59E-02	0.00E+00	0.00E+00	6.47E-01	3.59E-01	9.86E-01	5.58E-03	7.26E-04	0.00E+00	4.97E-03	2.51E-03	7.55E-01	1.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-11	0.00E+00	1.22E-02	4.63E-01	3.60E-18	1.46E+00	5.87E-02	4.29E-01	2.99E-01	2.80E-03	0.00E+00
2006	3	10	1.47E+00	7.16E-03	7.86E-01	7.67E-04	4.00E-03	4.05E+00	3.07E+00	6.94E+00	4.25E-01	1.68E+01	5.31E-01	1.77E+00	1.09E+00	5.34E+00	2.12E+00	1.45E+00	7.03E-03	7.79E-01	7.61E-04	3.27E-03	4.01E+00	3.02E+00	5.93E+00	2.03E-01	6.72E-02	3.28E-02	7.35E-02	7.06E-02	5.19E+00	2.06E+00	2.35E-02	1.21E-04	6.75E-03	5.84E-06	7.25E-04	3.93E-02	4.69E-02	1.01E+00	2.22E-01	1.68E+01	4.98E-01	1.70E+00	1.02E+00	1.57E-01	5.60E-02

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application															Baseline															Project														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2006	3	11	2.64E+00	1.30E-02	1.75E+00	3.32E-04	1.06E-03	3.15E+00	4.26E-01	3.25E+00	5.96E+00	5.02E-01	6.72E-02	1.14E-01	1.43E-01	4.36E+00	3.38E+00	2.31E+00	4.79E-03	1.15E+00	3.09E-04	9.41E-04	2.63E+00	3.95E-01	2.98E+00	8.94E-02	1.64E-02	7.81E-03	2.93E-02	2.13E-02	4.23E+00	2.93E+00	3.28E-01	8.19E-03	5.97E-01	2.27E-05	1.20E-04	5.23E-01	3.11E-02	2.72E-01	5.87E+00	4.86E-01	5.94E-02	8.49E-02	1.22E-01	1.27E-01	4.50E-01
2006	3	12	3.01E+00	1.15E+00	1.63E+00	5.51E-02	4.80E-02	4.00E+00	1.40E+00	6.92E+00	4.84E+00	1.91E+00	1.33E+00	2.48E-01	4.15E-01	6.26E+00	4.35E+00	2.71E+00	1.20E-02	1.54E+00	4.78E-03	5.97E-03	3.92E+00	1.39E+00	6.46E+00	1.38E-01	3.11E-02	1.69E-02	3.89E-02	3.48E-02	6.22E+00	3.70E+00	3.04E-01	1.14E+00	9.22E-02	5.04E-02	4.20E-02	7.56E-02	1.45E-02	4.54E-01	4.71E+00	1.88E+00	1.32E+00	2.09E-01	3.80E-01	3.75E-02	6.50E-01
2006	3	13	2.74E-01	2.18E-04	2.42E-01	4.51E-05	5.71E-04	3.44E+00	2.27E+00	6.71E+00	1.31E-01	5.73E+00	1.11E-01	1.29E+00	1.00E+00	4.10E+00	3.87E-01	2.74E-01	2.18E-04	2.42E-01	4.50E-05	3.07E-04	3.44E+00	2.13E+00	4.76E+00	1.31E-01	2.55E-02	5.68E-03	6.07E-02	4.06E-02	4.07E+00	3.87E-01	3.07E-06	1.59E-07	2.67E-07	1.14E-07	2.64E-04	4.72E-07	1.41E-01	1.95E+00	4.54E-04	5.71E+00	1.05E-01	1.23E+00	9.63E-01	3.35E-02	1.18E-04
2006	3	14	2.24E+00	1.30E+00	1.11E+00	2.46E-01	7.13E-01	4.58E+00	2.89E+00	7.26E+00	3.23E-01	7.04E+00	6.35E+00	5.28E-01	1.59E+00	4.80E+00	3.31E+00	2.07E+00	3.26E-02	1.09E+00	1.80E-02	2.71E-02	4.51E+00	2.87E+00	6.31E+00	2.43E-01	1.10E-01	6.65E-02	1.66E-01	1.34E-01	4.69E+00	2.85E+00	1.74E-01	1.26E+00	2.67E-02	2.28E-01	6.86E-01	7.77E-02	2.24E-02	9.55E-01	8.04E-02	6.93E+00	6.29E+00	3.62E-01	1.46E+00	1.02E-01	4.62E-01
2006	3	15	6.17E-01	2.21E-03	5.21E-01	3.64E-04	9.08E-04	2.06E+00	1.87E+00	4.31E+00	4.05E-02	1.07E+01	1.60E-02	2.09E+00	5.12E-01	3.18E+00	8.61E-01	5.56E-01	1.98E-03	5.11E-01	3.24E-04	8.16E-04	2.04E+00	1.73E+00	3.00E+00	2.63E-02	8.15E-03	4.27E-03	2.07E-02	1.13E-02	3.14E+00	7.17E-01	6.11E-02	2.34E-04	1.07E-02	3.97E-05	9.20E-05	2.13E-02	1.42E-01	1.31E+00	1.42E-02	1.07E+01	1.17E-02	2.07E+00	5.01E-01	4.27E-02	1.44E-01
2006	3	16	2.92E+00	2.94E-01	1.51E+00	1.45E-01	3.11E-01	3.33E+00	1.37E+00	3.91E+00	2.05E+00	5.46E+00	7.35E-01	8.54E-01	6.58E-01	4.02E+00	3.75E+00	2.58E+00	6.98E-03	1.48E+00	7.68E-03	1.02E-02	3.26E+00	1.34E+00	3.47E+00	4.94E-02	2.06E-02	1.38E-02	2.98E-02	2.49E-02	4.01E+00	3.18E+00	3.40E-01	2.87E-01	3.17E-02	1.38E-01	3.01E-01	6.69E-02	3.01E-02	4.42E-01	2.00E+00	5.44E+00	7.21E-01	8.24E-01	6.33E-01	1.36E-02	5.70E-01
2006	3	17	2.92E+00	7.20E-01	1.17E+00	1.81E-01	1.65E-01	4.85E+00	1.89E+00	5.90E+00	1.03E+00	2.94E+00	3.97E+00	3.07E-01	7.04E-01	4.73E+00	4.20E+00	2.73E+00	3.16E-02	1.14E+00	8.92E-03	1.13E-02	4.82E+00	1.88E+00	5.45E+00	3.13E-01	9.14E-02	4.64E-02	1.37E-01	1.12E-01	4.71E+00	3.84E+00	1.88E-01	6.88E-01	2.55E-02	1.73E-01	1.54E-01	3.55E-02	1.21E-02	4.51E-01	7.18E-01	2.85E+00	3.92E+00	1.69E-01	5.92E-01	2.57E-02	3.56E-01
2006	3	18	1.19E+00	7.58E-02	1.25E+00	2.04E-02	4.87E-02	3.24E+00	1.76E+00	5.07E+00	2.95E+00	6.84E+00	2.36E-01	1.34E+00	8.08E-01	3.91E+00	1.69E+00	1.13E+00	1.91E-03	9.75E-01	2.17E-04	1.11E-03	3.11E+00	1.67E+00	4.19E+00	1.15E-01	3.00E-02	1.01E-02	6.60E-02	4.54E-02	3.85E+00	1.58E+00	5.88E-02	7.39E-02	2.80E-01	2.02E-02	4.76E-02	1.26E-01	8.99E-02	8.82E-01	2.83E+00	6.81E+00	2.26E-01	1.28E+00	7.63E-01	5.86E-02	1.15E-01
2006	3	19	9.78E-01	0.00E+00	9.57E-01	0.00E+00	0.00E+00	1.18E+00	3.33E-03	8.34E-01	4.79E+00	1.21E-09	0.00E+00	0.00E+00	0.00E+00	2.42E+00	1.28E+00	9.78E-01	0.00E+00	6.58E-01	0.00E+00	0.00E+00	1.06E+00	3.33E-03	8.34E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E+00	1.28E+00	1.10E-04	0.00E+00	2.99E-01	0.00E+00	0.00E+00	1.24E-01	0.00E+00	0.00E+00	4.79E+00	1.21E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2006	3	20	3.26E+00	3.53E-04	1.79E+00	0.00E+00	1.77E-06	2.86E+00	6.20E-01	3.34E+00	1.01E+01	5.02E-03	2.00E-03	6.55E-03	4.27E-03	4.21E+00	4.48E+00	3.20E+00	1.29E-04	1.63E+00	0.00E+00	1.73E-06	2.72E+00	6.20E-01	3.33E+00	5.41E-02	2.84E-03	3.94E-04	6.51E-03	4.17E-03	4.21E+00	4.30E+00	6.07E-02	2.24E-04	1.55E-01	0.00E+00	4.05E-08	1.36E-01	5.09E-08	4.04E-03	1.01E+01	2.18E-03	1.60E-03	3.55E-05	1.03E-04	1.55E-03	1.80E-01
2006	3	21	4.74E+00	1.94E-01	2.55E+00	1.13E-03	1.95E-03	4.35E+00	6.98E-01	5.20E+00	8.29E+00	1.58E-01	7.60E-01	3.16E-02	4.13E-02	5.40E+00	6.08E+00	4.53E+00	1.91E-03	2.43E+00	1.79E-04	4.46E-04	4.16E+00	6.97E-01	5.12E+00	8.86E-02	1.20E-02	3.97E-03	2.53E-02	1.73E-02	5.39E+00	5.71E+00	2.06E-01	1.92E-01	1.25E-01	9.53E-04	1.50E-03	1.97E-01	8.58E-04	7.70E-02	8.20E+00	1.46E-01	7.56E-01	6.29E-03	2.40E-02	8.00E-03	3.68E-01
2006	3	22	1.72E+00	1.46E+00	1.18E+00	3.66E-01	5.26E-01	5.13E+00	3.60E+00	8.31E+00	5.02E-01	6.83E+00	1.02E+01	1.07E+00	1.89E+00	4.90E+00	2.67E+00	1.64E+00	4.37E-02	1.16E+00	1.98E-02	3.14E-02	5.11E+00	3.51E+00	6.82E+00	3.93E-01	1.48E-01	8.10E-02	2.55E-01	1.99E-01	4.78E+00	2.48E+00	7.76E-02	1.41E+00	1.11E-02	3.46E-01	4.95E-01	2.52E-02	8.71E-02	1.50E+00	1.09E-01	6.68E+00	1.01E+01	8.13E-01	1.69E+00	1.14E-01	1.96E-01
2006	3	23	2.40E+00	4.22E-01	1.54E+00	1.07E-01	1.87E-01	5.38E+00	2.57E+00	7.94E+00	3.28E+00	7.86E+00	9.39E-01	8.22E-01	1.29E+00	7.42E+00	3.38E+00	2.19E+00	2.73E-02	1.43E+00	1.22E-02	1.74E-02	5.24E+00	2.50E+00	6.76E+00	2.75E-01	8.14E-02	4.53E-02	1.37E-01	1.04E-01	7.25E+00	2.94E+00	2.02E-01	3.95E-01	1.13E-01	9.43E-02	1.70E-01	1.40E-01	7.47E-02	1.19E+00	3.01E+00	7.77E+00	8.93E-01	6.85E-01	1.19E+00	1.68E-01	4.33E-01
2006	3	24	2.17E+00	1.84E+00	1.30E+00	2.14E-01	2.65E-01	5.29E+00	2.51E+00	5.81E+00	1.58E+00	2.59E+00	6.39E+00	3.47E-01	6.57E-01	4.97E+00	3.21E+00	2.03E+00	5.81E-02	1.25E+00	3.08E-02	4.01E-02	5.22E+00	2.47E+00	5.03E+00	2.97E-01	1.40E-01	8.91E-02	2.29E-01	1.82E-01	4.89E+00	2.86E+00	1.33E-01	1.78E+00	4.61E-02	1.83E-01	2.24E-01	6.12E-02	3.61E-02	7.79E-01	1.28E+00	2.45E+00	6.31E+00	1.18E-01	4.74E-01	7.49E-02	3.49E-01
2006	3	25	1.22E+00	1.32E+00	8.29E-01	1.10E-01	1.58E-01	4.05E+00	4.12E+00	1.00E+01	6.23E-01	1.17E+01	5.37E+00	2.95E+00	4.47E+00	5.53E+00	1.87E+00	1.17E+00	5.66E-02	8.20E-01	1.70E-02	2.44E-02	4.03E+00	3.94E+00	8.15E+00	3.34E-01	1.30E-01	7.79E-02	2.18E-01	1.68E-01	5.38E+00	1.78E+00	4.89E-02	1.26E+00	9.21E-03	9.33E-02	1.34E-01	1.72E-02	1.80E-01	1.87E+00	2.89E-01	1.16E+01	5.29E+00	2.74E+00	4.30E+00	1.48E-01	9.22E-02
2006	3	26	1.05E+00	8.61E-05	3.19E-01	4.01E-06	3.73E-05	1.80E+00	1.52E+00	3.31E+00	3.46E-01	5.36E+00	1.82E-02	9.15E-01	7.94E-01	2.87E+00	1.42E+00	1.03E+00	7.28E-05	3.15E-01	3.72E-06	3.31E-05	1.78E+00	1.45E+00	2.50E+00	1.26E-02	1.50E-03	3.31E-04	9.24E-03	3.89E-03	2.84E+00	1.36E+00	2.38E-02	1.33E-05	4.01E-03	2.90E-07	4.16E-06	1.97E-02	7.17E-02	8.12E-01	3.33E-01	5.36E+00	1.79E-02	9.06E-01	7.90E-01	3.00E-02	6.18E-02
2006	3	27	1.85E+00	4.98E-01	1.12E+00	6.77E-02	1.11E-01	2.24E+00	1.94E+00	4.25E+00	9.57E-01	2.91E+00	1.94E+00	6.24E-01	1.31E+00	2.89E+00	2.41E+00	1.81E+00	9.03E-03	1.08E+00	2.58E-03	4.04E-03	2.16E+00	1.92E+00	3.56E+00	8.76E-02	2.83E-02	1.42E-02	6.14E-02	3.99E-02	2.89E+00	2.37E+00	3.09E-02	4.89E-01	3.40E-02	6.52E-02	1.07E-01	8.19E-02	2.10E-02	6.91E-01	8.69E-01	2.89E+00	1.93E+00	5.63E-01	1.27E+00	4.01E-03	4.68E-02
2006	3	28	3.95E+00	1.84E-01	2.18E+00	2.98E-02	4.37E-02	5.45E+00	2.59E+00	9.08E+00	7.23E+00	5.83E+00	3.88E-01	1.01E+00	1.28E+00	7.85E+00	5.26E+00	3.57E+00	1.64E-02	1.76E+00	6.17E-03	8.92E-03	5.04E+00	2.47E+00	7.86E+00	2.41E-01	5.17E-02	2.66E-02	9.41E-02	6.97E-02	7.57E+00	4.72E+00	3.82E-01	1.67E-01	4.16E-01	2.36E-02	3.48E-02	4.09E-01	1.16E-01	1.22E+00	6.99E+00	5.78E+00	3.61E-01	9.21E-01	1.21E+00	2.76E-01	5.45E-01
2006	3	29	3.77E+00	1.17E+00	2.57E+00	2.59E-01	3.76E-01	5.25E+00	3.25E+00	8.41E+00	7.37E+00	7.00E+00	1.88E+00	1.82E+00	2.46E+00	7.40E+00	4.97E+00	3.26E+00	2.93E-02	1.95E+00	1.31E-02	1.96E-02	4.56E+00	2.97E+00	7.45E+00	2.35E-01	7.93E-02	4.61E-02	1.51E-01	1.07E-01	7.04E+00	4.29E+00	5.11E-01	1.14E+00	6.22E-01	2.46E-01	3.57E-01	6.89E-01	2.75E-01	9.59E-01	7.14E+00	6.92E+00	1.83E+00	1.67E+00	2.35E+00	3.56E-01	6.82E-01
2006	3	30	7.80E-01	4.21E-04	4.65E-01	1.62E-04	1.94E-03	4.13E+00	3.27E+00	7.38E+00	7.78E-02	1.29E+01	2.45E-01	1.87E+00	2.30E+00	4.97E+00	1.25E+00	7.78E-01	4.20E-04	4.65E-01	1.59E-04	9.79E-04	4.13E+00	3.14E+00	5.88E+00	6.92E-02	2.05E-02	6.11E-03	6.66E-02	3.83E-02	4.88E+00	1.24E+00	1.90E-03	9.08E-07	9.07E-06	2.94E-06	9.61E-04	1.70E-04	1.29E-01	1.49E+00	8.59E-03	1.29E+01	2.39E-01	1.81E+00	2.26E+00	9.40E-02	7.00E-03
2006	3	31	1.38E+00	1.08E+00	4.42E-01	3.00E-01	4.78E-01	4.53E+00	2.91E+00	7.50E+00	2.71E-01	9.32E+00	6.70E+00	1.08E+00	1.22E+00	4.70E+00	1.87E+00	1.36E+00	2.13E-02	4.42E-01	1.61E-02	2.32E-02	4.53E+00	2.84E+00	6.02E+00	2.48E-01	8.57E-02	4.50E-02	1.53E-01	1.16E-01	4.57E+00	1.82E+00	1.78E-02	1.06E+00	1.81E-04	2.83E-01	4.55E-01	7.20E-04	6.41E-02	1.48E+00	2.34E-02	9.24E+00	6.65E+00	9.31E-01	1.10E+00	1.31E-01	5.19E-02
2006	4	1	1.62E+00	3.04E-02	9.00E-01	5.72E-03	1.33E-02	2.83E+00	1.34E+00	4.67E+00	2.70E+00	7.26E+00	1.30E-01	9.95E-01	1.24E+00	3.92E+00	2.13E+00	1.47E+00	2.95E-03	8.52E-01	4.20E-04	1.39E-03	2.75E+00	1.27E+00	4.15E+00	8.47E-02	2.22E-02	9.82E-03	4.14E-02	2.99E-02	3.86E+00	1.84E+00	1.46E-01	2.74E-02	4.79E-02	5.30E-03	1.19E-02	8.06E-02	6.68E-02	5.19E-01	2.62E+00	7.23E+00	1.20E-01	9.54E-01	1.21E+00	6.17E-02	2.85E-01
2006	4	2	2.15E+00	1.61E+00	1.09E+00	1.91E-01	2.64E-01	4.03E+00	2.79E+00	6.34E+00	2.12E+00	7.85E+00	6.49E+00	8.93E-01	1.47E+00	4.90E+00	2.95E+00	2.12E+00	4.08E-02	1.08E+00	1.33E-02	1.86E-02	4.00E+00	2.76E+00	5.53E+00	2.69E-01	8.71E-02	5.58E-02	1.22E-01	9.65E-02	4.81E+00	2.89E+00	3.16E-02	1.56E+00	1.57E-02	1.78E-01	2.45E-01	2.88E-02	2.93E-02	8.05E-01	1.85E+00	7.76E+00	6.43E+00	7.71E-01	1.37E+00	8.47E-02	6.42E-02
2006	4	3	3.31E+00	3.23E-01	1.54E+00	4.17E-02	7.04E-02	4.35E+00	1.75E+00	7.19E+00	4.42E+00	6.89E+00	6.63E-01	1.42E+00	1.89E+00	5.75E+00	4.74E+00	2.94E+00	2.44E-02	1.36E+00	6.83E-03	1.01E-02	4.09E+00	1.59E+00	6.67E+00	2.09E-01	5.95E-02	3.60E-02	8.18E-02	6.87E-02	5.55E+00	4.11E+00	3.71E-01	2.99E-01	1.87E-01	3.48E-02	6.02E-02	2.66E-01	1.63E-01	5.21E-01	4.21E+00	6.83E+00	6.27E-01	1.34E+00	1.82E+00	1.98E-01	6.29E-01
2006	4	4	2.90E+00	4.76E-01	1.63E+00	8.28E-02	1.43E-01	4.70E+00	2.33E+00	7.26E+00	4.54E+00	1.00E+01	2.01E+00	1.85E+00	2.30E+00	5.80E+00	3.90E+00	2.66E+00	2.37E-02	1.36E+00	9.27E-03	1.46E-02	4.45E+00	2.14E+00	6.25E+00	2.36E-01	7.45E-02	4.05E-02	1.35E-01	9.85E-02	5.54E+00	3.52E+00	2.43E-01	4.52E-01	2.69E-01	7.36E-02	1.29E-01	2.59E-01	1.93E-01	1.01E+00	4.30E+00	9.97E+00	1.97E+00	1.71E+00	2.20E+00	2.59E-01	3.87E-01
2006	4	5	4.50E+00	4.70E-04	3.47E+00	8.40E-07	3.60E-06	3.90E+00	1.36E-01	3.91E+00	6.49E+00	5.54E-03	6.12E-04	7.23E-03	4.02E-03	4.87E+00	5.09E+00	4.09E+00	4.69E-04	2.41E+00	8.40E-07	3.60E-06	3.17E+00	1.35E-01	3.87E+00	8.09E-02	2.91E-03	6.11E-04	6.58E-03	3.84E-03	4.83E+00	4.42E+00	4.10E-01	8.58E-07	1.06E+00	0.00E+00	0.00E+00	7.33E-01	1.03E-03	4.48E-02	6.40E+00	2.63E-03	9.42E-07	6.47E-04	1.76E-04	4.37E-02	6.74E-01
2006	4	6	4.24E+00	3.32E-01	2.16E+00	5.49E-02	1.13E-01	5.19E+00	1.28E+00	5.65E+00	4.72E+00	1.32E+00	3.04E+00	1.73E-01	2.59E-01	6.63E+00	5.23E+00	2.90E+00	6.44E-03	1.68E+00	1.66E-03	3.19E-03	4.79E+00	1.27E+00	5.31E+00	1.22E-01	2.89E-02	1.31E-02	6.33E-02	4.31E-02	6.46E+00	3.58E+00	1.34E+00	3.26E-01	4.72E-01	5.32E-02	1.10E-01	3.92E-01	8.40E-03	3.31E-01	4.59E+00	1.30E+00	3.03E+00	1.09E-01	2.16E-01	1.67E-01	1.65E+00
2006	4	7	2.93E+00	1.07E-01	1.83E+00	9.97E-02	2.07E-01	5.66E+00	1.37E+00	6.86E+00	3.19E+00	3.43E+00	1.90E+00	5.58E-01	1.13E+00	4.99E+00	4.04E+00	2.73E+00	7.62E-03	1.80E+00	3.29E-03	5.87E-03	5.64E+00	1.33E+00	5.96E+00	2.16E-01	4.58E-02	1.90E-02	9.49E-02	6.73E-02	4.91E+00	3.62E+00	2.02E-01	9.91E-02	2.58E-02	9.64E-02	2.01E-01	2.93E-02	4.14E-02	8.98E-01	2.98E+00	3.39E+00	1.88E+00	4.63E-01	1.06E+00	8.14E-02	4.20E-01
2006	4	8	2.59E+00	9.85E-02	1.97E+00	2.37E-02	3.68E-02	4.10E+00	8.06E-01	6.29E+00	2.54E+00	1.15E+00	5.63E-01	1.81E-01	3.54E-01	6.12E+00	3.62E+00	2.31E+00	1.16E-02	1.67E+00	3.22E-03	4.83E-03	3.82E+00	7.91E-01	5.56E+00	1.72E-01	4.56E-02	2.02E-02	8.74E-02	6.51E-02	5.99E+00	3.07E+00	2.76E-01	8.69E-02	3.00E-01	2.05E-02	3.20E-02	2.85E-01	1.50E-02	7.32E-01	2.37E+00	1.10E+00	5.43E-01	9.39E-02	2.89E-01	1.30E-01	5.57E-01
2006	4	9	7.32E-02	0.00E+00	1.42E-02	0.00E+00	1.55E-13	5.79E-01	4.17E-01	1.76E+00	6.97E-21	1.90E+00	3.80E-02	6.15E-01	2.48E-01	8.26E-01	1.11E-01	7.32E-02	0.00E+00	1.42E-02	0.00E+00	0.00E+00	5.79E-01	3.95E-01	1.01E+00	0.00E+00	0.00E+00	0.00E+00	3.75E-05	0.00E+00	8.25E-01	1.11E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-13	0.00E+00	2.23E-02	7.53E-01	6.97E-21	1.90E+00	3.80E-02	6.15E-01	2.48E-01	9.41E-04	0.00E+00
2006	4	10	1.32E+00	1.01E-03	6.82E-01	8.35E-05	4.37E-04	2.77E+00	1.31E+00	5.05E+00	1.55E-01	5.88E+00	5.64E-02	8.05E-01	7.70E-01	2.99E+00	1.98E+00	1.16E+00	9.58E-04	6.72E-01	7.72E-05	4.18E-04	2.75E+00	1.28E+00	4.06E+00	9.78E-02	1.92E-02	5.28E-03	3.55E-02	2.78E-02	2.92E+00	1.61E+00	1.65E-01	5.33E-05	9.69E-03	6.26E-06	1.88E-05	2.48E-02	3.52E-02	9.95E-01	5.69E-02	5.86E+00	5.12E-02	7.70E-01	7.42E-01	7.17E-02	3.72E-01
2006	4	11	3.15E-01	3.36E-04	3.11E-01	5.47E-05	3.07E-04	3.63E+00	1.16E+00	6.26E+00	1.24E-01	2.31E+00	8.58E-02	4.89E-01	9.63E-01	3.43E+00	8.03E-01	2.99E-01	3.33E-04	3.10E-01	5.30E-05	3.03E-04	3.63E+00	1.11E+00	5.04E+00	1.24E-01	2.47E-02	5.03E-03	5.18E-02	4.08E-02	3.36E+00	7.40E-01	1.61E-02	3.00E-06	5.74E-04	1.72E-06	3.80E-06	5.23E-03	5.34E-02	1.21E+00	4.96E-05	2.28E+00	8.08E-02	4.37E-01	9.23E-01	6.63E-02	6.24E-02
2006	4	12	5.05E-01	4.14E-04	1.09E-01	1.14E-02	6.95E-02	1.80E+00	1.09E+00	3.32E+00	5.53E-02	2.31E+00	5.13E-01	7.95E-01	6.27E-01	2.83E+00	7.04E-01	5.05E-01	4.14E-04	1.09E-01	1.58E-04	9.15E-04	1.80E+00	1.01E+00	2.42E+00	5.53E-02	1.51E-02	4.56E-03	3.50E-02	2.43E-02	2.78E+00	7.04E-01	3.45E-06	0.00E+00	0.00E+00	1.12E-02	6.86E-02	0.00E+00	7.94E-02	9.01E-01	1.66E-33	2.29E+00	5.08E-01	7.60E-01	6.03E-01	5.46E-02	7.41E-06
2006	4	13	1.54E-02	0.00E+00	1.20E-02	0.00E+00	3.15E-05	3.85E-01	1.67E-01	6.08E-01	6.43E-06	8.55E-01	9.45E-02	1.03E-01	2.65E-01	3.57E-01	4.46E-02	1.54E-02	0.00E+00	1.20E-02	0.00E+00	0.00E+00	3.85E-01	1.65E-01	4.90E-01	6.43E-06	0.00E+00	0.00E+00	4.28E-04	2.82E-05	3.57E-01	4.46E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.15E-05	0.00E+00	1.78E-03	1.19E-01	7.94E-21	8.55E-01	9.45E-02	1.03E-01	2.65E-01	0.00E+00	0.00E+00
2006	4	14	2.83E-01	4.83E-06	4.94E-02	2.00E-04	1.38E-01	9.31E-01	1.66E-01	6.95E-01	1.04E-02	1.22E+00	8.62E-01	3.66E-02	2.40E-01	6.87E-01	4.63E-01	2.82E-01	4.83E-06	4.94E-02	1.06E-04	1.37E-03	9.31E-01	1.66E-01	6.12E-01	1.04E-02	4.02E-03	2.75E-03	8.92E-03	6.73E-03	6.82E-01	4.55E-01	8.98E-04	0.00E+00	0.00E+00	9.45E-05	1.36E-01	0.00E+00	1.22E-04	8.28E-02	1.70E-05	1.22E+00	8.60E-01	2.76E-02	2.33E-01	5.63E-03	8.25E-03
2006	4	15	2.98E-01	3.39E-06	1.31E-01	3.17E-04	9.95E-02	1.68E+00	4.39E-01	2.16E+00	4.88E-02	1.53E+00	8.70E-01	4.03E-02	4.29E-01	1.35E+00	5.15E-01	2.90E-01	3.39E-06	1.31E-01	2.58E-04	1.38E-03	1.68E+00	4.30E-01	1.76E+00	4.88E-02	1.14E-02	2.19E-03	1.52E-02	1.65E-02	1.31E+00	4.85E-01	8.42E-03	0.00E+00	0.00E+00	5.94E-05	9.81E-02	0.00E+00	8.34E-03	4.02E-01	4.18E-31	1.52E+00	8.68E-01	2.51E-02	4.12E-01	4.36E-02	2.98E-02
2006	4	16	2.62E-01	5.42E-05	8.91E-02	2.07E-04	9.19E-02	1.32E+00	8.52E-01	2.69E+00	4.00E-02	4.04E+00	7.79E-01	6.74E-01	3.65E-01	1.91E+00	5.11E-01	2.50E-01	4.67E-05	8.83E-02	1.82E-04	1.11E-03	1.31E+00	8.05E-01	2.18E+00	3.70E-02	8.82E-03	2.70E-03	1.35E-02	1.32E-02	1.86E+00	4.89E-01	1.25E-02	7.52E-06	7.68E-04	2.58E-05	9.07E-02	2.21E-03	4.72E-02	5.09E-01	3.06E-03	4.03E+00	7.77E-01	6.61E-01	3.51E-01	4.65E-02	2.21E-02
2006	4	17	1.34E+00	1.86E-02	4.15E-01	1.63E-02	5.92E-02	3.65E+00	2.82E+00	8.17E+00	6.30E-01	9.41E+00	6.60E-01	1.89E+00	1.81E+00	6.22E+00	1.94E+00	9.13E-01	9.80E-04	4.11E-01	2.08E-04	4.47E-04	3.64E+00	2.57E+00	6.62E+00	7.65E-02	1.33E-02	3.80E-03	4.35E-02	2.39E-02	5.89E+00	1.43E+00	4.22E-01	1.77E-02	4.10E-03	1.60E-02	5.88E-02	1.07E-02	2.57E-01	1.55E+00	5.53E-01	9.40E+00	6.56E-01	1.85E+00	1.78E+00	3.21E-01	5.10E-01
2006	4	18	1.08E+00	2.84E-03	6.70E-01	1.19E-01	1.79E-01	3.29E+00	2.62E+00	5.22E+00	2.66E-01	9.39E+00	2.62E+00	1.12E+00	2.33E+00	4.84E+00	1.59E+00	1.00E+00	5.74E-04	6.63E-01	9.08E-04	2.21E-03	3.26E+00	2.52E+00	4.19E+00	3.76E-02	9.24E-03	3.13E-03	4.76E-02	2.15E-02	4.78E+00	1.38E+00	8.41E-02	2.26E-03	7.76E-03	1.18E-01	1.76E-01	3.20E-02	9.24E-02	1.03E+00	2.28E-01	9.38E+00	2.61E+00	1.07E+00	2.31E+00	6.50E-02	2.11E-01
2006	4	19	5.13E-01	2.09E-04	3.72E-01	9.32E-06	3.28E-05	2.13E+00	1.23E+00	4.36E+00	4.30E-02	6.10E+00	3.13E-02	1.20E+00	6.30E-01	2.87E+00	1.17E+00	4.50E-01	2.00E-04	3.59E-01	9.32E-06	3.28E-05	2.10E+00	1.18E+00	3.47E+00	3.60E-02	6.21E-03	1.49E-03	1.77E-02	1.07E-02	2.85E+00	1.01E+00	6.26E-02	8.94E-06	1.27E-02	0.00E+00	0.00E+00	2.78E-02	4.77E-02	8.91E-01	7.03E-03	6.09E+00	2.98E-02	1.18E+00	6.19E-01	1.59E-02	1.61E-01
2006	4	20	1.09E+00	3.11E-01	4.72E-01	4.49E-02	8.51E-02	2.62E+00	1.35E+00	4.77E+00	1.55E-01	5.07E+00	1.68E+00	9.15E-01	6.88E-01	2.63E+00	1.65E+00	1.05E+00	9.76E-03	4.68E-01	2.66E-03	4.25E-03	2.60E+00	1.31E+00	3.79E+00	1.12E-01	2.90E-02	1.59E-02	4.61E-02	3.60E-02	2.59E+00	1.51E+00	3.85E-02	3.02E-01	4.12E-03	4.22E-02	8.09E-02	2.10E-02	3.82E-02	9.88E-01	4.33E-02	5.04E+00	1.67E+00	8.69E-01	6.52E-01	4.20E-02	1.34E-01
2006	4	21	7.57E-01	6.22E-03	2.08E-01	2.69E-02	2.69E-01	2.57E+00	9.62E-01	3.34E+00	1.53E-01	2.98E+00	2.35E+00	1.85E-01	3.76E-01	2.29E+00	1.06E+00	7.31E-01	5.97E-03	2.07E-01	3.60E-03	7.85E-03	2.57E+00	9.17E-01	2.56E+00	1.48E-01	4.25E-02	2.08E-02	6.94E-02	5.55E-02	2.15E+00	9.93E-01	2.61E-02	2.54E-04	1.35E-03	2.33E-02	2.61E-01	3.75E-03	4.47E-02	7.82E-01	5.21E-03	2.94E+00	2.33E+00	1.16E-01	3.21E-01	1.43E-01	6.47E-02
2006	4	22	1.27E+00	1.42E-02	7.01E-01	1.41E-04	6.87E-04	2.61E+00	7.09E-01	3.30E+00	1.85E+00	3.81E+00	1.04E-01	6.41E-01	8.13E-01	2.56E+00	1.42E+00	1.03E+00	2.62E-04	3.97E-01	7.36E-06	3.62E-05	2.35E+00	6.66E-01	2.82E+00	1.71E-02	4.02E-03	9.68E-04	1.45E-02	7.64E-03	2.39E+00	1.09E+00	2.46E-01	1.39E-02	3.04E-01	1.34E-04	6.50E-04	2.57E-01	4.33E-02	4.78E-01	1.83E+00	3.80E+00	1.03E-01	6.27E-01	8.05E-01	1.67E-01	3.23E-01
2006	4	23	3.58E+00	3.34E-03	2.14E+00	5.65E-04	1.09E-03	3.83E+00	1.15E-01	4.17E+00	3.41E+00	1.86E-02	6.63E-03	3.06E-02	2.25E-02	4.84E+00	4.28E+00	3.17E+00	3.14E-03	1.71E+00	5.24E-04	1.01E-03	3.40E+00	1.08E-01	4.04E+00	8.08E-02	1.49E-02	6.28E-03	2.88E-02	2.14E-02	4.77E+00	3.59E+00	4.08E-01	1.97E-04	4.28E-01	4.09E-05	7.49E-05	4.30E-01	6.85E-03	1.34E-01	3.32E+00	3.70E-03	3.54E-04	1.78E-03	1.10E-03	6.75E-02	6.97E-01
2006	4	24	3.78E+00	9.81E-03	2.48E+00	1.13E-05	5.53E-05	3.51E+00	2.00E-01	3.98E+00	2.35E+00	1.03E-02	6.86E-02	1.45E-02	1.15E-02	4.72E+00	4.80E+00	3.14E+00	8.11E-04	1.98E+00	6.78E-06	3.06E-05	3.10E+00	2.00E-01	3.92E+00	8.12E-02	7.15E-03	2.12E-03	1.20E-02	9.30E-03	4.69E+00	3.67E+00	6.40E-01	9.00E-03	5.01E-01	4.52E-06	2.47E-05	4.03E-01	9.54E-06	5.83E-02	2.27E+00	3.17E-03	6.65E-02	2.51E-03	2.19E-03	3.62E-02	1.13E+00
2006	4	25	1.41E+00	7.29E-02	1.02E+00	8.18E-03	1.72E-02	3.32E+00	1.15E+00	5.82E+00	1.89E+00	4.97E+00	2.85E-01	8.88E-01	1.54E+00	4.02E+00	1.77E+00	1.27E+00	3.28E-03	9.64E-01	8.81E-04	1.88E-03	3.26E+00	1.06E+00	4.69E+00	8.30E-02	1.66E-02	7.80E-03	4.18E-02	2.58E-02	3.92E+00	1.55E+00	1.36E-01	6.96E-02	5.16E-02	7.30E-03	1.53E-02	5.61E-02	8.48E-02	1.13E+00	1.81E+00	4.95E+00	2.77E-01	8.46E-01	1.51E+00	1.06E-01	2.22E-01
2006	4	26	2.78E-02	0.00E+00	1.11E-02	0.00E+00	0.00E+00	6.37E-01	3.11E-01	1.19E+00	3.76E-05	1.73E+00	4.42E-02	3.54E-01	2.78E-01	6.02E-01	1.05E-01	2.78E-02	0.00E+00	1.11E-02	0.00E+00	0.00E+00	6.37E-01	2.94E-01	7.73E-01	3.76E-05	0.00E+00	0.00E+00	2.11E-03	1.49E-04	6.02E-01	1.05E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-02	4.15E-01	1.85E-16	1.73E+00	4.42E-02	3.52E-01	2.78E-01	1.92E-04	0.00E+00
2006	4	27	1.05E+00	6.38E-05	3.61E-01	0.00E+00	2.79E-06	2.34E+00	1.32E+00	4.05E+00	7.99E-02	8.59E+00	1.59E-03	8.78E-01	1.08E+00	3.26E+00	1.35E+00	1.03E+00	5.98E-05	3.49E-01	0.00E+00	2.79E-06	2.28E+00	1.27E+00	3.31E+00	3.02E-02	3.51E-03	5.92E-04	1.15E-02	6.87E-03	3.22E+00	1.28E+00	1.97E-02	3.94E-06	1.20E-02	0.00E+00	0.00E+00	5.86E-02	5.44E-02	7.34E-01	4.97E-02	8.58E+00	1.00E-03	8.67E-01	1.08E+00	4.57E-02	7.15E-02
2006	4	28	5.61E-01	2.80E-03	5.71E-01	3.56E-04	1.55E-03	3.77E+00	2.30E+00	8.27E+00	1.82E-01	1.08E+01	4.57E-02	1.14E+00	1.39E+00	5.12E+00	8.37E-01	5.28E-01	2.74E-03	5.68E-01	3.56E-04	1.53E-03	3.77E+00	2.23E+00	6.90E+00	1.71E-01	3.93E-02	1.38E-02	7.28E-02	5.53E-02	5.02E+00	7.36E-01	3.35E-02	6.78E-05	2.42E-03	6.80E-08	1.74E-05	6.23E-03	6.82E-02	1.37E+00	1.11E-02	1.07E+01	3.19E-02	1.07E+00	1.33E+00	1.02E-01	1.01E-01
2006	4	29	6.73E-01	3.88E-02	2.28E-01	2.34E-01	2.16E-01	2.43E+00	1.49E+00	4.53E+00	1.05E-01	6.11E+00	6.32E+00	1.06E+00	7.09E-01	3.12E+00	1.02E+00	6.58E-01	2.63E-03	2.28E-01	5.97E-03	9.88E-03	2.43E+00	1.41E+00	3.37E+00	9.05E-02	3.39E-02	1.59E-02	7.63E-02	5.14E-02	3.04E+00	9.68E-01	1.50E-02	3.61E-02	1.86E-04	2.28E-01	2.06E-01	7.98E-04	7.96E-02	1.16E+00	1.44E-02	6.08E+00	6.31E+00	9.89E-01	6.58E-01	8.14E-02	5.03E-02
2006	4	30	1.69E+00	6.77E-01	1.35E+00	1.50E-02	6.69E-02	2.74E+00	9.63E-01	4.01E+00	1.82E+00	1.90E+00	2.38E+00	1.28E-01	3.35E-01	4.10E+00	2.46E+00	1.55E+00	5.14E-03	7.54E-01	8.94E-04	3.48E-03	2.23E+00	9.23E-01	3.62E+00	1.24E-01	3.28E-02	1.53E-02	6.07E-02	4.48E-02	4.02E+00	2.18E+00	1.42E-01	6.71E-01	5.99E-01	1.41E-02	6.34E-02	5.11E-01	4.04E-02	3.93E-01	1.70E+00	1.87E+00	2.36E+00	6.75E-02	2.90E-01	7.63E-02	2.78E-01
2006	5	1	2.18E+00	6.87E-02	6.52E-01	7.05E-02	7.05E-02	1.34E+01	4.70E+00	1.33E+01	1.73E-01	9.45E+00	4.39E-01	9.73E-01	1.02E+00	1.53E+01	2.43E+00	2.17E+00	4.19E-03	6.51E-01	1.79E-03	3.02E-03	1.34E+01	4.64E+00	1.25E+01	1.68E-01	3.17E-02	1.02E-02	1.12E-01	6.69E-02	1.52E+01	2.42E+00	5.31E-03	6.45E-02	7.09E-04	6.87E-02	6.74E-02	1.78E-03	6.08E-02	7.47E-01	4.44E-03	9.42E+00	4.29E-01	8.61E-01	9.54E-01	6.52E-02	1.67E-02
2006	5	2	6.46E+00	6.83E-02	2.78E+00	1.00E-04	1.73E-03	1.54E+01	7.03E+00	1.62E+01	3.11E+00	1.57E+01	3.00E-01	1.74E+00	3.47E+00	1.96E+01	7.92E+00	6.21E+00	4.36E-04	2.55E+00	1.37E-06	4.02E-05	1.50E+01	6.84E+00	1.53E+01	1.31E-01	1.65E-02	2.81E-03	6.32E-02	3.30E-02	1.94E+01	7.61E+00	2.50E-01	6.79E-02	2.31E-01	9.89E-05	1.69E-03	3.06E-01	1.94E-01	8.96E-01	2.98E+00	1.56E+01	2.97E-01	1.68E+00	3.44E+00	2.31E-01	3.09E-01
2006	5	3	1.41E+01	1.26E-02	6.55E+00	7.90E-04	2.10E-03	2.09E+01	3.38E+00	3.01E+01	9.29E+00	2.63E-01	3.83E-02	6.00E-01	4.06E-01	2.19E+01	1.85E+01	1.24E+01	7.67E-03	5.44E+00	7.70E-04	2.03E-03	1.98E+01	2.83E+00	2.87E+01	4.69E-01	6.32E-02	1.96E-02	1.65E-01	1.01E-01	2.07E+01	1.65E+01	1.67E+00	4.97E-03	1.10E+00	1.95E-05	7.83E-05	1.13E+00	5.51E-01	1.43E+00	8.82E+00	1.99E-01	1.86E-02	4.36E-01	3.06E-01	1.22E+00	1.98E+00
2006	5	4	2.95E+00	5.38E-02	2.18E+00	2.68E-02	8.92E-02	2.91E+01	1.16E+01	4.03E+01	9.21E-01	2.28E+01	7.05E-01	2.96E+00	5.16E+00	3.87E+01	5.37E+00	2.83E+00	9.22E-03	2.11E+00	2.31E-03	5.60E-03	2.90E+01	1.13E+01	3.89E+01	4.26E-01	9.45E-02	3.26E-02	2.40E-01	1.52E-01	3.84E+01	5.18E+00	1.22E-01	4.46E-02	6.63E-02	2.45E-02	8.36E-02	8.16E-02	2.47E-01	1.43E+00	4.95E-01	2.27E+01	6.73E-01	2.72E+00	5.00E+00	3.17E-01	1.86E-01
2006	5	5	6.68E-01	1.32E-03	6.99E-01	2.63E-04	6.74E-04	1.58E+01	4.96E+00	1.46E+01	3.18E-01	7.69E+00	9.04E-02	1.18E+00	9.52E-01	1.42E+01	1.07E+00	6.68E-01	1.32E-03	6.99E-01	2.62E-04	6.64E-04	1.58E+01	4.89E+00	1.35E+01	3.18E-01	5.89E-02	1.20E-02	1.80E-01	1.12E-01	1.42E+01	1.06E+00	3.05E-04	5.65E-06	1.85E-04	1.07E-06	9.78E-06	2.74E-04	7.20E-02	1.09E+00	2.76E-04	7.64E+00	7.85E-02	9.98E-01	8.40E-01	4.96E-02	3.88E-03
2006	5	6	4.22E-01	0.00E+00	8.48E-02	0.00E+00	0.00E+00	4.96E+00	2.11E+00	8.01E+00	2.16E-02	2.85E+00	1.24E-01	5.26E-01	5.93E-01	5.53E+00	8.19E-01	4.22E-01	0.00E+00	8.48E-02	0.00E+00	0.00E+00	4.96E+00	2.09E+00	7.10E+00	2.16E-02	5.74E-04	3.53E-08	9.85E-03	3.62E-03	5.52E+00	8.19E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-02	9.16E-01	4.60E-17	2.85E+00	1.24E-01	5.16E-01	5.89E-01	1.05E-02	0.00E+00
2006	5	7	1.45E-01	0.00E+00	2.51E-02	0.00E+00	1.45E-08	2.83E+00	1.30E+00	3.70E+00	6.81E-28	4.18E+00	2.07E-01	3.90E-01	4.51E-01	2.53E+00	4.29E-01	1.45E-01	0.00E+00	2.51E-02	0.00E+00	0.00E+00	2.83E+00	1.29E+00	3.48E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-03	3.36E-07	2.53E+00	4.29E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-08	0.00E+00	1.56E-02	2.22E-01	6.81E-28	4.18E+00	2.07E-01	3.89E-01	4.51E-01	1.77E-03	0.00E+00
2006	5	8	6.91E-01	0.00E+00	4.62E-02	0.00E+00	0.00E+00	6.88E+00	1.93E+00	1.07E+01	1.66E-03	6.44E+00	3.32E-02	6.51E-01	8.21E-01	6.75E+00	8.78E-01	6.91E-01	0.00E+00	4.62E-02	0.00E+00	0.00E+00	6.88E+00	1.88E+00	1.00E+01	1.66E-03	0.00E+00	0.00E+00	4.43E-03	5.36E-04	6.73E+00	8.78E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.61E-02	7.38E-01	3.26E-16	6.44E+00	3.32E-02	6.46E-01	8.21E-01	2.44E-02	0.00E+00
2006	5	9	2.14E+00	7.98E-03	1.40E+00	1.92E-03	4.97E-03	1.55E+01	9.27E+00	2.82E+01	4.31E-01	1.68E+01	2.29E-01	3.79E+00	3.62E+00	2.20E+01	3.29E+00	2.10E+00	6.74E-03	1.39E+00	1.76E-03	3.65E-03	1.55E+01	9.08E+00	2.69E+01	1.78E-01	4.43E-02	1.72E-02	1.29E-01	7.43E-02	2.20E+01	3.19E+00	3.68E-02	1.24E-03	5.48E-03	1.60E-04	1.33E-03	1.02E-02	1.91E-01	1.27E+00	2.53E-01	1.68E+01	2.12E-01	3.66E+00	3.55E+00	4.29E-02	1.02E-01
2006	5	10	1.84E+00	1.33E-02	8.56E-01	1.20E-02	5.61E-02	2.33E+01	1.20E+01	3.15E+01	5.98E-01	1.60E+01	4.62E-01	5.57E+00	7.67E+00	2.79E+01	2.49E+00	1.79E+00	3.68E-03	8.52E-01	6.43E-04	2.32E-03	2.33E+01	1.14E+01	3.00E+01	4.99E-01	7.60E-02	2.25E-02	2.27E-01	1.37E-01	2.77E+01	2.41E+00	4.93E-02	9.63E-03	3.44E-03	1.13E-02	5.38E-02	8.21E-03	5.64E-01	1.44E+00	9.82E-02	1.59E+01	4.40E-01	5.34E+00	7.53E+00	1.63E-01	8.51E-02
2006	5	11	2.07E+00	3.10E-01	1.00E+00	6.70E-02	1.18E-01	2.05E+01	7.24E+00	1.60E+01	3.78E-01	1.35E+01	1.28E+00	1.38E+00	1.34E+00	2.56E+01	3.06E+00	2.06E+00	9.49E-03	1.00E+00	6.11E-03	1.12E-02	2.05E+01	7.17E+00	1.47E+01	3.42E-01	9.18E-02	3.54E-02	2.41E-01	1.55E-01	2.54E+01	3.04E+00	9.13E-03	3.01E-01	1.19E-04	6.09E-02	1.07E-01	2.96E-04	6.42E-02	1.36E+00	3.61E-02	1.35E+01	1.25E+00	1.14E+00	1.18E+00	1.41E-01	2.20E-02
2006	5	12	6.76E-01	0.00E+00	1.49E-01	0.00E+00	5.67E-05	4.82E+00	1.68E+00	5.49E+00	8.68E-03	3.71E+00	2.27E-01	5.20E-01	4.51E-01	3.92E+00	1.33E+00	6.74E-01	0.00E+00	1.49E-01	0.00E+00	0.00E+00	4.82E+00	1.66E+00	5.23E+00	8.68E-03	1.09E-03	9.82E-06	6.33E-03	4.30E-03	3.85E+00	1.32E+00	1.97E-03	0.00E+00	0.00E+00	0.00E+00	5.67E-05	0.00E+00	2.11E-02	2.66E-01	7.43E-16	3.71E+00	2.27E-01	5.13E-01	4.47E-01	7.39E-02	7.69E-03
2006	5	13	9.90E+00	6.81E-01	5.41E+00	1.26E-02	1.47E-02	2.27E+01	6.86E+00	3.17E+01	4.69E+00	4.58E+00	7.68E-01	6.48E-01	7.61E-01	2.94E+01	1.38E+01	9.32E+00	1.59E-02	4.50E+00	8.79E-03	1.15E-02	2.17E+01	6.79E+00	3.09E+01	6.30E-01	7.00E-02	2.89E-02	1.32E-01	9.44E-02	2.91E+01	1.29E+01	5.78E-01	6.65E-01	9.10E-01	3.82E-03	3.22E-03	9.56E-01	7.10E-02	7.51E-01	4.06E+00	4.51E+00	7.39E-01	5.17E-01	6.66E-01	2.74E-01	9.08E-01
2006	5	14	1.10E+01	6.81E-01	5.80E+00	1.15E-01	1.78E-01	2.51E+01	9.71E+00	3.02E+01	5.11E+00	1.01E+01	1.74E+00	2.73E+00	3.27E+00	3.24E+01	1.62E+01	1.04E+01	4.88E-02	5.54E+00	1.35E-02	2.10E-02	2.48E+01	9.27E+00	2.92E+01	6.44E-01	1.45E-01	7.65E-02	2.69E-01	1.84E-01	3.19E+01	1.53E+01	6.13E-01	6.32E-01	2.63E-01	1.02E-01	1.57E-01	3.33E-01	4.43E-01	9.77E-01	4.47E+00	9.99E+00	1.66E+00	2.46E+00	3.09E+00	4.68E-01	9.23E-01
2006	5	15	7.05E+00	2.23E-01	2.75E+00	4.84E-02	7.59E-02	2.59E+01	7.57E+00	3.66E+01	2.68E+00	1.01E+01	8.06E-01	2.17E+00	3.05E+00	2.57E+01	1.13E+01	6.78E+00	2.53E-02	2.60E+00	8.92E-03	1.36E-02	2.57E+01	7.34E+00	3.52E+01	5.64E-01	1.16E-01	4.98E-02	2.82E-01	1.81E-01	2.53E+01	1.10E+01	2.73E-01	1.98E-01	1.57E-01	3.95E-02	6.23E-02	1.96E-01	2.31E-01	1.31E+00	2.11E+00	9.97E+00	7.56E-01	1.89E+00	2.86E+00	3.21E-01	3.86E-01
2006	5	16	5.04E+00	1.20E+00	2.12E+00	1.10E-01	1.46E-01	2.10E+01	9.10E+00	2.99E+01	1.27E+00	1.86E+01	5.72E+00	2.74E+00	4.63E+00	2.01E+01	8.73E+00	4.97E+00	5.25E-02	2.09E+00	1.36E-02	2.40E-02	2.09E+01	8.90E+00	2.89E+01	6.90E-01	2.14E-01	1.02E-01	4.15E-01	2.98E-01	2.00E+01	8.65E+00	6.75E-02	1.15E+00	2.75E-02	9.60E-02	1.22E-01	4.20E-02	1.97E-01	1.07E+00	5.79E-01	1.84E+01	5.62E+00	2.33E+00	4.33E+00	1.94E-01	8.61E-02
2006	5	17	1.62E+00	1.82E-02	1.10E+00	3.26E-02	5.08E-02	2.44E+01	1.22E+01	3.38E+01	4.66E-01	2.44E+01	2.86E-01	3.11E+00	4.71E+00	3.41E+01	1.84E+00	1.62E+00	7.60E-03	1.10E+00	4.36E-03	7.39E-03	2.44E+01	1.21E+01	3.20E+01	4.62E-01	9.77E-02	2.69E-02	2.85E-01	1.84E-01	3.39E+01	1.83E+00	4.33E-03	1.06E-02	5.62E-04	2.82E-02	4.34E-02	8.34E-04	1.32E-01	1.84E+00	3.65E-03	2.43E+01	2.59E-01	2.83E+00	4.53E+00	1.85E-01	1.48E-02
2006	5	18	5.52E+00	1.20E-01	2.62E+00	8.32E-03	5.33E-02	2.28E+01	1.14E+01	1.97E+01	2.81E+00	1.36E+01	1.45E+00	1.97E+00	1.78E+00	2.34E+01	7.57E+00	5.35E+00	1.08E-02	2.53E+00	1.27E-03	3.74E-03	2.27E+01	1.12E+01	1.87E+01	5.95E-01	1.11E-01	3.64E-02	3.01E-01	1.79E-01	2.32E+01	7.23E+00	1.68E-01	1.10E-01	8.40E-02	7.06E-03	4.95E-02	9.59E-02	1.55E-01	1.00E+00	2.21E+00	1.35E+01	1.42E+00	1.67E+00	1.60E+00	1.95E-01	3.38E-01
2006	5	19	7.63E+00	5.98E-02	3.32E+00	2.05E-02	8.07E-02	1.90E+01	1.31E+01	1.85E+01	1.09E+00	1.66E+01	1.51E+00	1.31E+00	2.32E+00	2.07E+01	1.08E+01	7.50E+00	1.68E-02	3.27E+00	4.98E-03	1.32E-02	1.89E+01	1.30E+01	1.77E+01	5.87E-01	1.49E-01	5.63E-02	2.69E-01	2.13E-01	2.06E+01	1.05E+01	1.32E-01	4.30E-02	5.82E-02	1.55E-02	6.75E-02	9.23E-02	9.27E-02	7.73E-01	5.08E-01	1.64E+01	1.45E+00	1.04E+00	2.11E+00	1.32E-01	2.38E-01
2006	5	20	6.44E+00	2.47E+00	1.65E+00	6.08E-02	8.00E-02	1.29E+01	5.57E+00	1.51E+01	1.44E+00	2.71E+00	6.26E+00	5.40E-01	8.10E-01	1.21E+01	9.03E+00	6.43E+00	1.40E-01	1.65E+00	3.84E-02	5.07E-02	1.29E+01	5.57E+00	1.47E+01	1.03E+00	3.42E-01	1.95E-01	4.67E-01	3.96E-01	1.20E+01	9.00E+00	1.65E-02	2.33E+00	2.21E-03	2.24E-02	2.93E-02	7.22E-03	5.96E-03	3.84E-01	4.10E-01	2.37E+00	6.06E+00	7.37E-02	4.13E-01	2.67E-02	3.34E-02
2006	5	21	8.47E+00	3.41E-01	3.08E+00	5.64E-02	6.37E-02	1.44E+01	4.11E+00	1.82E+01	1.82E+00	3.73E+00	2.93E+00	4.28E-01	7.30E-01	1.29E+01	1.15E+01	8.36E+00	2.31E-02	3.07E+00	5.13E-03	8.59E-03	1.43E+01	4.10E+00	1.76E+01	4.36E-01	7.12E-02	3.32E-02	1.30E-01	1.09E-01	1.29E+01	1.12E+01	1.09E-01	3.18E-01	1.08E-02	5.13E-02	5.51E-02	2.54E-02	1.44E-02	6.13E-01	1.39E+00	3.66E+00	2.90E+00	2.98E-01	6.21E-01	5.62E-02	2.55E-01
2006	5	22	6.60E+00	5.82E-01	2.73E+00	2.04E-01	3.73E-01	1.50E+01	8.55E+00	1.54E+01	1.56E+00	5.33E+00	7.13E+00	7.76E-01	8.76E-01	1.95E+01	9.34E+00	6.48E+00	7.46E-02	2.71E+00	2.61E-02	3.73E-02	1.50E+01	8.53E+00	1.50E+01	6.52E-01	2.06E-01	1.19E-01	3.01E-01	2.46E-01	1.95E+01	9.06E+00	1.11E-01	5.08E-01	2.36E-02	1.78E-01	3.35E-01	4.00E-02	2.38E-02	3.77E-01	9.10E-01	5.13E+00	7.01E+00	4.75E-01	6.29E-01	2.01E-02	2.86E-01
2006	5	23	8.04E-01	0.00E+00	2.75E-01	0.00E+00	0.00E+00	3.96E+00	1.73E+00	7.49E+00	1.51E-02	2.73E+00	6.93E-02	5.75E-01	5.33E-01	4.55E+00	1.07E+00	7.99E-01	0.00E+00	2.75E-01	0.00E+00	0.00E+00	3.96E+00	1.72E+00	7.18E+00	1.51E-02	2.26E-04	0.00E+00	5.44E-03	2.39E-03	4.55E+00	1.04E+00	4.47E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.01E-04	1.40E-02	3.11E-01	1.06E-05	2.73E+00	6.93E-02	5.69E-01	5.31E-01	4.42E-04	3.09E-02
2006	5	24	1.74E+00	1.10E-04	7.91E-01	8.59E-04	7.01E-02	1.07E+01	3.34E+00	1.52E+01	2.12E-01	5.89E+00	6.02E-01	5.33E-01	8.91E-01	1.10E+01	2.64E+00	1.72E+00	9.84E-05	7.88E-01	2.97E-05	4.53E-04	1.07E+01	3.31E+00	1.45E+01	2.08E-01	2.37E-02	4.36E-03	1.16E-01	5.75E-02	1.09E+01	2.60E+00	1.42E-02	1.11E-05	2.40E-03	8.30E-04	6.96E-02	6.10E-03	2.57E-02	6.57E-01	3.94E-03	5.87E+00	5.98E-01	4.17E-01	8.34E-01	8.08E-02	4.04E-02
2006	5	25	1.48E+00	0.00E+00	1.63E-01	0.00E+00	0.00E+00	6.73E+00	4.48E+00	1.13E+01	1.60E-01	5.83E+00	1.76E-01	8.61E-01	8.81E-01	7.81E+00	2.22E+00	1.48E+00	0.00E+00	1.63E-01	0.00E+00	0.00E+00	6.73E+00	4.42E+00	1.07E+01	1.60E-01	1.31E-02	7.84E-04	5.81E-02	3.81E-02	7.76E+00	2.22E+00	1.79E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.74E-02	6.49E-01	8.95E-20	5.82E+00	1.75E-01	8.03E-01	8.43E-01	5.33E-02	3.56E-03
2006	5	26	4.58E+00	1.87E-03	1.38E+00	4.49E-04	5.76E-03	1.47E+01	4.25E+00	1.34E+01	5.41E-01	8.10E+00	5.95E-01	3.25E-01	1.03E+00	1.23E+01	6.70E+00	4.48E+00	1.84E-03	1.38E+00	4.41E-04	3.56E-03	1.46E+01	4.22E+00	1.30E+01	5.13E-01	1.07E-01	2.74E-02	1.32E-01	1.36E-01	1.23E+01	6.44E+00	1.01E-01	3.51E-05	5.68E-03	7.58E-06	2.20E-03	1.81E-02	2.42E-02	4.27E-01	2.73E-02	7.99E+00	5.67E-01	1.93E-01	8.91E-01	5.59E-02	2.58E-01
2006	5	27	1.04E+01	2.01E-02	5.41E+00	1.47E-03	5.73E-03	1.59E+01	7.88E+00	2.57E+01	6.58E+00	1.36E+01	1.80E-01	2.84E+00	4.02E+00	2.53E+01	1.40E+01	1.01E+01	1.12E-02	4.80E+00	1.40E-03	4.96E-03	1.53E+01	7.53E+00	2.50E+01	6.18E-01	1.31E-01	4.47E-02	2.21E-01	1.80E-01	2.51E+01	1.36E+01	2.62E-01	8.86E-03	6.09E-01	7.13E-05	7.73E-04	5.84E-01	3.42E-01	7.01E-01	5.96E+00	1.34E+01	1.35E-01	2.62E+00	3.84E+00	2.34E-01	3.31E-01
2006	5	28	1.30E+01	3.40E-01	9.47E+00	1.32E-01	1.83E-01	2.22E+01	4.03E+00	1.96E+01	4.36E+00	1.36E+00	2.28E+00	3.17E-01	7.31E-01	2.16E+01	1.36E+01	1.27E+01	6.42E-03	8.65E+00	4.56E-03	8.09E-03	2.17E+01	3.99E+00	1.86E+01	1.75E-01	3.57E-02	1.29E-02	9.36E-02	6.21E-02	2.15E+01	1.31E+01	2.68E-01	3.34E-01	8.20E-01	1.28E-01	1.75E-01	4.74E-01	4.16E-02	9.69E-01	4.18E+00	1.32E+00	2.26E+00	2.23E-01	6.69E-01	1.52E-01	4.52E-01
2006	5	29	5.61E+00	6.30E-03	1.66E+00	1.03E-02	4.33E-02	1.62E+01	6.67E+00	2.21E+01	4.56E-01	1.35E+01	1.21E+00	1.32E+00	1.72E+00	2.16E+01	5.27E+00	5.57E+00	3.97E-03	1.65E+00	6.69E-04	2.14E-03	1.62E+01	6.63E+00	2.08E+01	3.59E-01	6.09E-02	1.71E-02	1.60E-01	1.03E-01	2.15E+01	5.14E+00	3.98E-02	2.33E-03	1.32E-03	9.61E-03	4.12E-02	3.94E-03	4.78E-02	1.30E+00	9.70E-02	1.34E+01	1.19E+00	1.16E+00	1.62E+00	1.13E-01	1.28E-01
2006	5	30	3.04E+00	8.77E-04	1.56E+00	5.35E-06	4.99E-04	1.48E+01	5.57E+00	2.11E+01	5.98E-01	8.02E+00	8.35E-02	5.99E-01	1.72E+00	1.37E+01	4.30E+00	2.93E+00	8.21E-04	1.55E+00	2.65E-06	4.82E-04	1.47E+01	5.54E+00	2.04E+01	5.84E-01	9.71E-02	1.87E-02	1.50E-01	1.38E-01	1.37E+01	4.07E+00	1.04E-01	5.56E-05	4.93E-03	2.70E-06	1.79E-05	1.36E-02	2.68E-02	6.91E-01	1.47E-02	7.92E+00	6.48E-02	4.48E-01	1.58E+00	4.85E-02	2.31E-01
2006	5	31	1.61E+00	3.76E-03	7.65E-01	1.07E-03	2.91E-02	2.02E+01	7.90E+00	2.26E+01	4.92E-01	8.47E+00	3.82E-01	1.17E+00	1.90E+00	1.53E+01	2.91E+00	1.60E+00	3.75E-03	7.65E-01	6.31E-04	2.24E-03	2.02E+01	7.82E+00	2.11E+01	4.92E-01	9.58E-02	2.30E-02	2.84E-01	1.70E-01	1.52E+01	2.90E+00	2.16E-03	1.61E-05	6.09E-05	4.40E-04	2.69E-02	9.00E-05	7.84E-02	1.44E+00	3.28E-04	8.37E+00	3.59E-01	8.81E-01	1.73E+00	4.36E-02	7.58E-03
2006	6	1	5.43E+00	1.53E+00	1.69E+00	1.57E-01	1.33E-01	2.49E+01	9.36E+00	2.20E+01	5.33E-01	1.19E+01	6.64E+00	1.30E+00	1.41E+00	2.63E+01	7.64E+00	5.38E+00	3.54E-02	1.69E+00	1.78E-02	2.70E-02	2.49E+01	9.29E+00	2.11E+01	5.12E-01	1.74E-01	8.14E-02	3.48E-01	2.56E-01	2.62E+01	7.53E+00	4.73E-02	1.49E+00	1.00E-03	1.39E-01	1.06E-01	3.76E-03	6.32E-02	8.97E-01	2.04E-02	1.17E+01	6.56E+00	9.48E-01	1.15E+00	1.31E-01	1.15E-01
2006	6	2	1.47E+00	2.37E-02	9.82E-01	1.58E-01	2.08E-01	1.14E+01	5.36E+00	1.48E+01	4.81E-01	4.65E+00	2.91E+00	6.68E-01	1.25E+00	9.43E+00	2.79E+00	1.45E+00	2.05E-02	9.81E-01	1.42E-02	2.29E-02	1.14E+01	5.32E+00	1.39E+01	4.73E-01	1.44E-01	6.62E-02	2.44E-01	1.93E-01	9.39E+00	2.71E+00	1.80E-02	3.23E-03	1.54E-03	1.44E-01	1.85E-01	4.30E-03	3.64E-02	9.08E-01	8.04E-03	4.51E+00	2.84E+00	4.24E-01	1.06E+00	3.38E-02	7.79E-02
2006	6	3	1.37E+00	3.98E-05	6.32E-01	0.00E+00	0.00E+00	5.94E+00	2.07E+00	7.56E+00	4.03E-02	3.59E+00	1.61E-01	2.75E-01	6.73E-01	6.61E+00	2.32E+00	1.34E+00	3.98E-05	6.28E-01	0.00E+00	0.00E+00	5.93E+00	2.07E+00	7.39E+00	3.82E-02	3.38E-03	2.55E-04	1.77E-02	6.84E-03	6.61E+00	2.22E+00	3.20E-02	0.00E+00	3.62E-03	0.00E+00	0.00E+00	1.05E-02	2.27E-03	1.71E-01	2.13E-03	3.58E+00	1.61E-01	2.58E-01	6.66E-01	6.95E-03	1.00E-01
2006	6	4	2.06E+00	1.76E-03	8.99E-01	3.48E-04	8.67E-03	1.18E+01	4.49E+00	1.35E+01	2.83E-01	6.98E+00	3.91E-01	6.23E-01	1.56E+00	1.11E+01	3.37E+00	2.05E+00	1.74E-03	8.98E-01	3.46E-04	1.60E-03	1.18E+01	4.45E+00	1.28E+01	2.80E-01	6.15E-02	1.51E-02	1.47E-01	1.07E-01	1.10E+01	3.33E+00	1.54E-02	1.88E-05	6.60E-04	2.15E-06	7.06E-03	5.46E-03	4.24E-02	6.77E-01	3.27E-03	6.92E+00	3.76E-01	4.75E-01	1.45E+00	5.26E-02	4.38E-02
2006	6	5	3.38E-01	0.00E+00	5.34E-02	0.00E+00	0.00E+00	4.34E+00	1.91E+00	4.61E+00	7.81E-04	3.55E+00	1.98E-01	6.99E-01	5.72E-01	3.71E+00	6.77E-01	3.38E-01	0.00E+00	5.34E-02	0.00E+00	0.00E+00	4.34E+00	1.90E+00	4.12E+00	7.81E-04	6.52E-05	0.00E+00	7.51E-03	1.09E-03	3.71E+00	6.77E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-02	4.92E-01	5.26E-16	3.55E+00	1.98E-01	6.91E-01	5.71E-01	0.00E+00	0.00E+00
2006	6	6	8.44E+00	2.14E-04	4.98E+00	1.44E-09	1.93E-06	1.29E+01	5.35E+00	1.67E+01	3.90E+00	5.90E+00	6.33E-03	6.82E-01	7.03E-01	1.83E+01	1.05E+01	8.20E+00	9.73E-05	4.41E+00	1.44E-09	1.02E-06	1.23E+01	5.31E+00	1.64E+01	1.66E-01	1.79E-02	2.41E-03	6.51E-02	3.44E-02	1.82E+01	1.01E+01	2.45E-01	1.17E-04	5.74E-01	0.00E+00	9.08E-07	5.62E-01	3.77E-02	2.54E-01	3.74E+00	5.88E+00	3.92E-03	6.17E-01	6.69E-01	9.20E-02	4.27E-01
2006	6	7	1.10E+01	4.55E-04	5.49E+00	4.11E-05	6.00E-05	1.37E+01	4.02E-02	1.20E+01	1.91E+00	8.62E-03	1.57E-03	9.14E-03	6.80E-03	1.70E+01	1.18E+01	1.05E+01	4.55E-04	5.24E+00	4.11E-05	6.00E-05	1.35E+01	3.99E-02	1.20E+01	7.78E-02	5.12E-03	1.49E-03	9.08E-03	6.74E-03	1.69E+01	1.10E+01	4.79E-01	0.00E+00	2.52E-01	0.00E+00	0.00E+00	1.67E-01	2.32E-04	3.42E-02	1.84E+00	3.50E-03	7.73E-05	5.61E-05	6.03E-05	3.02E-02	7.36E-01
2006	6	8	5.82E+00	2.53E-01	3.01E+00	1.14E-01	3.41E-01	1.45E+01	4.22E+00	2.45E+01	4.85E+00	1.98E+00	1.82E+00	6.22E-01	7.58E-01	2.52E+01	8.10E+00	5.19E+00	1.12E-02	2.45E+00	8.35E-03	1.57E-02	1.39E+01	3.89E+00	2.31E+01	2.55E-01	6.01E-02	3.09E-02	9.15E-02	7.88E-02	2.45E+01	7.39E+00	6.25E-01	2.41E-01	5.61E-01	1.06E-01	3.25E-01	5.88E-01	3.22E-01	1.37E+00	4.60E+00	1.92E+00	1.79E+00	5.31E-01	6.79E-01	6.56E-01	7.01E-01

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Table C4 - Timeseries Data for PM10

Year	Month	Day	Application															Baseline															Project														
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2006	6	9	6.30E+00	1.75E-01	3.39E+00	3.14E-02	3.95E-02	1.72E+01	3.92E+00	2.56E+01	3.60E+00	9.33E+00	1.96E-01	1.09E+00	1.58E+00	2.24E+01	9.32E+00	6.12E+00	7.61E-03	2.94E+00	1.87E-03	2.82E-03	1.68E+01	3.86E+00	2.51E+01	3.29E-01	6.69E-02	1.95E-02	1.42E-01	1.08E-01	2.22E+01	9.01E+00	1.83E-01	1.68E-01	4.54E-01	2.95E-02	3.67E-02	3.65E-01	5.77E-02	5.13E-01	3.27E+00	9.26E+00	1.77E-01	9.47E-01	1.47E+00	1.56E-01	3.10E-01
2006	6	10	1.14E+01	1.78E-01	6.56E+00	1.78E-03	3.84E-03	1.44E+01	1.56E+00	2.31E+01	6.29E+00	2.05E-01	2.38E-01	1.11E-01	1.02E-01	2.23E+01	1.37E+01	1.12E+01	9.07E-03	5.73E+00	1.08E-03	2.34E-03	1.40E+01	1.56E+00	2.30E+01	2.12E-01	4.43E-02	1.75E-02	8.87E-02	6.59E-02	2.23E+01	1.33E+01	1.73E-01	1.69E-01	8.30E-01	7.02E-04	1.50E-03	4.46E-01	2.17E-03	8.20E-02	6.08E+00	1.60E-01	2.21E-01	2.24E-02	3.61E-02	1.03E-02	3.63E-01
2006	6	11	1.11E+01	7.50E-01	4.80E+00	1.59E-01	2.85E-01	1.97E+01	9.34E+00	2.48E+01	4.31E+00	1.56E+01	2.37E+00	2.38E+00	3.74E+00	2.64E+01	1.56E+01	1.09E+01	5.17E-02	4.70E+00	1.80E-02	3.64E-02	1.95E+01	9.19E+00	2.43E+01	8.73E-01	2.65E-01	1.27E-01	5.05E-01	3.60E-01	2.63E+01	1.55E+01	1.20E-01	6.98E-01	1.01E-01	1.41E-01	2.48E-01	1.24E-01	1.44E-01	5.30E-01	3.44E+00	1.53E+01	2.24E+00	1.87E+00	3.38E+00	1.23E-01	1.82E-01
2006	6	12	1.27E+01	0.00E+00	6.90E+00	0.00E+00	0.00E+00	1.71E+01	4.99E-02	1.41E+01	4.88E+00	1.80E-04	0.00E+00	9.78E-04	4.59E-04	1.72E+01	1.43E+01	1.22E+01	0.00E+00	6.77E+00	0.00E+00	0.00E+00	1.70E+01	4.98E-02	1.41E+01	5.82E-02	1.42E-04	0.00E+00	9.17E-04	4.15E-04	1.72E+01	1.34E+01	4.76E-01	0.00E+00	1.30E-01	0.00E+00	0.00E+00	1.40E-01	8.07E-05	5.50E-02	4.83E+00	3.84E-05	0.00E+00	6.14E-05	4.40E-05	1.33E-02	9.12E-01
2006	6	13	8.95E+00	1.30E-04	6.60E+00	0.00E+00	0.00E+00	1.26E+01	7.35E-02	1.34E+01	3.08E+00	5.87E-01	2.00E-04	4.05E-02	1.42E-01	1.68E+01	9.78E+00	8.52E+00	1.29E-04	6.24E+00	0.00E+00	0.00E+00	1.23E+01	7.25E-02	1.34E+01	3.11E-02	1.06E-03	1.97E-04	1.67E-03	1.18E-03	1.68E+01	9.08E+00	4.29E-01	1.23E-06	3.65E-01	0.00E+00	0.00E+00	3.18E-01	9.72E-04	7.67E-02	3.04E+00	5.86E-01	2.60E-06	3.89E-02	1.41E-01	4.70E-02	6.99E-01
2006	6	14	3.79E+00	4.60E-01	1.68E+00	9.83E-02	1.26E-01	9.11E+00	3.15E+00	1.32E+01	1.21E+00	9.70E+00	8.84E-01	1.71E+00	2.92E+00	1.27E+01	4.53E+00	3.65E+00	1.66E-02	1.55E+00	5.72E-03	7.39E-03	8.95E+00	2.99E+00	1.27E+01	1.03E-01	3.09E-02	1.81E-02	6.22E-02	4.16E-02	1.25E+01	4.34E+00	1.40E-01	4.43E-01	1.31E-01	9.26E-02	1.19E-01	1.67E-01	1.59E-01	4.24E-01	1.11E+00	9.67E+00	8.66E-01	1.65E+00	2.88E+00	1.31E-01	1.93E-01
2006	6	15	2.06E-01	0.00E+00	8.25E-03	0.00E+00	0.00E+00	3.69E+00	1.13E+00	4.81E+00	3.68E-16	2.00E+00	6.18E-02	5.29E-01	4.01E-01	2.91E+00	3.33E-01	2.06E-01	0.00E+00	8.25E-03	0.00E+00	0.00E+00	3.69E+00	1.11E+00	4.41E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.91E+00	3.33E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-02	4.03E-01	3.68E-16	2.00E+00	6.18E-02	5.29E-01	4.01E-01	4.46E-07	0.00E+00
2006	6	16	2.54E-01	0.00E+00	2.09E-02	0.00E+00	0.00E+00	3.47E+00	1.09E+00	3.67E+00	7.49E-04	2.42E+00	1.40E-01	3.52E-01	4.28E-01	2.56E+00	4.09E-01	2.54E-01	0.00E+00	2.09E-02	0.00E+00	0.00E+00	3.47E+00	1.08E+00	3.41E+00	7.49E-04	0.00E+00	0.00E+00	9.00E-03	1.75E-03	2.56E+00	4.09E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-02	2.60E-01	1.61E-14	2.42E+00	1.40E-01	3.43E-01	4.27E-01	1.84E-04	0.00E+00
2006	6	17	6.09E-01	0.00E+00	4.76E-02	0.00E+00	0.00E+00	5.90E+00	1.52E+00	6.18E+00	1.97E-02	4.18E+00	4.35E-02	5.89E-01	4.32E-01	4.09E+00	1.33E+00	6.09E-01	0.00E+00	4.76E-02	0.00E+00	0.00E+00	5.90E+00	1.49E+00	5.63E+00	1.97E-02	5.31E-04	0.00E+00	1.33E-02	4.12E-03	4.06E+00	1.33E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.45E-02	5.51E-01	9.82E-15	4.18E+00	4.35E-02	5.76E-01	4.28E-01	3.14E-02	0.00E+00
2006	6	18	3.49E+00	8.48E-04	2.21E+00	1.83E-04	4.90E-03	1.82E+01	7.76E+00	2.02E+01	4.93E-01	1.52E+01	1.91E-01	1.14E+00	2.04E+00	1.66E+01	6.45E+00	3.38E+00	7.82E-04	2.20E+00	3.92E-05	9.51E-04	1.82E+01	7.73E+00	1.95E+01	4.66E-01	8.50E-02	2.00E-02	1.79E-01	1.30E-01	1.66E+01	6.16E+00	1.12E-01	6.57E-05	6.36E-03	1.43E-04	3.95E-03	1.67E-02	3.34E-02	7.53E-01	2.74E-02	1.51E+01	1.71E-01	9.65E-01	1.91E+00	6.00E-02	2.85E-01
2006	6	19	1.29E+00	2.53E-01	1.18E+00	4.45E-02	6.52E-02	1.77E+01	6.85E+00	2.82E+01	4.79E-01	1.61E+01	7.18E-01	3.10E+00	4.28E+00	1.89E+01	2.17E+00	1.26E+00	7.18E-03	1.17E+00	2.75E-03	5.00E-03	1.77E+01	6.68E+00	2.69E+01	4.03E-01	8.52E-02	2.22E-02	2.36E-01	1.58E-01	1.88E+01	2.12E+00	3.17E-02	2.46E-01	8.49E-03	4.17E-02	6.02E-02	1.30E-02	1.65E-01	1.31E+00	7.65E-02	1.60E+01	6.96E-01	2.86E+00	4.12E+00	1.27E-01	5.09E-02
2006	6	20	1.80E+00	4.28E-04	7.58E-01	5.16E-06	7.20E-05	7.68E+00	2.52E+00	1.32E+01	1.30E-01	8.00E+00	1.18E-02	7.78E-01	7.45E-01	1.10E+01	2.67E+00	1.78E+00	4.27E-04	7.50E-01	5.16E-06	7.20E-05	7.66E+00	2.49E+00	1.28E+01	1.27E-01	1.84E-02	3.70E-03	4.79E-02	3.11E-02	1.10E+01	2.60E+00	1.82E-02	1.12E-06	7.53E-03	0.00E+00	0.00E+00	2.18E-02	2.20E-02	4.01E-01	2.52E-03	7.98E+00	8.07E-03	7.30E-01	7.14E-01	1.31E-02	7.16E-02
2006	6	21	1.06E+00	1.44E-01	8.32E-01	5.75E-02	8.80E-02	1.93E+01	7.37E+00	2.97E+01	8.40E-01	1.15E+01	5.37E-01	2.56E+00	3.30E+00	2.13E+01	2.62E+00	9.49E-01	2.89E-03	8.00E-01	7.10E-04	2.18E-03	1.93E+01	7.07E+00	2.81E+01	3.18E-01	6.13E-02	1.60E-02	1.93E-01	1.15E-01	2.10E+01	2.47E+00	1.14E-01	1.41E-01	3.17E-02	5.68E-02	8.58E-02	6.35E-02	2.96E-01	1.54E+00	5.22E-01	1.14E+01	5.21E-01	2.37E+00	3.18E+00	2.52E-01	1.53E-01
2006	6	22	1.59E+00	3.56E-04	5.79E-01	1.22E-04	3.25E-02	1.46E+01	6.43E+00	1.92E+01	3.51E-01	9.16E+00	1.10E+00	1.22E+00	1.42E+00	1.53E+01	2.73E+00	1.59E+00	3.49E-04	5.79E-01	7.53E-05	1.90E-03	1.46E+01	6.34E+00	1.80E+01	3.51E-01	5.75E-02	1.28E-02	1.85E-01	1.17E-01	1.52E+01	2.73E+00	3.20E-04	6.61E-06	0.00E+00	4.65E-05	3.06E-02	1.07E-06	9.12E-02	1.24E+00	2.44E-04	9.10E+00	1.09E+00	1.03E+00	1.30E+00	6.08E-02	5.77E-03
2006	6	23	6.55E+00	1.02E-01	2.72E+00	1.61E-02	3.14E-02	1.48E+01	4.07E+00	1.61E+01	3.30E+00	6.20E+00	2.90E-01	5.78E-01	8.62E-01	1.87E+01	9.20E+00	6.52E+00	4.39E-03	2.70E+00	9.23E-04	2.25E-03	1.48E+01	4.02E+00	1.55E+01	2.04E-01	2.67E-02	9.86E-03	9.54E-02	5.75E-02	1.86E+01	9.14E+00	2.58E-02	9.72E-02	1.97E-02	1.52E-02	2.92E-02	2.84E-02	4.83E-02	5.95E-01	3.10E+00	6.17E+00	2.80E-01	4.83E-01	8.04E-01	7.30E-02	6.40E-02
2006	6	24	1.25E+01	9.43E-01	6.02E+00	6.02E-03	9.67E-03	1.97E+01	3.83E+00	2.54E+01	4.44E+00	5.00E-01	2.91E+00	3.60E-01	2.80E-01	2.42E+01	1.66E+01	1.23E+01	4.28E-02	5.99E+00	2.79E-03	7.58E-03	1.96E+01	3.83E+00	2.51E+01	7.47E-01	1.78E-01	7.81E-02	3.31E-01	2.38E-01	2.41E+01	1.61E+01	2.08E-01	9.00E-01	2.76E-02	3.22E-03	2.09E-03	4.89E-02	3.78E-03	2.73E-01	3.69E+00	3.22E-01	2.84E+00	2.88E-02	4.23E-02	6.45E-02	4.79E-01
2006	6	25	6.10E+00	1.52E+00	1.92E+00	2.36E-01	3.42E-01	1.89E+01	6.70E+00	2.57E+01	3.16E+00	9.60E+00	8.25E+00	8.75E-01	1.65E+00	2.45E+01	9.09E+00	5.99E+00	7.24E-02	1.72E+00	3.32E-02	5.21E-02	1.88E+01	6.66E+00	2.48E+01	7.90E-01	2.38E-01	1.35E-01	3.89E-01	3.04E-01	2.43E+01	8.89E+00	1.17E-01	1.44E+00	2.06E-01	2.03E-01	2.90E-01	1.83E-01	4.01E-02	9.26E-01	2.37E+00	9.36E+00	8.11E+00	4.86E-01	1.34E+00	1.84E-01	2.02E-01
2006	6	26	8.58E+00	1.39E+00	3.65E+00	9.41E-02	1.33E-01	1.75E+01	1.04E+01	2.07E+01	3.93E+00	5.38E+00	3.65E+00	1.46E+00	1.93E+00	2.08E+01	1.14E+01	8.24E+00	1.00E-01	3.43E+00	2.52E-02	4.14E-02	1.72E+01	1.03E+01	2.04E+01	1.17E+00	3.25E-01	1.70E-01	5.27E-01	4.10E-01	2.06E+01	1.09E+01	3.42E-01	1.29E+00	2.25E-01	6.89E-02	9.18E-02	2.47E-01	1.15E-01	3.89E-01	2.76E+00	5.05E+00	3.48E+00	9.37E-01	1.52E+00	1.79E-01	5.53E-01
2006	6	27	4.18E+00	1.20E+00	1.55E+00	3.54E-01	6.31E-01	2.03E+01	7.48E+00	1.99E+01	7.93E-01	9.94E+00	9.96E+00	8.57E-01	1.61E+00	1.63E+01	5.54E+00	4.16E+00	8.74E-02	1.55E+00	4.55E-02	6.62E-02	2.03E+01	7.45E+00	1.90E+01	7.53E-01	2.77E-01	1.56E-01	4.71E-01	3.63E-01	1.61E+01	5.50E+00	1.42E-02	1.11E+00	3.59E-03	3.08E-01	5.65E-01	1.47E-02	3.62E-02	9.22E-01	4.01E-02	9.66E+00	9.80E+00	3.86E-01	1.24E+00	1.52E-01	3.48E-02
2006	6	28	9.01E-01	1.59E-03	5.64E-01	2.75E-04	2.04E-03	9.35E+00	4.30E+00	1.30E+01	2.50E-01	3.85E+00	2.40E-01	4.80E-01	1.21E+00	1.01E+01	1.66E+00	8.81E-01	1.59E-03	5.64E-01	2.66E-04	1.76E-03	9.35E+00	4.26E+00	1.23E+01	2.44E-01	5.13E-02	1.52E-02	9.97E-02	7.37E-02	1.01E+01	1.58E+00	2.05E-02	5.53E-08	3.22E-04	8.53E-06	2.80E-04	1.14E-03	4.11E-02	7.26E-01	5.82E-03	3.80E+00	2.25E-01	3.80E-01	1.14E+00	3.77E-02	8.33E-02
2006	6	29	5.68E+00	1.93E-01	2.37E+00	2.34E-02	3.04E-02	9.81E+00	3.17E+00	1.28E+01	9.54E-01	4.44E+00	3.89E-01	3.25E-01	6.27E-01	1.19E+01	7.90E+00	5.64E+00	6.92E-03	2.36E+00	1.34E-03	1.73E-03	9.79E+00	3.16E+00	1.27E+01	1.93E-01	2.92E-02	1.02E-02	7.28E-02	4.67E-02	1.19E+01	7.77E+00	3.93E-02	1.86E-01	4.21E-03	2.20E-02	2.87E-02	2.03E-02	3.16E-03	6.90E-02	7.61E-01	4.41E+00	3.79E-01	2.52E-01	5.81E-01	1.01E-02	1.33E-01
2006	6	30	1.26E+00	4.91E-02	6.81E-01	1.77E-02	2.70E-02	1.33E+01	4.37E+00	2.25E+01	5.31E-01	7.57E+00	2.97E-01	8.34E-01	9.69E-01	1.30E+01	3.29E+00	1.26E+00	4.09E-03	6.81E-01	6.47E-04	1.36E-03	1.33E+01	4.33E+00	2.12E+01	5.27E-01	9.40E-02	2.32E-02	1.54E-01	1.36E-01	1.29E+01	3.28E+00	2.24E-03	4.50E-02	5.87E-04	1.71E-02	2.57E-02	1.44E-03	3.40E-02	1.30E+00	4.10E-03	7.48E+00	2.74E-01	6.80E-01	8.33E-01	5.98E-02	7.45E-03
2006	7	1	1.55E+00	8.20E-01	1.02E+00	1.40E-01	2.27E-01	1.71E+01	7.88E+00	2.25E+01	5.33E-01	1.52E+01	2.24E+00	1.99E+00	2.85E+00	1.64E+01	2.11E+00	1.53E+00	6.80E-03	1.02E+00	1.59E-03	5.03E-03	1.71E+01	7.80E+00	2.15E+01	4.71E-01	8.93E-02	2.93E-02	1.72E-01	1.31E-01	1.63E+01	2.06E+00	1.88E-02	8.14E-01	6.50E-04	1.38E-01	2.22E-01	2.14E-03	8.23E-02	1.04E+00	6.23E-02	1.52E+01	2.22E+00	1.82E+00	2.72E+00	1.13E-01	4.85E-02
2006	7	2	7.15E+00	6.60E-02	4.01E+00	2.64E-03	6.25E-03	1.60E+01	6.86E+00	2.81E+01	2.89E+00	1.45E+01	1.91E-01	1.40E+00	2.09E+00	2.51E+01	9.58E+00	7.08E+00	1.28E-03	3.92E+00	6.69E-05	4.65E-04	1.59E+01	6.74E+00	2.71E+01	3.03E-01	5.65E-02	1.03E-02	1.67E-01	1.08E-01	2.51E+01	9.47E+00	7.12E-02	6.47E-02	9.81E-02	2.57E-03	5.79E-03	1.32E-01	1.17E-01	9.23E-01	2.58E+00	1.44E+01	1.80E-01	1.23E+00	1.98E+00	9.65E-02	1.04E-01
2006	7	3	1.03E+01	1.49E+00	5.12E+00	9.25E-02	1.11E-01	2.20E+01	7.47E+00	2.79E+01	4.82E+00	2.60E+00	3.16E+00	8.87E-01	1.08E+00	3.01E+01	1.37E+01	1.00E+01	6.46E-02	4.89E+00	1.10E-02	1.90E-02	2.18E+01	7.38E+00	2.74E+01	8.59E-01	2.21E-01	1.09E-01	3.68E-01	2.80E-01	2.99E+01	1.33E+01	2.49E-01	1.42E+00	2.28E-01	8.16E-02	9.22E-02	2.39E-01	8.48E-02	5.53E-01	3.97E+00	2.38E+00	3.05E+00	5.19E-01	7.96E-01	1.80E-01	3.96E-01
2006	7	4	4.89E+00	4.75E-01	1.65E+00	1.14E-01	1.46E-01	2.28E+01	9.08E+00	2.79E+01	1.13E+00	1.93E+01	1.15E+00	1.93E+00	3.32E+00	2.32E+01	7.97E+00	4.84E+00	5.18E-02	1.65E+00	1.93E-02	3.25E-02	2.28E+01	9.03E+00	2.72E+01	7.95E-01	1.77E-01	1.00E-01	3.14E-01	2.25E-01	2.30E+01	7.88E+00	4.73E-02	4.24E-01	6.82E-03	9.51E-02	1.14E-01	1.38E-02	5.22E-02	7.27E-01	3.33E-01	1.91E+01	1.05E+00	1.61E+00	3.10E+00	1.44E-01	9.77E-02
2006	7	5	5.36E+00	1.10E+00	1.21E+00	3.26E-01	5.94E-01	1.72E+01	9.78E+00	1.71E+01	9.61E-01	1.56E+01	8.00E+00	1.44E+00	1.29E+00	1.92E+01	7.10E+00	5.31E+00	6.25E-02	1.21E+00	3.54E-02	5.67E-02	1.72E+01	9.71E+00	1.65E+01	5.83E-01	2.30E-01	1.28E-01	3.55E-01	2.86E-01	1.91E+01	7.00E+00	4.80E-02	1.04E+00	2.64E-03	2.90E-01	5.37E-01	8.19E-03	7.22E-02	6.70E-01	3.78E-01	1.54E+01	7.88E+00	1.08E+00	1.01E+00	1.16E-01	9.98E-02
2006	7	6	3.40E+00	5.52E-05	6.97E-01	2.48E-05	2.17E-02	8.78E+00	5.21E+00	1.24E+01	2.48E-01	9.84E+00	9.60E-01	8.68E-01	1.35E+00	1.05E+01	5.26E+00	3.39E+00	3.31E-05	6.95E-01	6.67E-06	3.27E-04	8.77E+00	5.17E+00	1.21E+01	2.37E-01	4.19E-02	8.30E-03	7.66E-02	5.79E-02	1.05E+01	5.20E+00	1.35E-02	2.21E-05	1.53E-03	1.81E-05	2.14E-02	8.89E-03	3.54E-02	3.01E-01	1.19E-02	9.79E+00	9.52E-01	7.92E-01	1.29E+00	2.04E-02	5.71E-02
2006	7	7	8.66E-01	7.03E-05	4.93E-01	0.00E+00	2.40E-05	8.88E+00	2.56E+00	1.09E+01	1.23E-01	4.90E+00	1.11E-01	5.94E-01	7.27E-01	7.29E+00	1.86E+00	8.53E-01	7.03E-05	4.92E-01	0.00E+00	2.40E-05	8.88E+00	2.53E+00	1.02E+01	1.21E-01	1.30E-02	2.51E-03	6.32E-02	3.33E-02	7.28E+00	1.80E+00	1.29E-02	0.00E+00	4.28E-04	0.00E+00	0.00E+00	3.41E-03	2.60E-02	6.84E-01	2.58E-03	4.89E+00	1.09E-01	5.31E-01	6.94E-01	1.94E-02	6.61E-02
2006	7	8	3.17E+00	4.90E-01	7.86E-01	2.75E-01	2.66E-01	1.44E+01	5.94E+00	1.18E+01	4.21E-01	8.37E+00	8.04E+00	6.40E-01	1.09E+00	1.10E+01	4.45E+00	3.09E+00	4.18E-02	7.85E-01	1.56E-02	1.81E-02	1.44E+01	5.91E+00	1.14E+01	2.99E-01	9.81E-02	6.16E-02	1.47E-01	1.18E-01	1.09E+01	4.24E+00	7.79E-02	4.48E-01	1.15E-03	2.60E-01	2.48E-01	4.75E-03	2.86E-02	4.43E-01	1.22E-01	8.27E+00	7.98E+00	4.92E-01	9.67E-01	5.20E-02	2.08E-01
2006	7	9	2.29E+00	3.05E-02	1.03E+00	5.27E-02	3.69E-01	1.77E+01	7.83E+00	2.23E+01	3.76E-01	1.25E+01	2.99E+00	1.03E+00	1.73E+00	1.89E+01	3.85E+00	2.28E+00	1.61E-02	1.03E+00	1.18E-02	1.99E-02	1.77E+01	7.78E+00	2.13E+01	3.64E-01	9.27E-02	4.91E-02	1.76E-01	1.28E-01	1.87E+01	3.83E+00	6.93E-03	1.44E-02	2.60E-04	4.09E-02	3.49E-01	5.04E-04	5.27E-02	1.07E+00	1.26E-02	1.24E+01	2.94E+00	8.52E-01	1.60E+00	1.32E-01	1.95E-02
2006	7	10	2.54E+00	9.21E-03	1.56E+00	9.59E-02	2.99E-01	2.15E+01	6.68E+00	2.28E+01	3.98E-01	4.67E+00	1.80E+00	4.82E-01	1.26E+00	2.11E+01	4.25E+00	2.45E+00	8.45E-03	1.56E+00	5.37E-03	1.25E-02	2.15E+01	6.64E+00	2.16E+01	3.63E-01	9.51E-02	3.76E-02	1.85E-01	1.37E-01	2.10E+01	4.06E+00	9.02E-02	7.64E-04	1.61E-04	9.05E-02	2.86E-01	8.46E-04	4.47E-02	1.16E+00	3.50E-02	4.58E+00	1.76E+00	2.97E-01	1.12E+00	1.31E-01	1.91E-01
2006	7	11	2.66E+00	7.48E-03	1.23E+00	1.90E-03	1.64E-01	1.74E+01	6.82E+00	2.44E+01	5.49E-01	7.45E+00	2.09E+00	4.12E-01	1.56E+00	1.66E+01	5.61E+00	2.62E+00	7.37E-03	1.23E+00	1.80E-03	1.17E-02	1.74E+01	6.78E+00	2.33E+01	5.42E-01	1.55E-01	5.54E-02	2.12E-01	1.94E-01	1.65E+01	5.52E+00	3.74E-02	1.12E-04	7.35E-04	1.05E-04	1.52E-01	1.33E-03	4.18E-02	1.05E+00	7.30E-03	7.29E+00	2.03E+00	2.01E-01	1.37E+00	9.52E-02	9.08E-02
2006	7	12	9.40E-01	0.00E+00	3.01E-01	1.03E-07	4.62E-03	7.25E+00	3.76E+00	8.34E+00	1.60E-01	5.94E+00	3.24E-01	7.18E-01	9.74E-01	6.99E+00	2.15E+00	9.40E-01	0.00E+00	3.01E-01	1.03E-07	9.57E-05	7.25E+00	3.71E+00	7.76E+00	1.60E-01	2.37E-02	1.75E-03	9.37E-02	6.72E-02	6.96E+00	2.15E+00	2.89E-04	0.00E+00	0.00E+00	0.00E+00	4.53E-03	0.00E+00	4.98E-02	5.84E-01	4.81E-05	5.91E+00	3.22E-01	6.24E-01	9.07E-01	2.63E-02	1.01E-03
2006	7	13	7.65E-02	0.00E+00	1.48E-02	0.00E+00	0.00E+00	2.34E+00	9.67E-01	2.31E+00	1.08E-14	2.06E+00	1.83E-01	3.83E-01	4.21E-01	1.94E+00	1.73E-01	7.65E-02	0.00E+00	1.48E-02	0.00E+00	0.00E+00	2.34E+00	9.61E-01	2.16E+00	0.00E+00	0.00E+00	0.00E+00	9.91E-05	0.00E+00	1.94E+00	1.73E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.86E-03	1.50E-01	1.08E-14	2.06E+00	1.83E-01	3.83E-01	4.21E-01	2.08E-04	0.00E+00
2006	7	14	9.59E-02	0.00E+00	6.88E-02	0.00E+00	3.20E-09	3.81E+00	1.34E+00	3.98E+00	9.83E-05	2.34E+00	1.79E-01	2.57E-01	5.84E-01	2.70E+00	4.69E-01	9.59E-02	0.00E+00	6.88E-02	0.00E+00	0.00E+00	3.81E+00	1.33E+00	3.78E+00	9.83E-05	0.00E+00	0.00E+00	1.93E-02	1.59E-03	2.70E+00	4.69E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.20E-09	0.00E+00	3.96E-03	1.99E-01	8.62E-18	2.34E+00	1.79E-01	2.38E-01	5.82E-01	0.00E+00	0.00E+00
2006	7	15	9.12E-01	0.00E+00	6.99E-01	0.00E+00	0.00E+00	4.66E+00	3.08E+00	6.91E+00	4.87E-03	5.00E+00	1.45E-01	6.24E-01	6.64E-01	4.89E+00	1.33E+00	8.37E-01	0.00E+00	6.99E-01	0.00E+00	0.00E+00	4.66E+00	3.06E+00	6.56E+00	7.86E-05	0.00E+00	0.00E+00	3.89E-03	3.65E-04	4.89E+00	1.18E+00	7.50E-02	0.00E+00	2.99E-05	0.00E+00	0.00E+00	4.25E-05	1.79E-02	3.49E-01	4.79E-03	5.00E+00	1.45E-01	6.20E-01	6.64E-01	2.06E-03	1.44E-01
2006	7	16	4.88E+00	2.40E-01	1.80E+00	5.30E-02	6.14E-02	1.21E+01	4.98E+00	1.89E+01	9.15E-01	1.06E+01	4.50E-01	1.78E+00	1.69E+00	1.65E+01	6.43E+00	4.78E+00	1.05E-02	1.75E+00	4.02E-03	5.00E-03	1.20E+01	4.85E+00	1.84E+01	3.46E-01	7.94E-02	2.57E-02	1.37E-01	1.11E-01	1.63E+01	6.21E+00	1.05E-01	2.30E-01	5.22E-02	4.89E-02	5.64E-02	1.18E-01	1.30E-01	5.38E-01	5.70E-01	1.05E+01	4.25E-01	1.64E+00	1.58E+00	1.54E-01	2.15E-01
2006	7	17	2.42E+00	1.12E-01	9.30E-01	5.10E-02	1.19E-01	1.77E+01	7.42E+00	2.20E+01	4.01E-01	7.83E+00	1.53E+00	9.30E-01	1.42E+00	1.84E+01	3.35E+00	2.40E+00	1.28E-02	9.30E-01	5.13E-03	1.01E-02	1.77E+01	7.36E+00	2.08E+01	3.63E-01	1.02E-01	4.12E-02	2.06E-01	1.52E-01	1.83E+01	3.29E+00	2.30E-02	9.95E-02	3.56E-04	4.59E-02	1.09E-01	7.15E-04	6.00E-02	1.20E+00	3.79E-02	7.73E+00	1.49E+00	7.24E-01	1.27E+00	1.35E-01	6.52E-02
2006	7	18	3.61E+00	8.42E-02	1.36E+00	1.93E-02	3.25E-02	1.02E+01	8.03E+00	1.57E+01	1.72E+00	1.34E+01	7.36E-01	2.33E+00	3.52E+00	1.70E+01	4.80E+00	3.50E+00	4.91E-03	1.29E+00	1.27E-03	1.62E-03	1.01E+01	7.78E+00	1.49E+01	3.14E-01	6.49E-02	2.11E-02	1.45E-01	1.09E-01	1.67E+01	4.67E+00	1.11E-01	7.93E-02	6.83E-02	1.80E-02	3.09E-02	8.52E-02	2.49E-01	7.57E-01	1.41E+00	1.34E+01	7.15E-01	2.19E+00	3.41E+00	2.33E-01	1.35E-01
2006	7	19	5.73E+00	1.94E-02	2.55E+00	5.19E-04	2.06E-03	1.01E+01	3.32E+00	1.70E+01	3.76E+00	3.93E+00	5.49E-02	7.56E-01	8.65E-01	1.95E+01	7.99E+00	5.69E+00	3.14E-03	2.44E+00	4.18E-04	9.64E-04	1.00E+01	3.26E+00	1.67E+01	1.86E-01	2.03E-02	6.37E-03	6.59E-02	3.86E-02	1.94E+01	7.94E+00	4.14E-02	1.62E-02	1.15E-01	1.01E-04	1.10E-03	9.89E-02	6.15E-02	2.94E-01	3.57E+00	3.91E+00	4.85E-02	6.91E-01	8.26E-01	4.65E-02	5.05E-02
2006	7	20	4.85E+00	1.24E+00	1.59E+00	1.43E-01	1.79E-01	1.65E+01	8.74E+00	2.67E+01	1.08E+00	9.77E+00	2.81E+00	4.49E+00	4.75E+00	1.64E+01	7.59E+00	4.67E+00	5.49E-02	1.58E+00	1.12E-02	1.61E-02	1.65E+01	7.80E+00	2.57E+01	7.28E-01	1.73E-01	7.94E-02	3.63E-01	2.53E-01	1.60E+01	7.36E+00	1.76E-01	1.18E+00	1.35E-02	1.32E-01	1.63E-01	2.38E-02	9.45E-01	1.05E+00	3.47E-01	9.60E+00	2.74E+00	4.13E+00	4.50E+00	4.07E-01	2.28E-01
2006	7	21	9.37E+00	2.47E+00	3.76E+00	3.33E-01	4.44E-01	1.96E+01	1.23E+01	2.07E+01	3.46E+00	9.02E+00	9.42E+00	1.21E+00	1.86E+00	1.92E+01	1.23E+01	9.12E+00	1.55E-01	3.72E+00	6.58E-02	8.45E-02	1.95E+01	1.23E+01	2.04E+01	9.79E-01	3.50E-01	2.22E-01	4.98E-01	4.10E-01	1.92E+01	1.18E+01	2.54E-01	2.32E+00	3.54E-02	2.67E-01	3.60E-01	5.78E-02	4.02E-02	3.63E-01	2.48E+00	8.67E+00	9.20E+00	7.08E-01	1.45E+00	6.15E-02	4.84E-01
2006	7	22	1.45E+00	2.77E-01	1.31E+00	1.68E-01	4.05E-01	2.84E+01	1.06E+01	3.57E+01	7.19E-01	2.48E+01	3.01E+00	2.02E+00	3.45E+00	2.45E+01	2.13E+00	1.43E+00	4.04E-02	1.31E+00	1.81E-02	3.27E-02	2.84E+01	1.06E+01	3.44E+01	6.80E-01	2.00E-01	9.66E-02	3.28E-01	2.61E-01	2.43E+01	2.08E+00	1.73E-02	2.37E-01	1.08E-03	1.50E-01	3.72E-01	2.97E-03	5.73E-02	1.36E+00	3.81E-02	2.46E+01	2.91E+00	1.69E+00	3.19E+00	1.58E-01	4.60E-02
2006	7	23	5.82E+00	1.77E-02	2.15E+00	5.18E-03	4.84E-02	1.31E+01	6.63E+00	2.39E+01	2.12E+00	2.17E+01	1.55E+00	2.38E+00	4.59E+00	2.08E+01	6.85E+00	5.76E+00	6.31E-03	2.13E+00	1.29E-03	3.72E-03	1.31E+01	6.51E+00	2.30E+01	2.53E-01	6.20E-02	2.37E-02	1.13E-01	8.71E-02	2.07E+01	6.72E+00	6.76E-02	1.14E-02	1.36E-02	3.88E-03	4.47E-02	2.68E-02	1.25E-01	9.37E-01	1.87E+00	2.16E+01	1.53E+00	2.26E+00	4.51E+00	1.17E-01	1.30E-01
2006	7	24	8.10E+00	2.02E-01	4.17E+00	3.25E-02	6.43E-02	1.49E+01	6.42E+00	2.34E+01	1.86E+00	1.12E+01	8.37E-01	1.30E+00	1.62E+00	1.92E+01	1.07E+01	8.00E+00	1.79E-02	4.12E+00	4.49E-03	7.90E-03	1.48E+01	6.32E+00	2.30E+01	2.62E-01	5.65E-02	2.96E-02	1.12E-01	7.58E-02	1.91E+01	1.05E+01	9.70E-02	1.84E-01	4.80E-02	2.80E-02	5.64E-02	9.18E-02	9.22E-02	4.91E-01	1.60E+00	1.12E+01	8.08E-01	1.19E+00	1.55E+00	6.84E-02	1.97E-01
2006	7	25	4.70E+00	1.02E+00	2.14E+00	1.82E-01	3.45E-01	1.49E+01	7.20E+00	1.58E+01	9.58E-01	7.08E+00	6.19E+00	8.76E-01	9.41E-01	1.29E+01	5.99E+00	4.68E+00	7.00E-02	2.13E+00	3.03E-02	4.69E-02	1.49E+01	7.16E+00	1.52E+01	6.36E-01	2.20E-01	1.25E-01	3.32E-01	2.65E-01	1.28E+01	5.95E+00	2.01E-02	9.53E-01	9.88E-03	1.52E-01	2.98E-01	2.08E-02	3.57E-02	6.29E-01	3.22E-01	6.86E+00	6.06E+00	5.44E-01	6.75E-01	6.96E-02	3.80E-02
2006	7	26	4.48E+00	1.98E-03	1.68E+00	5.42E-05	6.29E-04	1.44E+01	8.23E+00	2.09E+01	4.65E-01	1.54E+01	5.48E-02	1.47E+00	1.85E+00	1.75E+01	5.84E+00	4.46E+00	1.94E-03	1.67E+00	5.13E-05	6.15E-04	1.43E+01	8.17E+00	2.02E+01	3.95E-01	7.40E-02	1.80E-02	1.56E-01	1.16E-01	1.75E+01	5.77E+00	2.17E-02	3.30E-05	7.73E-03	2.87E-06	1.49E-05	3.48E-02	5.73E-02	7.51E-01	6.99E-02	1.54E+01	3.68E-02	1.32E+00	1.74E+00	6.35E-02	6.80E-02
2006	7	27	8.99E-01	1.03E-01	7.39E-01	3.16E-02	1.36E-01	1.48E+01	6.04E+00	2.24E+01	5.76E-01	9.90E+00	2.02E+00	1.42E+00	1.35E+00	1.54E+01	1.41E+00	8.89E-01	9.34E-03	7.34E-01	3.30E-03	7.36E-03	1.48E+01	5.96E+00	2.12E+01	4.76E-01	7.68E-02	2.40E-02	1.89E-01	1.29E-01	1.53E+01	1.39E+00	1.02E-02	9.39E-02	5.57E-03	2.83E-02	1.29E-01	8.53E-03	8.19E-02	1.14E+00	9.99E-02	9.82E+00	1.99E+00	1.24E+00	1.22E+00	9.68E-02	1.49E-02
2006	7	28	2.24E+00	3.16E-02	1.58E+00	2.31E-01	2.69E-01	1.88E+01	9.17E+00	2.83E+01	5.86E-01	9.99E+00	2.02E+00	1.18E+00	1.77E+00	1.98E+01	4.02E+00	2.20E+00	2.65E-02	1.58E+00	9.37E-03	1.30E-02	1.88E+01	9.10E+00	2.70E+01	5.56E-01	1.39E-01	5.02E-02	2.64E-01	2.02E-01	1.97E+01	3.92E+00	3.87E-02	5.09E-03	4.24E-04	2.22E-01	2.56E-01	2.85E-03	6.97E-02	1.36E+00	2.95E-02	9.86E+00	1.97E+00	9.18E-01	1.57E+00	8.84E-02	9.80E-02
2006	7	29	3.21E+00	5.61E-02	1.32E+00	2.13E-02	8.05E-02	1.51E+01	7.12E+00	1.77E+01	7.89E-01	5.88E+00	1.78E+00	9.16E-01	1.48E+00	1.80E+01	4.72E+00	3.19E+00	2.01E-02	1.31E+00	5.56E-03	1.34E-02	1.50E+01	7.07E+00	1.68E+01	4.66E-01	1.33E-01	5.81E-02	2.33E-01	1.81E-01	1.79E+01	4.68E+00	1.88E-02	3.60E-02	6.60E-03	1.57E-02	6.71E-02	1.79E-02	5.13E-02	9.42E-01	3.22E-01	5.75E+00	1.72E+00	6.82E-01	1.30E+00	9.03E-02	3.35E-02
2006	7	30	9.10E-01	1.73E-07	2.72E-01	0.00E+00	9.21E-05	8.50E+00	1.89E+00	9.53E+00	1.65E-01	2.42E+00	2.05E-01	3.53E-01	6.46E-01	7.66E+00	1.38E+00	9.10E-01	1.73E-07	2.72E-01	0.00E+00	3.88E-05	8.50E+00	1.87E+00	8.87E+00	1.65E-01	1.84E-02	1.15E-03	4.41E-02	3.93E-02	7.63E+00	1.38E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.34E-05	0.00E+00	1.88E-02	6.67E-01	1.18E-16	2.40E+00	2.04E-01	3.09E-01	6.07E-01	2.80E-02	0.00E+00
2006	7	31	4.95E-01	3.15E-04	4.04E-01	7.53E-07	1.24E-04	8.50E+00	4.24E+00	1.82E+01	1.71E-01	8.99E+00	4.56E-02	7.01E-01	9.83E-01	9.34E+00	2.37E+00	4.86E-01	3.15E-04	4.04E-01	7.53E-07	1.24E-04	8.50E+00	4.21E+00	1.78E+01	1.71E-01	2.71E-02	7.09E-03	4.71E-02	3.57E-02	9.24E+00	2.35E+00	8.57E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.51E-02	4.44E-01	3.80E-04	8.96E+00	3.85E-02	6.53E-01	9.48E-01	9.30E-02	2.36E-02
2006	8	1	6.33E-01	2.32E-04	7.75E-01	5.88E-07	9.02E-05	1.88E+01	6.85E+00	2.51E+01	4.55E-01	1.24E+01	7.70E-02	1.47E+00	1.39E+00	1.78E+01	9.42E-01	6.30E-01	2.32E-04	7.75E-01	5.88E-07	9.02E-05	1.88E+01	6.78E+00	2.37E+01	4.55E-01	6.57E-02	9.59E-03	1.70E-01	1.18E-01	1.76E+01	9.11E-01	2.65E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.19E-02	1.42E+00	0.00E+00	1.24E+01	6.75E-02	1.30E+00	1.27E+00	1.13E-01	3.12E-02
2006	8	2	2.28E+00	6.06E-04	1.08E+00	4.92E-05	2.15E-04	1.82E+01	7.60E+00	2.36E+01	5.24E-01	1.37E+01	9.41E-02	1.60E+00	1.30E+00	1.98E+01	3.99E+00	2.26E+00	6.06E-04	1.08E+00	4.92E-05	2.15E-04	1.81E+01	7.52E+00	2.23E+01	5.06E-01	7.80E-02	1.20E-02	2.05E-01	1.42E-01	1.97E+01	3.92E+00	1.88E-02	0.00E+00	3.75E-04	0.00E+00	0.00E+00	8.22E-03	7.71E-02	1.34E+00	1.77E-02	1.36E+01	8.21E-02	1.40E+00	1.16E+00	5.47E-02	7.28E-02
2006	8	3	3.09E+00	3.40E-02	1.89E+00	3.66E-02	8.77E-02	2.07E+01	1.01E+01	2.67E+01	1.05E+00	1.50E+01	5.75E-01	2.40E+00	2.58E+00	2.81E+01	5.20E+00	2.70E+00	8.03E-03	1.79E+00	2.47E-03	4.68E-03	2.05E+01	9.38E+00	2.51E+01	4.29E-01	8.76E-02	2.29E-02	2.69E-01	1.70E-01	2.74E+01	4.65E+00	3.87E-01	2.60E-02	1.04E-01	3.42E-02	8.30E-02	1.32E-01	6.77E-01	1.57E+00	6.26E-01	1.49E+01	5.52E-01	2.13E+00	2.41E+00	6.46E-01	5.46E-01
2006	8	4	3.83E+00	8.21E-01	1.34E+00	4.28E-01	8.50E-01	1.37E+01	8.02E+00	1.12E+01	1.63E+00	7.15E+00	8.62E+00	7.97E-01	1.17E+00	8.93E+00	6.30E+00	3.79E+00	4.58E-02	1.32E+00	1.58E-02	2.51E-02	1.36E+01	7.99E+00	1.09E+01	5.15E-01	1.55E-01	8.40E-02	2.75E-01	2.06E-01	8.88E+00	6.23E+00	3.61E-02	7.75E-01	2.51E-02	4.12E-01	8.25E-01	3.28E-02	3.06E-02	2.75E-01	1.11E+00	6.99E+00	8.54E+00	5.22E-01	9.62E-01	4.88E-02	6.96E-02
2006	8	5	3.82E+00	1.29E+00	2.14E+00	2.46E-01	3.69E-01	1.45E+01	5.58E+00	1.92E+01	1.52E+00	1.04E+01	5.32E+00	1.15E+00	2.16E+00	1.58E+01	5.59E+00	3.63E+00	1.78E-02	1.98E+00	4.43E-03	7.06E-03	1.44E+01	5.43E+00	1.84E+01	4.58E-01	1.02E-01	4.04E-02	1.90E-01	1.41E-01	1.56E+01	5.33E+00	1.88E-01	1.27E+00	1.57E-01	2.42E-01	3.62E-01	1.90E-01	1.51E-01	8.05E-01	1.07E+00	1.03E+01	5.28E+00	9.55E-01	2.02E+00	1.61E-01	2.56E-01
2006	8	6	4.22E+00	1.40E+00	1.57E+00	2.72E-01	3.33E-01	2.27E+01	1.18E+01	3.17E+01	1.12E+00	1.85E+01	8.66E+00	2.64E+00	3.50E+00	2.32E+01	5.55E+00	4.15E+00	3.60E-02	1.55E+00	1.27E-02	2.07E-02	2.27E+01	1.16E+01	3.01E+01	7.23E-01	1.84E-01	7.72E-02	4.16E-01	2.84E-01	2.31E+01	5.41E+00	7.42E-02	1.36E+00	2.14E-02	2.59E-01	3.12E-01	3.49E-02	1.36E-01	1.52E+00	3.98E-01	1.83E+01	8.58E+00	2.22E+00	3.21E+00	1.38E-01	1.45E-01
2006	8	7	2.99E+00	5.87E-02	1.49E+00	3.82E-01	6.88E-01	2.50E+01	9.84E+00	2.77E+01	1.00E+00	1.72E+01	7.59E+00	1.59E+00	1.75E+00	2.69E+01	4.04E+00	2.97E+00	2.33E-02	1.49E+00	1.45E-02	2.91E-02	2.49E+01	9.79E+00	2.64E+01	9.57E-01	2.80E-01	1.14E-01	5.05E-01	3.85E-01	2.68E+01	4.00E+00	1.83E-02	3.55E-02	5.10E-04	3.68E-01	6.59E-01	2.42E-03	5.95E-02	1.32E+00	4.45E-02	1.70E+01	7.48E+00	1.08E+00	1.37E+00	1.11E-01	3.85E-02
2006	8	8	5.00E+00	9.80E-01	2.57E+00	1.72E-01	2.57E-01	2.20E+01	1.04E+01	2.92E+01	1.14E+00	1.94E+01	2.86E+00	3.12E+00	3.52E+00	2.97E+01	7.02E+00	4.56E+00	1.44E-02	2.45E+00	7.87E-03	8.30E-03	2.19E+01	1.00E+01	2.73E+01	3.28E-01	7.46E-02	2.44E-02	2.08E-01	1.31E-01	2.92E+01	6.42E+00	4.38E-01	9.66E-01	1.22E-01	1.64E-01	2.49E-01	1.64E-01	4.06E-01	1.86E+00	8.08E-01	1.93E+01	2.84E+00	2.91E+00	3.38E+00	4.64E-01	5.98E-01
2006	8	9	1.01E+00	8.54E-03	4.46E-01	5.71E-04	7.47E-03	8.84E+00	3.12E+00	1.12E+01	1.92E-01	9.47E+00	9.93E-01	8.24E-01	1.58E+00	7.64E+00	1.83E+00	1.01E+00	3.78E-03	4.46E-01	5.70E-04	2.04E-03	8.84E+00	3.09E+00	1.06E+01	1.29E-01	3.44E-02	1.42E-02	1.18E-01	6.86E-02	7.62E+00	1.83E+00	1.05E-03	4.76E-03	1.94E-04	1.91E-06	5.44E-03	9.87E-04	3.57E-02	6.43E-01	6.35E-02	9.44E+00	9.79E-01	7.07E-01	1.51E+00	1.77E-02	1.84E-03
2006	8	10	5.16E+00	6.58E-01	1.48E+00	2.22E-01	4.38E-01	1.00E+01	6.54E+00	1.92E+01	9.25E-01	7.54E+00	7.74E+00	3.40E-01	8.36E-01	1.74E+01	7.82E+00	5.12E+00	3.83E-02	1.47E+00	1.98E-02	4.36E-02	1.00E+01	6.52E+00	1.90E+01	4.42E-01	1.20E-01	8.21E-02	1.67E-01	1.33E-01	1.74E+01	7.77E+00	3.39E-02	6.19E-01	4.71E-03	2.02E-01	3.94E-01	2.39E-02	1.51E-02	2.51E-01	4.83E-01	7.42E+00	7.66E+00	1.74E-01	7.03E-01	7.58E-02	5.19E-02
2006	8	11	1.89E+00	3.80E-02	4.83E-01	3.08E-02	9.81E-02	7.25E+00	6.43E+00	1.13E+01	3.15E-01	9.00E+00	2.67E+00	1.90E+00	1.73E+00	9.22E+00	3.34E+00	1.87E+00	1.62E-02	4.78E-01	6.64E-03	1.45E-02	7.24E+00	6.22E+00	1.08E+01	1.68E-01	5.84E-02	4.29E-02	1.05E-01	7.46E-02	9.08E+00	3.30E+00	2.53E-02	2.18E-02	5.09E-03	2.41E-02	8.36E-02	8.55E-03	2.11E-01	5.45E-01	1.48E-01	8.94E+00	2.62E+00	1.80E+00	1.65E+00	1.37E-01	3.85E-02
2006	8	12	4.66E+00	9.68E-02	2.10E+00	1.03E-01	1.91E-01	2.08E+01	8.64E+00	2.36E+01	1.97E+00	1.90E+01	1.61E+00	2.91E+00	3.23E+00	2.77E+01	7.22E+00	3.55E+00	3.40E-03	1.97E+00	1.05E-03	2.17E-03	2.05E+01	7.97E+00	2.17E+01	2.87E-01	5.12E-02	1.40E-02	1.84E-01	1.00E-01	2.68E+01	5.86E+00	1.11E+00	9.34E-02	1.33E-01	1.02E-01	1.89E-01	2.75E-01	6.74E-01	1.90E+00	1.68E+00	1.90E+01	1.60E+00	2.72E+00	3.13E+00	9.66E-01	1.36E+00
2006	8	13	8.69E-01	3.07E-03	1.28E+00	5.11E-04	1.52E-03	2.67E+01	1.05E+01	4.10E+01	4.21E-01	1.98E+01	6.59E-02	2.13E+00	3.98E+00	2.77E+01	3.75E+00	8.60E-01	3.07E-03	1.28E+00	5.11E-04	1.52E-03	2.67E+01	1.05E+01	3.94E+01	4.21E-01	7.05E-02	1.87E-02	1.75E-01	1.13E-01	2.75E+01	3.72E+00	9.17E-03	0.00E+00	3.74E-06	0.00E+00	0.00E+00	4.61E-05	7.60E-02	1.61E+00	1.19E-04	1.97E+01	4.72E-02	1.96E+00	3.86E+00	2.09E-01	3.02E-02
2006	8	14	1.14E+00	1.56E-03	1.39E+00	1.60E-04	1.72E-03	2.44E+01	1.06E+01	3.37E+01	7.23E-01	1.80E+01	1.58E-01	1.83E+00	2.55E+00	2.41E+01	3.08E+00	1.14E+00	1.56E-03	1.39E+00	1.60E-04	1.70E-03	2.44E+01	1.05E+01	3.21E+01	7.23E-01	1.37E-01	3.09E-02	3.28E-01	2.29E-01	2.40E+01	3.08E+00	1.51E-03	0.00E+00	0.00E+00	0.00E+00	1.38E-05	0.00E+00	8.65E-02	1.65E+00	1.01E-05	1.79E+01	1.27E-01	1.50E+00	2.32E+00	1.11E-01	8.34E-03
2006	8	15	2.25E+00	3.69E-01	1.10E+00	1.34E-01	1.09E-01	1.36E+01	5.14E+00	1.95E+01	8.34E-01	6.48E+00	9.27E-01	8.42E-01	1.15E+00	2.08E+01	3.24E+00	2.23E+00	1.53E-02	1.10E+00	6.50E-03	7.45E-03	1.36E+01	5.08E+00	1.86E+01	3.39E-01	7.20E-02	2.30E-02	2.04E-01	1.26E-01	2.07E+01	3.21E+00	1.22E-02	3.54E-01	3.01E-03	1.28E-01	1.02E-01	8.65E-03	6.19E-02	9.03E-01	4.95E-01	6.41E+00	9.04E-01	6.38E-01	1.02E+00	6.90E-02	2.90E-02
2006	8	16	6.62E+00	1.24E-03	2.82E+00	1.76E-06	2.10E-05	9.80E+00	5.97E-01	1.30E+01	5.61E+00	6.33E-03	1.23E-03	6.33E-03	4.15E-03	1.77E+01	8.24E+00	6.47E+00	9.74E-04	2.60E+00	1.55E-06	2.07E-05	9.64E+00	5.96E-01	1.28E+01	1.57E-02	2.82E-03	1.19E-03	4.06E-03	3.22E-03	1.76E+01	8.03E+00	1.54E-01	2.65E-04	2.12E-01	2.05E-07	2.28E-07	1.63E-01	9.61E-04	2.34E-01	5.60E+00	3.51E-03	4.22E-05	2.27E-03	9.30E-04	1.00E-01	2.05E-01
2006	8	17	7.89E+00	6.23E-01	2.81E+00	9.99E-02	1.68E-01	2.45E+01	1.44E+01	3.23E+01	5.74E+00	1.14E+01	3.82E+00	2.94E+00	2.76E+00	2.85E+01	1.19E+01	5.85E+00	1.99E-02	1.92E+00	6.84E-03	1.42E-02	2.31E+01	1.35E+01	2.97E+01	8.74E-01	1.97E-01	7.08E-02	4.27E-01	2.91E-01	2.68E+01	9.65E+00	2.05E+00	6.03E-01	8.95E-01	9.31E-02	1.53E-01	1.39E+00	8.86E-01	2.62E+00	4.87E+00	1.12E+01	3.75E+00	2.51E+00	2.47E+00	1.78E+00	2.23E+00
2006	8	18	1.26E+00	1.81E-03	1.09E+00	2.23E-04	2.15E-03	2.40E+01	9.36E+00	3.09E+01	7.65E-01	1.04E+01	7.73E-02	1.51E+00	2.26E+00	2.21E+01	2.76E+00	1.26E+00	1.81E-03	1.09E+00	2.23E-04	2.15E-03	2.40E+01	9.27E+00	2.91E+01	7.65E-01	1.31E-01	2.96E-02	2.69E-01	2.11E-01	2.20E+01	2.76E+00	3.22E-04	0.00E+00	9.98E-08	0.00E+00	6.12E-07	3.04E-07	8.70E-02	1.76E+00	2.12E-06	1.02E+01	4.77E-02	1.24E+00	2.05E+00	6.71E-02	2.96E-03
2006	8	19	1.75E+00	2.00E-03	1.43E+00	2.64E-04	1.34E-03	2.15E+01	8.38E+00	2.48E+01	7.01E-01	1.35E+01	1.47E-01	1.56E+00	1.37E+00	3.27E+01	2.30E+00	1.68E+00	2.00E-03	1.43E+00	2.64E-04	1.34E-03	2.15E+01	8.29E+00	2.34E+01	3.09E-01	5.75E-02	1.45E-02	2.07E-01	1.16E-01	3.26E+01	2.15E+00	7.08E-02	0.00E+00	4.18E-06	0.00E+00	8.58E-07	9.63E-05	9.50E-02	1.41E+00	3.92E-01	1.35E+01	1.32E-01	1.35E+00	1.26E+00	1.56E-01	1.48E-01
2006	8	20	1.47E+01	7.72E-01	6.52E+00	2.79E-02	3.95E-02	2.14E+01	5.15E+00	2.17E+01	5.51E+00	1.43E+00	1.74E+00	3.06E-01	3.52E-01	2.94E+01	1.85E+01	1.44E+01	1.70E-02	6.34E+00	2.49E-03	5.04E-03	2.12E+01	5.14E+00	2.14E+01	4.92E-01	8.70E-02	3.48E-02	1.79E-01	1.21E-01	2.93E+01	1.79E+01	2.86E-01	7.55E-01	1.80E-01	2.54E-02	3.44E-02	1.33E-01	6.52E-03	2.87E-01	5.02E+00	1.34E+00	1.71E+00	1.27E-01	2.31E-01	9.16E-02	5.74E-01
2006	8	21	3.02E+00	3.88E-01	1.41E+00	4.03E-01	4.39E-01	3.12E+01	1.10E+01	3.11E+01	1.09E+00	1.65E+01	1.08E+01	1.70E+00	2.73E+00	2.64E+01	5.80E+00	3.01E+00	5.59E-02	1.41E+00	2.14E-02	3.76E-02	3.12E+01	1.09E+01	2.94E+01	1.02E+00	3.16E-01	1.49E-01	5.44E-01	4.19E-01	2.63E+01	5.78E+00	1.14E-02	3.32E-01	3.30E-03	3.82E-01	4.02E-01	5.60E-03	7.10E-02	1.63E+00	6.17E-02	1.62E+01	1.06E+01	1.15E+00	2.31E+00	1.33E-01	2.29E-02
2006	8	22	3.74E+00	7.73E-02	2.09E+00	2.15E-01	2.70E-01	2.32E+01	9.40E+00	2.88E+01	7.58E-01	2.05E+01	2.65E+00	1.82E+00	1.57E+00	2.83E+01	4.69E+00	3.66E+00	1.70E-02	2.08E+00	1.20E-02	2.24E-02	2.32E+01	9.32E+00	2.76E+01	7.44E-01	1.80E-01	7.33E-02	3.38E-01	2.51E-01	2.82E+01	4.49E+00	7.96E-02	6.03E-02	1.27E-02	2.03E-01	2.48E-01	3.76E-02	7.72E-02	1.14E+00	1.42E-02	2.03E+01	2.57E+00	1.48E+00	1.31E+00	1.20E-01	1.99E-01
2006	8	23	3.95E+00	9.10E-03	1.56E+00	1.78E-03	7.10E-03	1.71E+01	7.68E+00	1.86E+01	1.02E+00	1.06E+01	3.23E-01	1.04E+00	1.55E+00	1.71E+01	4.93E+00	3.92E+00	8.79E-03	1.55E+00	1.69E-03	6.51E-03	1.71E+01	7.62E+00	1.77E+01	4.87E-01	1.27E-01	4.34E-02	2.33E-01	1.82E-01	1.71E+01	4.82E+00	3.87E-02	3.02E-04	5.10E-03	9.30E-05	5.89E-04	2.14E-02	5.61E-02	8.50E-01	5.29E-01	1.04E+01	2.80E-01	8.09E-01	1.37E+00	4.76E-02	1.09E-01
2006	8	24	5.10E+00	4.75E-02	2.83E+00	1.31E-02	3.33E-02	1.99E+01	6.73E+00	2.85E+01	2.32E+00	1.59E+01	7.67E-01	1.74E+00	2.62E+00	2.21E+01	6.74E+00	5.06E+00	1.95E-03	2.74E+00	3.35E-04	6.81E-04	1.98E+01	6.63E+00	2.74E+01	2.81E-01	2.58E-02	6.16E-03	1.15E-01	5.50E-02	2.20E+01	6.66E+00	3.47E-02	4.55E-02	8.41E-02	1.27E-02	3.26E-02	7.05E-02	1.02E-01	1.12E+00	2.04E+00	1.59E+01	7.61E-01	1.62E+00	2.56E+00	1.26E-01	7.77E-02
2006	8	25	8.78E+00	8.36E-01	3.20E+00	1.21E-01	5.31E-02	1.29E+01	4.25E+00	1.39E+01	3.74E+00	4.10E-01	6.53E+00	2.21E-01	1.71E-01	1.62E+01	1.03E+01	8.55E+00	3.77E-02	2.86E+00	8.26E-03	1.38E-02	1.26E+01	4.25E+00	1.38E+01	4.68E-01	1.29E-01	6.67E-02	2.16E-01	1.66E-01	1.61E+01	9.96E+00	2.33E-01	7.98E-01	3.34E-01	1.12E-01	3.93E-02	3.02E-01	1.07E-03	9.94E-02	3.28E+00	2.81E-01	6.47E+00	5.60E-03	4.94E-03	4.02E-02	3.71E-01
2006	8	26	1.86E+00	1.45E-02	1.23E+00	4.63E-02	8.34E-02	2.62E+01	1.13E+01	3.59E+01	6.81E-01	1.63E+01	3.56E-01	2.10E+00	1.55E+00	2.94E+01	2.29E+00	1.85E+00	1.38E-02	1.23E+00	7.02E-03	1.22E-02	2.62E+01	1.12E+01	3.40E+01	6.77E-01	1.52E-01	5.13E-02	3.24E-01	2.31E-01	2.92E+01	2.27E+00	6.33E-03	6.52E-04	4.80E-04	3.93E-02	7.12E-02	1.23E-03	9.48E-02	1.88E+00	4.03E-03	1.61E+01	3.05E-01	1.78E+00	1.32E+00	1.55E-01	2.06E-02
2006	8	27	5.65E+00	1.27E+00	2.22E+00	1.25E-01	1.60E-01	2.68E+01	1.06E+01	3.60E+01	3.04E+00	1.18E+01	3.44E+00	2.71E+00	2.96E+00	2.56E+01	7.88E+00	4.99E+00	4.62E-02	1.97E+00	1.40E-02	2.23E-02	2.64E+01	9.79E+00	3.42E+01	8.30E-01	2.15E-01	9.75E-02	4.37E-01	3.08E-01	2.48E+01	7.09E+00	6.61E-01	1.23E+00	2.51E-01	1.11E-01	1.38E-01	4.36E-01	7.80E-01	1.81E+00	2.21E+00	1.16E+01	3.34E+00	2.27E+00	2.65E+00	7.51E-01	7.83E-01
2006	8	28	4.27E+00	7.70E-01	1.67E+00	1.99E-01	1.87E-01	2.01E+01	9.10E+00	2.81E+01	1.13E+00	9.39E+00	7.54E+00	1.16E+00	2.08E+00	1.81E+01	6.65E+00	4.26E+00	6.53E-02	1.67E+00	2.93E-02	3.82E-02	2.01E+01	9.05E+00	2.70E+01	1.11E+00	3.07E-01	1.53E-01	4.35E-01	3.60E-01	1.80E+01	6.63E+00	7.23E-03	7.04E-01	8.38E-05	1.70E-01	1.49E-01	7.18E-04	5.58E-02	1.15E+00	2.16E-02	9.09E+00	7.39E+00	7.23E-01	1.72E+00	9.08E-02	2.35E-02
2006	8	29	4.21E+00	1.42E-02	1.15E+00	9.07E-02	5.40E-01	1.42E+01	4.72E+00	1.81E+01	5.12E-01	3.99E+00	4.32E+00	3.23E-01	7.94E-01	1.22E+01	6.57E+00	4.16E+00	1.41E-02	1.15E+00	1.34E-02	2.70E-02	1.42E+01	4.70E+00	1.71E+01	5.06E-01	1.61E-01	7.04E-02	2.82E-01	2.35E-01	1.22E+01	6.44E+00	5.28E-02	1.18E-04	1.82E-03	7.73E-02	5.13E-01	6.85E-03	2.08E-02	1.02E+00	5.67E-03	3.83E+00	4.25E+00	4.04E-02	5.59E-01	6.92E-02	1.36E-01
2006	8	30	1.44E+00	7.13E-07	1.79E-01	1.95E-05	2.00E-02	6.16E+00	1.35E+00	5.65E+00	6.90E-02	2.74E+00	4.24E-01	3.67E-01	5.34E-01	4.83E+00	1.89E+00	1.44E+00	7.13E-07	1.79E-01	1.95E-05	9.64E-04	6.16E+00	1.34E+00	5.28E+00	6.90E-02	7.70E-03	3.23E-03	2.33E-02	9.84E-03	4.81E+00	1.89E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E-02	0.00E+00	1.32E-02	3.69E-01	3.15E-18	2.74E+00	4.21E-01	3.44E-01	5.24E-01	1.44E-02	0.00E+00
2006	8	31	4.26E+00	3.33E-03	2.21E+00	2.60E-04	1.19E-03	2.03E+01	1.18E+01	2.62E+01	5.57E-01	2.60E+01	1.09E-01	2.54E+00	3.90E+00	2.39E+01	7.08E+00	4.23E+00	3.30E-03	2.20E+00	2.60E-04	1.09E-03	2.02E+01	1.17E+01	2.54E+01	3.40E-01	6.11E-02	1.69E-02	1.35E-01	9.15E-02	2.38E+01	6.99E+00	2.89E-02	2.81E-05	1.02E-02	7.82E-07	1.01E-04	3.33E-02	9.33E-02	8.68E-01	2.17E-01	2.59E+01	9.24E-02	2.40E+00	3.81E+00	5.98E-02	8.68E-02
2006	9	1	5.20E+00	7.00E-01	2.93E+00	4.15E-02	7.40E-02	2.68E+01	1.19E+01	3.45E+01	8.50E-01	1.93E+01	3.96E+00	1.81E+00	2.69E+00	2.84E+01	8.02E+00	5.18E+00	3.64E-02	2.92E+00	5.73E-03	1.05E-02	2.68E+01	1.19E+01	3.33E+01	7.54E-01	1.93E-01	8.03E-02	3.96E-01	2.80E-01	2.83E+01	7.92E+00	2.61E-02	6.64E-01	1.38E-03	3.58E-02	6.35E-02	4.84E-03	6.75E-02	1.20E+00	9.58E-02	1.91E+01	3.88E+00	1.41E+00	2.41E+00	1.40E-01	9.66E-02
2006	9	2	4.56E+00	1.03E+00	2.09E+00	3.37E-01	5.30E-01	2.77E+01	1.44E+01	2.85E+01	1.14E+00	1.97E+01	5.20E+00	1.98E+00	2.47E+00	2.97E+01	6.91E+00	4.51E+00	6.11E-02	2.09E+00	3.14E-02	4.90E-02	2.77E+01	1.43E+01	2.70E+01	9.36E-01	2.58E-01	1.28E-01	4.82E-01	3.54E-01	2.96E+01	6.82E+00	4.20E-02	9.66E-01	2.14E-03	3.06E-01	4.81E-01	5.93E-03	7.98E-02	1.53E+00	2.07E-01	1.95E+01	5.07E+00	1.50E+00	2.12E+00	1.15E-01	9.86E-02
2006	9	3	7.59E+00	9.27E-03	3.19E+00	3.25E-03	5.53E-03	2.48E+01	1.03E+01	2.99E+01	2.70E+00	8.76E+00	4.54E-02	2.06E+00	1.42E+00	3.52E+01	9.31E+00	7.24E+00	5.41E-03	2.88E+00	2.18E-03	3.63E-03	2.45E+01	9.92E+00	2.79E+01	3.61E-01	6.49E-02	1.69E-02	2.71E-01	1.43E-01	3.45E+01	8.78E+00	3.51E-01	3.86E-03	3.12E-01	1.07E-03	1.89E-03	3.67E-01	3.87E-01	2.04E+00	2.34E+00	8.70E+00	2.85E-02	1.79E+00	1.27E+00	6.45E-01	5.30E-01
2006	9	4	7.40E+00	1.26E-01	3.74E+00	1.39E-02	2.70E-02	2.46E+01	1.18E+01	4.33E+01	1.02E+01	9.87E-01	2.76E-01	2.03E+00	1.32E+00	3.51E+01	9.86E+00	6.60E+00	3.36E-02	2.95E+00	8.75E-03	1.78E-02	2.38E+01	1.12E+01	4.14E+01	7.22E-01	1.84E-01	7.95E-02	3.66E-01	2.61E-01	3.43E+01	8.95E+00	8.03E-01	9.25E-02	7.88E-01	5.20E-03	9.26E-03	8.02E-01	5.62E-01	1.96E+00	9.48E+00	8.03E-01	1.97E-01	1.66E+00	1.06E+00	7.76E-01	9.06E-01
2006	9	5	6.25E+00	6.33E-01	4.06E+00	2.14E-02	3.73E-02	2.82E+01	1.31E+01	3.25E+01	7.60E+00	3.47E+00	2.23E+00	2.08E+00	1.88E+00	3.11E+01	1.05E+01	5.31E+00	4.11E-02	3.10E+00	8.61E-03	1.85E-02	2.70E+01	1.26E+01	3.07E+01	8.64E-01	2.09E-01	8.97E-02	4.77E-01	3.17E-01	3.03E+01	9.53E+00	9.42E-01	5.92E-01	9.58E-01	1.28E-02	1.88E-02	1.13E+00	5.19E-01	1.82E+00	6.73E+00	3.26E+00	2.14E+00	1.60E+00	1.56E+00	7.26E-01	9.96E-01
2006	9	6	1.06E+01	1.02E-01	5.16E+00	8.17E-03	1.66E-02	2.59E+01	7.19E+00	2.85E+01	5.10E+00	2.98E+00	2.68E-01	1.15E+00	1.16E+00	3.51E+01	1.36E+01	9.66E+00	7.15E-03	4.68E+00	1.61E-03	3.61E-03	2.53E+01	6.76E+00	2.69E+01	4.63E-01	6.26E-02	1.87E-02	1.58E-01	9.97E-02	3.43E+01	1.23E+01	9.28E-01	9.50E-02	4.76E-01	6.56E-03	1.29E-02	5.74E-01	4.36E-01	1.60E+00	4.64E+00	2.91E+00	2.49E-01	9.93E-01	1.06E+00	7.66E-01	1.27E+00

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2006	9	7	1.27E+01	7.96E-03	6.39E+00	7.17E-04	2.32E-03	2.13E+01	4.61E+00	2.62E+01	6.16E+00	2.03E+00	5.24E-02	7.68E-01	7.94E-01	2.85E+01	1.64E+01
2006	9	8	1.29E+01	5.55E-01	6.90E+00	2.72E-01	4.62E-01	2.86E+01	1.03E+01	3.47E+01	5.45E+00	1.16E+01	2.95E+00	1.73E+00	2.32E+00	4.05E+01	1.69E+01
2006	9	9	2.66E+00	3.67E-01	1.09E+00	7.83E-02	2.10E-01	1.76E+01	8.43E+00	2.25E+01	4.74E-01	9.51E+00	2.38E+00	1.13E+00	1.99E+00	1.88E+01	3.39E+00
2006	9	10	3.83E+00	9.91E-04	1.48E+00	2.53E-05	7.88E-05	1.18E+01	8.74E+00	2.02E+01	5.20E-01	1.42E+01	2.46E-02	1.57E+00	1.19E+00	1.36E+01	5.65E+00
2006	9	11	1.99E+00	8.94E-03	2.14E+00	9.97E-03	5.51E-02	2.72E+01	1.38E+01	3.88E+01	7.76E-01	2.59E+01	4.73E-01	3.41E+00	3.91E+00	2.69E+01	3.18E+00
2006	9	12	6.63E+00	1.45E+00	1.99E+00	4.21E-02	5.54E-02	1.88E+01	1.14E+01	2.98E+01	2.42E+00	7.86E+00	3.92E+00	1.46E+00	1.60E+00	2.79E+01	1.06E+01
2006	9	13	8.56E+00	9.22E-02	3.27E+00	1.23E-01	4.18E-01	1.33E+01	7.56E+00	2.13E+01	5.63E+00	9.05E+00	4.83E+00	1.28E+00	2.06E+00	2.26E+01	1.22E+01
2006	9	14	1.59E+01	1.19E-01	8.32E+00	2.97E-02	1.01E-01	2.41E+01	7.71E+00	2.51E+01	3.97E+00	1.03E+01	1.08E+00	5.32E-01	1.14E+00	2.72E+01	1.84E+01
2006	9	15	1.27E+01	1.04E-01	9.87E+00	2.18E-02	5.25E-02	1.94E+01	1.09E+01	3.01E+01	9.57E+00	1.10E+01	9.60E-01	4.09E+00	4.40E+00	2.87E+01	1.58E+01
2006	9	16	8.20E+00	1.47E+00	6.89E+00	1.37E-01	2.05E-01	1.12E+01	3.82E+00	1.88E+01	1.13E+01	1.09E+01	1.54E+00	2.40E+00	4.33E+00	2.01E+01	9.99E+00
2006	9	17	1.34E+01	2.35E+00	6.40E+00	4.52E-01	6.07E-01	2.21E+01	8.97E+00	2.74E+01	3.20E+00	1.56E+01	8.78E+00	2.09E+00	4.24E+00	2.42E+01	1.78E+01
2006	9	18	8.95E+00	1.64E+00	4.02E+00	5.20E-01	7.67E-01	2.48E+01	1.53E+01	2.90E+01	1.76E+00	1.46E+01	1.08E+01	1.94E+00	2.24E+00	2.39E+01	1.25E+01
2006	9	19	9.03E+00	1.05E+00	4.33E+00	1.79E-01	2.44E-01	1.78E+01	9.75E+00	2.04E+01	4.47E+00	1.69E+01	3.64E+00	3.59E+00	4.91E+00	2.50E+01	1.08E+01
2006	9	20	6.44E+00	8.38E-01	3.10E+00	1.46E-01	2.45E-01	1.18E+01	3.98E+00	1.44E+01	2.49E+00	3.50E+00	3.19E+00	3.78E-01	4.88E-01	1.54E+01	9.05E+00
2006	9	21	8.10E+00	1.04E-04	2.76E+00	9.31E-07	6.43E-06	1.05E+01	2.14E+00	1.05E+01	9.57E-01	4.89E+00	1.53E-02	1.52E+00	1.74E+00	1.02E+01	8.01E+00
2006	9	22	1.30E+01	4.91E-03	4.87E+00	9.17E-04	2.17E-03	2.39E+01	3.97E+00	2.68E+01	3.36E+00	3.13E+00	1.66E-02	8.43E-01	7.86E-01	2.19E+01	1.60E+01
2006	9	23	5.21E+00	2.70E-03	2.63E+00	9.73E-04	6.10E-03	2.35E+01	1.47E+01	2.53E+01	3.43E-01	3.39E+01	3.88E-02	2.99E+00	4.86E+00	3.42E+01	7.30E+00
2006	9	24	2.13E+00	8.74E-04	1.54E+00	5.04E-05	2.29E-04	1.91E+01	1.21E+01	3.04E+01	2.35E-01	2.13E+01	8.89E-03	3.37E+00	4.52E+00	2.27E+01	2.73E+00
2006	9	25	2.79E+00	3.82E-04	1.46E+00	3.76E-06	1.15E-04	1.68E+01	7.33E+00	2.19E+01	4.38E-01	1.29E+01	8.72E-02	1.69E+00	6.81E-01	1.98E+01	3.74E+00
2006	9	26	8.59E+00	4.83E-02	5.16E+00	9.35E-03	4.77E-02	1.52E+01	7.46E+00	2.28E+01	3.72E+00	1.73E+01	1.53E+00	1.40E+00	2.04E+00	2.41E+01	1.12E+01
2006	9	27	1.05E+01	4.53E-01	4.77E+00	1.58E-01	1.57E-01	1.76E+01	4.45E+00	2.20E+01	4.21E+00	4.48E+00	7.47E-01	5.62E-01	7.84E-01	2.75E+01	1.51E+01
2006	9	28	2.01E+00	0.00E+00	8.54E-01	0.00E+00	0.00E+00	6.85E+00	3.93E+00	1.05E+01	4.70E-03	1.20E+01	1.84E-03	9.46E-01	6.16E-01	1.02E+01	2.60E+00
2006	9	29	8.77E-01	0.00E+00	1.72E-01	0.00E+00	0.00E+00	5.82E+00	3.80E+00	1.03E+01	4.63E-02	1.09E+01	3.29E-02	1.35E+00	1.25E+00	6.74E+00	1.64E+00
2006	9	30	5.73E-01	1.71E-04	5.10E-01	9.09E-06	9.63E-05	9.75E+00	4.06E+00	1.46E+01	1.90E-01	5.17E+00	1.32E-01	9.42E-01	7.89E-01	1.23E+01	1.56E+00
2006	10	1	1.04E+00	4.04E-02	7.53E-01	3.62E-02	5.87E-02	4.27E+00	2.91E+00	7.47E+00	6.02E-01	1.19E+01	4.55E-01	1.40E+00	1.05E+00	6.05E+00	1.64E+00
2006	10	2	1.86E+00	3.72E-03	1.46E+00	2.76E-04	8.59E-04	3.72E+00	1.72E+00	5.90E+00	3.53E+00	1.40E+00	1.20E-02	5.99E-01	6.32E-01	5.50E+00	2.48E+00
2006	10	3	5.29E+00	2.89E-03	2.92E+00	1.50E-04	3.99E-04	5.14E+00	1.75E-01	5.73E+00	7.19E+00	1.79E-02	8.15E-03	2.60E-02	1.88E-02	7.01E+00	6.62E+00
2006	10	4	3.54E+00	9.87E-03	1.75E+00	1.51E-04	4.36E-04	3.90E+00	1.68E+00	7.15E+00	7.56E+00	5.20E-01	4.35E-02	8.91E-01	3.84E-01	6.56E+00	4.94E+00
2006	10	5	6.40E-01	3.28E-01	4.63E-01	7.04E-02	1.10E-01	3.85E+00	3.13E+00	9.21E+00	4.83E-01	8.88E+00	1.05E+00	1.73E+00	1.49E+00	5.01E+00	1.10E+00
2006	10	6	9.97E-01	9.58E-04	4.23E-01	1.07E-04	4.86E-04	3.30E+00	2.32E+00	7.02E+00	1.92E-01	8.28E+00	4.30E-02	1.52E+00	9.74E-01	5.27E+00	1.41E+00
2006	10	7	3.63E+00	2.59E-01	2.75E+00	4.48E-02	4.79E-02	4.86E+00	9.62E-01	6.47E+00	8.32E+00	6.73E-01	2.84E-01	3.28E-01	5.19E-01	6.90E+00	4.84E+00
2006	10	8	4.64E+00	1.91E-02	2.76E+00	1.80E-04	4.84E-04	4.95E+00	9.71E-01	6.36E+00	6.09E+00	1.15E-01	2.63E-02	9.81E-02	8.03E-02	6.84E+00	5.77E+00
2006	10	9	1.05E+00	4.23E-02	1.16E+00	4.84E-02	2.53E-01	5.47E+00	2.35E+00	8.95E+00	2.77E+00	9.40E+00	9.05E-01	1.48E+00	1.33E+00	7.32E+00	1.53E+00
2006	10	10	1.60E+00	1.57E-01	9.97E-01	2.89E-02	8.45E-02	5.45E+00	2.48E+00	9.79E+00	3.33E+00	1.36E+01	8.41E-01	2.00E+00	1.74E+00	6.78E+00	2.00E+00
2006	10	11	2.15E+00	1.17E+00	9.02E-01	2.05E-01	3.11E-01	6.59E+00	3.69E+00	1.01E+01	2.14E+00	9.26E+00	3.54E+00	2.43E+00	3.37E+00	8.03E+00	3.01E+00
2006	10	12	2.13E+00	4.10E-01	1.30E+00	9.41E-02	1.23E-01	4.51E+00	2.50E+00	8.44E+00	2.34E+00	1.12E+01	1.43E+00	1.90E+00	2.25E+00	5.95E+00	2.81E+00
2006	10	13	3.28E+00	1.45E+00	2.20E+00	2.54E-01	2.60E-01	5.63E+00	2.97E+00	8.69E+00	4.13E+00	6.61E+00	2.99E+00	1.34E+00	1.72E+00	7.46E+00	4.59E+00
2006	10	14	7.92E-01	2.88E-01	3.85E-01	4.89E-02	7.79E-02	3.68E+00	3.27E+00	9.42E+00	7.22E-01	1.27E+01	1.34E+00	2.13E+00	1.69E+00	6.74E+00	1.21E+00
2006	10	15	5.63E-01	3.83E-04	1.97E-01	8.68E-07	8.33E-05	1.90E+00	9.19E-01	3.46E+00	9.82E-02	4.44E+00	1.42E-01	8.51E-01	1.09E+00	2.44E+00	7.91E-01
2006	10	16	3.95E+00	1.39E-04	2.46E+00	1.19E-08	2.13E-06	3.55E+00	2.89E-01	3.52E+00	8.68E+00	9.53E-02	8.63E-04	1.51E-01	1.15E-01	4.56E+00	4.88E+00
2006	10	17	1.10E+00	2.06E-01	6.09E-01	8.07E-02	8.45E-02	2.79E+00	1.31E+00	3.94E+00	1.83E+00	3.14E+00	2.47E-01	5.77E-01	2.28E-01	3.15E+00	1.52E+00
2006	10	18	7.11E-02	0.00E+00	1.02E-03	0.00E+00	0.00E+00	4.48E-01	3.61E-01	1.40E+00	4.20E-16	2.04E+00	1.20E-02	6.00E-01	1.94E-01	6.69E-01	9.69E-02
2006	10	19	1.29E-01	0.00E+00	8.01E-03	0.00E+00	0.00E+00	6.96E-01	5.26E-01	1.99E+00	8.73E-06	4.18E+00	1.05E-02	7.82E-01	3.34E-01	1.05E+00	2.46E-01
2006	10	20	3.29E+00	6.90E-02	1.18E+00	1.70E-02	3.88E-02	5.38E+00	2.80E+00	8.55E+00	2.79E+00	6.82E+00	4.85E-01	2.63E+00	2.97E+00	6.95E+00	4.37E+00
2006	10	21	4.59E+00	5.42E-01	3.18E+00	1.52E-01	2.67E-01	7.87E+00	3.57E+00	1.05E+01	6.85E+00	4.00E+00	2.53E+00	1.89E+00	1.65E+00	9.48E+00	5.66E+00
2006	10	22	8.44E-01	1.21E-03	3.24E-01	1.23E-04	4.01E-04	2.10E+00	1.46E+00	4.23E+00	6.10E-02	7.64E+00	9.06E-03	1.15E+00	2.58E-01	3.64E+00	1.15E+00
2006	10	23	1.10E+00	4.68E-04	4.76E-01	1.68E-05	1.57E-04	1.88E+00	1.11E+00	2.78E+00	7.07E-02	6.71E+00	1.61E-02	8.63E-01	8.20E-01	2.11E+00	1.54E+00
2006	10	24	5.79E-01	8.40E-04	3.39E-01	4.85E-05	3.25E-04	2.39E+00	9.04E-01	3.63E+00	8.07E-02	3.74E+00	6.66E-02	7.97E-01	6.81E-01	2.26E+00	9.59E-01
2006	10	25	7.88E-01	3.33E-04	6.41E-01	8.14E-06	8.03E-05	1.79E+00	1.02E+00	3.77E+00	4.57E-02	7.51E+00	2.07E-02	5.94E-01	8.52E-01	3.78E+00	1.18E+00
2006	10	26	3.03E-02	0.00E+00	5.93E-03	0.00E+00	0.00E+00	3.72E-01	2.34E-01	8.98E-01	2.14E-16	9.16E-01	2.57E-02	3.20E-01	1.62E-01	4.57E-01	4.53E-02
2006	10	27	5.12E-02	0.00E+00	3.21E-03	0.00E+00	0.00E+00	4.22E-01	3.12E-01	1.04E+00	3.31E-17	1.07E+00	5.17E-02	4.65E-01	2.11E-01	5.95E-01	8.16E-02
2006	10	28	3.82E-02	0.00E+00	4.20E-03	0.00E+00	0.00E+00	3.29E-01	2.58E-01	8.29E-01	2.42E-17	9.23E-01	3.99E-02	3.51E-01	1.95E-01	4.79E-01	5.36E-02
2006	10	29	1.01E+00	6.10E-04	9.20E-01	1.66E-05	1.30E-03	1.05E+00	2.12E-01	1.63E+00	2.07E+00	6.44E-01	2.23E-01	8.59E-02	5.83E-02	1.87E+00	1.30E+00
2006	10	30	1.79E+00	1.05E-03	1.09E+00	1.95E-04	7.39E-04	3.72E+00	1.49E+00	7.14E+00	2.02E+00	8.37E+00	9.23E-03	1.54E+00	1.74E+00	4.72E+00	2.21E+00
2006	10	31	1.66E+00	1.17E-03	1.06E+00	1.10E-04	4.44E-04	5.03E+00	2.50E+00	9.38E+00	1.94E-01	1.46E+01	1.71E-02	1.60E+00	1.03E+00	6.62E+00	2.22E+00
2006	11	1	1.12E+00	3.27E-02	8.66E-01	8.62E-03	2.14E-02	6.33E+00	3.41E+00	9.57E+00	4.26E-01	1.78E+01	2.51E-01	2.02E+00	1.46E+00	7.62E+00	1.91E+00
2006	11	2	3.45E+00	1.28E+00	2.18E+00	8.45E-01	1.09E+00	5.17E+00	1.76E+00	5.75E+00	3.48E+00	7.76E+00	1.04E+01	8.92E-01	1.59E+00	4.76E+00	4.45E+00
2006	11	3	1.31E-01	7.90E-05	2.61E-03	1.31E-03	2.00E-03	4.92E-01	6.68E-01	1.52E+00	4.35E-05	2.96E+00	6.05E-02	9.29E-01	3.21E-01	9.86E-01	1.84E-01
2006	11	4	6.99E-02	0.00E+00	4.90E-03	0.00E+00	6.17E-03	4.60E-01	3.87E-01	1.06E+00	1.00E-04	1.25E+00	1.13E-01	4.92E-01	2.82E-01	7.11E-01	1.29E-01
2006	11	5	8.42E-02	0.00E+00	4.21E-02	2.21E-05	5.29E-02	5.00E-01	3.00E-01	9.14E-01	7.39E-04	1.25E+00	3.09E-01	1.89E-01	4.76E-01	5.75E-01	1.52E-01
2006	11	6	6.07E-01	0.00E+00	1.28E-01	2.15E-07	1.36E-03	1.56E+00	2.64E-01	2.25E+00	5.25E-02	1.42E+00	2.13E-01	3.01E-02	5.15E-01	1.44E+00	1.15E+00
2006	11	7	4.07E-01	0.00E+00	6.93E-02	5.92E-07	2.07E-04	9.85E-01	3.23E-01	1.37E+00	2.49E-02	1.77E+00	1.85E-01	1.24E-01	5.88E-01	1.00E+00	7.71E-01
2006	11	8	8.22E-01	5.33E-04	5.21E-01	1.76E-05	1.50E-04	2.48E+00	1.08E+00	3.66E+00	5.18E-02	5.34E+00	4.73E-02	7.30E-01	6.90E-01	2.91E+00	1.26E+00
2006	11	9	1.54E+00	3.66E-01	8.69E-01	1.09E-02	2.73E-02	2.05E+00	1.04E+00	3.81E+00	2.72E+00	1.44E+00	1.48E+00	2.32E-01	2.26E-01	3.05E+00	1.97E+00
2006	11	10	5.04E-01	7.56E-02	1.56E-01	5.91E-02	2.45E-01	1.96E+00	6.57E-01	3.81E+00	1.29E-01	2.66E+00	1.05E+00	3.80E-01	1.00E+00	1.93E+00	8.94E-01
2006	11	11	3.12E-01	1.33E-06	3.11E-02	5.27E-07	3.27E-03	1.62E+00	4.46E-01	3.40E+00	4.60E-02	1.13E+00	1.62E-01	2.70E-01	4.96E-01	1.38E+00	5.30E-01
2006	11	12	1.73E+00	7.28E-04	3.30E-01	4.05E-04	1.12E-01	2.77E+00	7.09E-01	3.91E+00	1.07E-01	1.87E+00	1.02E+00	1.24E-01	4.36E-01	2.81E+00	2.27E+00
2006	11	13	1.01E+00	1.26E-01	1.81E-01	6.87E-02	1.22E-01	2.49E+00	6.49E-01	3.27E+00	1.46E-01	1.37E+00	2.05E+00	2.37E-01	2.92E-01	1.62E+00	1.51E+00
2006	11	14	1.25E+00	1.06E-02	5.27E-01	4.37E-04	2.05E-03	2.95E+00	1.80E+00	4.63E+00	4.58E-01	6.36E+00	1.44E-01	9.18E-01	8.88E-01	4.93E+00	1.73E+00
2006	11	15	3.63E-01	1.01E-04	1.11E-01	1.88E-02	1.29E-01	1.16E+00	4.34E-01	1.92E+00	2.65E-02	1.25E+00	9.20E-01	2.72E-01	2.64E-01	9.62E-01	6.13E-01
2006	11	16	1.31E-01	4.14E-08	2.81E-02	1.01E-05	6.14E-03	8.05E-01	4.84E-01	1.51E+00	1.35E-02	2.00E+00	1.49E-01	5.73E-01	3.79E-01	8.65E-01	2.13E-01
2006	11	17	7.08E-02	0.00E+00	1.03E-02	0.00E+00	0.00E+00	5.20E-01	5.55E-01	1.57E+00	2.20E-17	6.72E+00	2.07E-03	6.59E-01	2.95E-01	9.00E-01	1.09E-01
2006	11	18	1.41E+00	3.87E-03	6.79E-01	6.39E-04	2.41E-03	2.35E+00	1.90E+00	4.06E+00	2.98E-01	1.16E+01	1.17E-01	1.02E+00	9.11E-01	3.45E+00	1.95E+00
2006	11	19	1.28E+00	1.92E-02	7.29E-01	1.15E-01	3.73E-01	2.91E+00	1.41E+00	3.79E+00	2.96E-01	3.97E+00	4.04E+00	2.56E-01	6.08E-01	2.89E+00	1.75E+00
2006	11	20	8.67E-01	2.50E-04	3.50E-01	2.35E-04	7.00E-03	2.73E+00	1.66E+00	5.44E+00	1.02E-01	3.13E+00	5.29E-01	5.26E-01	1.27E+00	3.13E+00	1.55E+00
2006	11	21	9.64E-01	3.58E-03	4.17E-01	3.36E-02	2.14E-01	3.07E+00	1.53E+00	4.96E+00	2.22E-01	2.54E+00	2.31E+00	2.67E-01	9.29E-01	3.13E+00	1.42E+00
2006	11	22	2.10E+00	3.02E-01	1.11E+00	3.39E-01	6.62E-01	2.48E+00	1.36E+00	3.96E+00	9.49E-01	1.78E+00	6.88E+00	2.51E-01	4.23E-01	3.27E+00	2.73E+00
2006	11	23	9.59E-01	1.08E-01	3.10E-01	2.49E-02	1.11E-01	2.76E+00	1.08E+00	3.73E+00	2.46E-01	3.14E+00	1.90E+00	3.50E-01	7.38E-01	2.40E+00	1.51E+00
2006	11	24	6.38E-01	6.65E-01	1.65E-01	1.28E-01	3.27E-01	9.48E-01	4.04E-01	1.71E+00	1.95E-01	9.24E-01	1.82E+00	1.86E-02	7.66E-02	1.52E+00	9.07E-01
2006	11	25	9.82E-01	6.36E-01	4.29E-01	7.69E-02	1.55E-01	1.27E+00	6.74E-01	2.51E+00	5.82E-01	8.54E-01	2.46E+00	4.84E-02	9.40E-02	2.21E+00	1.38E+00
2006	11	26	7.71E-01	3.64E-01	4.28E-01	1.33E-01	1.74E-01	1.00E+00	2.20E-01	1.75E+00	1.89E+00	7.09E-02	3.01E-01	1.15E-02	2.12E-02	1.98E+00	1.02E+00
2006	11	27	1.11E+00	0.00E+00	7.44E-01	0.00E+00	0.00E+00	1.25E+00	2.30E-01	1.73E+00	3.77E+00	3.99E-10	0.00E+00	0.00E+00	0.00E+00	2.36E+00	1.39E+00
2006	11	28	3.85E+00	2.70E-01	2.40E+00	6.93E-02	1.37E-01	5.70E+00	2.13E+00	4.99E+00	1.04E+01	2.54E+00	2.77E+00	4.24E-01	8.11E-01	5.36E+00	4.93E+00
2006	11	29	4.82E-01	6.91E-03	4.23E-01	1.68E-03	3.43E-03	2.97E+00	2.37E+00	6.09E+00	1.64E-01	1.08E+01	3.78E-02	1.37E+00	6.25E-01	4.42E+00	7.27E-01
2006	11	30	8.03E-02	0.00E+00	6.96E-04	0.00E+00	0.00E+00	3.54E-01	3.26E-01	9.85E-01	2.25E-16	2.80E+00	1.04E-02	4.18E-01	1.97E-01	6.12E-01	1.07E-01
2006	12	1	1.88E+00	4.14E-01	9.54E-01	2.05E-02	2.94E-02	2.67E+00	1.66E+00	3.79E+00	1.33E+00	7.36E+00	1.13E+00	9.13E-01	1.41E+00	3.07E+00	2.59E+00
2006	12	2	3.03E+00	1.63E+00	1.68E+00	4.29E-01	5.71E-01	3.82E+00	1.67E+00	5.11E+00	2.93E+00	5.00E+00	9.43E+00	5.95E-01	6.28E-01	4.44E+00	4.14E+00
2006	12	3	4.18E-02	0.00E+00	6.54E-04	0.00E+00	0.00E+00	2.99E-01	3.36E-01	9.28E-01	5.39E-16	4.17E+00	1.33E-03	4.12E-01	2.08E-01	5.71E-01	7.42E-02
2006	12	4	4.33E-02	0.00E+00	2.97E-03	0.00E+00	0.00E+00	3.16E-01	2.77E-01	8.68E-01	5.53E-16	2.39E+00	1.74E-02	3.78E-01	1.98E-01	5.16E-01	7.00E-02
2006	12	5	1.19E-01	0.00E+00	2.81E-04	0.00E+00	0.00E+00	4.75E-01	3.94E-01	1.34E+00	1.90E-17	6.45E+00	1.23E-04	4.17E-01	4.45E-01	9.04E-01	1.48E-01

Year	Month	Day	Baseline R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2006	9	7	1.18E+01	5.84E-03	6.18E+00	7.10E-04	2.27E-03	2.09E+01	4.45E+00	2.51E+01	4.09E-01	5.50E-02	1.89E-02	1.44E-01	8.96E-02	2.79E+01	1.52E+01
2006	9	8	1.25E+01	4.76E-02	6.82E+00	1.53E-02	2.61E-02	2.86E+01	1.02E+01	3.37E+01	7.75E-01	1.90E-01	9.44E-02	3.38E-01	2.50E-01	4.04E+01	1.63E+01
2006	9	9	2.65E+00	1.97E-02	1.09E+00	9.42E-03	1.99E-02	1.76E+01	8.36E+00	2.11E+01	3.29E-01	1.20E-01	5.22E-02	3.05E-01	1.86E-01	1.86E+01	3.36E+00
2006	9	10	3.82E+00	8.82E-04	1.48E+00	2.20E-05	6.78E-05	1.17E+01	8.70E+00	1.94E+01	4.62E-01	5.95E-02	8.76E-03	1.57E-01	9.98E-02	1.35E+01	5.64E+00
2006	9	11	1.96E+00	7.97E-03	2.14E+00	1.20E-03	3.27E-03	2.71E+01	1.36E+01	3.72E+01	7.44E-01	1.42E-01	4.12E-02	3.06E-01	2.18E-01	2.68E+01	3.08E+00
2006	9	12	5.78E+00	8.61E-02	1.76E+00	1.39E-02	1.70E-02	1.85E+01	1.10E+01	2.80E+01	9.16E-01	1.60E-01	9.06E-02	2.88E-01	1.93E-01	2.71E+01	9.71E+00
2006	9	13	8.35E+00	4.43E-02	3.03E+00	2.75E-02	4.77E-02	1.30E+01	7.45E+00	2.08E+01	5.74E-01	1.60E-01	1.06E-01	2.16E-01	1.80E-01	2.24E+01	1.19E+01
2006	9	14	1.55E+01	1.38E-02	8.22E+00	2.89E-03	6.92E-03	2.41E+01	7.69E+00	2.47E+01	3.78E-01	8.44E-02	3.70E-02	1.33E-01	1.03E-01	2.71E+01	1.78E+01
2006	9	15	1.20E+01	8.28E-02	8.57E+00	2.02E-02	3.24E-02	1.86E+01	9.62E+00	2.91E+01	7.34E-01	2.00E-01	1.20E-01	2.41E-01	2.17E-01	2.79E+01	1.50E+01
2006	9	16	7.89E+00	1.39E-02	4.45E+00	3.58E-03	7.56E-03	9.39E+00	3.44E+00	1.84E+01	1.87E-01	7.56E-02	3.79E-02	1.00E-01	8.46E-02	1.97E+01	9.62E+00
2006	9	17	1.32E+01	5.14E-02	6.22E+00	1.31E-02	2.05E-02	2.19E+01	8.80E+00	2.69E+01	5.81E-01	1.47E-01	7.82E-02	2.61E-01	1.89E-01	2.40E+01	1.75E+01
2006	9	18	8.81E+00	1.26E-01	4.01E+00	4.24E-02	6.60E-02	2.48E+01	1.52E+01	2.77E+01	1.14E+00	3.56E-01	2.07E-01	5.97E-01	4.51E-01	2.39E+01	1.22E+01
2006	9	19	8.87E+00	6.98E-02	3.90E+00	3.34E-02	4.49E-02	1.75E+01	9.58E+00	1.95E+01	4.30E-01	1.54E-01	9.74E-02	2.68E-01	1.95E-01	2.49E+01	1.05E+01
2006	9	20	6.31E+00	1.18E-02	3.07E+00	2.96E-03	4.69E-03	1.18E+01	3.96E+00	1.41E+01	1.71E-01	4.41E-02	2.12E-02	9.08E-02	6.17E-02	1.53E+01	8.80E+00
2006	9	21	6.84E+00	1.43E-05	2.74E+00	1.54E-08	3.47E-07	1.04E+01	1.86E+00	9.94E+00	1.16E-02	5.20E-04	9.22E-05	4.43E-03	1.38E-03	9.87E+00	6.49E+00
2006	9	22	1.07E+01	4.90E-03	4.64E+00	9.16E-04	2.16E-03	2.34E+01	3.79E+00	2.47E+01	2.11E-01	3.86E-02	1.59E-02	8.23E-02	5.44E-02	2.04E+01	1.32E+01
2006	9	23	5.17E+00	2.70E-03	2.62E+00	9.70E-04	2.64E-03	2.35E+01	1.46E+01	2.40E+01	2.51E-01	4.49E-02	1.27E-02	1.59E-01	8.95E-02	3.41E+01	7.20E+00
2006	9	24	2.10E+00	8.24E-04	1.53E+00	4.75E-05	2.15E-04	1.91E+01	1.19E+01	2.85E+01	2.29E-01	3.07E-02	5.14E-03	1.14E-01	6.14E-02	2.26E+01	2.65E+00
2006	9	25	2.76E+00	3.82E-04	1.46E+00	3.76E-06	1.15E-04	1.68E+01	7.25E+00	2.08E+01	4.38E-01	4.43E-02	5.81E-03	1.49E-01	9.40E-02	1.97E+01	3.63E+00
2006	9	26	8.53E+00	8.73E-03	4.93E+00	1.66E-03	3.49E-03	1.51E+01	7.39E+00	2.24E+01	4.77E-01	7.90E-02	2.61E-02	1.53E-01	1.14E-01	2.40E+01	1.11E+01
2006	9	27	1.03E+01	1.56E-02	4.74E+00	3.24E-03	4.68E-03	1.75E+01	4.43E+00	2.15E+01	4.05E-01	7.20E-02	2.69E-02	1.24E-01	9.54E-02	2.75E+01	1.47E+01
2006	9	28	1.96E+00	0.00E+00	8.53E-01	0.00E+00	0.00E+00	6.85E+00	3.85E+00	9.79E+00	4.48E-03	0.00E+00	0.00E+00	2.68E-03	4.92E-04	1.02E+01	2.47E+00
2006	9	29	8.48E-01	0.00E+00	1.72E-01	0.00E+00	0.00E+00	5.81E+00	3.75E+00	9.77E+00	4.45E-02	1.46E-03	7.02E-06	2.22E-02	7.24E-03	6.73E+00	1.60E+00
2006	9	30	5.59E-01	1.71E-04	5.10E-01	9.09E-06	9.63E-05	9.75E+00	4.01E+00	1.36E+01	1.90E-01	1.97E-02	2.07E-03	7.22E-02	5.38E-02	1.23E+01	1.44E+00
2006	10	1	8.77E-01	1.84E-03	7.11E-01	4.63E-04	8.71E-04	4.18E+00	2.76E+00	6.27E+00	1.21E-01	2.57E-02	6.53E-03	6.71E-02	4.50E-02	5.91E+00	1.31E+00
2006	10	2	1.56E+00	2.91E-03	1.14E+00	2.57E-04	7.90E-04	3.46E+00	1.64E+00	5.28E+00	9.81E-02	2.09E-02	7.75E-03	4.84E-02	3.11E-02	5.43E+00	1.93E+00
2006	10	3	4.82E+00	2.15E-03	2.68E+00	1.42E-04	3.67E-04	4.93E+00	1.69E-01	5.45E+00	7.78E-02	9.52E-03	3.79E-03	1.97E-02	1.35E-02	6.96E+00	5.72E+00
2006	10	4	2.61E+00	1.98E-03	1.10E+00	1.33E-04	3.27E-04	3.13E+00	9.61E-01	5.69E+00	1.04E-01	1.50E-02	4.95E-03	3.41E-02	2.21E-02	5.57E+00	3.82E+00
2006	10	5	6.19E-01	9.28E-03	4.50E-01	3.54E-03	6.30E-03	3.83E+00	3.00E+00	7.21E+00	2.26E-01	5.77E-02	2.30E-02	1.17E-01	8.64E-02	4.93E+00	1.04E+00
2006	10	6	9.33E-01	9.53E-04	4.20E-01	1.07E-04	4.86E-04	3.29E+00	2.17E+00	5.41E+00	8.35E-02	1.64E-02	5.22E-03	4.65E-02	2.79E-02	5.20E+00	1.25E+00
2006	10	7	3.31E+00	7.47E-03	2.17E+00	3.45E-03	4.06E-03	4.32E+00	9.04E-01	6.27E+00	1.06E-01	1.38E-02	8.19E-03	2.55E-02	1.73E-02	6.82E+00	4.34E+00
2006	10	8	4.10E+00	4.78E-03	2.53E+00	1.75E-04	4.59E-04	4.78E+00	9.60E-01	6.13E+00	1.54E-01	2.76E-02	9.45E-03	5.58E-02	3.86E-02	6.77E+00	4.90E+00
2006	10	9	6.56E-01	5.72E-03	7.60E-01	2.05E-03	4.02E-03	5.02E+00	2.16E+00	7.16E+00	1.68E-01	4.25E-02	1.64E-02	8.64E-02	6.16E-02	6.91E+00	1.01E+00
2006	10	10	1.44E+00	1.31E-03	8.73E-01	3.33E-04	1.18E-03	5.25E+00	2.22E+00	7.72E+00	1.52E-01	3.25E-02	8.59E-03	8.07E-02	5.40E-02	6.48E+00	1.79E+00
2006	10	11	1.83E+00	2.32E-02	7.96E-01	9.05E-03	1.27E-02	6.43E+00	3.26E+00	8.48E+00	2.18E-01	6.37E-02	3.37E-02	1.31E-01	8.93E-02	7.61E+00	2.45E+00
2006	10	12	1.98E+00	1.02E-02	1.26E+00	4.81E-03	7.32E-03	4.47E+00	2.33E+00	7.25E+00	1.63E-01	4.43E-02	2.08E-02	1.02E-01	6.78E-02	5.82E+00	2.49E+00
2006	10	13	2.78E+00	4.09E-02	1.87E+00	1.97E-02	2.71E-02	5.28E+00	2.78E+00	7.68E+00	3.26E-01	1.15E-01	6.62E-02	2.02E-01	1.50E-01	7.18E+00	3.60E+00
2006	10	14	7.01E-01	1.53E-02	3.05E-01	6.93E-03	1.12E-02	3.61E+00	3.13E+00	7.65E+00	1.41E-01	5.43E-02	2.87E-02	1.36E-01	8.66E-02	6.60E+00	1.04E+00
2006	10	15	5.47E-01	3.34E-04	1.94E-01	4.63E-07	7.13E-05	1.88E+00	9.03E-01	2.82E+00	6.84E-02	1.54E-02	3.43E-03	3.19E-02	2.33E-02	2.40E+00	7.56E-01
2006	10	16	3.89E+00	4.57E-05	2.25E+00	0.00E+00	1.52E-06	3.34E+00	2.50E-01	3.47E+00	3.68E-02	1.08E-03	2.26E-04	2.86E-03	1.88E-03	4.52E+00	4.77E+00
2006	10	17	1.08E+00	5.94E-03	6.01E-01	2.78E-03	4.11E-03	2.76E+00	1.29E+00	3.54E+00	5.89E-02	1.22E-02	7.93E-03	2.10E-02	1.67E-02	3.12E+00	1.47E+00
2006	10	18	7.11E-02	0.00E+00	1.02E-03	0.00E+00	0.00E+00	4.48E-01	3.30E-01	7.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.59E-01	9.69E-02
2006	10	19	1.29E-01	0.00E+00	8.01E-03	0.00E+00	0.00E+00	6.96E-01	4.64E-01	1.16E+00	8.73E-06	0.00E+00	0.00E+00	1.45E-04	0.00E+00	1.04E+00	2.46E-01
2006	10	20	2.25E+00	9.44E-03	9.56E-01	2.54E-03	4.87E-03	4.98E+00	2.18E+00	7.04E+00	1.70E-01	4.80E-02	2.17E-02	1.01E-01	6.92E-02	6.05E+00	3.02E+00
2006	10	21	2.76E+00	3.68E-02	1.57E+00	1.14E-02	1.92E-02	5.98E+00	2.67E+00	7.70E+00	3.17E-01	1.16E-01	6.47E-02	1.92E-01	1.49E-01	7.66E+00	3.50E+00
2006	10	22	8.33E-01	1.19E-03	3.17E-01	1.22E-04	3.94E-04	2.05E+00	1.35E+00	3.34E+00	5.59E-02	1.24E-02	4.26E-03	2.89E-02	1.86E-02	3.61E+00	1.12E+00
2006	10	23	1.01E+00	4.41E-04	4.58E-01	1.58E-05	1.41E-04	1.82E+00	1.08E+00	2.39E+00	2.82E-02	6.19E-03	1.96E-03	1.22E-02	9.47E-03	2.10E+00	1.32E+00
2006	10	24	4.95E-01	7.42E-04	3.23E-01	4.16E-05	2.91E-04	2.34E+00	8.76E-01	2.65E+00	7.08E-02	1.55E-02	4.69E-03	3.15E-02	2.24E-02	2.24E+00	7.13E-01
2006	10	25	7.08E-01	2.12E-04	6.26E-01	2.36E-06	4.43E-05	1.76E+00	9.87E-01	3.33E+00	3.15E-02	5.48E-03	1.56E-03	1.64E-02	9.54E-03	3.76E+00	9.75E-01
2006	10	26	3.03E-02	0.00E+00	5.93E-03	0.00E+00	0.00E+00	3.72E-01	2.24E-01	5.43E-01	0.00E+00	0.00E+00	0.00E+00	5.73E-04	4.51E-05	4.55E-01	4.53E-02
2006	10	27	5.12E-02	0.00E+00	3.21E-03	0.00E+00	0.00E+00	4.22E-01	2.96E-01	7.21E-01	0.00E+00	0.00E+00	0.00E+00	3.07E-06	0.00E+00	5.95E-01	8.16E-02
2006	10	28	3.82E-02	0.00E+00	4.20E-03	0.00E+00	0.00E+00	3.29E-01	2.44E-01	5.11E-01	0.00E+00	0.00E+00	0.00E+00	6.32E-05	0.00E+00	4.77E-01	5.36E-02
2006	10	29	9.52E-01	3.76E-04	5.80E-01	1.66E-05	1.15E-03	9.20E-01	2.01E-01	1.46E+00	3.27E-03	2.04E-03	3.20E-03	3.14E-03	1.81E-03	1.86E+00	1.17E+00
2006	10	30	1.65E+00	1.03E-03	8.74E-01	1.90E-04	7.00E-04	3.63E+00	1.37E+00	6.07E+00	9.16E-02	1.56E-02	5.19E-03	4.81E-02	2.95E-02	4.54E+00	1.95E+00
2006	10	31	1.55E+00	1.05E-03	1.04E+00	1.04E-04	4.08E-04	4.96E+00	2.42E+00	8.05E+00	1.30E-01	2.55E-02	6.85E-03	5.55E-02	3.94E-02	6.43E+00	1.92E+00
2006	11	1	1.00E+00	8.14E-03	8.58E-01	2.53E-03	4.62E-03	6.32E+00	3.28E+00	7.54E+00	1.85E-01	4.66E-02	1.94E-02	1.07E-01	7.07E-02	7.39E+00	1.60E+00
2006	11	2	3.03E+00	4.49E-02	2.04E+00	2.07E-02	2.71E-02	5.00E+00	1.65E+00	5.15E+00	2.38E-01	9.29E-02	6.05E-02	1.41E-01	1.10E-01	4.61E+00	3.69E+00
2006	11	3	1.31E-01	6.21E-05	2.61E-03	2.65E-04	3.51E-04	4.92E-01	6.06E-01	1.17E+00	4.01E-05	1.26E-04	1.35E-04	1.60E-04	1.49E-04	9.67E-01	1.84E-01
2006	11	4	6.99E-02	0.00E+00	4.90E-03	0.00E+00	0.00E+00	4.60E-01	3.57E-01	6.62E-01	1.00E-04	9.74E-06	0.00E+00	3.88E-04	1.52E-04	7.11E-01	1.29E-01
2006	11	5	8.42E-02	0.00E+00	4.21E-02	0.00E+00	0.00E+00	5.00E-01	2.97E-01	6.92E-01	7.39E-04	1.60E-04	3.93E-06	8.99E-04	3.01E-04	5.75E-01	1.52E-01
2006	11	6	6.02E-01	0.00E+00	1.26E-01	0.00E+00	1.88E-05	1.55E+00	2.64E-01	1.91E+00	5.16E-02	1.12E-02	6.52E-04	1.24E-02	1.22E-02	1.43E+00	1.11E+00
2006	11	7	4.07E-01	0.00E+00	6.93E-02	5.92E-07	2.36E-05	9.85E-01	3.22E-01	1.20E+00	2.46E-02	4.20E-03	3.44E-04	1.40E-02	8.23E-03	1.00E+00	7.71E-01
2006	11	8	7.00E-01	3.81E-04	5.07E-01	3.79E-06	1.15E-04	2.45E+00	1.08E+00	3.26E+00	4.03E-02	9.96E-03	3.23E-03	2.45E-02	1.46E-02	2.90E+00	9.73E-01
2006	11	9	1.51E+00	1.76E-02	8.26E-01	4.45E-03	7.65E-03	1.96E+00	1.02E+00	3.62E+00	6.55E-02	3.12E-02	2.70E-02	3.51E-02	3.10E-02	3.03E+00	1.93E+00
2006	11	10	4.90E-01	3.63E-03	1.51E-01	1.47E-03	3.10E-03	1.94E+00	6.44E-01	2.83E+00	6.89E-02	2.05E-02	9.40E-03	2.97E-02	2.52E-02	1.83E+00	8.69E-01
2006	11	11	3.12E-01	1.33E-06	3.11E-02	5.27E-07	9.34E-05	1.62E+00	4.38E-01	2.28E+00	4.60E-02	6.72E-03	1.02E-03	1.81E-02	1.16E-02	1.36E+00	5.30E-01
2006	11	12	1.64E+00	5.55E-04	3.17E-01	2.55E-04	2.87E-03	2.72E+00	6.94E-01	3.20E+00	8.14E-02	2.37E-02	1.22E-02	4.37E-02	3.03E-02	2.79E+00	2.04E+00
2006	11	13	9.15E-01	9.84E-03	1.80E-01	6.99E-03	8.29E-03	2.49E+00	6.38E-01	2.53E+00	1.32E-01	4.42E-02	2.38E-02	6.96E-02	5.86E-02	1.57E+00	1.25E+00
2006	11	14	1.15E+00	5.07E-04	5.05E-01	5.16E-05	1.74E-04	2.89E+00	1.71E+00	3.95E+00	3.41E-02	5.34E-03	1.46E-03	2.25E-02	1.11E-02	4.84E+00	1.54E+00
2006	11	15	3.26E-01	1.01E-04	1.11E-01	2.39E-04	8.59E-04	1.16E+00	4.25E-01	1.46E+00	2.35E-02	4.77E-03	1.61E-03	9.90E-03	5.95E-03	9.55E-01	5.24E-01
2006	11	16	1.31E-01	4.14E-08	2.81E-02	1.00E-05	2.24E-04	8.05E-01	4.65E-01	1.10E+00	1.32E-02	3.29E-03	5.94E-04	4.39E-03	2.75E-03	8.65E-01	2.13E-01
2006	11	17	7.08E-02	0.00E+00	1.03E-02	0.00E+00	0.00E+00	5.20E-01	4.74E-01	1.02E+00	0.00E+00	0.00E+00	0.00E+00	6.01E-05	0.00E+00	8.99E-01	1.09E-01
2006	11	18	1.28E+00	3.57E-03	6.64E-01	5.71E-04	1.13E-03	2.31E+00	1.81E+00	3.31E+00	6.29E-02	1.34E-02	6.33E-03	1.97E-02	1.58E-02	3.41E+00	1.67E+00
2006	11	19	1.13E+00	1.67E-02	7.14E-01	8.13E-03	1.32E-02	2.88E+00	1.40E+00	2.86E+00	1.82E-01	6.03E-02	3.46E-02	9.26E-02	7.54E-02	2.73E+00	1.44E+00
2006	11	20	8.01E-01	2.44E-04	3.48E-01	2.17E-04	1.40E-03	2.72E+00	1.61E+00	4.01E+00	8.78E-02	1.69E-02	5.11E-03	4.83E-02	3.25E-02	3.09E+00	1.39E+00
2006	11	21	9.47E-01	3.57E-03	4.17E-01	2.44E-03	7.70E-03	3.07E+00	1.49E+00	3.82E+00	2.08E-01	5.04E-02	2.27E-02	7.90E-02	6.55E-02	3.03E+00	1.37E+00
2006	11	22	2.00E+00	1.44E-02	1.07E+00	9.45E-03	1.20E-02	2.37E+00	1.32E+00	3.35E+00	3.88E-02	1.99E-02	1.87E-02	2.97E-02	2.05E-02	3.26E+00	2.51E+00
2006	11	23	9.32E-01	2.00E-03	3.10E-01	1.09E-03	1.79E-03	2.75E+00	1.05E+00	2.87E+00	8.16E-02	1.80E-02	5.16E-03	4.16E-02	3.34E-02	2.39E+00	1.46E+00
2006	11	24	6.38E-01	5.61E-03	1.65E-01	6.67E-03	1.59E-02	9.42E-01	4.03E-01	1.69E+00	5.15E-02	1.92E-02	2.04E-02	1.46E-02	1.98E-02	1.52E+00	9.07E-01
2006	11	25	9.82E-01	6.65E-03	4.22E-01	3.09E-03	5.03E-03	1.22E+00	6.74E-01	2.51E+00	5.27E-02	3.43E-02	1.80E-02	4.23E-02	4.16E-02	2.21E+00	1.38E+00
2006	11	26	7.71E-01	1.08E-02	4.01E-01	4.76E-03	6.27E-03	9.54E-01	2.20E-01	1.75E+00	1.63E-02	9.83E-03	1.06E-02	8.21E-03	8.00E-03	1.98E+00	1.02E+00
2006	11	27	1.11E+00	0.00E+00	6.61E-01	0.00E+00	0.00E+00	1.15E+00	2.30E-01	1.73E+00	6.12E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E+00	1.39E+00
2006	11	28	3.75E+00	9.09E-03	2.04E+00	2.86E-03	5.36E-03	5.28E+00	2.08E+00	4.46E+00	1.23E-01	3.63E-02	1.87E-02	6.32E-02	4.73E-02	5.26E+00	4.74E+00
2006	11	29	4.58E-01	5.90E-03	4.22E-01	1.41E-03	3.06E-03	2.97E+00	2.28E+00	4.72E+00	1.34E-01	3.56E-02	1.59E-02	6.34E-02	4.60E-02	4.36E+00	6.57E-01
2006	11	30	8.03E-02	0.00E+00	6.96E-04	0.00E+00	0.00E+00	3.54E-01	2.80E-01	7.93E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.93E-01	1.07E-01
2006	12	1	1.72E+00	6.39E-03	8.24E-01	1.10E-03	2.02E-03	2.47E+00	1.47E+00	3.31E+00	1.24E-01	3.49E-02	1.40E-02	6.62E-02	4.80E-02	2.93E+00	2.38E+00
2006	12	2	2.88E+00	4.71E-02	1.62E+00	1.60E-02	2.28E-02	3.73E+00	1.63E+00	4.71E+00	2.87E-01	1.14E-01	6.96E-02	1.69E-01	1.37E-01	4.40E+00	3.83E+00
2006	12	3	4.18E-02	0.00E+00	6.54E-04	0.00E+00	0.00E+00	2.99E-01	2.87E-01	5.84E-01	0.00E+00	0.00E+00	0.00E+00	1.17E-07	0.00E+00	5.71E-01	7.42E-02
2006	12	4	4.33E-02	0.00E+00	2.97E-03	0.00E+00	0.00E+00	3.16E-01	2.48E-01	5.93E-01	0.00E+00	0.00E+00	0.00E+00	1.04E-05	0.00E+00	5.02E-01	7.00E-02
2006	12	5	1.19E-01	0.00E+00	2.81E-04	0.00E+00	0.00E+00	4.75E-01	3.26E-01	8.01E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.35E-01	1.48E-01

Year	Month	Day	Project R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2006	9	7	9.51E-01	2.12E-03	2.16E-01	7.35E-06	4.75E-05	3.67E-01	1.61E-01	1.08E+00	5.75E+00	1.98E+00	3.35E-02	6.24E-01	7.04E-01	6.04E-01	1.13E+00
2006	9	8	3.23E-01	5.07E-01	7.56E-02	2.57E-01	4.36E-01	7.90E-02	1.28E-01	9.53E-01	4.67E+00	1.14E+01	2.85E+00	1.40E+00	2.07E+00	1.53E-01	6.07E-01
2006	9	9	1.68E-02	3.47E-01	3.26E-03	6.89E-02	1.90E-01	1.64E-03	6.81E-02	1.39E+00	1.46E-01	9.39E+00	2.32E+00	8.29E-01	1.81E+00	1.09E-01	2.66E-02
2006	9	10	6.99E-03	1.09E-04	7.08E-03	3.31E-06	1.10E-05	2.62E-02	4.23E-02	8.41E-01	5.73E-02	1.41E+01	1.58E-02	1.41E+00	1.09E+00	1.27E-02	1.43E-02
2006	9	11	3.43E-02	9.73E-04	4.97E-03	8.76E-03	5.18E-02	1.97E-02	1.83E-01	1.64E+00	3.25E-02	2.57E+01	4.32E-01	3.11E+00	3.69E+00	1.55E-01	9.64E-02
2006	9	12	8.54E-01	1.37E+00	2.24E-01	2.81E-02	3.84E-02	3.37E-01	3.75E-01	1.75E+00	1.50E+00	7.70E+00	3.83E+00	1.17E+00	1.41E+00	7.24E-01	9.16E-01
2006	9	13	2.09E-01	4.79E-02	2.39E-01	9.59E-02	3.70E-01	3.02E-01	1.08E-01	5.61E-01	5.06E+00	8.89E+00	4.73E+00	1.07E+00	1.88E+00	1.76E-01	2.66E-01
2006	9	14	3.61E-01	1.05E-01	1.03E-01	2.68E-02	9.40E-02	9.01E-02	1.59E-02	3.79E-01	3.59E+00	1.02E+01	1.05E+00	3.99E-01	1.03E+00	5.24E-02	6.77E-01
2006	9	15	6.75E-01	2.11E-02	1.30E+00	1.52E-03	2.01E-02	8.15E-01	1.32E+00	1.01E+00	8.84E+00	1.08E+01	8.40E-01	3.85E+00	4.18E+00	7.67E-01	8.11E-01
2006	9	16	3.13E-01	1.46E+00	2.44E+00	1.33E-01	1.98E-01	1.83E+00	3.72E-01	4.16E-01	1.11E+01	1.09E+01	1.51E+00	2.30E+00	4.25E+00	3.09E-01	3.64E-01
2006	9	17	2.03E-01	2.30E+00	1.74E-01	4.39E-01	5.86E-01	2.44E-01	1.72E-01	4.30E-01	2.62E+00	1.55E+01	8.70E+00	1.83E+00	4.05E+00	1.84E-01	3.50E-01
2006	9	18	1.38E-01	1.52E+00	1.20E-02	4.78E-01	7.01E-01	2.62E-02	6.70E-02	1.29E+00	6.25E-01	1.42E+01	1.06E+01	1.34E+00	1.79E+00	5.94E-02	2.85E-01
2006	9	19	1.62E-01	9.76E-01	4.22E-01	1.46E-01	1.99E-01	3.29E-01	1.67E-01	9.23E-01	4.04E+00	1.68E+01	3.54E+00	3.32E+00	4.72E+00	8.97E-02	3.34E-01
2006	9	20	1.30E-01	8.26E-01	3.53E-02	1.43E-01	2.41E-01	4.47E-02	1.24E-02	3.10E-01	2.32E+00	3.45E+00	3.17E+00	2.87E-01	4.26E-01	3.01E-02	2.50E-01
2006	9	21	1.26E+00	8.99E-05	2.38E-02	9.15E-07	6.08E-06	6.16E-02	2.79E-01	5.87E-01	9.46E-01	4.89E+00	1.52E-02	1.52E+00	1.74E+00	2.97E-01	1.53E+00
2006	9	22	2.27E+00	9.39E-06	2.32E-01	4.18E-07	7.65E-06	4.73E-01	1.73E-01	2.05E+00	3.15E+00	3.09E+00	6.85E-04	7.61E-01	7.32E-01	1.46E+00	2.82E+00
2006	9	23	4.49E-02	8.17E-06	1.02E-02	3.25E-06	3.46E-03	3.31E-02	1.58E-01	1.30E+00	9.23E-02	3.38E+01	2.61E-02	2.83E+00	4.77E+00	1.66E-01	1.04E-01
2006	9	24	3.50E-02	4.99E-05	8.90E-03	2.92E-06	1.39E-05	2.50E-02	1.46E-01	1.83E+00	5.86E-03	2.13E+01	3.75E-03	3.26E+00	4.45E+00	1.01E-01	8.01E-02
2006	9	25	3.38E-02	0.00E+00	5.34E-04	0.00E+00	0.00E+00	5.07E-03	8.04E-02	1.13E+00	4.63E-04	1.29E+01	8.13E-02	1.54E+00	5.87E-01	5.93E-02	1.08E-01
2006	9	26	5.51E-02	3.96E-02	2.38E-01	7.69E-03	4.42E-02	1.53E-01	6.76E-02	3.67E-01	3.24E+00	1.72E+01	1.50E+00	1.25E+00	1.93E+00	7.18E-02	8.48E-02
2006	9	27	1.70E-01	4.37E-01	3.89E-02	1.55E-01	1.52E-01	8.66E-02	1.95E-02	4.84E-01	3.80E+00	4.41E+00	7.20E-01	4.38E-01	6.89E-01	2.15E-02	4.80E-01
2006	9	28	4.28E-02	0.00E+00	4.60E-04	0.00E+00	0.00E+00	4.34E-03	8.86E-02	7.42E-01	2.23E-04	1.20E+01	1.84E-03	9.43E-01	6.16E-01	1.27E-02	1.22E-01
2006	9	29	2.91E-02	0.00E+00	4.59E-04	0.00E+00	0.00E+00	6.18E-03	5.06E-02	5.01E-01	1.86E-03	1.09E+01	3.29E-02	1.33E+00	1.24E+00	1.19E-02	4.27E-02
2006	9	30	1.42E-02	0.00E+00	4.62E-08	0.00E+00	0.00E+00	1.10E-06	4.56E-02	9.57E-01	1.56E-06	5.15E+00	1.30E-01	8.70E-01	7.35E-01	2.37E-02	1.23E-01
2006	10	1	1.63E-01	3.86E-02	4.20E-02	3.57E-02	5.79E-02	8.92E-02	1.49E-01	1.20E+00	4.81E-01	1.19E+01	4.49E-01	1.33E+00	1.01E+00	1.41E-01	3.32E-01
2006	10	2	3.07E-01	8.14E-04	3.13E-01	1.92E-05	6.98E-05	2.67E-01	7.65E-02	6.25E-01	3.43E+00	1.38E+00	4.23E-03	5.51E-01	6.01E-01	7.65E-02	5.52E-01
2006	10	3	4.71E-01	7.36E-04	2.37E-01	7.73E-06	3.27E-05	2.14E-01	6.12E-03	2.81E-01	7.12E+00	8.39E-03	4.36E-03	6.21E-03	5.27E-03	5.50E-02	8.98E-01
2006	10	4	9.26E-01	7.89E-03	6.53E-01	1.82E-05	1.09E-04	7.71E-01	7.24E-01	1.46E+00	7.45E+00	5.05E-01	3.85E-02	8.56E-01	3.62E-01	9.84E-01	1.12E+00
2006	10	5	2.08E-02	3.19E-01	1.30E-02	6.68E-02	1.04E-01	1.77E-02	1.31E-01	1.99E+00	2.57E-01	8.82E+00	1.02E+00	1.61E+00	1.41E+00	7.31E-02	6.08E-02
2006	10	6	6.35E-02	5.11E-06	2.69E-03	6.39E-09	2.67E-07	1.16E-02	1.57E-01	1.60E+00	1.08E-01	8.26E+00	3.78E-02	1.48E+00	9.46E-01	6.92E-02	1.60E-01
2006	10	7	3.22E-01	2.52E-01	5.84E-01	4.14E-02	4.39E-02	5.45E-01	5.82E-02	1.99E-01	8.21E+00	6.59E-01	2.76E-01	3.03E-01	5.02E-01	8.61E-02	5.01E-01
2006	10	8	5.35E-01	1.43E-02	2.21E-01	5.08E-06	2.44E-05	1.64E-01	1.04E-02	2.30E-01	5.94E+00	8.78E-02	1.69E-02	4.23E-02	4.17E-02	6.32E-02	8.77E-01
2006	10	9	3.96E-01	3.66E-02	3.99E-01	4.64E-02	2.49E-01	4.47E-01	1.96E-01	1.79E+00	2.60E+00	9.36E+00	8.89E-01	1.40E+00	1.27E+00	4.09E-01	5.19E-01
2006	10	10	1.56E-01	1.56E-01	1.24E-01	2.85E-02	8.33E-02	1.98E-01	2.60E-01	2.07E+00	3.18E+00	1.36E+01	8.32E-01	1.92E+00	1.69E+00	3.04E-01	2.01E-01
2006	10	11	3.27E-01	1.15E+00	1.06E-01	1.96E-01	2.98E-01	1.56E-01	4.27E-01	1.62E+00	1.92E+00	9.19E+00	3.51E+00	2.30E+00	3.28E+00	4.19E-01	5.67E-01
2006	10	12	1.52E-01	4.00E-01	4.34E-02	8.93E-02	1.16E-01	4.49E-02	1.65E-01	1.19E+00	2.18E+00	1.12E+01	1.41E+00	1.80E+00	2.18E+00	1.35E-01	3.20E-01
2006	10	13	4.94E-01	1.41E+00	3.34E-01	2.34E-01	2.33E-01	3.42E-01	1.94E-01	1.02E+00	3.80E+00	6.50E+00	2.93E+00	1.14E+00	1.57E+00	2.85E-01	9.94E-01
2006	10	14	9.05E-02	2.73E-01	8.09E-02	4.20E-02	6.67E-02	7.14E-02	1.43E-01	1.77E+00	5.81E-01	1.26E+01	1.31E+00	2.00E+00	1.60E+00	1.46E-01	1.74E-01
2006	10	15	1.63E-02	4.90E-05	2.65E-03	4.05E-07	1.20E-05	1.98E-02	1.63E-02	6.35E-01	2.98E-02	4.43E+00	1.38E-01	8.19E-01	1.07E+00	3.77E-02	3.51E-02
2006	10	16	6.37E-02	9.30E-05	2.11E-01	1.19E-08	6.10E-07	2.11E-01	3.84E-02	5.13E-02	8.65E+00	9.42E-02	6.37E-04	1.48E-01	1.13E-01	3.51E-02	1.12E-01
2006	10	17	1.88E-02	2.00E-01	8.00E-03	7.79E-02	8.04E-02	2.44E-02	2.15E-02	4.01E-01	1.77E+00	3.13E+00	2.39E-01	5.56E-01	2.12E-01	2.83E-02	4.40E-02
2006	10	18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.09E-02	6.69E-01	4.20E-16	2.04E+00	1.20E-02	6.00E-01	1.94E-01	9.59E-03	0.00E+00
2006	10	19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.24E-02	8.32E-01	2.38E-17	4.18E+00	1.05E-02	7.82E-01	3.34E-01	4.18E-03	0.00E+00
2006	10	20	1.04E+00	5.95E-02	2.21E-01	1.45E-02	3.39E-02	4.00E-01	6.19E-01	1.51E+00	2.62E+00	6.78E+00	4.63E-01	2.52E+00	2.90E+00	8.96E-01	1.36E+00
2006	10	21	1.83E+00	5.05E-01	1.61E+00	1.41E-01	2.48E-01	1.89E+00	9.01E-01	2.82E+00	6.53E+00	3.88E+00	2.47E+00	1.70E+00	1.50E+00	1.82E+00	2.17E+00
2006	10	22	1.11E-02	2.32E-05	7.45E-03	1.60E-06	7.08E-06	5.45E-02	1.07E-01	8.89E-01	5.11E-03	7.62E+00	4.80E-03	1.12E+00	2.39E-01	3.30E-02	3.14E-02
2006	10	23	9.53E-02	2.66E-05	1.76E-02	1.04E-06	1.54E-05	5.68E-02	3.34E-02	3.82E-01	4.25E-02	6.70E+00	1.42E-02	8.51E-01	8.10E-01	5.99E-03	2.21E-01
2006	10	24	8.40E-02	9.77E-05	1.67E-02	6.93E-06	3.39E-05	4.41E-02	2.81E-02	9.80E-01	9.88E-03	3.73E+00	6.19E-02	7.65E-01	6.58E-01	1.64E-02	2.46E-01
2006	10	25	8.07E-02	1.22E-04	1.52E-02	5.78E-06	3.60E-05	3.11E-02	3.50E-02	4.37E-01	1.42E-02	7.51E+00	1.91E-02	5.78E-01	8.42E-01	1.80E-02	2.00E-01
2006	10	26	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-02	3.54E-01	2.14E-16	9.16E-01	2.57E-02	3.19E-01	1.61E-01	2.19E-03	0.00E+00
2006	10	27	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E-02	3.22E-01	3.31E-17	1.07E+00	5.17E-02	4.65E-01	2.11E-01	0.00E+00	0.00E+00
2006	10	28	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-02	3.18E-01	2.42E-17	9.23E-01	3.99E-02	3.51E-01	1.95E-01	2.26E-03	0.00E+00
2006	10	29	5.84E-02	2.34E-04	3.40E-01	3.49E-10	1.49E-04	1.34E-01	1.14E-02	1.70E-01	2.07E+00	6.42E-01	2.20E-01	8.27E-02	5.65E-02	8.19E-03	1.28E-01
2006	10	30	1.37E-01	1.53E-05	2.15E-01	4.55E-06	3.90E-05	9.52E-02	1.15E-01	1.07E+00	1.93E+00	8.36E+00	4.04E-03	1.50E+00	1.71E+00	1.71E-01	2.64E-01
2006	10	31	1.09E-01	1.23E-04	2.43E-02	6.09E-06	3.54E-05	6.70E-02	7.96E-02	1.33E+00	6.32E-02	1.46E+01	1.03E-02	1.55E+00	9.89E-01	1.88E-01	2.92E-01
2006	11	1	1.16E-01	2.45E-02	7.94E-03	6.09E-03	1.68E-02	1.43E-02	1.27E-01	2.03E+00	2.41E-01	1.77E+01	2.32E-01	1.91E+00	1.39E+00	2.37E-01	3.17E-01
2006	11	2	4.22E-01	1.23E+00	1.37E-01	8.25E-01	1.06E+00	1.72E-01	1.09E-01	5.99E-01	3.24E+00	7.67E+00	1.03E+01	7.51E-01	1.48E+00	1.52E-01	7.53E-01
2006	11	3	1.22E-07	1.69E-05	0.00E+00	1.04E-03	1.65E-03	3.28E-08	6.20E-02	3.52E-01	3.40E-06	2.96E+00	6.04E-02	9.28E-01	3.21E-01	1.97E-02	1.49E-07
2006	11	4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.17E-03	0.00E+00	2.98E-02	4.02E-01	3.07E-17	1.25E+00	1.13E-01	4.92E-01	2.82E-01	0.00E+00	0.00E+00
2006	11	5	0.00E+00	0.00E+00	0.00E+00	2.21E-05	5.29E-02	0.00E+00	2.53E-03	2.22E-01	6.26E-18	1.25E+00	3.09E-01	1.88E-01	4.75E-01	0.00E+00	0.00E+00
2006	11	6	5.36E-03	0.00E+00	1.48E-03	2.15E-07	1.34E-03	4.45E-03	3.11E-04	3.36E-01	9.55E-04	1.41E+00	2.13E-01	1.77E-02	5.03E-01	2.23E-03	3.94E-02
2006	11	7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-04	0.00E+00	9.85E-04	1.70E-01	2.70E-04	1.77E+00	1.85E-01	1.10E-01	5.79E-01	1.53E-04	1.07E-05
2006	11	8	1.22E-01	1.51E-04	1.42E-02	1.38E-05	3.49E-05	3.63E-02	8.63E-03	4.07E-01	1.15E-02	5.33E+00	4.41E-02	7.05E-01	6.75E-01	1.06E-02	2.88E-01
2006	11	9	2.60E-02	3.48E-01	4.34E-02	6.49E-03	1.97E-02	8.89E-02	1.99E-02	1.95E-01	2.66E+00	1.41E+00	1.45E+00	1.96E-01	1.95E-01	2.17E-02	4.42E-02
2006	11	10	1.39E-02	7.20E-02	4.58E-03	5.76E-02	2.42E-01	1.36E-02	1.31E-02	9.78E-01	6.01E-02	2.64E+00	1.04E+00	3.50E-01	9.80E-01	1.03E-01	2.60E-02
2006	11	11	5.67E-05	0.00E+00	0.00E+00	0.00E+00	3.18E-03	0.00E+00	8.74E-03	1.11E+00	1.66E-18	1.12E+00	1.61E-01	2.52E-01	4.85E-01	2.39E-02	2.51E-04
2006	11	12	8.28E-02	1.73E-04	1.36E-02	1.50E-04	1.09E-01	5.55E-02	1.52E-02	7.08E-01	2.54E-02	1.84E+00	1.01E+00	8.03E-02	4.06E-01	2.55E-02	2.27E-01
2006	11	13	9.20E-02	1.16E-01	1.24E-03	6.17E-02	1.14E-01	5.58E-03	1.17E-02	7.43E-01	1.38E-02	1.33E+00	2.03E+00	1.67E-01	2.33E-01	4.64E-02	2.60E-01
2006	11	14	9.34E-02	1.01E-02	2.19E-02	3.86E-04	1.87E-03	5.73E-02	9.67E-02	6.82E-01	4.24E-01	6.35E+00	1.43E-01	8.96E-01	8.77E-01	8.77E-02	1.83E-01
2006	11	15	3.71E-02	0.00E+00	2.91E-04	1.86E-02	1.28E-01	1.24E-03	9.02E-03	4.59E-01	3.02E-03	1.24E+00	9.18E-01	2.62E-01	2.58E-01	7.51E-03	8.88E-02
2006	11	16	0.00E+00	0.00E+00	0.00E+00	8.79E-08	5.92E-03	0.00E+00	1.84E-02	4.02E-01	3.12E-04	2.00E+00	1.48E-01	5.68E-01	3.76E-01	0.00E+00	2.58E-05
2006	11	17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.11E-02	5.48E-01	2.20E-17	6.72E+00	2.07E-03	6.59E-01	2.95E-01	1.23E-03	0.00E+00
2006	11	18	1.28E-01	3.00E-04	1.47E-02	6.79E-05	1.28E-03	4.29E-02	8.74E-02	7.50E-01	2.35E-01	1.16E+01	1.10E-01	9.98E-01	8.95E-01	4.12E-02	2.81E-01
2006	11	19	1.49E-01	2.51E-03	1.44E-02	1.07E-01	3.60E-01	3.00E-02	6.23E-03	9.34E-01	1.14E-01	3.91E+00	4.00E+00	1.63E-01	5.33E-01	1.68E-01	3.04E-01
2006	11	20	6.58E-02	5.70E-06	1.55E-03	1.86E-05	5.60E-03	8.93E-03	4.74E-02	1.43E+00	1.46E-02	3.12E+00	5.24E-01	4.78E-01	1.24E+00	3.51E-02	1.55E-01
2006	11	21	1.69E-02	1.49E-05	7.48E-05	3.12E-02	2.07E-01	6.40E-04	3.84E-02	1.14E+00	1.38E-02	2.49E+00	2.28E+00	1.88E-01	8.63E-01	9.09E-02	4.77E-02
2006	11	22	1.06E-01	2.88E-01	4.14E-02	3.30E-01	6.50E-01	1.16E-01	3.56E-02	6.17E-01	9.10E-01	1.76E+00	6.86E+00	2.22E-01	4.03E-01	1.39E-02	2.15E-01
2006	11	23	2.67E-02	1.06E-01	5.71E-04	2.38E-02	1.10E-01	7.83E-03	3.06E-02	8.54E-01	1.65E-01	3.12E+00	1.89E+00	3.08E-01	7.05E-01	1.71E-02	4.73E-02
2006	11	24	3.13E-05	6.60E-01	7.49E-05	1.21E-01	3.11E-01	6.32E-03	1.86E-04	1.58E-02	1.43E-01	9.04E-01	1.80E+00	3.98E-03	5.69E-02	3.63E-05	3.46E-05
2006	11	25	1.38E-11	6.30E-01	7.01E-03	7.38E-02	1.50E-01	4.47E-02	1.07E-07	4.05E-11	5.30E-01	8.20E-01	2.45E+00	6.12E-03	5.24E-02	0.00E+00	2.08E-11
2006	11	26	3.48E-04	3.53E-01	2.60E-02	1.28E-01	1.68E-01	4.69E-02	8.10E-05	2.58E-04	1.88E+00	6.11E-02	2.90E-01	3.32E-03	1.32E-02	2.22E-04	3.47E-04
2006	11	27	0.00E+00	0.00E+00	8.31E-02	0.00E+00	0.00E+00	9.87E-02	0.00E+00	0.00E+00	3.77E+00	3.99E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2006	11	28	1.01E-01	2.61E-01	3.60E-01	6.65E-02	1.32E-01	4.18E-01	4.43E-02	5.27E-01	1.02E+01	2.50E+00	2.75E+00	3.61E-01	7.64E-01	9.93E-02	1.85E-01
2006	11	29	2.45E-02	1.01E-03	1.03E-03	2.68E-04	3.66E-04	6.28E-03	8.27E-02	1.36E+00	3.00E-02	1.08E+01	2.19E-02	1.31E+00	5.79E-01	5.71E-02	7.01E-02
2006	11	30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.58E-02	1.92E-01	2.25E-16	2.80E+00	1.04E-02	4.18E-01	1.97E-01	1.83E-02	0.00E+00
2006	12	1	1.59E-01	4.07E-01	1.30E-01	1.94E-02	2.74E-02	1.97E-01	1.94E-01	4.70E-01	1.21E+00	7.32E+00	1.12E+00	8.47E-01	1.36E+00	1.41E-01	2.09E-01
2006	12	2	1.48E-01	1.58E+00	6.49E-02	4.13E-01	5.48E-01	8.97E-02	4.09E-02	4.01E-01	2.65E+00	4.89E+00	9.36E+00	4.25E-01	4.91E-01	4.11E-02	3.14E-01
2006	12	3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.90E-02	3.44E-01	5.39E-16	4.17E+00	1.33E-03	4.12E-01	2.08E-01	0.00E+00	0.00E+00
2006	12	4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-02	2.75E-01	5.53E-16	2.39E+00	1.74E-02	3.78E-01	1.98E-01	1.34E-02	0.00E+00
2006	12	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.74E-02	5.41E-01	1.90E-17	6.45E+00	1.23E-04	4.17E-01	4.45E-01	6.90E-02	0.00E+00

Table C4 - Timeseries Data for PM10

Year	Month	Day	Application															Baseline															Project													
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
2006	12	6	9.98E-02	0.00E+00	7.04E-04	0.00E+00	0.00E+00	5.06E-01	7.52E-01	1.89E+00	6.64E-17	7.23E+00	7.54E-04	9.92E-01	2.87E-01	1.11E+00	1.57E-01	9.98E-02	0.00E+00	7.04E-04	0.00E+00	0.00E+00	5.06E-01	6.51E-01	9.43E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E+00	1.57E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-01	9.51E-01	6.64E-17	7.23E+00	7.54E-04	9.92E-01	2.87E-01	0.00E+00	0.00E+00
2006	12	7	1.45E-01	0.00E+00	7.40E-02	0.00E+00	0.00E+00	9.58E-01	7.09E-01	2.35E+00	1.57E-03	6.03E+00	4.90E-03	8.43E-01	3.65E-01	1.60E+00	3.11E-01	1.03E-01	0.00E+00	7.40E-02	0.00E+00	0.00E+00	9.58E-01	6.55E-01	1.86E+00	1.57E-03	1.56E-04	4.46E-07	6.31E-03	1.25E-03	1.57E+00	2.61E-01	4.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.41E-02	4.96E-01	1.04E-16	6.03E+00	4.90E-03	8.37E-01	3.64E-01	3.13E-02	5.08E-02
2006	12	8	9.40E-01	5.64E-04	2.80E-01	1.01E-04	1.05E-03	1.33E+00	9.12E-01	2.63E+00	9.09E-02	4.41E+00	3.73E-02	5.80E-01	4.34E-01	1.89E+00	1.27E+00	9.17E-01	5.15E-04	2.69E-01	9.32E-05	9.35E-04	1.29E+00	8.46E-01	2.32E+00	5.32E-02	1.51E-02	6.43E-03	1.44E-02	1.72E-02	1.85E+00	1.18E+00	2.25E-02	4.86E-05	1.09E-02	8.03E-06	1.18E-04	4.28E-02	6.58E-02	3.06E-01	3.76E-02	4.39E+00	3.08E-02	5.66E-01	4.17E-01	3.56E-02	8.74E-02
2006	12	9	5.23E-01	4.65E-04	3.45E-01	3.06E-04	4.31E-03	2.87E+00	2.16E+00	5.86E+00	8.09E-02	8.42E+00	2.36E-01	1.32E+00	1.29E+00	5.10E+00	8.23E-01	5.05E-01	4.63E-04	3.45E-01	2.92E-04	1.30E-03	2.87E+00	2.08E+00	4.51E+00	7.37E-02	1.75E-02	4.74E-03	4.22E-02	2.98E-02	4.94E+00	6.99E-01	1.84E-02	2.01E-06	3.79E-04	1.42E-05	3.01E-03	2.78E-03	7.42E-02	1.35E+00	7.20E-03	8.40E+00	2.31E-01	1.28E+00	1.26E+00	1.54E-01	1.24E-01
2006	12	10	6.10E-02	0.00E+00	1.49E-03	0.00E+00	0.00E+00	4.62E-01	7.15E-01	1.70E+00	4.38E-07	7.62E+00	7.17E-03	1.10E+00	4.06E-01	9.61E-01	9.89E-02	6.10E-02	0.00E+00	1.49E-03	0.00E+00	0.00E+00	4.62E-01	6.36E-01	8.91E-01	4.38E-07	1.74E-06	0.00E+00	1.83E-04	4.32E-05	9.59E-01	9.89E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.95E-02	8.12E-01	5.29E-18	7.62E+00	7.17E-03	1.10E+00	4.06E-01	2.24E-03	0.00E+00
2006	12	11	3.71E-02	0.00E+00	9.17E-03	0.00E+00	5.55E-04	3.16E-01	2.98E-01	7.62E-01	1.47E-17	9.51E-01	8.97E-02	3.07E-01	2.49E-01	5.24E-01	5.06E-02	3.71E-02	0.00E+00	9.17E-03	0.00E+00	0.00E+00	3.16E-01	2.94E-01	6.17E-01	0.00E+00	0.00E+00	0.00E+00	1.60E-04	9.47E-07	4.96E-01	5.06E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.55E-04	0.00E+00	3.91E-03	1.45E-01	1.47E-17	9.51E-01	8.97E-02	3.07E-01	2.49E-01	2.84E-02	0.00E+00
2006	12	12	1.10E-01	0.00E+00	2.42E-02	0.00E+00	4.26E-03	7.92E-01	3.19E-01	1.26E+00	1.55E-02	1.19E+00	1.89E-01	1.99E-01	4.29E-01	7.13E-01	2.86E-01	1.10E-01	0.00E+00	2.42E-02	0.00E+00	0.00E+00	2.39E-05	7.92E-01	3.16E-01	9.57E-01	1.55E-02	2.82E-03	1.38E-04	7.39E-03	7.04E-03	7.13E-01	2.86E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.24E-03	0.00E+00	3.51E-03	3.07E-01	1.67E-20	1.18E+00	1.89E-01	1.91E-01	4.22E-01	6.75E-05	0.00E+00
2006	12	13	1.47E-01	0.00E+00	6.12E-02	1.66E-07	1.25E-02	6.80E-01	2.62E-01	1.20E+00	2.84E-03	1.16E+00	1.65E-01	1.90E-01	3.32E-01	6.15E-01	2.23E-01	1.35E-01	0.00E+00	6.12E-02	1.65E-07	6.28E-05	6.80E-01	2.57E-01	9.08E-01	2.84E-03	9.25E-04	2.22E-04	4.49E-03	3.56E-03	6.15E-01	2.03E-01	1.20E-02	0.00E+00	0.00E+00	0.00E+00	1.55E-09	1.24E-02	1.18E-04	5.76E-03	2.94E-01	2.27E-19	1.16E+00	1.65E-01	1.85E-01	3.28E-01	6.78E-04	2.01E-02
2006	12	14	1.45E+00	3.85E-01	5.30E-01	8.70E-02	7.95E-02	1.65E+00	1.06E+00	3.30E+00	7.33E-01	2.74E+00	3.27E+00	5.76E-01	4.33E-01	2.46E+00	1.94E+00	1.19E+00	3.66E-03	5.27E-01	1.69E-03	2.88E-03	1.65E+00	1.03E+00	2.64E+00	2.72E-02	1.38E-02	7.32E-03	2.93E-02	2.05E-02	2.40E+00	1.47E+00	2.59E-01	3.81E-01	3.44E-03	8.53E-02	7.67E-02	6.41E-03	3.01E-02	6.62E-01	7.06E-01	2.73E+00	3.26E+00	5.46E-01	4.12E-01	6.43E-02	4.71E-01
2006	12	15	2.82E-01	4.05E-04	1.95E-02	8.83E-02	1.57E-01	7.77E-01	2.83E-01	1.73E+00	1.13E-02	1.02E+00	8.49E-01	2.55E-01	1.78E-01	7.10E-01	4.05E-01	2.82E-01	3.60E-04	1.95E-02	1.62E-03	3.01E-03	7.77E-01	2.73E-01	1.04E+00	1.06E-02	5.36E-03	2.73E-03	1.37E-02	9.76E-03	7.09E-01	4.04E-01	1.28E-04	4.49E-05	1.03E-06	8.67E-02	1.54E-01	2.03E-06	1.05E-02	6.93E-01	7.62E-04	1.01E+00	8.46E-01	2.42E-01	1.69E-01	1.33E-03	1.71E-04
2006	12	16	3.81E-01	7.10E-04	2.50E-01	1.85E-04	8.78E-04	2.99E+00	1.68E+00	5.82E+00	8.69E-02	5.84E+00	1.43E-02	8.21E-01	8.27E-01	3.53E+00	5.59E-01	3.62E-01	6.44E-04	2.48E-01	1.63E-04	8.29E-04	2.98E+00	1.59E+00	4.22E+00	8.52E-02	2.06E-02	6.26E-03	3.45E-02	2.83E-02	3.45E+00	5.20E-01	1.89E-02	6.54E-05	2.14E-03	2.19E-05	4.87E-05	6.32E-03	8.74E-02	1.59E+00	1.73E-03	5.82E+00	8.03E-03	7.86E-01	7.99E-01	8.16E-02	3.86E-02
2006	12	17	7.18E-01	3.08E-04	2.83E-01	1.78E-05	1.48E-04	2.46E+00	1.60E+00	5.34E+00	8.69E-02	7.02E+00	2.58E-02	1.28E+00	8.12E-01	3.30E+00	1.34E+00	5.99E-01	3.08E-04	2.80E-01	1.78E-05	1.47E-04	2.45E+00	1.49E+00	4.12E+00	8.11E-02	1.46E-02	3.32E-03	3.60E-02	2.51E-02	3.21E+00	9.22E-01	1.20E-01	1.87E-07	3.30E-03	0.00E+00	4.09E-07	1.02E-02	1.05E-01	1.22E+00	5.75E-03	7.00E+00	2.25E-02	1.25E+00	7.87E-01	8.70E-02	4.13E-01
2006	12	18	4.83E-02	0.00E+00	4.77E-04	0.00E+00	0.00E+00	2.85E-01	2.98E-01	7.73E-01	3.58E-15	3.10E+00	1.61E-03	4.36E-01	1.81E-01	5.29E-01	6.63E-02	4.83E-02	0.00E+00	4.77E-04	0.00E+00	0.00E+00	2.85E-01	2.66E-01	3.75E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.29E-01	6.63E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.21E-02	3.98E-01	3.58E-15	3.10E+00	1.61E-03	4.36E-01	1.81E-01	5.86E-04	0.00E+00
2006	12	19	6.22E-02	0.00E+00	1.03E-03	0.00E+00	0.00E+00	3.89E-01	4.78E-01	1.39E+00	1.40E-16	4.99E+00	1.00E-02	6.38E-01	3.84E-01	7.48E-01	8.85E-02	6.22E-02	0.00E+00	1.03E-03	0.00E+00	0.00E+00	3.89E-01	4.26E-01	9.58E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.38E-01	8.85E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.20E-02	4.32E-01	1.40E-16	4.99E+00	1.00E-02	6.38E-01	3.84E-01	9.56E-03	0.00E+00
2006	12	20	3.12E-01	0.00E+00	1.73E-01	0.00E+00	0.00E+00	7.49E-01	8.05E-01	1.70E+00	8.59E-03	5.37E+00	2.82E-03	9.90E-01	2.49E-01	1.04E+00	3.86E-01	2.88E-01	0.00E+00	1.73E-01	0.00E+00	0.00E+00	7.48E-01	7.50E-01	1.25E+00	3.63E-04	7.13E-06	0.00E+00	6.51E-04	1.52E-04	1.02E+00	3.22E-01	2.38E-02	0.00E+00	2.07E-04	0.00E+00	0.00E+00	8.96E-04	5.57E-02	4.51E-01	8.23E-03	5.37E+00	2.82E-03	9.90E-01	2.49E-01	1.22E-02	6.39E-02
2006	12	21	1.20E-01	0.00E+00	4.39E-03	0.00E+00	0.00E+00	5.19E-01	5.14E-01	1.47E+00	5.26E-17	2.11E+00	3.28E-02	7.53E-01	2.24E-01	8.81E-01	1.70E-01	1.20E-01	0.00E+00	4.39E-03	0.00E+00	0.00E+00	5.19E-01	4.73E-01	9.34E-01	0.00E+00	0.00E+00	0.00E+00	9.03E-05	0.00E+00	8.61E-01	1.70E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.14E-02	5.32E-01	5.26E-17	2.11E+00	3.28E-02	7.52E-01	2.24E-01	1.98E-02	0.00E+00
2006	12	22	1.95E-01	0.00E+00	9.70E-02	0.00E+00	0.00E+00	1.20E+00	6.89E-01	2.17E+00	5.66E-03	5.59E+00	6.81E-03	8.18E-01	2.85E-01	1.54E+00	2.98E-01	1.55E-01	0.00E+00	9.69E-02	0.00E+00	0.00E+00	1.20E+00	5.95E-01	1.53E+00	4.17E-03	2.23E-04	7.11E-07	1.09E-03	5.26E-04	1.48E+00	2.05E-01	4.01E-02	0.00E+00	1.42E-04	0.00E+00	0.00E+00	1.53E-03	9.45E-02	6.44E-01	1.49E-03	5.59E+00	6.81E-03	8.16E-01	2.85E-01	6.53E-02	9.28E-02
2006	12	23	1.05E-01	0.00E+00	3.06E-03	0.00E+00	2.65E-11	4.54E-01	4.70E-01	1.57E+00	2.57E-17	3.79E+00	2.95E-02	7.56E-01	2.86E-01	8.57E-01	1.36E-01	1.05E-01	0.00E+00	3.06E-03	0.00E+00	0.00E+00	4.54E-01	4.38E-01	9.46E-01	0.00E+00	0.00E+00	0.00E+00	2.12E-05	0.00E+00	8.35E-01	1.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-11	0.00E+00	3.21E-02	6.25E-01	2.57E-17	3.79E+00	2.95E-02	7.56E-01	2.86E-01	2.21E-02	0.00E+00
2006	12	24	6.39E-01	6.10E-04	2.45E-01	1.33E-05	1.00E-01	1.58E+00	1.24E+00	3.38E+00	4.77E-02	8.07E+00	1.57E-01	1.23E+00	3.96E-01	2.54E+00	9.46E-01	6.21E-01	5.89E-04	2.40E-01	4.22E-06	1.59E-04	1.56E+00	1.17E+00	2.49E+00	4.07E-02	7.67E-03	2.59E-03	1.61E-02	1.12E-02	2.50E+00	8.72E-01	1.85E-02	2.02E-05	4.67E-03	9.08E-06	1.00E-01	2.41E-02	7.23E-02	8.90E-01	7.00E-03	8.06E+00	1.54E-01	1.22E+00	3.85E-01	3.69E-02	7.42E-02
2006	12	25	4.02E-01	7.16E-04	1.99E-01	1.28E-04	8.07E-04	3.39E+00	9.60E-01	4.93E+00	1.09E-01	2.88E+00	1.93E-01	5.17E-01	4.84E-01	2.71E+00	6.18E-01	3.93E-01	7.16E-04	1.98E-01	1.28E-04	6.04E-04	3.39E+00	9.13E-01	3.31E+00	1.06E-01	1.79E-02	4.71E-03	3.31E-02	2.49E-02	2.60E+00	5.79E-01	9.07E-03	0.00E+00	4.52E-04	0.00E+00	2.03E-04	2.88E-03	4.75E-02	1.62E+00	2.88E-03	2.86E+00	1.88E-01	4.84E-01	4.59E-01	1.14E-01	3.86E-02
2006	12	26	2.25E+00	7.94E-05	8.90E-01	8.51E-08	6.44E-06	2.22E+00	8.64E-01	3.50E+00	1.64E+00	7.99E+00	4.86E-03	1.40E+00	1.34E+00	3.01E+00	2.31E+00	1.98E+00	7.86E-05	5.90E-01	8.50E-08	6.43E-06	2.00E+00	7.05E-01	2.72E+00	2.78E-02	5.65E-03	1.03E-03	1.47E-02	9.90E-03	2.85E+00	2.05E+00	2.74E-01	7.97E-07	3.00E-01	1.25E-10	1.38E-08	2.24E-01	1.59E-01	7.82E-01	1.61E+00	7.98E+00	3.83E-03	1.38E+00	1.33E+00	1.61E-01	2.58E-01
2006	12	27	2.24E+00	3.13E-05	1.51E+00	6.49E-07	2.54E-06	2.25E+00	6.86E-02	2.72E+00	6.65E+00	1.31E-03	1.19E-04	2.48E-03	1.40E-03	3.41E+00	3.07E+00	2.13E+00	3.13E-05	9.61E-01	6.49E-07	2.54E-06	1.93E+00	6.80E-02	2.62E+00	8.33E-03	6.92E-04	1.04E-04	2.26E-03	1.26E-03	3.34E+00	2.93E+00	1.12E-01	0.00E+00	5.45E-01	0.00E+00	0.00E+00	3.16E-01	5.84E-04	1.00E-01	6.64E+00	6.16E-04	1.50E-05	2.25E-04	1.40E-04	7.04E-02	1.37E-01
2006	12	28	4.56E+00	1.05E+00	3.28E+00	1.51E-01	1.94E-01	6.92E+00	1.85E+00	8.06E+00	6.04E+00	5.53E+00	2.48E+00	9.20E-01	9.31E-01	6.19E+00	5.47E+00	3.95E+00	1.54E-02	1.88E+00	6.85E-03	1.03E-02	5.67E+00	1.78E+00	6.85E+00	1.35E-01	5.04E-02	2.79E-02	1.02E-01	7.19E-02	5.94E+00	4.48E+00	6.11E-01	1.03E+00	1.40E+00	1.44E-01	1.84E-01	1.25E+00	6.98E-02	1.21E+00	5.90E+00	5.48E+00	2.45E+00	8.18E-01	8.59E-01	2.47E-01	9.93E-01
2006	12	29	9.98E-01	6.40E-03	4.89E-01	3.99E-03	4.88E-03	1.89E+00	1.56E+00	3.92E+00	1.16E-01	9.03E+00	2.77E-02	1.23E+00	4.18E-01	2.58E+00	1.37E+00	9.66E-01	2.93E-03	4.84E-01	6.16E-04	1.30E-03	1.85E+00	1.50E+00	3.12E+00	6.75E-02	1.81E-02	7.89E-03	3.47E-02	2.60E-02	2.48E+00	1.28E+00	3.16E-02	3.47E-03	4.61E-03	3.38E-03	3.58E-03	4.10E-02	6.59E-02	7.99E-01	4.84E-02	9.02E+00	1.98E-02	1.20E+00	3.92E-01	9.54E-02	9.70E-02
2006	12	30	6.64E-01	1.34E-05	1.86E-01	0.00E+00	0.00E+00	1.66E+00	1.11E+00	3.31E+00	1.92E-02	1.10E+01	8.31E-03	1.18E+00	9.12E-01	2.37E+00	9.84E-01	6.63E-01	1.01E-05	1.82E-01	0.00E+00	0.00E+00	1.63E+00	1.03E+00	2.98E+00	1.60E-02	2.17E-03	3.38E-04	5.26E-03	3.36E-03	2.28E+00	9.78E-01	1.58E-03	3.31E-06	4.46E-03	0.00E+00	0.00E+00	2.57E-02	8.30E-02	3.32E-01	3.16E-03	1.10E+01	7.97E-03	1.18E+00	9.09E-01	8.95E-02	6.02E-03
2006	12	31	3.51E-01	6.41E-05	3.83E-01	8.23E-06	3.19E-05	2.39E+00	1.59E+00	3.44E+00	1.54E-02	9.90E+00	7.28E-04	1.06E+00	3.66E-01	3.50E+00	5.44E-01	2.89E-01	6.41E-05	3.83E-01	8.23E-06	3.19E-05	2.39E+00	1.50E+00	2.75E+00	1.46E-02	2.36E-03	5.76E-04	6.66E-03	4.03E-03	3.41E+00	4.05E-01	6.17E-02	0.00E+00	2.03E-06	0.00E+00	0.00E+00	3.80E-04	9.18E-02	6.86E-01	7.05E-04	9.90E+00	1.51E-04	1.05E+00	3.62E-01	8.62E-02	1.39E-01

APPENDIX D: CHRONIC INHALATION RESULTS

TABLE D.1: Predicted Hazard Quotients from Inhalation of Criteria Air Contaminants

Criteria Air Contaminant	SO2			NO2			PM2.5			PM10		
Averaging Time	Annual			Annual			Annual			Annual		
Receptor Location	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application
RSA-MPOI	1.53E-02	4.50E-02	8.80E-02	8.59E-01	4.12E-01	1.17E+00	8.55E-01	4.56E-01	1.31E+00	2.68E+00	6.51E-01	3.34E+00
FL-MPOI	2.44E-03	4.61E-02	4.75E-02	3.00E-01	4.95E-01	6.90E-01	1.15E-01	4.90E-01	5.72E-01	3.25E-01	6.83E-01	9.77E-01
R1	2.11E-04	5.35E-02	5.37E-02	9.20E-03	6.21E-01	6.26E-01	2.95E-03	6.01E-01	6.04E-01	8.93E-03	7.97E-01	8.06E-01
R2	1.20E-04	4.50E-02	4.51E-02	1.55E-02	4.11E-01	4.26E-01	7.04E-03	4.55E-01	4.62E-01	1.30E-02	6.51E-01	6.64E-01
R3	6.46E-05	4.71E-02	4.72E-02	7.36E-03	6.25E-01	6.29E-01	2.94E-03	5.38E-01	5.41E-01	6.45E-03	7.26E-01	7.32E-01
R4	3.59E-05	4.50E-02	4.50E-02	4.40E-03	4.10E-01	4.14E-01	2.10E-03	4.55E-01	4.57E-01	3.40E-03	6.50E-01	6.54E-01
R5	6.32E-05	4.50E-02	4.51E-02	7.45E-03	4.10E-01	4.17E-01	3.23E-03	4.55E-01	4.58E-01	5.69E-03	6.50E-01	6.56E-01
R6	7.84E-05	6.22E-02	6.23E-02	7.06E-03	8.90E-01	8.92E-01	2.98E-03	8.46E-01	8.48E-01	6.55E-03	1.09E+00	1.10E+00
R7	1.08E-04	5.27E-02	5.28E-02	6.61E-03	7.21E-01	7.25E-01	2.58E-03	6.18E-01	6.21E-01	6.08E-03	8.23E-01	8.29E-01
R8	1.27E-03	7.34E-02	7.46E-02	3.95E-02	1.07E+00	1.08E+00	7.92E-03	9.33E-01	9.40E-01	4.41E-02	1.17E+00	1.21E+00
R9	8.25E-04	4.54E-02	4.62E-02	1.14E-01	4.36E-01	5.31E-01	2.84E-02	4.67E-01	4.94E-01	7.40E-02	6.61E-01	7.33E-01
R10	2.35E-03	4.51E-02	4.74E-02	3.29E-01	4.16E-01	7.06E-01	1.36E-01	4.58E-01	5.93E-01	3.68E-01	6.53E-01	1.02E+00
R11	6.52E-04	4.50E-02	4.57E-02	6.95E-02	4.12E-01	4.74E-01	3.07E-02	4.56E-01	4.87E-01	7.04E-02	6.51E-01	7.21E-01
R12	6.19E-04	4.52E-02	4.58E-02	9.80E-02	4.22E-01	5.17E-01	2.03E-02	4.61E-01	4.81E-01	5.21E-02	6.55E-01	7.07E-01
R13	5.86E-04	4.51E-02	4.57E-02	8.47E-02	4.19E-01	5.00E-01	2.41E-02	4.59E-01	4.83E-01	5.69E-02	6.54E-01	7.10E-01
R14	1.66E-04	8.20E-02	8.21E-02	7.76E-03	8.77E-01	8.80E-01	2.49E-03	9.40E-01	9.42E-01	6.96E-03	1.17E+00	1.18E+00

TABLE D.2: Predicted Hazard Quotients from Inhalation of Metals

COPC	Aluminum			Antimony			Arsenic			Barium			Beryllium			Cadmium			Chromium			Cobalt			Copper			Lead			Manganese			Mercury			Molybdenum			Nickel			Selenium			Uranium			Vanadium		
Averaging Time	Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual		
Receptor Location	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application
RSA-MPOI	5.24E-05	1.91E-04	1.92E-04	5.99E-04	1.92E-04	5.99E-04	6.38E-01	9.43E-01	9.46E-01	3.30E-02	1.05E-02	3.30E-02	3.16E-02	1.01E-02	3.16E-02	1.74E-01	8.76E-02	1.74E-01	9.17E-01	5.78E-01	9.18E-01	1.49E-01	4.75E-02	1.49E-01	3.38E-03	1.75E-03	3.38E-03	9.85E-03	5.05E-03	9.86E-03	5.19E-04	1.90E-03	1.90E-03	5.86E-04	1.86E-04	5.87E-04	1.68E-05	5.33E-06	1.68E-05	8.89E-01	2.83E-01	8.90E-01	7.66E-06	2.43E-06	7.66E-06	6.33E-03	2.01E-03	6.33E-03	3.20E-02	1.92E-02	3.21E-02
FL-MPOI	9.76E-06	1.58E-04	1.58E-04	6.29E-05	1.48E-04	1.51E-04	8.50E-02	7.70E-01	7.72E-01	3.47E-03	8.09E-03	8.24E-03	3.32E-03	7.74E-03	7.88E-03	1.91E-02	6.94E-02	6.96E-02	1.03E-01	4.62E-01	4.63E-01	1.57E-02	3.65E-02	3.72E-02	3.71E-04	1.38E-03	1.39E-03	1.08E-03	4.00E-03	4.01E-03	9.66E-05	1.56E-03	1.56E-03	6.15E-05	1.43E-04	1.46E-04	1.76E-06	4.10E-06	4.18E-06	9.33E-02	2.17E-01	2.22E-01	8.03E-07	1.87E-06	1.91E-06	6.64E-04	1.55E-03	1.58E-03	3.58E-03	1.53E-02	1.53E-02
R1	3.24E-07	4.20E-05	4.23E-05	1.14E-06	2.64E-05	2.76E-05	2.16E-03	1.96E-01	1.98E-01	6.27E-05	1.44E-03	1.50E-03	6.00E-05	1.37E-03	1.43E-03	3.72E-04	1.49E-02	1.53E-02	2.11E-03	1.05E-01	1.07E-01	2.83E-04	6.48E-03	6.76E-03	7.27E-06	3.00E-04	3.07E-04	2.12E-05	8.63E-04	8.84E-04	3.20E-06	4.16E-04	4.19E-04	1.11E-06	2.54E-05	2.66E-05	3.18E-08	7.28E-07	7.60E-07	1.69E-03	3.86E-02	4.03E-02	1.45E-08	3.32E-07	3.47E-07	1.20E-05	2.75E-04	2.87E-04	7.23E-05	3.43E-03	3.50E-03
R2	4.92E-07	1.93E-07	6.84E-07	1.49E-06	4.32E-08	1.53E-06	3.12E-03	8.41E-04	3.96E-03	8.23E-05	2.28E-06	8.43E-05	7.88E-05	2.17E-06	8.07E-05	5.00E-04	4.60E-05	5.46E-04	2.87E-03	3.66E-04	3.24E-03	3.72E-04	1.02E-05	3.81E-04	9.80E-06	9.42E-07	1.07E-05	2.85E-05	2.70E-06	3.12E-05	4.87E-06	1.91E-06	6.78E-06	1.46E-06	4.02E-08	1.49E-06	4.17E-08	1.15E-09	4.27E-08	2.21E-03	6.10E-05	2.27E-03	1.91E-08	5.25E-10	1.95E-08	1.58E-05	4.34E-07	1.61E-05	9.83E-05	1.17E-05	1.10E-04
R3	2.33E-07	2.12E-05	2.15E-05	8.98E-07	1.12E-05	1.21E-05	1.59E-03	9.75E-02	9.91E-02	4.95E-05	6.06E-04	6.55E-04	4.74E-05	5.79E-04	6.26E-04	2.88E-04	6.93E-03	7.22E-03	1.62E-03	5.00E-02	5.16E-02	2.24E-04	2.73E-03	2.96E-03	5.63E-06	1.40E-04	1.45E-04	1.64E-05	4.02E-04	4.19E-04	2.31E-06	2.10E-04	2.12E-04	8.78E-07	1.07E-05	1.16E-05	2.51E-08	3.07E-07	3.32E-07	1.33E-03	1.63E-02	1.76E-02	1.15E-08	1.40E-07	1.52E-07	9.48E-06	1.16E-04	1.25E-04	5.57E-05	1.63E-03	1.68E-03
R4	1.46E-07	7.95E-08	2.25E-07	3.73E-07	1.59E-08	3.88E-07	8.75E-04	3.47E-04	1.22E-03	2.05E-05	8.36E-07	2.13E-05	1.96E-05	7.95E-07	2.04E-05	1.29E-04	1.86E-05	1.48E-04	7.55E-04	1.50E-04	9.05E-04	9.27E-05	3.75E-06	9.63E-05	2.53E-06	3.83E-07	2.92E-06	7.36E-06	1.09E-06	8.45E-06	1.44E-06	7.87E-07	2.23E-06	3.64E-07	1.47E-08	3.78E-07	1.04E-08	4.21E-10	1.08E-08	5.52E-04	2.23E-05	5.74E-04	4.75E-09	1.92E-10	4.94E-09	3.93E-06	1.59E-07	4.08E-06	2.57E-05	4.79E-06	3.05E-05
R5	2.33E-07	1.30E-07	3.63E-07	6.84E-07	2.63E-08	7.09E-07	1.46E-03	5.66E-04	2.03E-03	3.76E-05	1.38E-06	3.90E-05	3.60E-05	1.32E-06	3.73E-05	2.30E-04	3.05E-05	2.61E-04	1.33E-03	2.46E-04	1.57E-03	1.70E-04	6.22E-06	1.76E-04	4.51E-06	6.26E-07	5.14E-06	1.31E-05	1.79E-06	1.49E-05	2.31E-06	1.28E-06	3.59E-06	6.68E-07	2.44E-08	6.91E-07	1.91E-08	6.98E-10	1.98E-08	1.01E-03	3.70E-05	1.05E-03	8.72E-09	3.19E-10	9.02E-09	7.20E-06	2.63E-07	7.46E-06	4.54E-05	7.83E-06	5.32E-05
R6	2.40E-07	1.02E-04	1.02E-04	8.81E-07	1.11E-04	1.12E-04	1.57E-03	5.06E-01	5.08E-01	4.86E-05	6.08E-03	6.12E-03	4.65E-05	5.82E-03	5.85E-03	2.83E-04	4.90E-02	4.92E-02	1.59E-03	3.19E-01	3.20E-01	2.19E-04	2.75E-02	2.76E-02	5.54E-06	9.75E-04	9.79E-04	1.61E-05	2.82E-03	2.83E-03	2.37E-06	1.00E-03	1.01E-03	8.62E-07	1.08E-04	1.08E-04	2.46E-08	3.08E-06	3.10E-06	1.31E-03	1.64E-01	1.65E-01	1.13E-08	1.41E-06	1.42E-06	9.30E-06	1.16E-03	1.17E-03	5.47E-05	1.06E-02	1.07E-02
R7	2.46E-07	4.84E-05	4.86E-05	7.08E-07	4.27E-05	4.33E-05	1.53E-03	2.32E-01	2.34E-01	3.90E-05	2.33E-03	2.37E-03	3.73E-05	2.23E-03	2.26E-03	2.39E-04	1.98E-02	2.01E-02	1.38E-03	1.34E-01	1.36E-01	1.76E-04	1.05E-02	1.07E-02	4.69E-06	3.96E-04	4.01E-04	1.36E-05	1.14E-03	1.16E-03	2.44E-06	4.79E-04	4.81E-04	6.91E-07	4.14E-05	4.20E-05	1.98E-08	1.18E-06	1.20E-06	1.05E-03	6.27E-02	6.37E-02	9.03E-09	5.40E-07	5.48E-07	7.46E-06	4.46E-04	4.53E-04	4.72E-05	4.43E-03	4.47E-03
R8	1.42E-06	1.54E-04	1.56E-04	6.18E-06	1.45E-04	1.51E-04	1.03E-02	7.50E-01	7.60E-01	3.40E-04	7.92E-03	8.24E-03	3.26E-04	7.58E-03	7.88E-03	1.96E-03	6.71E-02	6.89E-02	1.09E-02	4.45E-01	4.56E-01	1.54E-03	3.58E-02	3.72E-02	3.82E-05	1.34E-03	1.37E-03	1.11E-04	3.86E-03	3.97E-03	1.40E-05	1.53E-03	1.54E-03	6.04E-06	1.40E-04	1.46E-04	1.73E-07	4.02E-06	4.18E-06	9.16E-03	2.13E-01	2.22E-01	7.89E-08	1.83E-06	1.91E-06	6.52E-05	1.52E-03	1.58E-03	3.75E-04	1.47E-02	1.51E-02
R9	3.83E-06	2.99E-06	6.81E-06	1.22E-05	9.22E-07	1.29E-05	2.42E-02	1.33E-02	3.74E-02	6.74E-04	4.93E-05	7.12E-04	6.45E-04	4.70E-05	6.81E-04	4.04E-03	7.96E-04	4.69E-03	2.30E-02	6.13E-03	2.83E-02	3.05E-03	2.22E-04	3.22E-03	7.91E-05	1.62E-05	9.24E-05	2.30E-04	4.65E-05	2.68E-04	3.79E-05	2.96E-05	6.74E-05	1.20E-05	8.71E-07	1.26E-05	3.42E-07	2.49E-08	3.61E-07	1.81E-02	1.32E-03	1.92E-02	1.56E-07	1.14E-08	1.65E-07	1.29E-04	9.40E-06	1.36E-04	7.89E-04	1.97E-04	9.57E-04
R10	9.76E-06	8.13E-07	1.05E-05	6.29E-05	2.10E-07	6.30E-05	8.50E-02	3.58E-03	8.81E-02	3.47E-03	1.12E-05	3.48E-03	3.32E-03	1.06E-05	3.33E-03	1.91E-02	2.05E-04	1.92E-02	1.03E-01	1.61E-03	1.05E-01	1.57E-02	5.01E-05	1.57E-02	3.71E-04	4.20E-06	3.74E-04	1.08E-03	1.20E-05	1.09E-03	9.66E-05	8.05E-06	1.04E-04	6.15E-05	1.97E-07	6.17E-05	1.76E-06	5.63E-09	1.76E-06	9.33E-02	2.99E-04	9.36E-02	8.03E-07	2.57E-09	8.06E-07	6.64E-04	2.12E-06	6.66E-04	3.58E-03	5.16E-05	3.63E-03
R11	2.22E-06	3.86E-07	2.59E-06	9.83E-06	9.19E-08	9.91E-06	1.62E-02	1.70E-03	1.78E-02	5.42E-04	4.87E-06	5.46E-04	5.19E-04	4.63E-06	5.23E-04	3.11E-03	9.54E-05	3.20E-03	1.73E-02	7.54E-04	1.80E-02	2.45E-03	2.19E-05	2.47E-03	6.06E-05	1.95E-06	6.24E-05	1.76E-04	5.59E-06	1.82E-04	2.19E-05	3.82E-06	2.56E-05	9.61E-06	8.58E-08	9.69E-06	2.75E-07	2.45E-09	2.77E-07	1.46E-02	1.30E-04	1.47E-02	1.25E-07	1.12E-09	1.26E-07	1.04E-04	9.26E-07	1.05E-04	5.95E-04	2.41E-05	6.18E-04
R12	2.75E-06	1.55E-06	4.19E-06	7.79E-06	4.25E-07	8.16E-06	1.70E-02	6.86E-03	2.34E-02	4.29E-04	2.26E-05	4.48E-04	4.10E-04	2.16E-05	4.29E-04	2.64E-03	3.99E-04	3.01E-03	1.53E-02	3.11E-03	1.81E-02	1.94E-03	1.02E-04	2.03E-03	5.18E-05	8.14E-06	5.92E-05	1.51E-04	2.33E-05	1.72E-04	2.72E-05	1.54E-05	4.15E-05	7.61E-06	4.00E-07	7.95E-06	2.18E-07	1.14E-08	2.27E-07	1.15E-02	6.06E-04	1.21E-02	9.93E-08	5.22E-09	1.04E-07	8.21E-05	4.31E-06	8.58E-05	5.22E-04	9.97E-05	6.13E-04
R13	2.41E-06	1.13E-06	3.49E-06	8.89E-06	3.02E-07	9.10E-06	1.62E-02	4.98E-03	2.10E-02	4.90E-04	1.61E-05	5.01E-04	4.69E-04	1.53E-05	4.80E-04	2.83E-03	2.88E-04	3.12E-03	1.60E-02	2.25E-03	1.82E-02	2.21E-03	7.23E-05	2.27E-03	5.53E-05	5.88E-06	6.12E-05	1.61E-04	1.69E-05	1.78E-04	2.39E-05	1.12E-05	3.46E-05	8.69E-06	2.84E-07	8.89E-06	2.49E-07	8.12E-09	2.54E-07	1.32E-02	4.31E-04	1.35E-02	1.13E-07	3.71E-09	1.16E-07	9.38E-05	3.06E-06	9.60E-05	5.48E-04	7.22E-05	6.21E-04
R14	2.83E-07	1.58E-04	1.58E-04	8.61E-07	1.48E-04	1.49E-04	1.79E-03	7.70E-01	7.72E-01	4.74E-05	8.09E-03	8.13E-03	4.54E-05	7.74E-03	7.78E-03	2.85E-04	6.94E-02	6.96E-02	1.64E-03	4.62E-01	4.63E-01	2.14E-04	3.65E-02	3.67E-02	5.58E-06	1.38E-03	1.39E-03	1.62E-05	4.00E-03	4.01E-03	2.80E-06	1.56E-03	1.56E-03	8.41E-07	1.43E-04	1.44E-04	2.41E-08	4.10E-06	4.12E-06	1.28E-03	2.17E-01	2.19E-01	1.10E-08	1.87E-06	1.88E-06	9.08E-06	1.55E-03	1.56E-03	5.60E-05	1.53E-02	1.53E-02

TABLE D.3: Predicted Hazard Quotients from Inhalation of Volatie Organic Compounds

COPC	Benzene			Toluene			Xylenes			Acetaldehyde			Acrolein			Formaldehyde			Propylene		
Averaging Time	Annual			Annual			Annual			Annual			Annual			Annual			Annual		
Receptor Location	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application
RSA-MPOI	7.83E-03	2.86E-02	2.87E-02	7.37E-07	2.69E-06	2.70E-06	1.27E-05	4.62E-05	4.64E-05	8.93E-05	3.26E-04	3.27E-04	2.95E-04	1.08E-03	1.08E-03	5.45E-04	1.99E-03	1.99E-03	1.22E-05	4.46E-05	4.47E-05
FL-MPOI	1.46E-03	2.36E-02	2.36E-02	1.37E-07	2.22E-06	2.22E-06	2.36E-06	3.81E-05	3.82E-05	1.66E-05	2.69E-04	2.69E-04	5.50E-05	8.89E-04	8.91E-04	1.01E-04	1.64E-03	1.64E-03	2.27E-06	3.67E-05	3.68E-05
R1	4.83E-05	6.28E-03	6.32E-03	4.55E-09	5.91E-07	5.95E-07	7.82E-08	1.01E-05	1.02E-05	5.52E-07	7.16E-05	7.22E-05	1.82E-06	2.37E-04	2.39E-04	3.36E-06	4.37E-04	4.40E-04	7.53E-08	9.78E-06	9.85E-06
R2	7.35E-05	2.88E-05	1.02E-04	6.92E-09	2.71E-09	9.63E-09	1.19E-07	4.65E-08	1.65E-07	8.38E-07	3.29E-07	1.17E-06	2.77E-06	1.09E-06	3.86E-06	5.11E-06	2.00E-06	7.11E-06	1.14E-07	4.49E-08	1.59E-07
R3	3.48E-05	3.17E-03	3.21E-03	3.28E-09	2.99E-07	3.02E-07	5.63E-08	5.13E-06	5.18E-06	3.97E-07	3.62E-05	3.66E-05	1.31E-06	1.20E-04	1.21E-04	2.42E-06	2.21E-04	2.23E-04	5.42E-08	4.94E-06	4.99E-06
R4	2.18E-05	1.19E-05	3.36E-05	2.05E-09	1.12E-09	3.17E-09	3.52E-08	1.92E-08	5.44E-08	2.48E-07	1.36E-07	3.84E-07	8.21E-07	4.48E-07	1.27E-06	1.51E-06	8.27E-07	2.34E-06	3.39E-08	1.85E-08	5.24E-08
R5	3.48E-05	1.94E-05	5.42E-05	3.28E-09	1.82E-09	5.10E-09	5.63E-08	3.13E-08	8.76E-08	3.97E-07	2.21E-07	6.18E-07	1.31E-06	7.31E-07	2.04E-06	2.42E-06	1.35E-06	3.77E-06	5.42E-08	3.02E-08	8.44E-08
R6	3.58E-05	1.52E-02	1.52E-02	3.37E-09	1.43E-06	1.43E-06	5.79E-08	2.45E-05	2.46E-05	4.08E-07	1.73E-04	1.73E-04	1.35E-06	5.72E-04	5.73E-04	2.49E-06	1.06E-03	1.06E-03	5.58E-08	2.36E-05	2.37E-05
R7	3.68E-05	7.23E-03	7.26E-03	3.46E-09	6.80E-07	6.84E-07	5.94E-08	1.17E-05	1.17E-05	4.19E-07	8.25E-05	8.29E-05	1.39E-06	2.73E-04	2.74E-04	2.56E-06	5.03E-04	5.05E-04	5.73E-08	1.13E-05	1.13E-05
R8	2.12E-04	2.31E-02	2.33E-02	1.99E-08	2.17E-06	2.19E-06	3.42E-07	3.73E-05	3.76E-05	2.41E-06	2.63E-04	2.66E-04	7.98E-06	8.70E-04	8.78E-04	1.47E-05	1.60E-03	1.62E-03	3.30E-07	3.59E-05	3.63E-05
R9	5.73E-04	4.47E-04	1.02E-03	5.39E-08	4.21E-08	9.57E-08	9.26E-07	7.22E-07	1.64E-06	6.54E-06	5.10E-06	1.16E-05	2.16E-05	1.69E-05	3.84E-05	3.98E-05	3.11E-05	7.07E-05	8.92E-07	6.96E-07	1.58E-06
R10	1.46E-03	1.21E-04	1.56E-03	1.37E-07	1.14E-08	1.47E-07	2.36E-06	1.96E-07	2.53E-06	1.66E-05	1.39E-06	1.78E-05	5.50E-05	4.58E-06	5.89E-05	1.01E-04	8.45E-06	1.09E-04	2.27E-06	1.89E-07	2.43E-06
R11	3.31E-04	5.77E-05	3.87E-04	3.12E-08	5.43E-09	3.64E-08	5.36E-07	9.33E-08	6.26E-07	3.78E-06	6.58E-07	4.42E-06	1.25E-05	2.18E-06	1.46E-05	2.30E-05	4.01E-06	2.69E-05	5.16E-07	8.99E-08	6.03E-07
R12	4.11E-04	2.32E-04	6.26E-04	3.87E-08	2.18E-08	5.90E-08	6.64E-07	3.75E-07	1.01E-06	4.69E-06	2.65E-06	7.14E-06	1.55E-05	8.75E-06	2.36E-05	2.86E-05	1.61E-05	4.36E-05	6.40E-07	3.61E-07	9.76E-07
R13	3.61E-04	1.69E-04	5.22E-04	3.40E-08	1.59E-08	4.91E-08	5.83E-07	2.73E-07	8.44E-07	4.11E-06	1.93E-06	5.95E-06	1.36E-05	6.37E-06	1.97E-05	2.51E-05	1.17E-05	3.63E-05	5.62E-07	2.63E-07	8.13E-07
R14	4.22E-05	2.36E-02	2.36E-02	3.98E-09	2.22E-06	2.22E-06	6.83E-08	3.81E-05	3.82E-05	4.82E-07	2.69E-04	2.69E-04	1.59E-06	8.89E-04	8.91E-04	2.94E-06	1.64E-03	1.64E-03	6.58E-08	3.67E-05	3.68E-05

TABLE D.4: Predicted Hazard Quotients from Inhalation of Polycyclic Aromatic Hydrocarbons

COPC	Acenaphthene			Acenaphthylene			Anthracene			Benzo(a)pyrene			Fluoranthene			Fluorene			Naphthalene			Naphthalene (carcinogenic)			Phenanthrene			Pyrene			Total BaP Equivalents		
Averaging Time	Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual			Annual		
Receptor Location	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application	Project	Baseline	Application
RSA-MPOI	3.07E-07	1.12E-06	1.12E-06	6.05E-07	2.21E-06	2.22E-06	8.07E-08	2.95E-07	2.95E-07	3.75E-04	1.37E-03	1.37E-03	2.64E-07	9.66E-07	9.68E-07	8.39E-07	3.07E-06	3.07E-06	5.68E-04	2.08E-03	2.08E-03	5.68E-03	2.08E-02	2.08E-02	2.68E-06	9.78E-06	9.80E-06	2.43E-07	8.89E-07	8.91E-07	2.12E-03	5.24E-03	5.26E-03
FL-MPOI	5.72E-08	9.24E-07	9.26E-07	1.13E-07	1.82E-06	1.83E-06	1.50E-08	2.43E-07	2.43E-07	6.98E-05	1.13E-03	1.13E-03	4.92E-08	7.96E-07	7.97E-07	1.56E-07	2.53E-06	2.53E-06	1.06E-04	1.71E-03	1.71E-03	1.06E-03	1.71E-02	1.71E-02	4.98E-07	8.06E-06	8.07E-06	4.53E-08	7.33E-07	7.34E-07	4.25E-04	4.35E-03	4.41E-03
R1	1.90E-09	2.46E-07	2.48E-07	3.74E-09	4.85E-07	4.89E-07	4.98E-10	6.47E-08	6.52E-08	2.31E-06	3.00E-04	3.03E-04	1.63E-09	2.12E-07	2.13E-07	5.18E-09	6.73E-07	6.78E-07	3.51E-06	4.56E-04	4.59E-04	3.51E-05	4.56E-03	4.59E-03	1.65E-08	2.14E-06	2.16E-06	1.50E-09	1.95E-07	1.97E-07	2.08E-05	1.35E-03	1.36E-03
R2	2.88E-09	1.13E-09	4.01E-09	5.68E-09	2.23E-09	7.91E-09	7.57E-10	2.97E-10	1.05E-09	3.52E-06	1.38E-06	4.89E-06	2.48E-09	9.72E-10	3.45E-09	7.88E-09	3.09E-09	1.10E-08	5.33E-06	2.09E-06	7.42E-06	5.33E-05	2.09E-05	7.42E-05	2.51E-08	9.84E-09	3.50E-08	2.28E-09	8.95E-10	3.18E-09	4.48E-05	8.65E-06	5.35E-05
R3	1.36E-09	1.24E-07	1.26E-07	2.69E-09	2.45E-07	2.48E-07	3.59E-10	3.27E-08	3.30E-08	1.67E-06	1.52E-04	1.53E-04	1.18E-09	1.07E-07	1.08E-07	3.73E-09	3.40E-07	3.44E-07	2.53E-06	2.30E-04	2.33E-04	2.53E-05	2.30E-03	2.33E-03	1.19E-08	1.08E-06	1.10E-06	1.08E-09	9.86E-08	9.96E-08	2.23E-05	8.60E-04	8.79E-04
R4	8.53E-10	4.66E-10	1.32E-09	1.68E-09	9.19E-10	2.60E-09	2.24E-10	1.22E-10	3.47E-10	1.04E-06	5.69E-07	1.61E-06	7.35E-10	4.01E-10	1.14E-09	2.33E-09	1.27E-09	3.61E-09	1.58E-06	8.63E-07	2.44E-06	1.58E-05	8.63E-06	2.44E-05	7.44E-09	4.06E-09	1.15E-08	6.76E-10	3.69E-10	1.05E-09	1.47E-05	3.62E-06	1.84E-05
R5	1.36E-09	7.60E-10	2.12E-09	2.69E-09	1.50E-09	4.19E-09	3.59E-10	2.00E-10	5.58E-10	1.67E-06	9.27E-07	2.59E-06	1.18E-09	6.54E-10	1.83E-09	3.73E-09	2.08E-09	5.81E-09	2.53E-06	1.41E-06	3.93E-06	2.53E-05	1.41E-05	3.93E-05	1.19E-08	6.62E-09	1.85E-08	1.08E-09	6.02E-10	1.68E-09	2.08E-05	5.70E-06	2.65E-05
R6	1.40E-09	5.95E-07	5.96E-07	2.77E-09	1.17E-06	1.18E-06	3.69E-10	1.56E-07	1.57E-07	1.71E-06	7.26E-04	7.27E-04	1.21E-09	5.12E-07	5.13E-07	3.84E-09	1.63E-06	1.63E-06	2.60E-06	1.10E-03	1.10E-03	2.60E-05	1.10E-02	1.10E-02	1.22E-08	5.18E-06	5.19E-06	1.11E-09	4.71E-07	4.72E-07	2.16E-05	3.03E-03	3.05E-03
R7	1.44E-09	2.83E-07	2.85E-07	2.84E-09	5.59E-07	5.62E-07	3.79E-10	7.45E-08	7.48E-08	1.76E-06	3.46E-04	3.48E-04	1.24E-09	2.44E-07	2.45E-07	3.94E-09	7.75E-07	7.79E-07	2.67E-06	5.25E-04	5.27E-04	2.67E-05	5.25E-03	5.27E-03	1.26E-08	2.47E-06	2.48E-06	1.14E-09	2.25E-07	2.26E-07	1.65E-05	1.49E-03	1.51E-03
R8	8.29E-09	9.04E-07	9.13E-07	1.64E-08	1.78E-06	1.80E-06	2.18E-09	2.38E-07	2.40E-07	1.01E-05	1.10E-03	1.11E-03	7.14E-09	7.79E-07	7.86E-07	2.27E-08	2.47E-06	2.50E-06	1.54E-05	1.67E-03	1.69E-03	1.54E-04	1.67E-02	1.69E-02	7.23E-08	7.88E-06	7.96E-06	6.57E-09	7.17E-07	7.23E-07	5.55E-05	4.35E-03	4.41E-03
R9	2.25E-08	1.75E-08	3.99E-08	4.43E-08	3.45E-08	7.86E-08	5.90E-09	4.60E-09	1.05E-08	2.74E-05	2.14E-05	4.86E-05	1.93E-08	1.51E-08	3.43E-08	6.14E-08	4.79E-08	1.09E-07	4.16E-05	3.24E-05	7.38E-05	4.16E-04	3.24E-04	7.38E-04	1.96E-07	1.53E-07	3.48E-07	1.78E-08	1.39E-08	3.16E-08	2.39E-04	1.15E-04	3.48E-04
R10	5.72E-08	4.76E-09	6.13E-08	1.13E-07	9.39E-09	1.21E-07	1.50E-08	1.25E-09	1.61E-08	6.98E-05	5.81E-06	7.48E-05	4.92E-08	4.10E-09	5.27E-08	1.56E-07	1.30E-08	1.68E-07	1.06E-04	8.82E-06	1.13E-04	1.06E-03	8.82E-05	1.13E-03	4.98E-07	4.15E-08	5.34E-07	4.53E-08	3.78E-09	4.86E-08	4.25E-04	3.17E-05	4.54E-04
R11	1.30E-08	2.26E-09	1.52E-08	2.56E-08	4.46E-09	2.99E-08	3.41E-09	5.95E-10	3.99E-09	1.58E-05	2.76E-06	1.85E-05	1.12E-08	1.95E-09	1.31E-08	3.55E-08	6.19E-09	4.15E-08	2.41E-05	4.19E-06	2.81E-05	2.41E-04	4.19E-05	2.81E-04	1.13E-07	1.97E-08	1.32E-07	1.03E-08	1.79E-09	1.20E-08	1.42E-04	1.61E-05	1.58E-04
R12	1.61E-08	9.09E-09	2.45E-08	3.18E-08	1.79E-08	4.84E-08	4.23E-09	2.39E-09	6.45E-09	1.97E-05	1.11E-05	3.00E-05	1.39E-08	7.83E-09	2.11E-08	4.40E-08	2.49E-08	6.71E-08	2.98E-05	1.68E-05	4.55E-05	2.98E-04	1.68E-04	4.55E-04	1.40E-07	7.93E-08	2.14E-07	1.28E-08	7.21E-09	1.95E-08	1.48E-04	5.94E-05	2.07E-04
R13	1.41E-08	6.62E-09	2.05E-08	2.79E-08	1.30E-08	4.03E-08	3.72E-09	1.74E-09	5.38E-09	1.73E-05	8.07E-06	2.50E-05	1.22E-08	5.70E-09	1.76E-08	3.87E-08	1.81E-08	5.59E-08	2.62E-05	1.23E-05	3.79E-05	2.62E-04	1.23E-04	3.79E-04	1.23E-07	5.77E-08	1.78E-07	1.12E-08	5.24E-09	1.62E-08	1.27E-04	4.37E-05	1.69E-04
R14	1.66E-09	9.24E-07	9.26E-07	3.27E-09	1.82E-06	1.83E-06	4.35E-10	2.43E-07	2.43E-07	2.02E-06	1.13E-03	1.13E-03	1.43E-09	7.96E-07	7.97E-07	4.53E-09	2.53E-06	2.53E-06	3.07E-06	1.71E-03	1.71E-03	3.07E-05	1.71E-02	1.71E-02	1.44E-08	8.06E-06	8.07E-06	1.31E-09	7.33E-07	7.34E-07	1.72E-05	4.35E-03	4.37E-03

APPENDIX E: MULTIMEDIA MODEL EQUATIONS AND SAMPLE CALCULATIONS

The human health risk assessment (HHRA) included direct and indirect exposure to air emissions of COPCs from the Project.

Health risks directly from inhalation were characterized by comparing modelled air concentrations of COPCs with regulatory guidelines considered to be protective of human health. Indirect exposure was predicted through a multimedia exposure model for non-volatile, persistent and bioaccumulative COPCs. Modelling formulas for COPC transport and bioaccumulation were based on US EPA OSW (2005) guidance on human health risk assessment.

Environmental Media Concentrations

Chemical concentrations were estimated for the following media:

- Soil;
- Dust;
- Vegetation;
- Wildlife;
- Fish; and
- Surface Water.

The worked example is for Project emission exposure of a toddler to formaldehyde. The applied air concentration from the RSA-MPOI project case of the air quality assessment was 1.03×10^{-3} µg/m^3, and the applied deposition rates were 0.00234 mg/m^2/yr (dry), and 0.00682 mg/m^2/yr (wet).

Total Deposition *(Equation 1)*

$$D_{Tot} = D_{Wet} + D_{Dry}$$

Sample Calculation:

$$D_{Tot} = \frac{0.00243mg}{m^2 \cdot yr} + \frac{0.00682mg}{m^2 \cdot yr} = \frac{0.00916mg}{m^2 \cdot yr}$$

Deposition to Surface Soil *(Equation 2)*

$$D_{s0} = \frac{D_{Tot}}{Z_{s0} \times \rho_B}$$

Where:

D_{s0} = Deposition to surface soil (mg/kg/yr)

Z_{s0} = Surface soil mixing depth (m)

ϱ_B = Soil bulk density (kg/m^3)

Sample Calculation:

$$D_{s0} = \frac{0.00916 mg/m^2 \cdot yr}{0.02m \times 1500 kg/m^3} = 3.05x10^{-4} mg/kg/yr$$

Deposition to Soil *(Equation 3)*

$$D_s = \frac{D_{Tot}}{Z_s \times \rho_B}$$

Where:

D_s = Deposition to soil (mg/kg/yr)

Z_s = Soil mixing depth (m)

ρ_B = Soil bulk density (kg/m^3)

Sample Calculation:

$$D_s = \frac{0.00916\, mg/m^2 \cdot yr}{0.2m \times 1500 kg/m^3} = 3.05x10^{-5} mg/kg/yr$$

Concentration in Surface Soil *(Equation 4)*

$$C_{s0} = D_{s0} \frac{1 - e^{(-kt \times t_D)}}{kt}$$

Where:

C_{s0} = Concentration in surface soil (mg/kg)

D_{s0} = Deposition to surface soil (mg/kg/yr)

kt = soil loss constant for biotic and abiotic degradation (yrs^{-1})

t_D = time period over which deposition occurs (80 years)

Sample Calculation:

$$C_{s0} = (3.05x10^{-4} mg/kg/yr) \frac{1 - e^{(-5.16 \times 10^{-7} yr^{-1} \times 80 yrs)}}{5.16 \times 10^{-7} yr^{-1}} = 5.92 \times 10^{-12} mg/kg$$

Concentration in Soil *(Equation 5)*

$$C_s = D_s \frac{1 - e^{(-kt \times t_D)}}{kt}$$

Where:

C_s = Concentration in soil (mg/kg)

D_s = Deposition to soil (mg/kg/yr)

kt = soil loss constant for biotic and abiotic degradation (yrs^{-1})

t_D = time period over which deposition occurs (80 years)

Sample Calculation:

$$C_s = (3.05x10^{-5} mg/kg/yr)\frac{1 - e^{(-5.16\times10^{-7}yr^{-1}\times80yrs)}}{5.16 \times 10^{-7}yr^{-1}} = 5.92 \times 10^{-13} mg/kg$$

Concentration in Airborne Dust *(Equation 6)*

$C_{Dust} = C_{s0} \times DL \times UC$

Where:

C_{Dust} =Concentration in dust (µg/m^3)

C_{s0} = Concentration in surface soil (mg/kg)

DL = Dust Level (kg/m^3)

UC = Unit conversion (1000 µg/mg)

Sample Calculation:

$C_{Dust} = 5.92 \times 10^{-12} mg/kg \times 7.6 \times 10^{-10}\, kg/m^3 \times 1000 \mu g/mg = 4.50 \times 10^{-18} \mu g/m^3$

Concentration in Surface Water *(Equation 7)*

$C_{SW} = D_{Tot} \times LA \times B$

Where:

C_{SW} =Concentration in surface water (mg/L)

D_{TOT} = Total deposition (mg/m^2/yr)

LA = Lake area (m^2)

B = Calculated COPC loss rate (yr/L)

Sample Calculation:

$C_{SW} = 0.00916 mg/m^2 \cdot yr \times 3{,}250{,}000 m^2 \times 1.19 \times 10^{-11} yr/L = 3.54 \times 10^{-7} mg/L$

Concentration in Aquatic Organisms *(Equation 8)*

Concentrations in aquatic plants, aquatic invertebrates, and fish were determined based on the surface water concentration and a chemical specific bioconcentration factor:

$C_{Organism} = C_{SW} \times BCF$

Where:

$C_{Organism}$ =Concentration in organism (mg/kg DW)

C_{SW} =Concentration in surface water (mg/L)

BCF = Bioconcentration factor (L/kg)

Sample Calculation (aquatic plants):

$C_{Organism} = 3.54 \times 10^{-7} mg/L \times 0.79 L/kg = 2.80 \times 10^{-7} mg/kg\ DW$

Bioconcentration Factor for Fish (if literature value unavailable) *(Equation 9)*

$$BCF = 10^{(0.77 \times logKow - 0.07)}$$

Where:

BCF = Bioconcentration factor

K_{ow} = Octanol-water partition coefficient

Concentration in lake sediment *(Equation 10)*

$$C_{sed} = C_{sw} \times \frac{Kd}{\theta_{bs} + Kd \times p_{sed}} \times \frac{d_{wc} + d_{bs}}{d_{bs}}$$

Where:

C_{sed} = concentration in sediment (mg/kg)

C_{sw} = concentration in surface water (mg/L)

f_{bs} = fraction tot CIOC concentration in benthic sediment (unitless)

Kd = Sediment partition coefficient (L/kg)

θ_{bs} = bed sediment porosity (unitless)

p_{sed} = sediment bulk density (1 kg/m^3)

d_{wc} = depth of water column (m)

d_{bs} = depth of benthic sediment (m)

Sample Calculation:

$$C_{sed} = 3.54 \times 10^{-7} mg/L \times \frac{\frac{0.11L}{kg}}{0.6 + \frac{0.11L}{kg} \times \frac{1.0kg}{m^3}} \times \frac{1.0m + 1.0m}{1.0m} = 1.10 \times 10^{-7} mg/kg$$

Concentration in plants due to direct deposition *(Equation 11)*

$$C_{plantsD} = \left[D_{Dry} \times (1 - FV) + D_{Wet} \times (1 - FV)\right] \times 0.6 \times A$$

$$A = R_p \frac{\left[1 - e^{(-kp \times Tp)}\right]}{Y_P \times kp}$$

Where:

$C_{plantsD}$ = concentration in plants due to deposition (mg/kg DW)

D_{Dry} = overall dry deposition rate (mg/m^2/yr)

D_{Wet} = overall wet deposition rate (mg/m^2/yr)

FV = fraction of COPC that is volatile (unitless)

Rp = intercept fraction of edible portion of plants (0.5 forage, 0.39 human consumption)

kp = plant surface loss coefficient (yr^{-1})

Tp = length of plant exposure (0.12 yr forage, 0.16 yr human consumption)

Yp = productivity (0.24 kg/m² forage, 2.24 kg/m² human consumption)

A = area factor (unitless)

Sample Calculation (wildlife forage):

$$A = 0.5\frac{\left[1 - e^{(-18yr^{-1} \times 0.12yr)}\right]}{0.24kg/m^2 \times 18yr^{-1}} = 0.102$$

$$C_{plantsD} = [0.00234mg/m^2/yr \times (1-1) + 0.00682mg/m^2/yr \times (1-1)] \times 0.6 \times 0.102 = 0mg/kg$$

Concentration in plants due to vapour uptake *(Equation 12)*

$$C_{plantsV} = \frac{C_{air} \times (Bv/Rf) \times FV}{\rho_{air} \times UC}$$

Where:

$C_{plantsV}$ = concentration in plants due to vapour uptake (mg/kg DW)

C_{air} = concentration in air (µg/m³)

Bv = air to plant biotransfer factor (µg/g plant / µg/g air)

FV = fraction of COPC that is volatile (unitless)

RF = reduction factor (100)

ϱ_{air} = density of air (1.2 g/L)

UC = unit correction (1000)

Sample Calculation (wildlife forage):

$$C_{plantsV} = \frac{0.00103\mu g/m^3 \times (14.4/100) \times 1}{1.2g/L \times 1000L/m^3 \times 1000\mu g/mg} = 1.24 \times 10^{-7} mg/kg$$

$$B_v = \frac{\rho_{air} \cdot 10^{\left(1.065 \log K_{ow} - \log\left(\frac{H}{RT}\right) - 1.654\right)}}{(1 - f_{water}) \cdot \rho_{plant}}$$

Where:

Bv = air to plant biotransfer factor (µg/g plant / µg/g air)

P_{air} = density of air (1.2 g/L)

P_{plant} = density of plants (770 g/L; McCrady and Maggard 1993)

f_{water} = fraction of forage that is water

= 0.85 for human intake (Macrady and Maggard, 1993)

=0.62 for wildlife based on Site-specific data from AOSC, 2009 and Dover, 2010

H = Henry's law constant (atm m^3/mol)

R = gas constant (0.000082 atm m^3/K mol)

T = temperature (288K)

Sample Calculation (plants for wildlife uptake):

$$B_v = \frac{1.5 g/L \cdot 10^{\left(1.065(0.35) - \log\left(\frac{3.37\times10^{-7} atm\ m^3/mol}{8.2\times10^{-5} atm\ m^3/K\ mol \cdot 288K}\right) - 1.654\right)}}{(1-0.62)\cdot 770 g/L} = 14.4$$

Concentration in plant roots *(Equation 13)*

$$C_{root} = C_{soil} \times BCF \times (1 - WC)$$

C_{root} = concentration in plant roots (mg/kg)

C_{soil} = concentration in soil (mg/kg)

BCF = bioconcentration factor (unitless)

WC = water content (kg water/ kg plant)

Sample Calculation (wildlife forage):

$$C_{root} = 5.92 \times 10^{-13} mg/kg \times 305 \times (1 - 0.85) = 4.96 \times 10^{-12} mg/kg$$

Concentration in wild game *(Equation 14)*

$$C_{game} = \left(C_{soil} IR_{soil} + C_{sed} IR_{sed} + C_{water} IR_{water} + C_{air} IR_{air} + \sum C_{plant} IR_{plant} + \sum C_{prey} IR_{prey}\right) \times \mathrm{BTF_a}$$

Where:

C_{game} = Concentration in wild game (mg/kg DW)

C_{soil} = Concentration in soil (mg/kg)

IR_{soil} = wildlife soil ingestion rate (mg/kg soil/kg BW/d)

C_{sed} = Concentration in sediment (mg/kg)

IR_{sed} = wildlife sediment ingestion rate (mg/kg soil/kg BW/d)

C_{water} = Concentration in water (mg/L)

IR_{water} = wildlife water ingestion rate (mg/L water/kg BW/d)

C_{air} = Concentration in air (mg/m^3)

IRair = wildlife air inhalation rate (m^3 air/kg BW/d)

C_{plants} = Concentration in plants (mg/kg DW)

IR_{plant} = wildlife plant ingestion rate (mg/kg soil/kg BW/d)

C_{prey} = Concentration in prey (mg/kg DW)

IR_{prey} = wildlife prey ingestion rate (mg/kg soil/kg BW/d)

BTF_a = adjusted biotransfer factor (unitless

Sample Calculation (moose):

$$C_{game} = \left\{\left(5.92 \times 10^{-13}\frac{mg}{kg}\right)\left(\frac{51.2kg}{d}\right) + \left(1.10 \times 10^{-7}\frac{mg}{kg}\right)\left(\frac{12.8kg}{d}\right) + \left(3.54 \times 10^{-7}\frac{mg}{L}\right)\left(\frac{20L}{d}\right) + \left(1.03 \times 10^{-6}\frac{mg}{m^3}\right)\left(\frac{65.87m^3}{d}\right) + \left[\left(5.64 \times 10^{-8}\frac{mg}{kg}\right)\left(\frac{6.4kg}{d}\right)\right] + (0)\right\} \times 1.2 \times 10^{-4}$$
$$= 1.24 \times 10^{-7} mg/kg\ ww$$

$BTF_a = BTF \times FC \times MF$

BTF_a = adjusted biotransfer factor ([mg/kg tissue] / [mg/d])

BTF = chemical specific biotransfer factor ([mg/kg tissue] / [mg/d])

FC = fat content (unitless)

MF = modification factor (0.01 for PAHs, 1 for VOCs)

$BTF_a = 0.00063 \times 0.19 \times 1 = 0.00012$

Human exposure soil ingestion *(Equation 15)*

$$E_{SI} = \frac{C_{s0} \times SIR}{BW}$$

Where:

E_{SI} = Exposure from soil ingestion (mg/kg BW/d)

C_{s0} = concentration of COPC in surface soil (mg/kg)

SIR = soil ingestion rate (kg/d)

BW =body weight (kg)

Sample Calculation:

$$E_{SI} = \frac{5.92 \times 10^{-12} mg/kg \times 0.00008 kg/d}{16.5kg} = 2.85 \times 10^{-17} mg/kgBW/d$$

Human exposure from water ingestion *(Equation 16)*

$$E_{WI} = \frac{C_{sw} \times WIR}{BW}$$

Where:

E_{WI} = Exposure from water ingestion (mg/kg BW/d)

C_{s0} = concentration of COPC in surface water (mg/L)

WIR = water ingestion rate (L/d)

BW =body weight (kg)

Sample Calculation:

$$E_{WI} = \frac{3.54 \times 10^{-7} mg/L \times 0.6 L/d}{16.5 kg} = 1.29 \times 10^{-8} mg/kgBW/d$$

Human exposure from dust inhalation *(Equation 17)*

$$E_{DI} = \frac{C_{Dust} \times AIR}{BW}$$

Where:

E_{DI} = Exposure from dust inhalation (mg/kg BW/d)

C_{Dust} = concentration of COPC in dust (mg/kg)

AIR = air ingestion rate (m^3/d)

BW =body weight (kg)

Sample Calculation :

$$E_{DI} = \frac{4.50 \times 10^{-18} \mu g/m^3 \div 1000 \mu g/mg \times 8.3 m^3/d}{16.5 kg} = 2.26 \times 10^{-21} mg/kgBW/d$$

Human exposure from food *(Equation 18)*

$$E_{food} = \frac{\sum C_{plant} IR_{plant} + \sum C_{wild\ game} IR_{wild\ game}}{BW}$$

E_{food} = Exposure from food ingestion (mg/kg BW/d)

C_{Plant} = concentration of COPC in plants (mg/kg)

$C_{Wild\ game}$= concentration of COPC in wild game (mg/kg)

IR_{plant} = ingestion rate of plant type (kg/d)

$IR_{wild\ game}$= ingestion rate of wild game (kg/d)

BW =body weight (kg)

Sample Calculation :

$$E_{food} = \frac{\left\{\left[\left(2.14\times10^{-4}\frac{mg}{kg}\right)\left(\frac{0.067kg}{d}\right)+\left(5.20\times10^{-11}\frac{mg}{kg}\right)\left(\frac{0.105kg}{d}\right)+\left(2.86\times10^{-8}\frac{mg}{kg}\right)\left(\frac{0.005kg}{d}\right)+\left(6.58\times10^{-8}\frac{mg}{kg}\right)\left(\frac{0.001kg}{d}\right)+\left(2.19\times10^{-12}\frac{mg}{kg}\right)\left(\frac{0.001kg}{d}\right)\right]+\right.}{\left.\left[\left(5.79\times10^{-9}\frac{mg}{kg}\right)\left(\frac{0.023kg}{d}\right)+\left(1.31\times10^{-11}\frac{mg}{kg}\right)\left(\frac{0.006kg}{d}\right)+\left(4.88\times10^{-11}\frac{mg}{kg}\right)\left(\frac{0.012kg}{d}\right)+\left(2.11\times10^{-9}\frac{mg}{kg}\right)\left(\frac{0.044kg}{d}\right)+\left(2.15\times10^{-6}\frac{mg}{kg}\right)\left(\frac{0.095kg}{d}\right)\right]\right\}}{16.5kg}$$

$$= 1.25\times10^{-8} mg/kgBW/d$$

Human exposure from contact with surface water *(Equation 19)*

$$E_{SwimC} = \frac{C_{SW}\times Kpw\times SEF\times SAT}{BW}$$

E_{SwimC} = Exposure from contact with surface water (mg/kg BW/d)
C_{SW} = concentration of COPC in surface water (mg/L)
Kpw = Dermal permeability coefficient (cm/h)
SEF = swimming exposure factor (h/d)
SAT = Surface area exposed (cm^2)
BW =body weight (kg)

Sample Calculation :

$$E_{SwimC} = \frac{3.54\times10^{-7} mg/L\times0.0018 cm/h\times0.255 hr/d\times6130 cm^2\times L/1000 cm^3}{16.5kg} = 6.04\times10^{-11} mg/kgBW/d$$

Human exposure from ingestion of surface water while swimming *(Equation 20)*

$$E_{SwimI} = \frac{C_{SW}\times SEF\times SWIR}{BW}$$

E_{SwimI} = Exposure from ingestion while swimming (mg/kg BW/d)
C_{SW} = concentration of COPC in surface water (mg/L)
SWIR = water ingestion rate while swimming (L/h)
SEF = swimming exposure factor (h/d)
BW =body weight (kg)

Sample Calculation :

$$E_{SwimI} = \frac{3.54\times10^{-7} mg/L\times0.255 h/d\times0.05 L/h}{16.5kg} = 2.74\times10^{-10} mg/kgBW/d$$

Human exposure from contact with surface soil *(Equation21)*

$$E_{SoilContact} = \frac{C_{s0}\times(SAH\times SLH + SAO\times SLO)RAF}{BW}$$

$E_{Soil\ Contact}$= Exposure from contact with surface soil (mg/kg BW/d)
C_{s0} = concentration of COPC in surface soil (mg/kg)

SAH = surface area of hands (m^2)

SAO = surface area of other exposed skin (m^2)

SLH = soil loading to hands (kg/m^2)

SLO = soil loading to other exposed skin (kg/m^2)

BW =body weight (kg)

Sample Calculation :

$$E_{SoilContact} = \frac{5.92 \times 10^{-12} mg/kg \times (430 cm^2 \times 0.0001 g/cm^2 + 2580 cm^2 \times 0.00001 g/cm^2) \times 0.1}{16.5 kg}$$
$$= 2.47 \times 10^{-17} mg/kgBW/d$$

Human exposure from breast milk ingestion *(Equation 22)*

$$E_{BM} = \frac{C_{bm} \times MIR}{BW}$$

Where:

E_{BM} = Exposure from ingestion of breast milk (mg/kg BW/d)

C_{bm} = concentration of COPC in breast milk (mg/L)

MIR = milk ingestion rate (L/d)

BW = body weight (kg)

Sample Calculation (infant) :

$$E_{BM} = \frac{3.56 \times 10^{-13} mg/kg \times 0.664 kg/d}{8.2 kg} = 2.88 \times 10^{-14} mg/kgBW/d$$

Concentration in breast milk *(Equation 23)*

$$C_{bm} = EDI \times BTF$$

Where:

C_{bm} = concentration of COPC in breast milk (mg/L)

EDI = estimated daily intake of adult receptor (mg/d)

BTF = breastmilk biotransfer factor (mg/kg milk / mg/d intake)

Sample Calculation :

$$C_{bm} = 1.62 \times 10^{-6} mg/d \times 4.48 \times 10^{-7} d/kg = 3.56 \times 10^{-13} mg/kg$$

Total estimated exposure *(Equation 24)*

$E_{total} = E_{SI} + E_{WI} + E_{DI} + E_{food} + \text{Eswim contact} + \text{ESwimI} + E_{soil\ contact} + E_{bm}$

Where:

E_{total} = total exposure (mg/kg bW/d)

E_{SI} = soil ingestion exposure (mg/kg bW/d)

E_{WI} = water ingestion exposure (mg/kg bW/d)

E_{DI} = dust inhalation exposure (mg/kg bW/d)

E_{food} = food ingestion exposure (mg/kg bW/d)

E_{SwimI} = swimming ingestion exposure (mg/kg bW/d)

$E_{swim\ contact}$= swimming contact exposure (mg/kg bW/d)

$E_{soil\ contact}$= soil contact exposure (mg/kg bW/d)

Predicted hazard quotient (HQ) from non-carcinogenic COPC exposure *(Equation 25)*

$HQ = E_{total}/RfD$

Where:

HQ = predicted hazard from exposure to non-carcinogens

E_{total} = total exposure (mg/kg /d)

RfD = reference dose (mg/kg/d)

Sample Calculation :

$HQ = 1.99 \times 10^{-8} mg/kg\ BW/d\ /\ 0.150 mg/kg\ BW/d = 1.33 \times 10^{-7}$

Predicted incremental lifetime cancer risk (ICLR) quotient from carcinogenic COPC exposure (Equation 24)

$$Risk = \sum_i (E_{total} \times D_i \times LAF_i) \Big/ (RsD \times LE)$$

Risk = predicted risk from exposure to carcinogens

E_{total} = total exposure for lifestage (mg/kg/d)

RsD = risk specific dose (mg/kg/d)

Di = duration of exposure during lifestage i (y)

LE = life expectancy (y)

LAFi = life stage adjustment factor for lifestage i

References

Athabasca Oil Sands Corporation (AOSC). 2009. Application for approval of the MacKay River Commercial Project. Submitted to: Alberta Energy Resources Conservation Board and Alberta Environment. Submitted by: Athabasca Oil Sands Corp. December 2009.

Dover Operating Corporation (DOC). 2010. Application for Approval for the Dover Commercial Project.

Macrady, J.K., and S.P. Maggard. 1993. "Uptake and Photodegradation of 2,3,7,8-Tetrachlorodibenzo-p-dioxin Sorbed to Grass Foliage." *Environmental Science and Technology*. 27:343-350.

APPENDIX F: DETAILED MULTIMEDIA MODEL RESULTS

Table F.1. Multimedia Model Results: Aluminium

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	7.9E-09	8.7E-08	6.5E-08	4.8E-08	4.7E-08	4.4E-09
FL	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	4.0E-09	4.0E-08	3.0E-08	2.2E-08	2.2E-08	2.2E-09
1	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	1.8E-09	1.9E-08	1.4E-08	1.0E-08	1.0E-08	1.0E-09
2	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	2.2E-09	2.3E-08	1.7E-08	1.2E-08	1.2E-08	1.2E-09
3	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	2.1E-09	2.1E-08	1.6E-08	1.2E-08	1.2E-08	1.1E-09
4	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	1.5E-09	1.5E-08	1.1E-08	8.5E-09	8.4E-09	8.3E-10
5	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	1.9E-09	2.0E-08	1.5E-08	1.1E-08	1.1E-08	1.1E-09
6	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	2.0E-09	2.1E-08	1.5E-08	1.1E-08	1.1E-08	1.1E-09
7	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	1.2E-09	1.3E-08	9.5E-09	7.0E-09	7.0E-09	6.9E-10
8	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	1.2E-09	1.3E-08	9.4E-09	7.0E-09	7.0E-09	6.9E-10
9	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	3.5E-09	3.7E-08	2.7E-08	2.0E-08	2.0E-08	2.0E-09
10	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	4.5E-09	4.8E-08	3.6E-08	2.6E-08	2.6E-08	2.5E-09
11	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	3.0E-09	3.1E-08	2.3E-08	1.7E-08	1.7E-08	1.7E-09
12	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	2.7E-09	2.9E-08	2.1E-08	1.6E-08	1.6E-08	1.5E-09
13	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	3.8E-09	4.0E-08	2.9E-08	2.2E-08	2.2E-08	2.1E-09
14	Application	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Baseline	1.0E-03	5.4E-03	3.5E-03	2.8E-03	2.9E-03	3.9E-04
	Project	2.0E-09	1.9E-08	1.4E-08	1.0E-08	1.0E-08	1.1E-09

Table F.2. Multimedia Model Results: Antimony

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	3.5E-04	5.6E-03	4.5E-03	3.2E-03	3.1E-03	1.5E-04
	Baseline	8.0E-05	1.3E-03	1.0E-03	7.3E-04	7.0E-04	3.4E-05
	Project	3.5E-04	5.6E-03	4.5E-03	3.2E-03	3.1E-03	1.5E-04
FL	Application	4.6E-05	7.4E-04	5.9E-04	4.2E-04	4.0E-04	2.0E-05
	Baseline	3.7E-07	5.9E-06	4.7E-06	3.3E-06	3.2E-06	1.6E-07
	Project	4.6E-05	7.4E-04	5.9E-04	4.2E-04	4.0E-04	2.0E-05
1	Application	1.3E-05	2.0E-04	1.6E-04	1.1E-04	1.1E-04	5.4E-06
	Baseline	6.5E-06	1.1E-04	8.3E-05	5.9E-05	5.7E-05	2.8E-06
	Project	8.7E-07	1.3E-05	1.1E-05	7.4E-06	7.2E-06	3.8E-07
2	Application	1.2E-06	1.9E-05	1.5E-05	1.1E-05	1.0E-05	5.3E-07
	Baseline	9.3E-09	1.4E-07	1.1E-07	7.6E-08	7.4E-08	4.0E-09
	Project	1.2E-06	1.9E-05	1.5E-05	1.1E-05	1.0E-05	5.3E-07
3	Application	5.1E-06	8.2E-05	6.5E-05	4.6E-05	4.4E-05	2.2E-06
	Baseline	2.3E-06	3.8E-05	3.0E-05	2.1E-05	2.0E-05	1.0E-06
	Project	8.9E-07	1.3E-05	1.1E-05	7.5E-06	7.2E-06	3.8E-07
4	Application	4.5E-07	6.9E-06	5.5E-06	3.9E-06	3.7E-06	2.0E-07
	Baseline	4.8E-09	7.0E-08	5.6E-08	3.9E-08	3.8E-08	2.1E-09
	Project	4.5E-07	6.8E-06	5.4E-06	3.8E-06	3.7E-06	1.9E-07
5	Application	9.4E-07	1.4E-05	1.2E-05	8.1E-06	7.9E-06	4.0E-07
	Baseline	7.0E-09	1.0E-07	8.2E-08	5.8E-08	5.6E-08	3.0E-09
	Project	9.3E-07	1.4E-05	1.1E-05	8.0E-06	7.8E-06	4.0E-07
6	Application	1.1E-04	1.7E-03	1.4E-03	9.8E-04	9.4E-04	4.6E-05
	Baseline	5.9E-05	9.5E-04	7.5E-04	5.3E-04	5.2E-04	2.5E-05
	Project	1.0E-06	1.5E-05	1.2E-05	8.3E-06	8.1E-06	4.3E-07
7	Application	2.5E-05	4.1E-04	3.3E-04	2.3E-04	2.2E-04	1.1E-05
	Baseline	1.4E-05	2.2E-04	1.8E-04	1.2E-04	1.2E-04	5.9E-06
	Project	6.5E-07	9.9E-06	7.9E-06	5.6E-06	5.4E-06	2.8E-07
8	Application	1.4E-06	2.1E-05	1.7E-05	1.2E-05	1.2E-05	5.8E-07
	Baseline	5.3E-07	8.5E-06	6.7E-06	4.7E-06	4.6E-06	2.3E-07
	Project	4.0E-07	5.9E-06	4.7E-06	3.3E-06	3.2E-06	1.7E-07
9	Application	1.2E-05	1.8E-04	1.5E-04	1.0E-04	1.0E-04	5.0E-06
	Baseline	9.6E-08	1.5E-06	1.2E-06	8.4E-07	8.2E-07	4.1E-08
	Project	1.1E-05	1.8E-04	1.4E-04	1.0E-04	9.9E-05	4.9E-06
10	Application	1.2E-04	1.9E-03	1.5E-03	1.1E-03	1.0E-03	5.0E-05
	Baseline	2.5E-08	3.9E-07	3.1E-07	2.2E-07	2.1E-07	1.1E-08
	Project	1.2E-04	1.9E-03	1.5E-03	1.1E-03	1.0E-03	5.0E-05
11	Application	2.1E-05	3.4E-04	2.7E-04	1.9E-04	1.9E-04	9.1E-06
	Baseline	1.5E-08	2.3E-07	1.8E-07	1.3E-07	1.2E-07	6.5E-09
	Project	2.1E-05	3.4E-04	2.7E-04	1.9E-04	1.9E-04	9.1E-06
12	Application	1.5E-05	2.4E-04	1.9E-04	1.3E-04	1.3E-04	6.4E-06
	Baseline	6.2E-08	9.8E-07	7.7E-07	5.5E-07	5.3E-07	2.7E-08
	Project	1.5E-05	2.4E-04	1.9E-04	1.3E-04	1.3E-04	6.4E-06
13	Application	4.2E-05	6.9E-04	5.4E-04	3.8E-04	3.7E-04	1.8E-05
	Baseline	3.6E-08	5.7E-07	4.5E-07	3.2E-07	3.1E-07	1.6E-08
	Project	4.2E-05	6.8E-04	5.4E-04	3.8E-04	3.7E-04	1.8E-05
14	Application	5.1E-05	8.2E-04	6.5E-04	4.6E-04	4.5E-04	2.2E-05
	Baseline	5.1E-05	8.2E-04	6.5E-04	4.6E-04	4.5E-04	2.2E-05
	Project	1.7E-07	2.6E-06	2.0E-06	1.4E-06	1.4E-06	7.4E-08

Table F.3. Multimedia Model Results: Arsenic

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	5.7E-02	**1.8E+00**	1.5E+00	**1.0E+00**	9.9E-01	3.2E-02	**1.1E+00**
	Baseline	1.6E-02	4.8E-01	3.8E-01	2.7E-01	2.6E-01	9.0E-03	2.8E-01
	Project	5.4E-02	**1.8E+00**	1.4E+00	**9.9E-01**	9.5E-01	3.0E-02	**1.0E+00**
FL	Application	1.1E-02	3.0E-01	2.3E-01	1.7E-01	1.6E-01	5.9E-03	1.8E-01
	Baseline	3.5E-03	6.7E-02	4.4E-02	3.5E-02	3.7E-02	2.0E-03	3.9E-02
	Project	7.2E-03	2.3E-01	1.9E-01	1.3E-01	1.3E-01	4.0E-03	1.4E-01
1	Application	8.4E-03	1.9E-01	1.4E-01	1.1E-01	1.1E-01	4.7E-03	1.1E-01
	Baseline	4.7E-03	1.0E-01	7.5E-02	5.7E-02	5.7E-02	2.6E-03	6.1E-02
	Project	3.6E-04	1.0E-02	8.6E-03	5.8E-03	5.6E-03	2.0E-04	6.1E-03
2	Application	6.4E-03	1.3E-01	8.7E-02	6.8E-02	7.1E-02	3.6E-03	7.5E-02
	Baseline	3.5E-03	6.6E-02	4.3E-02	3.4E-02	3.6E-02	2.0E-03	3.8E-02
	Project	4.6E-04	1.3E-02	1.1E-02	7.5E-03	7.1E-03	2.5E-04	7.8E-03
3	Application	7.2E-03	1.5E-01	1.1E-01	8.2E-02	8.5E-02	4.0E-03	9.0E-02
	Baseline	4.0E-03	8.2E-02	5.6E-02	4.3E-02	4.5E-02	2.2E-03	4.8E-02
	Project	3.9E-04	1.1E-02	9.2E-03	6.2E-03	5.9E-03	2.1E-04	6.5E-03
4	Application	6.2E-03	1.2E-01	8.2E-02	6.4E-02	6.7E-02	3.5E-03	7.1E-02
	Baseline	3.5E-03	6.6E-02	4.3E-02	3.4E-02	3.6E-02	1.9E-03	3.8E-02
	Project	2.5E-04	7.1E-03	5.9E-03	4.0E-03	3.8E-03	1.4E-04	4.2E-03
5	Application	6.3E-03	1.3E-01	8.5E-02	6.6E-02	6.9E-02	3.6E-03	7.3E-02
	Baseline	3.5E-03	6.6E-02	4.3E-02	3.4E-02	3.6E-02	2.0E-03	3.8E-02
	Project	3.7E-04	1.1E-02	9.0E-03	6.1E-03	5.8E-03	2.1E-04	6.4E-03
6	Application	2.2E-02	6.5E-01	5.2E-01	3.7E-01	3.6E-01	1.2E-02	3.9E-01
	Baseline	1.3E-02	3.7E-01	2.9E-01	2.1E-01	2.0E-01	7.1E-03	2.2E-01
	Project	4.0E-04	1.1E-02	9.5E-03	6.5E-03	6.2E-03	2.2E-04	6.7E-03
7	Application	1.0E-02	2.5E-01	1.9E-01	1.4E-01	1.4E-01	5.6E-03	1.5E-01
	Baseline	5.8E-03	1.4E-01	1.0E-01	7.6E-02	7.6E-02	3.2E-03	8.2E-02
	Project	2.5E-04	7.2E-03	6.0E-03	4.1E-03	3.9E-03	1.4E-04	4.3E-03
8	Application	6.4E-03	1.3E-01	8.7E-02	6.8E-02	7.1E-02	3.6E-03	7.5E-02
	Baseline	3.6E-03	7.0E-02	4.7E-02	3.7E-02	3.9E-02	2.0E-03	4.1E-02
	Project	2.1E-04	5.9E-03	5.0E-03	3.4E-03	3.2E-03	1.2E-04	3.5E-03
9	Application	8.1E-03	1.8E-01	1.3E-01	9.9E-02	1.0E-01	4.5E-03	1.1E-01
	Baseline	3.5E-03	6.7E-02	4.4E-02	3.5E-02	3.7E-02	2.0E-03	3.9E-02
	Project	2.2E-03	6.8E-02	5.6E-02	3.9E-02	3.7E-02	1.2E-03	4.0E-02
10	Application	2.3E-02	6.8E-01	5.5E-01	3.8E-01	3.7E-01	1.3E-02	4.1E-01
	Baseline	3.5E-03	6.6E-02	4.3E-02	3.5E-02	3.6E-02	2.0E-03	3.8E-02
	Project	1.8E-02	5.9E-01	4.9E-01	3.3E-01	3.2E-01	1.0E-02	3.5E-01
11	Application	9.4E-03	2.3E-01	1.7E-01	1.2E-01	1.2E-01	5.2E-03	1.3E-01
	Baseline	3.5E-03	6.6E-02	4.3E-02	3.5E-02	3.6E-02	2.0E-03	3.8E-02
	Project	3.6E-03	1.1E-01	9.5E-02	6.5E-02	6.2E-02	2.0E-03	6.8E-02
12	Application	8.5E-03	2.0E-01	1.4E-01	1.1E-01	1.1E-01	4.7E-03	1.2E-01
	Baseline	3.5E-03	6.7E-02	4.4E-02	3.5E-02	3.7E-02	2.0E-03	3.9E-02
	Project	2.6E-03	8.2E-02	6.8E-02	4.7E-02	4.5E-02	1.4E-03	4.9E-02
13	Application	1.3E-02	3.3E-01	2.6E-01	1.8E-01	1.8E-01	7.0E-03	1.9E-01
	Baseline	3.5E-03	6.6E-02	4.4E-02	3.5E-02	3.7E-02	2.0E-03	3.8E-02
	Project	6.9E-03	2.2E-01	1.8E-01	1.3E-01	1.2E-01	3.8E-03	1.3E-01
14	Application	1.2E-02	3.3E-01	2.6E-01	1.9E-01	1.8E-01	6.5E-03	2.0E-01
	Baseline	1.2E-02	3.3E-01	2.6E-01	1.8E-01	1.8E-01	6.5E-03	2.0E-01
	Project	9.5E-05	2.7E-03	2.2E-03	1.5E-03	1.5E-03	5.3E-05	1.6E-03

Table F.4. Multimedia Model Results: Barium

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	1.1E-02	7.3E-01	6.5E-01	4.2E-01	3.9E-01	4.8E-03
	Baseline	2.5E-03	1.7E-01	1.5E-01	9.6E-02	9.0E-02	1.1E-03
	Project	1.1E-02	7.3E-01	6.5E-01	4.2E-01	3.9E-01	4.8E-03
FL	Application	1.4E-03	9.6E-02	8.5E-02	5.5E-02	5.2E-02	6.3E-04
	Baseline	1.7E-05	7.9E-04	6.9E-04	4.5E-04	4.2E-04	8.1E-06
	Project	1.4E-03	9.6E-02	8.5E-02	5.5E-02	5.2E-02	6.3E-04
1	Application	4.0E-04	2.6E-02	2.3E-02	1.5E-02	1.4E-02	1.8E-04
	Baseline	2.1E-04	1.4E-02	1.2E-02	7.9E-03	7.3E-03	9.2E-05
	Project	2.7E-05	1.8E-03	1.6E-03	1.1E-03	9.8E-04	1.2E-05
2	Application	4.9E-05	2.6E-03	2.3E-03	1.5E-03	1.4E-03	2.3E-05
	Baseline	6.3E-06	3.6E-05	2.3E-05	1.6E-05	1.5E-05	3.3E-06
	Project	3.8E-05	2.5E-03	2.3E-03	1.5E-03	1.4E-03	1.7E-05
3	Application	1.7E-04	1.1E-02	9.5E-03	6.2E-03	5.8E-03	7.6E-05
	Baseline	7.9E-05	4.9E-03	4.3E-03	2.8E-03	2.6E-03	3.5E-05
	Project	2.8E-05	1.8E-03	1.6E-03	1.1E-03	9.9E-04	1.2E-05
4	Application	2.5E-05	9.8E-04	8.5E-04	5.6E-04	5.2E-04	1.2E-05
	Baseline	6.1E-06	2.7E-05	1.5E-05	1.1E-05	1.0E-05	3.2E-06
	Project	1.4E-05	9.3E-04	8.3E-04	5.4E-04	5.0E-04	6.1E-06
5	Application	4.0E-05	2.0E-03	1.8E-03	1.1E-03	1.1E-03	1.8E-05
	Baseline	6.2E-06	3.1E-05	1.9E-05	1.3E-05	1.3E-05	3.2E-06
	Project	2.9E-05	1.9E-03	1.7E-03	1.1E-03	1.0E-03	1.3E-05
6	Application	3.3E-03	2.2E-01	2.0E-01	1.3E-01	1.2E-01	1.5E-03
	Baseline	1.8E-03	1.2E-01	1.1E-01	7.1E-02	6.6E-02	8.1E-04
	Project	3.1E-05	2.1E-03	1.9E-03	1.2E-03	1.1E-03	1.4E-05
7	Application	8.0E-04	5.3E-02	4.7E-02	3.1E-02	2.8E-02	3.5E-04
	Baseline	4.3E-04	2.8E-02	2.5E-02	1.6E-02	1.5E-02	1.9E-04
	Project	2.0E-05	1.4E-03	1.2E-03	7.9E-04	7.3E-04	8.9E-06
8	Application	5.3E-05	2.8E-03	2.5E-03	1.6E-03	1.5E-03	2.4E-05
	Baseline	2.2E-05	1.1E-03	9.9E-04	6.4E-04	6.0E-04	1.0E-05
	Project	1.2E-05	8.2E-04	7.3E-04	4.8E-04	4.4E-04	5.4E-06
9	Application	3.7E-04	2.4E-02	2.2E-02	1.4E-02	1.3E-02	1.6E-04
	Baseline	9.0E-06	2.2E-04	1.8E-04	1.2E-04	1.1E-04	4.5E-06
	Project	3.6E-04	2.4E-02	2.1E-02	1.4E-02	1.3E-02	1.6E-04
10	Application	3.6E-03	2.4E-01	2.1E-01	1.4E-01	1.3E-01	1.6E-03
	Baseline	6.8E-06	7.0E-05	5.3E-05	3.5E-05	3.3E-05	3.5E-06
	Project	3.6E-03	2.4E-01	2.1E-01	1.4E-01	1.3E-01	1.6E-03
11	Application	6.7E-04	4.4E-02	3.9E-02	2.6E-02	2.4E-02	3.0E-04
	Baseline	6.5E-06	4.8E-05	3.4E-05	2.3E-05	2.2E-05	3.4E-06
	Project	6.6E-04	4.4E-02	3.9E-02	2.6E-02	2.4E-02	2.9E-04
12	Application	4.8E-04	3.1E-02	2.8E-02	1.8E-02	1.7E-02	2.1E-04
	Baseline	7.9E-06	1.5E-04	1.2E-04	7.9E-05	7.4E-05	4.0E-06
	Project	4.6E-04	3.1E-02	2.8E-02	1.8E-02	1.7E-02	2.0E-04
13	Application	1.3E-03	8.9E-02	7.9E-02	5.1E-02	4.8E-02	5.9E-04
	Baseline	7.1E-06	9.2E-05	7.3E-05	4.8E-05	4.6E-05	3.6E-06
	Project	1.3E-03	8.9E-02	7.9E-02	5.1E-02	4.8E-02	5.8E-04
14	Application	1.6E-03	1.1E-01	9.4E-02	6.1E-02	5.7E-02	7.0E-04
	Baseline	1.6E-03	1.1E-01	9.4E-02	6.1E-02	5.7E-02	7.0E-04
	Project	5.3E-06	3.6E-04	3.2E-04	2.1E-04	1.9E-04	2.3E-06

Table F.5. Multimedia Model Results: Beryllium

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	3.0E-04	3.4E-03	2.9E-03	1.9E-03	1.8E-03	1.6E-04
	Baseline	7.1E-05	7.8E-04	6.7E-04	4.4E-04	4.2E-04	3.8E-05
	Project	2.9E-04	3.3E-03	2.9E-03	1.9E-03	1.8E-03	1.6E-04
FL	Application	4.2E-05	4.5E-04	3.9E-04	2.6E-04	2.5E-04	2.2E-05
	Baseline	4.0E-06	1.8E-05	1.2E-05	9.0E-06	9.2E-06	1.5E-06
	Project	3.9E-05	4.4E-04	3.8E-04	2.5E-04	2.4E-04	2.1E-05
1	Application	1.7E-05	1.5E-04	1.2E-04	8.1E-05	7.9E-05	8.2E-06
	Baseline	9.2E-06	7.7E-05	6.3E-05	4.3E-05	4.1E-05	4.4E-06
	Project	7.3E-07	8.2E-06	7.1E-06	4.7E-06	4.5E-06	4.0E-07
2	Application	7.8E-06	3.8E-05	2.6E-05	2.0E-05	2.0E-05	3.1E-06
	Baseline	3.8E-06	1.5E-05	9.1E-06	7.2E-06	7.5E-06	1.4E-06
	Project	1.0E-06	1.2E-05	1.0E-05	6.6E-06	6.3E-06	5.6E-07
3	Application	1.1E-05	7.5E-05	5.8E-05	4.1E-05	4.0E-05	4.8E-06
	Baseline	5.7E-06	3.7E-05	2.8E-05	2.0E-05	2.0E-05	2.5E-06
	Project	7.4E-07	8.4E-06	7.2E-06	4.8E-06	4.6E-06	4.0E-07
4	Application	7.1E-06	3.0E-05	2.0E-05	1.5E-05	1.6E-05	2.7E-06
	Baseline	3.8E-06	1.5E-05	9.1E-06	7.2E-06	7.5E-06	1.4E-06
	Project	3.7E-07	4.2E-06	3.6E-06	2.4E-06	2.3E-06	2.0E-07
5	Application	7.5E-06	3.5E-05	2.4E-05	1.8E-05	1.8E-05	2.9E-06
	Baseline	3.8E-06	1.5E-05	9.1E-06	7.2E-06	7.5E-06	1.4E-06
	Project	7.8E-07	8.8E-06	7.6E-06	5.0E-06	4.8E-06	4.2E-07
6	Application	9.6E-05	1.0E-03	8.9E-04	5.9E-04	5.7E-04	5.1E-05
	Baseline	5.3E-05	5.8E-04	4.9E-04	3.3E-04	3.1E-04	2.8E-05
	Project	8.4E-07	9.4E-06	8.1E-06	5.4E-06	5.1E-06	4.5E-07
7	Application	2.8E-05	2.7E-04	2.2E-04	1.5E-04	1.4E-04	1.4E-05
	Baseline	1.5E-05	1.5E-04	1.2E-04	8.2E-05	7.9E-05	7.6E-06
	Project	5.5E-07	6.2E-06	5.3E-06	3.5E-06	3.3E-06	3.0E-07
8	Application	7.9E-06	3.9E-05	2.7E-05	2.0E-05	2.0E-05	3.1E-06
	Baseline	4.2E-06	2.0E-05	1.3E-05	1.0E-05	1.0E-05	1.6E-06
	Project	3.3E-07	3.7E-06	3.2E-06	2.1E-06	2.0E-06	1.8E-07
9	Application	1.6E-05	1.4E-04	1.1E-04	7.6E-05	7.4E-05	7.8E-06
	Baseline	3.8E-06	1.5E-05	9.8E-06	7.7E-06	8.0E-06	1.4E-06
	Project	9.6E-06	1.1E-04	9.4E-05	6.2E-05	5.9E-05	5.2E-06
10	Application	1.0E-04	1.1E-03	9.7E-04	6.4E-04	6.1E-04	5.5E-05
	Baseline	3.8E-06	1.5E-05	9.3E-06	7.3E-06	7.6E-06	1.4E-06
	Project	9.7E-05	1.1E-03	9.5E-04	6.3E-04	6.0E-04	5.2E-05
11	Application	2.5E-05	2.3E-04	1.9E-04	1.3E-04	1.2E-04	1.2E-05
	Baseline	3.8E-06	1.5E-05	9.2E-06	7.3E-06	7.6E-06	1.4E-06
	Project	1.8E-05	2.0E-04	1.7E-04	1.2E-04	1.1E-04	9.6E-06
12	Application	1.9E-05	1.7E-04	1.4E-04	9.4E-05	9.1E-05	9.3E-06
	Baseline	3.8E-06	1.5E-05	9.6E-06	7.5E-06	7.8E-06	1.4E-06
	Project	1.2E-05	1.4E-04	1.2E-04	8.1E-05	7.7E-05	6.7E-06
13	Application	4.2E-05	4.3E-04	3.6E-04	2.4E-04	2.3E-04	2.2E-05
	Baseline	3.8E-06	1.5E-05	9.4E-06	7.4E-06	7.7E-06	1.4E-06
	Project	3.6E-05	4.1E-04	3.5E-04	2.3E-04	2.2E-04	1.9E-05
14	Application	4.6E-05	5.0E-04	4.3E-04	2.8E-04	2.7E-04	2.4E-05
	Baseline	4.6E-05	5.0E-04	4.3E-04	2.8E-04	2.7E-04	2.4E-05
	Project	1.4E-07	1.6E-06	1.4E-06	9.2E-07	8.8E-07	7.8E-08

Table F.6. Multimedia Model Results: Cadmium

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	1.1E-04	1.4E-02	1.2E-02	7.9E-03	7.4E-03	5.7E-05
	Baseline	1.8E-04	2.4E-02	2.1E-02	1.4E-02	1.3E-02	9.7E-05
	Project	7.6E-04	1.0E-01	9.2E-02	6.0E-02	5.6E-02	4.1E-04
FL	Application	4.2E-04	5.6E-02	5.0E-02	3.2E-02	3.0E-02	2.2E-04
	Baseline	5.2E-06	1.5E-04	1.2E-04	8.1E-05	7.7E-05	2.9E-06
	Project	1.0E-04	1.4E-02	1.2E-02	7.9E-03	7.4E-03	5.4E-05
1	Application	5.0E-06	5.2E-04	4.6E-04	3.0E-04	2.8E-04	2.7E-06
	Baseline	1.9E-05	2.0E-03	1.8E-03	1.2E-03	1.1E-03	1.0E-05
	Project	2.3E-06	3.1E-04	2.7E-04	1.8E-04	1.7E-04	1.2E-06
2	Application	1.5E-06	6.4E-05	5.5E-05	3.6E-05	3.4E-05	8.6E-07
	Baseline	4.5E-06	3.7E-05	2.2E-05	1.7E-05	1.7E-05	2.6E-06
	Project	3.1E-06	4.2E-04	3.8E-04	2.4E-04	2.3E-04	1.7E-06
3	Application	2.7E-06	2.2E-04	2.0E-04	1.3E-04	1.2E-04	1.5E-06
	Baseline	9.9E-06	7.6E-04	6.7E-04	4.4E-04	4.1E-04	5.5E-06
	Project	2.3E-06	3.2E-04	2.8E-04	1.8E-04	1.7E-04	1.3E-06
4	Application	1.3E-06	3.1E-05	2.5E-05	1.7E-05	1.6E-05	7.2E-07
	Baseline	4.5E-06	3.4E-05	2.0E-05	1.5E-05	1.6E-05	2.6E-06
	Project	1.3E-06	1.7E-04	1.5E-04	9.9E-05	9.2E-05	6.8E-07
5	Application	1.4E-06	5.1E-05	4.3E-05	2.8E-05	2.7E-05	8.1E-07
	Baseline	4.5E-06	3.6E-05	2.1E-05	1.6E-05	1.6E-05	2.6E-06
	Project	2.4E-06	3.2E-04	2.9E-04	1.9E-04	1.7E-04	1.3E-06
6	Application	3.3E-05	4.2E-03	3.7E-03	2.4E-03	2.3E-03	1.8E-05
	Baseline	1.3E-04	1.8E-02	1.6E-02	1.0E-02	9.5E-03	7.2E-05
	Project	2.6E-06	3.5E-04	3.1E-04	2.0E-04	1.9E-04	1.4E-06
7	Application	8.7E-06	1.0E-03	9.0E-04	5.9E-04	5.4E-04	4.8E-06
	Baseline	3.5E-05	4.1E-03	3.7E-03	2.4E-03	2.2E-03	1.9E-05
	Project	1.7E-06	2.2E-04	2.0E-04	1.3E-04	1.2E-04	9.0E-07
8	Application	1.6E-06	6.8E-05	5.8E-05	3.8E-05	3.6E-05	8.7E-07
	Baseline	5.7E-06	2.0E-04	1.7E-04	1.1E-04	1.1E-04	3.2E-06
	Project	1.1E-06	1.5E-04	1.3E-04	8.6E-05	8.0E-05	6.0E-07
9	Application	4.7E-06	4.8E-04	4.2E-04	2.7E-04	2.5E-04	2.6E-06
	Baseline	4.7E-06	6.8E-05	5.0E-05	3.5E-05	3.4E-05	2.7E-06
	Project	2.6E-05	3.5E-03	3.1E-03	2.0E-03	1.9E-03	1.4E-05
10	Application	3.6E-05	4.5E-03	4.0E-03	2.6E-03	2.5E-03	1.9E-05
	Baseline	4.5E-06	4.3E-05	2.8E-05	2.0E-05	2.1E-05	2.6E-06
	Project	2.5E-04	3.4E-02	3.1E-02	2.0E-02	1.9E-02	1.4E-04
11	Application	7.5E-06	8.5E-04	7.5E-04	4.9E-04	4.6E-04	4.1E-06
	Baseline	4.5E-06	3.9E-05	2.4E-05	1.8E-05	1.8E-05	2.6E-06
	Project	4.7E-05	6.3E-03	5.7E-03	3.7E-03	3.4E-03	2.5E-05
12	Application	5.6E-06	6.0E-04	5.4E-04	3.5E-04	3.3E-04	3.1E-06
	Baseline	4.6E-06	5.5E-05	3.8E-05	2.7E-05	2.7E-05	2.6E-06
	Project	3.3E-05	4.5E-03	4.0E-03	2.6E-03	2.4E-03	1.8E-05
13	Application	1.4E-05	1.7E-03	1.5E-03	9.8E-04	9.1E-04	7.5E-06
	Baseline	4.6E-06	4.7E-05	3.1E-05	2.2E-05	2.3E-05	2.6E-06
	Project	9.4E-05	1.3E-02	1.1E-02	7.3E-03	6.8E-03	5.1E-05
14	Application	1.2E-04	1.5E-02	1.4E-02	8.8E-03	8.2E-03	6.3E-05
	Baseline	1.2E-04	1.5E-02	1.4E-02	8.8E-03	8.2E-03	6.3E-05
	Project	4.8E-07	6.5E-05	5.8E-05	3.8E-05	3.5E-05	2.6E-07

Table F.7. Multimedia Model Results: Chromium

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	4.0E-03	2.5E-02	2.0E-02	1.4E-02	1.4E-02	2.1E-03	1.5E-02
	Baseline	9.9E-04	9.3E-03	7.0E-03	5.2E-03	5.3E-03	5.4E-04	5.6E-03
	Project	3.9E-03	2.1E-02	1.7E-02	1.2E-02	1.2E-02	2.1E-03	1.2E-02
FL	Application	6.2E-04	7.3E-03	5.3E-03	4.0E-03	4.2E-03	3.3E-04	4.4E-03
	Baseline	1.1E-04	4.6E-03	3.1E-03	2.5E-03	2.7E-03	5.9E-05	2.8E-03
	Project	5.1E-04	2.8E-03	2.2E-03	1.5E-03	1.5E-03	2.8E-04	1.6E-03
1	Application	3.4E-04	8.0E-03	5.7E-03	4.4E-03	4.6E-03	1.8E-04	4.9E-03
	Baseline	1.8E-04	5.0E-03	3.5E-03	2.8E-03	2.9E-03	9.8E-05	3.0E-03
	Project	1.3E-05	6.6E-05	5.4E-05	3.6E-05	3.6E-05	6.9E-06	3.9E-05
2	Application	2.1E-04	7.4E-03	5.2E-03	4.1E-03	4.3E-03	1.1E-04	4.5E-03
	Baseline	1.1E-04	4.6E-03	3.2E-03	2.5E-03	2.7E-03	5.8E-05	2.8E-03
	Project	1.7E-05	9.0E-05	7.3E-05	5.0E-05	4.9E-05	9.4E-06	5.3E-05
3	Application	2.6E-04	7.6E-03	5.4E-03	4.2E-03	4.4E-03	1.4E-04	4.6E-03
	Baseline	1.4E-04	4.7E-03	3.3E-03	2.6E-03	2.8E-03	7.3E-05	2.9E-03
	Project	1.3E-05	6.8E-05	5.5E-05	3.8E-05	3.8E-05	7.2E-06	4.1E-05
4	Application	2.0E-04	7.3E-03	5.1E-03	4.1E-03	4.3E-03	1.1E-04	4.5E-03
	Baseline	1.1E-04	4.6E-03	3.2E-03	2.5E-03	2.7E-03	5.8E-05	2.8E-03
	Project	7.5E-06	3.8E-05	3.1E-05	2.1E-05	2.1E-05	4.1E-06	2.3E-05
5	Application	2.1E-04	7.4E-03	5.2E-03	4.1E-03	4.3E-03	1.1E-04	4.5E-03
	Baseline	1.1E-04	4.6E-03	3.2E-03	2.5E-03	2.7E-03	5.8E-05	2.8E-03
	Project	1.3E-05	7.0E-05	5.7E-05	3.9E-05	3.8E-05	7.3E-06	4.2E-05
6	Application	1.4E-03	1.3E-02	9.7E-03	7.1E-03	7.3E-03	7.3E-04	7.8E-03
	Baseline	7.6E-04	8.1E-03	6.0E-03	4.5E-03	4.6E-03	4.1E-04	4.9E-03
	Project	1.4E-05	7.4E-05	6.0E-05	4.1E-05	4.1E-05	7.9E-06	4.4E-05
7	Application	4.7E-04	8.6E-03	6.2E-03	4.8E-03	5.0E-03	2.5E-04	5.2E-03
	Baseline	2.6E-04	5.4E-03	3.8E-03	3.0E-03	3.1E-03	1.4E-04	3.3E-03
	Project	9.3E-06	4.8E-05	3.9E-05	2.7E-05	2.6E-05	5.0E-06	2.9E-05
8	Application	2.1E-04	7.4E-03	5.2E-03	4.1E-03	4.3E-03	1.1E-04	4.5E-03
	Baseline	1.2E-04	4.6E-03	3.2E-03	2.6E-03	2.7E-03	6.1E-05	2.8E-03
	Project	6.5E-06	3.3E-05	2.7E-05	1.8E-05	1.8E-05	3.5E-06	2.0E-05
9	Application	3.3E-04	7.9E-03	5.6E-03	4.4E-03	4.6E-03	1.7E-04	4.8E-03
	Baseline	1.1E-04	4.6E-03	3.2E-03	2.5E-03	2.7E-03	5.8E-05	2.8E-03
	Project	1.3E-04	7.1E-04	5.7E-04	3.9E-04	3.9E-04	7.2E-05	4.2E-04
10	Application	1.4E-03	1.3E-02	1.0E-02	7.4E-03	7.5E-03	7.8E-04	8.0E-03
	Baseline	1.1E-04	4.6E-03	3.2E-03	2.5E-03	2.7E-03	5.8E-05	2.8E-03
	Project	1.3E-03	7.0E-03	5.6E-03	3.9E-03	3.8E-03	6.9E-04	4.2E-03
11	Application	4.3E-04	8.4E-03	6.0E-03	4.6E-03	4.9E-03	2.3E-04	5.1E-03
	Baseline	1.1E-04	4.6E-03	3.2E-03	2.5E-03	2.7E-03	5.8E-05	2.8E-03
	Project	2.4E-04	1.3E-03	1.0E-03	7.1E-04	7.1E-04	1.3E-04	7.7E-04
12	Application	3.6E-04	8.1E-03	5.8E-03	4.5E-03	4.7E-03	1.9E-04	4.9E-03
	Baseline	1.1E-04	4.6E-03	3.2E-03	2.5E-03	2.7E-03	5.8E-05	2.8E-03
	Project	1.7E-04	9.1E-04	7.3E-04	5.0E-04	5.0E-04	9.1E-05	5.4E-04
13	Application	6.6E-04	9.5E-03	6.9E-03	5.3E-03	5.5E-03	3.5E-04	5.8E-03
	Baseline	1.1E-04	4.6E-03	3.2E-03	2.5E-03	2.7E-03	5.8E-05	2.8E-03
	Project	4.7E-04	2.6E-03	2.1E-03	1.4E-03	1.4E-03	2.6E-04	1.5E-03
14	Application	6.8E-04	7.6E-03	5.6E-03	4.2E-03	4.3E-03	3.6E-04	4.6E-03
	Baseline	6.7E-04	7.6E-03	5.6E-03	4.2E-03	4.3E-03	3.6E-04	4.6E-03
	Project	2.9E-06	1.4E-05	1.2E-05	8.0E-06	8.0E-06	1.5E-06	8.6E-06

Table F.8. Multimedia Model Results: Cobalt

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	3.0E-03	1.6E-02	1.1E-02	8.5E-03	9.1E-03	1.6E-03
	Baseline	7.6E-04	7.0E-03	5.0E-03	3.9E-03	4.1E-03	4.0E-04
	Project	3.0E-03	1.1E-02	8.0E-03	6.0E-03	6.4E-03	1.6E-03
FL	Application	4.7E-04	5.9E-03	4.2E-03	3.3E-03	3.5E-03	2.4E-04
	Baseline	8.3E-05	4.5E-03	3.2E-03	2.5E-03	2.7E-03	3.2E-05
	Project	3.9E-04	1.5E-03	1.0E-03	7.8E-04	8.4E-04	2.1E-04
1	Application	2.5E-04	7.0E-03	4.9E-03	3.9E-03	4.2E-03	1.1E-04
	Baseline	1.4E-04	4.7E-03	3.3E-03	2.7E-03	2.8E-03	6.1E-05
	Project	7.4E-06	2.6E-05	1.8E-05	1.4E-05	1.5E-05	4.0E-06
2	Application	1.6E-04	6.7E-03	4.7E-03	3.8E-03	4.0E-03	6.0E-05
	Baseline	8.2E-05	4.5E-03	3.2E-03	2.5E-03	2.7E-03	3.1E-05
	Project	1.0E-05	3.7E-05	2.6E-05	2.0E-05	2.1E-05	5.6E-06
3	Application	1.9E-04	6.8E-03	4.8E-03	3.8E-03	4.0E-03	7.8E-05
	Baseline	1.0E-04	4.6E-03	3.2E-03	2.6E-03	2.8E-03	4.1E-05
	Project	7.5E-06	2.6E-05	1.8E-05	1.4E-05	1.5E-05	4.1E-06
4	Application	1.5E-04	6.7E-03	4.7E-03	3.8E-03	4.0E-03	5.7E-05
	Baseline	8.2E-05	4.5E-03	3.2E-03	2.5E-03	2.7E-03	3.1E-05
	Project	3.8E-06	1.3E-05	9.4E-06	7.1E-06	7.6E-06	2.0E-06
5	Application	1.5E-04	6.7E-03	4.7E-03	3.8E-03	4.0E-03	5.9E-05
	Baseline	8.2E-05	4.5E-03	3.2E-03	2.5E-03	2.7E-03	3.1E-05
	Project	7.8E-06	2.8E-05	2.0E-05	1.5E-05	1.6E-05	4.3E-06
6	Application	1.0E-03	9.5E-03	6.7E-03	5.2E-03	5.6E-03	5.4E-04
	Baseline	5.8E-04	6.4E-03	4.5E-03	3.5E-03	3.8E-03	3.0E-04
	Project	8.5E-06	2.9E-05	2.1E-05	1.5E-05	1.7E-05	4.6E-06
7	Application	3.6E-04	7.4E-03	5.2E-03	4.1E-03	4.3E-03	1.7E-04
	Baseline	2.0E-04	5.0E-03	3.5E-03	2.8E-03	3.0E-03	9.3E-05
	Project	5.5E-06	1.9E-05	1.4E-05	1.0E-05	1.1E-05	3.0E-06
8	Application	1.6E-04	6.7E-03	4.7E-03	3.8E-03	4.0E-03	6.1E-05
	Baseline	8.7E-05	4.5E-03	3.2E-03	2.6E-03	2.7E-03	3.3E-05
	Project	3.4E-06	1.1E-05	8.2E-06	6.1E-06	6.6E-06	1.8E-06
9	Application	2.4E-04	7.0E-03	4.9E-03	3.9E-03	4.2E-03	1.1E-04
	Baseline	8.3E-05	4.5E-03	3.2E-03	2.5E-03	2.7E-03	3.1E-05
	Project	9.7E-05	3.6E-04	2.6E-04	1.9E-04	2.1E-04	5.3E-05
10	Application	1.1E-03	9.7E-03	6.8E-03	5.3E-03	5.7E-03	5.8E-04
	Baseline	8.3E-05	4.5E-03	3.2E-03	2.5E-03	2.7E-03	3.1E-05
	Project	9.8E-04	3.7E-03	2.6E-03	2.0E-03	2.1E-03	5.3E-04
11	Application	3.2E-04	7.2E-03	5.1E-03	4.0E-03	4.3E-03	1.5E-04
	Baseline	8.2E-05	4.5E-03	3.2E-03	2.5E-03	2.7E-03	3.1E-05
	Project	1.8E-04	6.7E-04	4.8E-04	3.6E-04	3.9E-04	9.7E-05
12	Application	2.7E-04	7.1E-03	5.0E-03	4.0E-03	4.2E-03	1.2E-04
	Baseline	8.3E-05	4.5E-03	3.2E-03	2.5E-03	2.7E-03	3.1E-05
	Project	1.3E-04	4.7E-04	3.3E-04	2.5E-04	2.7E-04	6.8E-05
13	Application	5.0E-04	7.8E-03	5.5E-03	4.3E-03	4.6E-03	2.5E-04
	Baseline	8.3E-05	4.5E-03	3.2E-03	2.5E-03	2.7E-03	3.1E-05
	Project	3.6E-04	1.3E-03	9.6E-04	7.2E-04	7.7E-04	2.0E-04
14	Application	5.1E-04	6.1E-03	4.3E-03	3.4E-03	3.6E-03	2.6E-04
	Baseline	5.1E-04	6.1E-03	4.3E-03	3.4E-03	3.6E-03	2.6E-04
	Project	1.5E-06	5.0E-06	3.6E-06	2.7E-06	2.9E-06	7.9E-07

Table F.9. Multimedia Model Results: Copper

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	2.1E-04	3.7E-03	2.9E-03	2.1E-03	2.2E-03	8.9E-05
	Baseline	5.0E-05	1.5E-03	1.1E-03	8.6E-04	8.9E-04	2.1E-05
	Project	2.0E-04	2.9E-03	2.3E-03	1.7E-03	1.7E-03	8.7E-05
FL	Application	3.0E-05	1.2E-03	9.0E-04	7.0E-04	7.3E-04	1.3E-05
	Baseline	3.3E-06	8.4E-04	6.0E-04	4.8E-04	5.1E-04	1.2E-06
	Project	2.7E-05	3.8E-04	3.0E-04	2.2E-04	2.2E-04	1.2E-05
1	Application	1.3E-05	1.4E-03	1.0E-03	8.0E-04	8.4E-04	5.4E-06
	Baseline	7.1E-06	9.1E-04	6.5E-04	5.2E-04	5.4E-04	2.9E-06
	Project	6.1E-07	8.1E-06	6.5E-06	4.6E-06	4.6E-06	2.6E-07
2	Application	6.4E-06	1.3E-03	9.5E-04	7.5E-04	7.9E-04	2.5E-06
	Baseline	3.2E-06	8.5E-04	6.0E-04	4.8E-04	5.1E-04	1.2E-06
	Project	8.4E-07	1.1E-05	9.0E-06	6.4E-06	6.4E-06	3.6E-07
3	Application	8.8E-06	1.4E-03	9.7E-04	7.7E-04	8.1E-04	3.5E-06
	Baseline	4.6E-06	8.7E-04	6.2E-04	5.0E-04	5.3E-04	1.8E-06
	Project	6.3E-07	8.3E-06	6.7E-06	4.7E-06	4.7E-06	2.7E-07
4	Application	5.9E-06	1.3E-03	9.4E-04	7.5E-04	7.9E-04	2.2E-06
	Baseline	3.2E-06	8.5E-04	6.0E-04	4.8E-04	5.1E-04	1.2E-06
	Project	3.4E-07	4.5E-06	3.6E-06	2.6E-06	2.6E-06	1.5E-07
5	Application	6.3E-06	1.3E-03	9.5E-04	7.5E-04	7.9E-04	2.4E-06
	Baseline	3.2E-06	8.5E-04	6.0E-04	4.8E-04	5.1E-04	1.2E-06
	Project	6.4E-07	8.6E-06	6.9E-06	4.9E-06	4.9E-06	2.8E-07
6	Application	6.8E-05	2.1E-03	1.5E-03	1.2E-03	1.2E-03	2.9E-05
	Baseline	3.7E-05	1.3E-03	9.9E-04	7.6E-04	7.9E-04	1.6E-05
	Project	6.9E-07	9.1E-06	7.3E-06	5.2E-06	5.2E-06	3.0E-07
7	Application	2.0E-05	1.5E-03	1.1E-03	8.5E-04	8.9E-04	8.5E-06
	Baseline	1.1E-05	9.6E-04	6.9E-04	5.5E-04	5.8E-04	4.6E-06
	Project	4.5E-07	6.0E-06	4.8E-06	3.4E-06	3.4E-06	1.9E-07
8	Application	6.5E-06	1.3E-03	9.5E-04	7.5E-04	7.9E-04	2.5E-06
	Baseline	3.5E-06	8.6E-04	6.1E-04	4.9E-04	5.2E-04	1.3E-06
	Project	3.0E-07	3.9E-06	3.1E-06	2.2E-06	2.2E-06	1.3E-07
9	Application	1.2E-05	1.4E-03	1.0E-03	7.9E-04	8.3E-04	5.1E-06
	Baseline	3.2E-06	8.5E-04	6.0E-04	4.8E-04	5.1E-04	1.2E-06
	Project	6.9E-06	9.6E-05	7.7E-05	5.5E-05	5.5E-05	3.0E-06
10	Application	7.2E-05	2.1E-03	1.6E-03	1.2E-03	1.2E-03	3.1E-05
	Baseline	3.2E-06	8.5E-04	6.0E-04	4.8E-04	5.1E-04	1.2E-06
	Project	6.7E-05	9.6E-04	7.7E-04	5.5E-04	5.5E-04	2.9E-05
11	Application	1.8E-05	1.5E-03	1.1E-03	8.3E-04	8.7E-04	7.4E-06
	Baseline	3.2E-06	8.5E-04	6.0E-04	4.8E-04	5.1E-04	1.2E-06
	Project	1.2E-05	1.8E-04	1.4E-04	1.0E-04	1.0E-04	5.4E-06
12	Application	1.4E-05	1.4E-03	1.0E-03	8.0E-04	8.4E-04	5.9E-06
	Baseline	3.2E-06	8.5E-04	6.0E-04	4.8E-04	5.1E-04	1.2E-06
	Project	8.8E-06	1.2E-04	9.9E-05	7.1E-05	7.1E-05	3.8E-06
13	Application	3.0E-05	1.6E-03	1.2E-03	9.1E-04	9.5E-04	1.3E-05
	Baseline	3.2E-06	8.5E-04	6.0E-04	4.8E-04	5.1E-04	1.2E-06
	Project	2.5E-05	3.5E-04	2.8E-04	2.0E-04	2.0E-04	1.1E-05
14	Application	3.3E-05	1.3E-03	9.3E-04	7.2E-04	7.5E-04	1.4E-05
	Baseline	3.3E-05	1.3E-03	9.3E-04	7.2E-04	7.5E-04	1.4E-05
	Project	1.3E-07	1.7E-06	1.4E-06	9.7E-07	9.7E-07	5.6E-08

Table F.10. Multimedia Model Results: Lead

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	1.6E-02	3.2E-02	2.4E-02	1.7E-02	1.8E-02	7.0E-03	1.94E-02
	Baseline	3.8E-03	7.7E-03	5.5E-03	4.0E-03	4.3E-03	1.6E-03	4.57E-03
	Project	1.6E-02	3.2E-02	2.3E-02	1.7E-02	1.8E-02	7.0E-03	1.93E-02
FL	Application	2.2E-03	4.6E-03	3.2E-03	2.4E-03	2.5E-03	9.7E-04	2.69E-03
	Baseline	9.8E-05	4.1E-04	2.0E-04	1.5E-04	1.6E-04	5.4E-05	1.76E-04
	Project	2.1E-03	4.2E-03	3.1E-03	2.2E-03	2.4E-03	9.2E-04	2.53E-03
1	Application	7.6E-04	1.9E-03	1.2E-03	8.8E-04	9.3E-04	3.4E-04	9.98E-04
	Baseline	3.9E-04	9.9E-04	6.2E-04	4.6E-04	4.9E-04	1.8E-04	5.25E-04
	Project	4.9E-05	8.8E-05	6.4E-05	4.7E-05	5.0E-05	2.1E-05	5.34E-05
2	Application	2.1E-04	8.1E-04	4.1E-04	3.1E-04	3.3E-04	1.1E-04	3.61E-04
	Baseline	8.3E-05	3.8E-04	1.8E-04	1.4E-04	1.4E-04	4.8E-05	1.60E-04
	Project	6.6E-05	1.2E-04	8.9E-05	6.5E-05	7.0E-05	2.9E-05	7.39E-05
3	Application	4.0E-04	1.2E-03	6.8E-04	5.1E-04	5.4E-04	2.0E-04	5.82E-04
	Baseline	2.0E-04	6.1E-04	3.4E-04	2.6E-04	2.7E-04	9.7E-05	2.93E-04
	Project	5.0E-05	9.0E-05	6.6E-05	4.8E-05	5.1E-05	2.2E-05	5.45E-05
4	Application	1.8E-04	7.3E-04	3.6E-04	2.7E-04	2.9E-04	9.7E-05	3.16E-04
	Baseline	8.3E-05	3.8E-04	1.8E-04	1.4E-04	1.4E-04	4.7E-05	1.59E-04
	Project	2.7E-05	4.9E-05	3.6E-05	2.6E-05	2.8E-05	1.2E-05	2.96E-05
5	Application	2.0E-04	7.8E-04	3.9E-04	3.0E-04	3.1E-04	1.1E-04	3.44E-04
	Baseline	8.3E-05	3.8E-04	1.8E-04	1.4E-04	1.4E-04	4.8E-05	1.59E-04
	Project	5.1E-05	9.4E-05	6.9E-05	5.0E-05	5.4E-05	2.2E-05	5.69E-05
6	Application	5.1E-03	1.0E-02	7.5E-03	5.5E-03	5.8E-03	2.2E-03	6.20E-03
	Baseline	2.8E-03	5.8E-03	4.1E-03	3.0E-03	3.2E-03	1.2E-03	3.40E-03
	Project	5.5E-05	9.9E-05	7.2E-05	5.3E-05	5.6E-05	2.4E-05	5.99E-05
7	Application	1.3E-03	3.0E-03	2.0E-03	1.5E-03	1.6E-03	5.9E-04	1.69E-03
	Baseline	7.2E-04	1.6E-03	1.1E-03	8.1E-04	8.6E-04	3.2E-04	9.19E-04
	Project	3.6E-05	6.5E-05	4.8E-05	3.5E-05	3.7E-05	1.5E-05	3.94E-05
8	Application	2.2E-04	8.2E-04	4.2E-04	3.2E-04	3.4E-04	1.2E-04	3.67E-04
	Baseline	1.1E-04	4.3E-04	2.1E-04	1.6E-04	1.7E-04	5.9E-05	1.90E-04
	Project	2.4E-05	4.2E-05	3.1E-05	2.2E-05	2.4E-05	1.0E-05	2.55E-05
9	Application	7.0E-04	1.7E-03	1.1E-03	8.2E-04	8.6E-04	3.2E-04	9.29E-04
	Baseline	8.8E-05	3.9E-04	1.9E-04	1.4E-04	1.5E-04	5.0E-05	1.65E-04
	Project	5.5E-04	1.1E-03	7.7E-04	5.6E-04	6.0E-04	2.4E-04	6.37E-04
10	Application	5.5E-03	1.1E-02	8.0E-03	5.9E-03	6.2E-03	2.4E-03	6.63E-03
	Baseline	8.4E-05	3.9E-04	1.8E-04	1.4E-04	1.5E-04	4.8E-05	1.61E-04
	Project	5.4E-03	1.1E-02	7.8E-03	5.7E-03	6.0E-03	2.3E-03	6.39E-03
11	Application	1.1E-03	2.6E-03	1.7E-03	1.3E-03	1.4E-03	5.1E-04	1.45E-03
	Baseline	8.3E-05	3.8E-04	1.8E-04	1.4E-04	1.5E-04	4.8E-05	1.60E-04
	Project	1.0E-03	2.0E-03	1.4E-03	1.0E-03	1.1E-03	4.3E-04	1.18E-03
12	Application	8.5E-04	2.0E-03	1.3E-03	9.8E-04	1.0E-03	3.9E-04	1.11E-03
	Baseline	8.6E-05	3.9E-04	1.8E-04	1.4E-04	1.5E-04	4.9E-05	1.63E-04
	Project	7.0E-04	1.4E-03	1.0E-03	7.3E-04	7.8E-04	3.0E-04	8.23E-04
13	Application	2.1E-03	4.5E-03	3.1E-03	2.3E-03	2.5E-03	9.4E-04	2.62E-03
	Baseline	8.5E-05	3.9E-04	1.8E-04	1.4E-04	1.5E-04	4.8E-05	1.62E-04
	Project	2.0E-03	3.9E-03	2.9E-03	2.1E-03	2.2E-03	8.6E-04	2.35E-03
14	Application	2.5E-03	5.1E-03	3.6E-03	2.6E-03	2.8E-03	1.1E-03	2.98E-03
	Baseline	2.5E-03	5.1E-03	3.6E-03	2.6E-03	2.8E-03	1.1E-03	2.97E-03
	Project	1.0E-05	1.9E-05	1.3E-05	9.8E-06	1.1E-05	4.5E-06	1.12E-05

Table F.11. Multimedia Model Results: Manganese

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	2.2E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	8.1E-05
	Baseline	2.2E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	8.1E-05
	Project	5.6E-08	3.9E-07	2.8E-07	2.2E-07	2.3E-07	2.4E-08
FL	Application	2.2E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	8.1E-05
	Baseline	2.2E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	8.1E-05
	Project	2.8E-08	1.8E-07	1.3E-07	1.0E-07	1.1E-07	1.2E-08
1	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	2.2E-10	1.3E-09	9.3E-10	7.3E-10	7.8E-10	9.4E-11
2	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	2.6E-10	1.6E-09	1.1E-09	8.7E-10	9.3E-10	1.1E-10
3	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	2.4E-10	1.5E-09	1.0E-09	8.1E-10	8.7E-10	1.0E-10
4	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	1.8E-10	1.1E-09	7.6E-10	5.9E-10	6.3E-10	7.6E-11
5	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	2.3E-10	1.3E-09	9.7E-10	7.5E-10	8.0E-10	9.7E-11
6	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	2.4E-10	1.4E-09	1.0E-09	8.0E-10	8.6E-10	1.0E-10
7	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	1.5E-10	8.9E-10	6.3E-10	5.0E-10	5.3E-10	6.4E-11
8	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	1.5E-10	8.7E-10	6.2E-10	4.9E-10	5.2E-10	6.3E-11
9	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	4.2E-10	2.5E-09	1.8E-09	1.4E-09	1.5E-09	1.8E-10
10	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	5.4E-10	3.3E-09	2.3E-09	1.8E-09	2.0E-09	2.3E-10
11	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	3.5E-10	2.1E-09	1.5E-09	1.2E-09	1.3E-09	1.5E-10
12	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	3.3E-10	2.0E-09	1.4E-09	1.1E-09	1.2E-09	1.4E-10
13	Application	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Baseline	1.8E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	6.4E-05
	Project	4.5E-10	2.7E-09	1.9E-09	1.5E-09	1.6E-09	1.9E-10
14	Application	2.2E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	8.1E-05
	Baseline	2.2E-04	5.9E-02	4.2E-02	3.4E-02	3.6E-02	8.1E-05
	Project	1.4E-08	8.8E-08	6.3E-08	4.9E-08	5.3E-08	6.0E-09

Table F.12. Multimedia Model Results: Mercury

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	3.4E-04	7.4E-03	5.3E-03	4.2E-03	4.5E-03	1.5E-04
	Baseline	8.1E-05	3.0E-03	2.1E-03	1.7E-03	1.8E-03	3.4E-05
	Project	3.4E-04	5.7E-03	4.1E-03	3.2E-03	3.4E-03	1.5E-04
FL	Application	4.7E-05	2.4E-03	1.7E-03	1.4E-03	1.5E-03	2.0E-05
	Baseline	2.8E-06	1.7E-03	1.2E-03	9.5E-04	1.0E-03	1.1E-06
	Project	4.5E-05	7.5E-04	5.3E-04	4.2E-04	4.5E-04	1.9E-05
1	Application	1.7E-05	2.8E-03	2.0E-03	1.6E-03	1.7E-03	7.0E-06
	Baseline	9.7E-06	1.9E-03	1.3E-03	1.1E-03	1.1E-03	4.0E-06
	Project	8.6E-07	1.3E-05	9.2E-06	7.3E-06	7.8E-06	3.7E-07
2	Application	5.7E-06	2.6E-03	1.9E-03	1.5E-03	1.6E-03	2.2E-06
	Baseline	2.8E-06	1.8E-03	1.2E-03	1.0E-03	1.1E-03	1.0E-06
	Project	1.2E-06	1.9E-05	1.3E-05	1.0E-05	1.1E-05	5.2E-07
3	Application	9.5E-06	2.7E-03	1.9E-03	1.5E-03	1.6E-03	3.8E-06
	Baseline	5.3E-06	1.8E-03	1.3E-03	1.0E-03	1.1E-03	2.1E-06
	Project	8.7E-07	1.3E-05	9.2E-06	7.3E-06	7.8E-06	3.7E-07
4	Application	5.0E-06	2.6E-03	1.8E-03	1.5E-03	1.6E-03	1.9E-06
	Baseline	2.8E-06	1.8E-03	1.2E-03	1.0E-03	1.1E-03	1.0E-06
	Project	4.4E-07	6.7E-06	4.7E-06	3.8E-06	4.0E-06	1.9E-07
5	Application	5.4E-06	2.6E-03	1.9E-03	1.5E-03	1.6E-03	2.1E-06
	Baseline	2.8E-06	1.8E-03	1.2E-03	1.0E-03	1.1E-03	1.0E-06
	Project	9.1E-07	1.4E-05	1.0E-05	8.0E-06	8.5E-06	3.9E-07
6	Application	1.1E-04	4.1E-03	2.9E-03	2.3E-03	2.5E-03	4.6E-05
	Baseline	6.6E-05	2.8E-03	2.0E-03	1.6E-03	1.7E-03	2.8E-05
	Project	9.8E-07	1.4E-05	1.0E-05	8.2E-06	8.6E-06	4.2E-07
7	Application	2.9E-05	3.0E-03	2.1E-03	1.7E-03	1.8E-03	1.2E-05
	Baseline	1.7E-05	2.0E-03	1.4E-03	1.1E-03	1.2E-03	7.3E-06
	Project	6.4E-07	9.8E-06	6.9E-06	5.5E-06	5.9E-06	2.7E-07
8	Application	5.8E-06	2.6E-03	1.9E-03	1.5E-03	1.6E-03	2.2E-06
	Baseline	3.3E-06	1.8E-03	1.3E-03	1.0E-03	1.1E-03	1.3E-06
	Project	3.9E-07	5.7E-06	4.1E-06	3.2E-06	3.4E-06	1.7E-07
9	Application	1.6E-05	2.8E-03	2.0E-03	1.6E-03	1.7E-03	6.5E-06
	Baseline	2.9E-06	1.8E-03	1.2E-03	1.0E-03	1.1E-03	1.1E-06
	Project	1.1E-05	1.8E-04	1.3E-04	1.0E-04	1.1E-04	4.8E-06
10	Application	1.2E-04	4.2E-03	3.0E-03	2.4E-03	2.5E-03	5.0E-05
	Baseline	2.8E-06	1.8E-03	1.2E-03	1.0E-03	1.1E-03	1.0E-06
	Project	1.1E-04	1.9E-03	1.4E-03	1.1E-03	1.1E-03	4.9E-05
11	Application	2.5E-05	2.9E-03	2.1E-03	1.6E-03	1.7E-03	1.1E-05
	Baseline	2.8E-06	1.8E-03	1.2E-03	1.0E-03	1.1E-03	1.0E-06
	Project	2.1E-05	3.5E-04	2.5E-04	1.9E-04	2.1E-04	8.9E-06
12	Application	1.9E-05	2.8E-03	2.0E-03	1.6E-03	1.7E-03	8.0E-06
	Baseline	2.8E-06	1.8E-03	1.2E-03	1.0E-03	1.1E-03	1.1E-06
	Project	1.5E-05	2.4E-04	1.7E-04	1.4E-04	1.4E-04	6.3E-06
13	Application	4.6E-05	3.2E-03	2.3E-03	1.8E-03	1.9E-03	1.9E-05
	Baseline	2.8E-06	1.8E-03	1.2E-03	1.0E-03	1.1E-03	1.0E-06
	Project	4.2E-05	6.9E-04	4.9E-04	3.9E-04	4.2E-04	1.8E-05
14	Application	5.2E-05	2.5E-03	1.8E-03	1.4E-03	1.5E-03	2.2E-05
	Baseline	5.2E-05	2.5E-03	1.8E-03	1.4E-03	1.5E-03	2.2E-05
	Project	1.7E-07	2.5E-06	1.8E-06	1.4E-06	1.5E-06	7.2E-08

Table F.13. Multimedia Model Results: Molybdenum

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	2.4E-04	5.8E-04	4.2E-04	3.1E-04	3.3E-04	1.0E-04
	Baseline	5.4E-05	1.6E-04	1.2E-04	8.7E-05	9.3E-05	2.3E-05
	Project	2.3E-04	5.4E-04	3.9E-04	2.9E-04	3.1E-04	1.0E-04
FL	Application	3.2E-05	1.1E-04	7.8E-05	5.9E-05	6.3E-05	1.4E-05
	Baseline	9.4E-07	3.9E-05	2.7E-05	2.1E-05	2.3E-05	5.0E-07
	Project	3.1E-05	7.1E-05	5.1E-05	3.8E-05	4.0E-05	1.3E-05
1	Application	9.7E-06	8.6E-05	6.0E-05	4.7E-05	5.0E-05	4.4E-06
	Baseline	5.1E-06	4.9E-05	3.4E-05	2.7E-05	2.9E-05	2.3E-06
	Project	5.9E-07	1.3E-06	9.2E-07	6.8E-07	7.3E-07	2.5E-07
2	Application	2.1E-06	6.9E-05	4.8E-05	3.8E-05	4.0E-05	1.1E-06
	Baseline	7.2E-07	3.9E-05	2.7E-05	2.2E-05	2.3E-05	4.1E-07
	Project	8.3E-07	1.8E-06	1.3E-06	9.7E-07	1.0E-06	3.5E-07
3	Application	4.7E-06	7.5E-05	5.2E-05	4.1E-05	4.4E-05	2.2E-06
	Baseline	2.3E-06	4.3E-05	3.0E-05	2.4E-05	2.5E-05	1.1E-06
	Project	6.0E-07	1.3E-06	9.3E-07	6.9E-07	7.3E-07	2.6E-07
4	Application	1.6E-06	6.8E-05	4.7E-05	3.8E-05	4.0E-05	8.7E-07
	Baseline	7.1E-07	3.9E-05	2.7E-05	2.2E-05	2.3E-05	4.1E-07
	Project	3.0E-07	6.5E-07	4.7E-07	3.5E-07	3.7E-07	1.3E-07
5	Application	1.9E-06	6.9E-05	4.8E-05	3.8E-05	4.0E-05	1.0E-06
	Baseline	7.2E-07	3.9E-05	2.7E-05	2.2E-05	2.3E-05	4.1E-07
	Project	6.2E-07	1.4E-06	9.9E-07	7.4E-07	7.8E-07	2.7E-07
6	Application	7.3E-05	2.2E-04	1.6E-04	1.2E-04	1.3E-04	3.2E-05
	Baseline	4.0E-05	1.3E-04	9.3E-05	7.0E-05	7.4E-05	1.7E-05
	Project	6.7E-07	1.4E-06	1.0E-06	7.7E-07	8.2E-07	2.9E-07
7	Application	1.8E-05	1.0E-04	7.4E-05	5.7E-05	6.1E-05	8.0E-06
	Baseline	9.9E-06	6.0E-05	4.2E-05	3.3E-05	3.5E-05	4.3E-06
	Project	4.4E-07	9.5E-07	6.9E-07	5.1E-07	5.5E-07	1.9E-07
8	Application	2.2E-06	7.0E-05	4.8E-05	3.8E-05	4.0E-05	1.1E-06
	Baseline	1.1E-06	4.0E-05	2.8E-05	2.2E-05	2.3E-05	5.6E-07
	Project	2.7E-07	5.7E-07	4.1E-07	3.0E-07	3.3E-07	1.1E-07
9	Application	9.1E-06	8.4E-05	5.9E-05	4.6E-05	4.9E-05	4.1E-06
	Baseline	7.8E-07	3.9E-05	2.7E-05	2.2E-05	2.3E-05	4.3E-07
	Project	7.7E-06	1.7E-05	1.3E-05	9.4E-06	1.0E-05	3.3E-06
10	Application	7.9E-05	2.4E-04	1.7E-04	1.3E-04	1.4E-04	3.4E-05
	Baseline	7.3E-07	3.9E-05	2.7E-05	2.2E-05	2.3E-05	4.1E-07
	Project	7.8E-05	1.8E-04	1.3E-04	9.6E-05	1.0E-04	3.3E-05
11	Application	1.6E-05	9.9E-05	6.9E-05	5.4E-05	5.7E-05	6.9E-06
	Baseline	7.2E-07	3.9E-05	2.7E-05	2.2E-05	2.3E-05	4.1E-07
	Project	1.4E-05	3.3E-05	2.4E-05	1.8E-05	1.9E-05	6.1E-06
12	Application	1.1E-05	8.9E-05	6.2E-05	4.9E-05	5.2E-05	5.0E-06
	Baseline	7.5E-07	3.9E-05	2.7E-05	2.2E-05	2.3E-05	4.3E-07
	Project	1.0E-05	2.3E-05	1.7E-05	1.2E-05	1.3E-05	4.3E-06
13	Application	3.0E-05	1.3E-04	9.2E-05	7.1E-05	7.5E-05	1.3E-05
	Baseline	7.4E-07	3.9E-05	2.7E-05	2.2E-05	2.3E-05	4.2E-07
	Project	2.9E-05	6.5E-05	4.8E-05	3.5E-05	3.7E-05	1.2E-05
14	Application	3.5E-05	1.2E-04	8.3E-05	6.3E-05	6.7E-05	1.5E-05
	Baseline	3.5E-05	1.2E-04	8.3E-05	6.3E-05	6.7E-05	1.5E-05
	Project	1.2E-07	2.5E-07	1.8E-07	1.3E-07	1.4E-07	5.0E-08

Table F.14. Multimedia Model Results: Nickel

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	1.7E-03	1.9E-02	1.6E-02	1.1E-02	1.1E-02	7.1E-04
	Baseline	3.9E-04	4.7E-03	4.0E-03	2.7E-03	2.6E-03	1.7E-04
	Project	1.7E-03	1.9E-02	1.6E-02	1.1E-02	1.0E-02	7.1E-04
FL	Application	2.3E-04	2.9E-03	2.4E-03	1.6E-03	1.6E-03	9.8E-05
	Baseline	1.0E-05	4.1E-04	2.9E-04	2.3E-04	2.4E-04	5.2E-06
	Project	2.2E-04	2.5E-03	2.1E-03	1.4E-03	1.4E-03	9.3E-05
1	Application	7.5E-05	1.4E-03	1.1E-03	7.8E-04	7.9E-04	3.4E-05
	Baseline	3.9E-05	7.5E-04	5.8E-04	4.2E-04	4.3E-04	1.8E-05
	Project	4.1E-06	4.7E-05	4.0E-05	2.7E-05	2.6E-05	1.8E-06
2	Application	2.1E-05	7.8E-04	5.5E-04	4.3E-04	4.6E-04	1.1E-05
	Baseline	8.6E-06	4.1E-04	2.8E-04	2.2E-04	2.4E-04	4.5E-06
	Project	5.8E-06	6.5E-05	5.6E-05	3.7E-05	3.6E-05	2.5E-06
3	Application	3.9E-05	9.9E-04	7.3E-04	5.5E-04	5.7E-04	1.8E-05
	Baseline	2.0E-05	5.3E-04	3.9E-04	2.9E-04	3.1E-04	9.3E-06
	Project	4.2E-06	4.7E-05	4.1E-05	2.7E-05	2.6E-05	1.8E-06
4	Application	1.7E-05	7.4E-04	5.2E-04	4.1E-04	4.3E-04	9.1E-06
	Baseline	8.6E-06	4.0E-04	2.8E-04	2.2E-04	2.4E-04	4.5E-06
	Project	2.1E-06	2.4E-05	2.0E-05	1.4E-05	1.3E-05	9.0E-07
5	Application	2.0E-05	7.7E-04	5.4E-04	4.2E-04	4.5E-04	1.0E-05
	Baseline	8.6E-06	4.1E-04	2.8E-04	2.2E-04	2.4E-04	4.5E-06
	Project	4.4E-06	4.9E-05	4.3E-05	2.8E-05	2.7E-05	1.9E-06
6	Application	5.2E-04	6.4E-03	5.4E-03	3.6E-03	3.5E-03	2.2E-04
	Baseline	2.9E-04	3.6E-03	3.0E-03	2.0E-03	2.0E-03	1.2E-04
	Project	4.7E-06	5.3E-05	4.6E-05	3.0E-05	2.9E-05	2.0E-06
7	Application	1.3E-04	2.1E-03	1.7E-03	1.2E-03	1.2E-03	5.9E-05
	Baseline	7.3E-05	1.1E-03	9.1E-04	6.4E-04	6.4E-04	3.2E-05
	Project	3.1E-06	3.5E-05	3.0E-05	2.0E-05	1.9E-05	1.3E-06
8	Application	2.2E-05	7.9E-04	5.6E-04	4.4E-04	4.6E-04	1.1E-05
	Baseline	1.1E-05	4.3E-04	3.0E-04	2.4E-04	2.5E-04	5.6E-06
	Project	1.9E-06	2.1E-05	1.8E-05	1.2E-05	1.1E-05	8.0E-07
9	Application	7.0E-05	1.3E-03	1.0E-03	7.5E-04	7.5E-04	3.2E-05
	Baseline	9.0E-06	4.1E-04	2.8E-04	2.3E-04	2.4E-04	4.7E-06
	Project	5.4E-05	6.1E-04	5.3E-04	3.5E-04	3.4E-04	2.3E-05
10	Application	5.6E-04	6.8E-03	5.8E-03	3.9E-03	3.8E-03	2.4E-04
	Baseline	8.7E-06	4.1E-04	2.8E-04	2.2E-04	2.4E-04	4.6E-06
	Project	5.5E-04	6.2E-03	5.4E-03	3.6E-03	3.4E-03	2.3E-04
11	Application	1.2E-04	1.8E-03	1.5E-03	1.0E-03	1.0E-03	5.1E-05
	Baseline	8.6E-06	4.1E-04	2.8E-04	2.2E-04	2.4E-04	4.6E-06
	Project	1.0E-04	1.1E-03	9.8E-04	6.5E-04	6.2E-04	4.3E-05
12	Application	8.6E-05	1.5E-03	1.2E-03	8.5E-04	8.5E-04	3.8E-05
	Baseline	8.8E-06	4.1E-04	2.8E-04	2.2E-04	2.4E-04	4.6E-06
	Project	7.0E-05	8.0E-04	6.9E-04	4.6E-04	4.4E-04	3.0E-05
13	Application	2.2E-04	3.0E-03	2.4E-03	1.7E-03	1.7E-03	9.4E-05
	Baseline	8.7E-06	4.1E-04	2.8E-04	2.2E-04	2.4E-04	4.6E-06
	Project	2.0E-04	2.3E-03	2.0E-03	1.3E-03	1.3E-03	8.7E-05
14	Application	2.5E-04	3.1E-03	2.6E-03	1.8E-03	1.7E-03	1.1E-04
	Baseline	2.5E-04	3.1E-03	2.6E-03	1.8E-03	1.7E-03	1.1E-04
	Project	8.1E-07	9.1E-06	7.9E-06	5.2E-06	5.0E-06	3.5E-07

Table F.15. Multimedia Model Results: Selenium

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	1.8E-04	3.2E-03	2.8E-03	1.9E-03	1.8E-03	7.7E-05
	Baseline	4.1E-05	7.9E-04	6.7E-04	4.5E-04	4.3E-04	1.8E-05
	Project	1.8E-04	3.2E-03	2.8E-03	1.8E-03	1.7E-03	7.7E-05
FL	Application	2.4E-05	4.8E-04	4.0E-04	2.7E-04	2.6E-04	1.0E-05
	Baseline	6.0E-07	6.0E-05	4.2E-05	3.4E-05	3.5E-05	3.2E-07
	Project	2.4E-05	4.2E-04	3.7E-04	2.4E-04	2.3E-04	1.0E-05
1	Application	7.2E-06	2.2E-04	1.7E-04	1.2E-04	1.2E-04	3.2E-06
	Baseline	3.8E-06	1.2E-04	9.2E-05	6.7E-05	6.7E-05	1.7E-06
	Project	4.5E-07	7.9E-06	6.9E-06	4.6E-06	4.3E-06	1.9E-07
2	Application	1.4E-06	1.1E-04	8.2E-05	6.4E-05	6.7E-05	7.1E-07
	Baseline	4.3E-07	5.8E-05	4.1E-05	3.3E-05	3.4E-05	2.5E-07
	Project	6.3E-07	1.1E-05	9.7E-06	6.4E-06	6.1E-06	2.7E-07
3	Application	3.4E-06	1.5E-04	1.1E-04	8.4E-05	8.6E-05	1.6E-06
	Baseline	1.6E-06	7.9E-05	5.9E-05	4.5E-05	4.6E-05	7.6E-07
	Project	4.5E-07	8.0E-06	7.0E-06	4.6E-06	4.4E-06	2.0E-07
4	Application	1.0E-06	1.1E-04	7.6E-05	6.0E-05	6.4E-05	5.4E-07
	Baseline	4.3E-07	5.8E-05	4.1E-05	3.3E-05	3.4E-05	2.5E-07
	Project	2.3E-07	4.0E-06	3.5E-06	2.3E-06	2.2E-06	9.8E-08
5	Application	1.2E-06	1.1E-04	8.0E-05	6.3E-05	6.6E-05	6.5E-07
	Baseline	4.3E-07	5.8E-05	4.1E-05	3.3E-05	3.4E-05	2.5E-07
	Project	4.7E-07	8.4E-06	7.3E-06	4.8E-06	4.6E-06	2.0E-07
6	Application	5.5E-05	1.1E-03	9.1E-04	6.1E-04	5.9E-04	2.4E-05
	Baseline	3.1E-05	5.9E-04	5.1E-04	3.4E-04	3.3E-04	1.3E-05
	Project	5.1E-07	9.0E-06	7.9E-06	5.2E-06	4.9E-06	2.2E-07
7	Application	1.4E-05	3.3E-04	2.7E-04	1.9E-04	1.8E-04	6.0E-06
	Baseline	7.4E-06	1.8E-04	1.5E-04	1.0E-04	1.0E-04	3.2E-06
	Project	3.3E-07	5.9E-06	5.1E-06	3.4E-06	3.2E-06	1.4E-07
8	Application	1.5E-06	1.2E-04	8.3E-05	6.5E-05	6.8E-05	7.4E-07
	Baseline	7.0E-07	6.3E-05	4.5E-05	3.5E-05	3.7E-05	3.6E-07
	Project	2.0E-07	3.6E-06	3.1E-06	2.0E-06	2.0E-06	8.7E-08
9	Application	6.7E-06	2.1E-04	1.6E-04	1.2E-04	1.2E-04	3.0E-06
	Baseline	4.8E-07	5.9E-05	4.1E-05	3.3E-05	3.5E-05	2.7E-07
	Project	5.9E-06	1.0E-04	9.1E-05	6.0E-05	5.7E-05	2.5E-06
10	Application	6.0E-05	1.1E-03	9.8E-04	6.6E-04	6.3E-04	2.6E-05
	Baseline	4.4E-07	5.8E-05	4.1E-05	3.3E-05	3.5E-05	2.5E-07
	Project	5.9E-05	1.1E-03	9.2E-04	6.1E-04	5.8E-04	2.5E-05
11	Application	1.2E-05	2.9E-04	2.4E-04	1.7E-04	1.7E-04	5.1E-06
	Baseline	4.4E-07	5.8E-05	4.1E-05	3.3E-05	3.5E-05	2.5E-07
	Project	1.1E-05	1.9E-04	1.7E-04	1.1E-04	1.1E-04	4.7E-06
12	Application	8.4E-06	2.4E-04	1.9E-04	1.4E-04	1.3E-04	3.7E-06
	Baseline	4.6E-07	5.8E-05	4.1E-05	3.3E-05	3.5E-05	2.6E-07
	Project	7.6E-06	1.4E-04	1.2E-04	7.8E-05	7.4E-05	3.3E-06
13	Application	2.2E-05	4.9E-04	4.1E-04	2.8E-04	2.7E-04	9.8E-06
	Baseline	4.5E-07	5.8E-05	4.1E-05	3.3E-05	3.5E-05	2.5E-07
	Project	2.2E-05	3.9E-04	3.4E-04	2.2E-04	2.1E-04	9.3E-06
14	Application	2.6E-05	5.2E-04	4.4E-04	3.0E-04	2.9E-04	1.1E-05
	Baseline	2.6E-05	5.2E-04	4.4E-04	3.0E-04	2.9E-04	1.1E-05
	Project	8.8E-08	1.5E-06	1.4E-06	8.9E-07	8.5E-07	3.8E-08

Table F.16. Multimedia Model Results: Thallium

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	3.7E-02	5.0E-01	4.4E-01	2.9E-01	2.7E-01	1.6E-02
	Baseline	8.6E-03	1.1E-01	1.0E-01	6.6E-02	6.2E-02	3.7E-03
	Project	3.7E-02	5.0E-01	4.4E-01	2.9E-01	2.7E-01	1.6E-02
FL	Application	5.0E-03	6.6E-02	5.8E-02	3.8E-02	3.6E-02	2.1E-03
	Baseline	1.9E-04	7.0E-04	5.3E-04	3.6E-04	3.4E-04	7.1E-05
	Project	4.9E-03	6.6E-02	5.8E-02	3.8E-02	3.6E-02	2.1E-03
1	Application	1.6E-03	1.8E-02	1.6E-02	1.1E-02	9.9E-03	6.7E-04
	Baseline	8.4E-04	9.6E-03	8.2E-03	5.4E-03	5.1E-03	3.5E-04
	Project	9.3E-05	1.2E-03	1.1E-03	7.2E-04	6.8E-04	4.0E-05
2	Application	4.0E-04	2.1E-03	1.7E-03	1.1E-03	1.1E-03	1.6E-04
	Baseline	1.5E-04	1.8E-04	8.3E-05	6.2E-05	5.9E-05	5.7E-05
	Project	1.3E-04	1.7E-03	1.5E-03	1.0E-03	9.5E-04	5.6E-05
3	Application	8.1E-04	7.7E-03	6.5E-03	4.3E-03	4.1E-03	3.3E-04
	Baseline	4.0E-04	3.6E-03	3.0E-03	2.0E-03	1.9E-03	1.6E-04
	Project	9.4E-05	1.3E-03	1.1E-03	7.3E-04	6.9E-04	4.0E-05
4	Application	3.2E-04	9.5E-04	6.9E-04	4.7E-04	4.4E-04	1.2E-04
	Baseline	1.5E-04	1.8E-04	7.8E-05	5.9E-05	5.5E-05	5.6E-05
	Project	4.7E-05	6.3E-04	5.6E-04	3.6E-04	3.5E-04	2.0E-05
5	Application	3.7E-04	1.6E-03	1.3E-03	8.7E-04	8.2E-04	1.4E-04
	Baseline	1.5E-04	1.8E-04	8.1E-05	6.0E-05	5.7E-05	5.6E-05
	Project	9.8E-05	1.3E-03	1.2E-03	7.6E-04	7.2E-04	4.2E-05
6	Application	1.2E-02	1.5E-01	1.3E-01	8.9E-02	8.4E-02	4.9E-03
	Baseline	6.4E-03	8.5E-02	7.4E-02	4.9E-02	4.6E-02	2.7E-03
	Project	1.1E-04	1.4E-03	1.2E-03	8.2E-04	7.7E-04	4.5E-05
7	Application	2.9E-03	3.7E-02	3.2E-02	2.1E-02	2.0E-02	1.2E-03
	Baseline	1.6E-03	2.0E-02	1.7E-02	1.1E-02	1.1E-02	6.8E-04
	Project	6.9E-05	9.3E-04	8.1E-04	5.3E-04	5.0E-04	3.0E-05
8	Application	4.1E-04	2.2E-03	1.8E-03	1.2E-03	1.1E-03	1.6E-04
	Baseline	2.1E-04	9.3E-04	7.4E-04	4.9E-04	4.7E-04	8.0E-05
	Project	4.2E-05	5.6E-04	4.9E-04	3.2E-04	3.1E-04	1.8E-05
9	Application	1.5E-03	1.7E-02	1.5E-02	9.7E-03	9.2E-03	6.3E-04
	Baseline	1.6E-04	3.1E-04	1.9E-04	1.3E-04	1.3E-04	6.0E-05
	Project	1.2E-03	1.6E-02	1.4E-02	9.4E-03	8.9E-03	5.2E-04
10	Application	1.2E-02	1.7E-01	1.4E-01	9.6E-02	9.0E-02	5.3E-03
	Baseline	1.5E-04	2.1E-04	1.0E-04	7.6E-05	7.1E-05	5.7E-05
	Project	1.2E-02	1.7E-01	1.5E-01	9.5E-02	9.0E-02	5.2E-03
11	Application	2.5E-03	3.1E-02	2.7E-02	1.8E-02	1.7E-02	1.1E-03
	Baseline	1.5E-04	1.9E-04	9.1E-05	6.7E-05	6.3E-05	5.7E-05
	Project	2.3E-03	3.0E-02	2.7E-02	1.8E-02	1.7E-02	9.6E-04
12	Application	1.8E-03	2.2E-02	1.9E-02	1.2E-02	1.2E-02	7.8E-04
	Baseline	1.6E-04	2.6E-04	1.5E-04	1.1E-04	1.0E-04	5.9E-05
	Project	1.6E-03	2.1E-02	1.9E-02	1.2E-02	1.2E-02	6.7E-04
13	Application	4.8E-03	6.1E-02	5.3E-02	3.5E-02	3.3E-02	2.0E-03
	Baseline	1.5E-04	2.2E-04	1.2E-04	8.4E-05	8.0E-05	5.8E-05
	Project	4.5E-03	6.1E-02	5.3E-02	3.5E-02	3.3E-02	1.9E-03
14	Application	5.5E-03	7.3E-02	6.4E-02	4.2E-02	4.0E-02	2.4E-03
	Baseline	5.5E-03	7.3E-02	6.4E-02	4.2E-02	4.0E-02	2.4E-03
	Project	1.8E-05	2.4E-04	2.1E-04	1.4E-04	1.3E-04	7.8E-06

Table F.17. Multimedia Model Results: Uranium

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	7.5E-03	9.1E-03	7.0E-03	5.5E-03	5.6E-03	1.1E-03
	Baseline	1.7E-03	2.1E-03	1.6E-03	1.3E-03	1.3E-03	2.4E-04
	Project	7.5E-03	9.1E-03	7.0E-03	5.5E-03	5.6E-03	1.1E-03
FL	Application	9.9E-04	1.2E-03	9.2E-04	7.3E-04	7.3E-04	1.4E-04
	Baseline	8.0E-06	9.6E-06	7.4E-06	5.8E-06	5.9E-06	1.1E-06
	Project	9.9E-04	1.2E-03	9.2E-04	7.3E-04	7.3E-04	1.4E-04
1	Application	2.7E-04	3.3E-04	2.5E-04	2.0E-04	2.0E-04	3.8E-05
	Baseline	1.4E-04	1.7E-04	1.3E-04	1.0E-04	1.0E-04	2.0E-05
	Project	1.9E-05	2.2E-05	1.7E-05	1.3E-05	1.4E-05	2.6E-06
2	Application	2.7E-05	3.1E-05	2.4E-05	1.9E-05	1.9E-05	3.8E-06
	Baseline	2.0E-07	2.3E-07	1.8E-07	1.4E-07	1.4E-07	2.7E-08
	Project	2.6E-05	3.1E-05	2.4E-05	1.9E-05	1.9E-05	3.7E-06
3	Application	1.1E-04	1.3E-04	1.0E-04	8.1E-05	8.1E-05	1.6E-05
	Baseline	5.1E-05	6.1E-05	4.7E-05	3.7E-05	3.7E-05	7.1E-06
	Project	1.9E-05	2.2E-05	1.7E-05	1.4E-05	1.4E-05	2.7E-06
4	Application	9.8E-06	1.1E-05	8.9E-06	7.0E-06	7.1E-06	1.4E-06
	Baseline	1.0E-07	1.2E-07	9.0E-08	7.1E-08	7.2E-08	1.4E-08
	Project	9.6E-06	1.1E-05	8.7E-06	6.9E-06	7.0E-06	1.3E-06
5	Application	2.0E-05	2.4E-05	1.9E-05	1.5E-05	1.5E-05	2.8E-06
	Baseline	1.5E-07	1.7E-07	1.3E-07	1.0E-07	1.0E-07	2.1E-08
	Project	2.0E-05	2.3E-05	1.8E-05	1.4E-05	1.5E-05	2.8E-06
6	Application	2.3E-03	2.8E-03	2.2E-03	1.7E-03	1.7E-03	3.2E-04
	Baseline	1.3E-03	1.5E-03	1.2E-03	9.3E-04	9.4E-04	1.8E-04
	Project	2.2E-05	2.5E-05	1.9E-05	1.5E-05	1.5E-05	3.0E-06
7	Application	5.4E-04	6.6E-04	5.1E-04	4.0E-04	4.0E-04	7.7E-05
	Baseline	2.9E-04	3.5E-04	2.7E-04	2.2E-04	2.2E-04	4.1E-05
	Project	1.4E-05	1.6E-05	1.3E-05	1.0E-05	1.0E-05	2.0E-06
8	Application	2.9E-05	3.5E-05	2.7E-05	2.1E-05	2.1E-05	4.1E-06
	Baseline	1.1E-05	1.4E-05	1.1E-05	8.3E-06	8.4E-06	1.6E-06
	Project	8.5E-06	9.9E-06	7.7E-06	6.1E-06	6.1E-06	1.2E-06
9	Application	2.5E-04	3.0E-04	2.3E-04	1.8E-04	1.8E-04	3.5E-05
	Baseline	2.1E-06	2.4E-06	1.9E-06	1.5E-06	1.5E-06	2.9E-07
	Project	2.5E-04	2.9E-04	2.3E-04	1.8E-04	1.8E-04	3.5E-05
10	Application	2.5E-03	3.0E-03	2.3E-03	1.8E-03	1.9E-03	3.5E-04
	Baseline	5.4E-07	6.4E-07	5.0E-07	3.9E-07	3.9E-07	7.6E-08
	Project	2.5E-03	3.0E-03	2.3E-03	1.8E-03	1.8E-03	3.5E-04
11	Application	4.6E-04	5.5E-04	4.3E-04	3.4E-04	3.4E-04	6.4E-05
	Baseline	3.2E-07	3.8E-07	2.9E-07	2.3E-07	2.3E-07	4.5E-08
	Project	4.6E-04	5.5E-04	4.3E-04	3.4E-04	3.4E-04	6.4E-05
12	Application	3.2E-04	3.9E-04	3.0E-04	2.4E-04	2.4E-04	4.5E-05
	Baseline	1.3E-06	1.6E-06	1.2E-06	9.6E-07	9.7E-07	1.9E-07
	Project	3.2E-04	3.8E-04	3.0E-04	2.4E-04	2.4E-04	4.5E-05
13	Application	9.2E-04	1.1E-03	8.6E-04	6.7E-04	6.8E-04	1.3E-04
	Baseline	7.8E-07	9.2E-07	7.1E-07	5.6E-07	5.7E-07	1.1E-07
	Project	9.1E-04	1.1E-03	8.5E-04	6.7E-04	6.8E-04	1.3E-04
14	Application	1.1E-03	1.3E-03	1.0E-03	8.1E-04	8.1E-04	1.5E-04
	Baseline	1.1E-03	1.3E-03	1.0E-03	8.0E-04	8.1E-04	1.5E-04
	Project	3.7E-06	4.3E-06	3.3E-06	2.6E-06	2.7E-06	5.2E-07

Table F.18. Multimedia Model Results: Vanadium

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	6.9E-03	1.4E-01	9.8E-02	7.8E-02	8.2E-02	3.8E-03
	Baseline	1.8E-03	8.7E-02	6.2E-02	4.9E-02	5.3E-02	9.4E-04
	Project	6.6E-03	6.6E-02	4.7E-02	3.6E-02	3.9E-02	3.7E-03
FL	Application	1.1E-03	8.1E-02	5.7E-02	4.6E-02	4.9E-02	5.8E-04
	Baseline	2.7E-04	7.2E-02	5.1E-02	4.1E-02	4.4E-02	1.0E-04
	Project	8.7E-04	8.6E-03	6.1E-03	4.8E-03	5.1E-03	4.9E-04
1	Application	7.2E-04	9.5E-02	6.7E-02	5.4E-02	5.7E-02	3.2E-04
	Baseline	4.0E-04	7.4E-02	5.2E-02	4.2E-02	4.5E-02	1.7E-04
	Project	2.1E-05	1.8E-04	1.3E-04	1.0E-04	1.1E-04	1.2E-05
2	Application	5.0E-04	9.3E-02	6.6E-02	5.3E-02	5.6E-02	1.9E-04
	Baseline	2.7E-04	7.3E-02	5.1E-02	4.1E-02	4.4E-02	1.0E-04
	Project	2.9E-05	2.5E-04	1.8E-04	1.4E-04	1.5E-04	1.6E-05
3	Application	5.8E-04	9.4E-02	6.6E-02	5.3E-02	5.6E-02	2.4E-04
	Baseline	3.2E-04	7.3E-02	5.2E-02	4.2E-02	4.4E-02	1.3E-04
	Project	2.2E-05	1.8E-04	1.3E-04	1.0E-04	1.1E-04	1.2E-05
4	Application	4.8E-04	9.3E-02	6.6E-02	5.3E-02	5.6E-02	1.9E-04
	Baseline	2.7E-04	7.3E-02	5.1E-02	4.1E-02	4.4E-02	1.0E-04
	Project	1.2E-05	1.0E-04	7.2E-05	5.6E-05	6.0E-05	6.9E-06
5	Application	5.0E-04	9.3E-02	6.6E-02	5.3E-02	5.6E-02	1.9E-04
	Baseline	2.7E-04	7.3E-02	5.1E-02	4.1E-02	4.4E-02	1.0E-04
	Project	2.2E-05	1.9E-04	1.4E-04	1.1E-04	1.1E-04	1.3E-05
6	Application	2.4E-03	1.1E-01	7.6E-02	6.0E-02	6.4E-02	1.3E-03
	Baseline	1.4E-03	8.4E-02	5.9E-02	4.7E-02	5.0E-02	7.2E-04
	Project	2.4E-05	2.0E-04	1.4E-04	1.1E-04	1.2E-04	1.3E-05
7	Application	9.5E-04	9.7E-02	6.8E-02	5.4E-02	5.8E-02	4.5E-04
	Baseline	5.3E-04	7.5E-02	5.3E-02	4.3E-02	4.5E-02	2.5E-04
	Project	1.6E-05	1.3E-04	9.4E-05	7.4E-05	7.9E-05	8.7E-06
8	Application	5.0E-04	9.3E-02	6.6E-02	5.3E-02	5.6E-02	2.0E-04
	Baseline	2.8E-04	7.3E-02	5.1E-02	4.1E-02	4.4E-02	1.1E-04
	Project	1.1E-05	8.7E-05	6.2E-05	4.8E-05	5.1E-05	6.0E-06
9	Application	7.0E-04	9.5E-02	6.7E-02	5.4E-02	5.7E-02	3.0E-04
	Baseline	2.7E-04	7.3E-02	5.1E-02	4.1E-02	4.4E-02	1.0E-04
	Project	2.3E-04	2.1E-03	1.5E-03	1.2E-03	1.3E-03	1.3E-04
10	Application	2.6E-03	1.1E-01	7.6E-02	6.1E-02	6.5E-02	1.4E-03
	Baseline	2.7E-04	7.3E-02	5.1E-02	4.1E-02	4.4E-02	1.0E-04
	Project	2.2E-03	2.2E-02	1.5E-02	1.2E-02	1.3E-02	1.2E-03
11	Application	8.7E-04	9.6E-02	6.8E-02	5.4E-02	5.8E-02	4.0E-04
	Baseline	2.7E-04	7.3E-02	5.1E-02	4.1E-02	4.4E-02	1.0E-04
	Project	4.1E-04	4.0E-03	2.8E-03	2.2E-03	2.4E-03	2.3E-04
12	Application	7.5E-04	9.5E-02	6.7E-02	5.4E-02	5.7E-02	3.4E-04
	Baseline	2.7E-04	7.3E-02	5.1E-02	4.1E-02	4.4E-02	1.0E-04
	Project	2.9E-04	2.8E-03	2.0E-03	1.6E-03	1.7E-03	1.6E-04
13	Application	1.3E-03	9.9E-02	7.0E-02	5.6E-02	5.9E-02	6.2E-04
	Baseline	2.7E-04	7.3E-02	5.1E-02	4.1E-02	4.4E-02	1.0E-04
	Project	8.1E-04	8.0E-03	5.7E-03	4.4E-03	4.7E-03	4.5E-04
14	Application	1.2E-03	8.2E-02	5.8E-02	4.6E-02	4.9E-02	6.4E-04
	Baseline	1.2E-03	8.2E-02	5.8E-02	4.6E-02	4.9E-02	6.4E-04
	Project	4.7E-06	3.8E-05	2.7E-05	2.1E-05	2.3E-05	2.6E-06

Table F.19. Multimedia Model Results: Zinc

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	3.2E-04	8.0E-02	7.1E-02	4.6E-02	4.3E-02	1.4E-04
	Baseline	7.7E-05	1.9E-02	1.7E-02	1.1E-02	1.0E-02	3.3E-05
	Project	3.2E-04	7.9E-02	7.0E-02	4.6E-02	4.3E-02	1.4E-04
FL	Application	4.6E-05	1.1E-02	1.0E-02	6.7E-03	6.3E-03	1.9E-05
	Baseline	4.3E-06	1.2E-03	8.4E-04	6.6E-04	7.0E-04	1.6E-06
	Project	4.2E-05	1.0E-02	9.3E-03	6.0E-03	5.6E-03	1.8E-05
1	Application	1.9E-05	5.0E-03	4.1E-03	2.9E-03	2.8E-03	7.9E-06
	Baseline	1.0E-05	2.6E-03	2.2E-03	1.5E-03	1.5E-03	4.2E-06
	Project	1.1E-06	2.7E-04	2.4E-04	1.6E-04	1.5E-04	4.7E-07
2	Application	8.7E-06	2.3E-03	1.7E-03	1.3E-03	1.4E-03	3.3E-06
	Baseline	4.0E-06	1.1E-03	7.8E-04	6.3E-04	6.7E-04	1.5E-06
	Project	1.5E-06	3.6E-04	3.2E-04	2.1E-04	1.9E-04	6.3E-07
3	Application	1.2E-05	3.3E-03	2.6E-03	1.9E-03	1.9E-03	4.9E-06
	Baseline	6.3E-06	1.7E-03	1.3E-03	9.7E-04	9.8E-04	2.5E-06
	Project	1.1E-06	2.8E-04	2.5E-04	1.6E-04	1.5E-04	4.8E-07
4	Application	7.8E-06	2.1E-03	1.5E-03	1.2E-03	1.3E-03	3.0E-06
	Baseline	4.0E-06	1.1E-03	7.8E-04	6.3E-04	6.7E-04	1.5E-06
	Project	6.4E-07	1.6E-04	1.4E-04	9.1E-05	8.5E-05	2.7E-07
5	Application	8.3E-06	2.3E-03	1.7E-03	1.3E-03	1.3E-03	3.2E-06
	Baseline	4.0E-06	1.1E-03	7.8E-04	6.3E-04	6.7E-04	1.5E-06
	Project	1.1E-06	2.8E-04	2.5E-04	1.6E-04	1.5E-04	4.9E-07
6	Application	1.0E-04	2.6E-02	2.3E-02	1.5E-02	1.4E-02	4.4E-05
	Baseline	5.8E-05	1.4E-02	1.3E-02	8.4E-03	7.9E-03	2.5E-05
	Project	1.2E-06	3.0E-04	2.7E-04	1.8E-04	1.6E-04	5.2E-07
7	Application	3.1E-05	7.7E-03	6.6E-03	4.5E-03	4.3E-03	1.3E-05
	Baseline	1.7E-05	4.2E-03	3.6E-03	2.5E-03	2.4E-03	6.9E-06
	Project	7.9E-07	1.9E-04	1.7E-04	1.1E-04	1.1E-04	3.4E-07
8	Application	8.7E-06	2.3E-03	1.7E-03	1.3E-03	1.4E-03	3.3E-06
	Baseline	4.6E-06	1.2E-03	9.0E-04	7.1E-04	7.4E-04	1.7E-06
	Project	5.5E-07	1.4E-04	1.2E-04	7.9E-05	7.4E-05	2.4E-07
9	Application	1.8E-05	4.7E-03	3.8E-03	2.7E-03	2.7E-03	7.4E-06
	Baseline	4.1E-06	1.1E-03	8.1E-04	6.5E-04	6.8E-04	1.6E-06
	Project	1.1E-05	2.7E-03	2.4E-03	1.6E-03	1.5E-03	4.7E-06
10	Application	1.1E-04	2.8E-02	2.5E-02	1.6E-02	1.5E-02	4.8E-05
	Baseline	4.1E-06	1.1E-03	7.9E-04	6.4E-04	6.7E-04	1.5E-06
	Project	1.1E-04	2.6E-02	2.3E-02	1.5E-02	1.4E-02	4.5E-05
11	Application	2.7E-05	6.8E-03	5.7E-03	3.9E-03	3.8E-03	1.1E-05
	Baseline	4.0E-06	1.1E-03	7.9E-04	6.3E-04	6.7E-04	1.5E-06
	Project	2.0E-05	4.9E-03	4.4E-03	2.8E-03	2.7E-03	8.5E-06
12	Application	2.1E-05	5.4E-03	4.5E-03	3.1E-03	3.1E-03	8.7E-06
	Baseline	4.1E-06	1.1E-03	8.0E-04	6.4E-04	6.8E-04	1.5E-06
	Project	1.4E-05	3.4E-03	3.1E-03	2.0E-03	1.9E-03	6.0E-06
13	Application	4.6E-05	1.2E-02	1.0E-02	6.7E-03	6.4E-03	1.9E-05
	Baseline	4.1E-06	1.1E-03	7.9E-04	6.4E-04	6.7E-04	1.5E-06
	Project	3.9E-05	9.7E-03	8.7E-03	5.6E-03	5.3E-03	1.7E-05
14	Application	5.1E-05	1.3E-02	1.1E-02	7.4E-03	7.0E-03	2.2E-05
	Baseline	5.1E-05	1.3E-02	1.1E-02	7.3E-03	6.9E-03	2.2E-05
	Project	2.4E-07	6.0E-05	5.4E-05	3.5E-05	3.3E-05	1.0E-07

Table F.20. Multimedia Model Results: Acenaphthene

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	1.1E-08	8.3E-08	7.1E-08	4.7E-08	4.5E-08	4.2E-09
	Baseline	8.3E-09	6.6E-08	5.7E-08	3.8E-08	3.6E-08	3.2E-09
	Project	8.3E-09	5.9E-08	5.1E-08	3.4E-08	3.2E-08	3.3E-09
FL	Application	1.0E-08	7.1E-08	6.2E-08	4.1E-08	3.9E-08	4.2E-09
	Baseline	8.1E-09	5.5E-08	4.8E-08	3.1E-08	3.0E-08	3.2E-09
	Project	8.2E-09	5.6E-08	4.9E-08	3.2E-08	3.1E-08	3.3E-09
1	Application	6.0E-09	4.4E-08	3.8E-08	2.5E-08	2.4E-08	2.4E-09
	Baseline	4.1E-09	3.1E-08	2.6E-08	1.8E-08	1.7E-08	1.6E-09
	Project	2.0E-09	1.3E-08	1.2E-08	7.7E-09	7.3E-09	7.6E-10
2	Application	2.6E-09	1.8E-08	1.5E-08	1.0E-08	9.6E-09	1.0E-09
	Baseline	2.6E-10	1.8E-09	1.5E-09	1.0E-09	9.7E-10	1.0E-10
	Project	2.4E-09	1.6E-08	1.4E-08	9.2E-09	8.8E-09	9.1E-10
3	Application	4.8E-09	3.4E-08	3.0E-08	1.9E-08	1.9E-08	1.9E-09
	Baseline	2.6E-09	2.0E-08	1.7E-08	1.1E-08	1.1E-08	1.0E-09
	Project	2.2E-09	1.5E-08	1.3E-08	8.5E-09	8.1E-09	8.5E-10
4	Application	1.7E-09	1.2E-08	1.0E-08	6.7E-09	6.4E-09	6.8E-10
	Baseline	1.7E-10	1.1E-09	9.9E-10	6.5E-10	6.2E-10	6.6E-11
	Project	1.6E-09	1.1E-08	9.4E-09	6.2E-09	5.9E-09	6.2E-10
5	Application	2.2E-09	1.5E-08	1.3E-08	8.6E-09	8.2E-09	8.7E-10
	Baseline	2.1E-10	1.5E-09	1.3E-09	8.3E-10	8.0E-10	8.4E-11
	Project	2.0E-09	1.4E-08	1.2E-08	7.9E-09	7.5E-09	7.8E-10
6	Application	8.1E-09	6.1E-08	5.3E-08	3.5E-08	3.4E-08	3.2E-09
	Baseline	6.0E-09	4.7E-08	4.0E-08	2.7E-08	2.6E-08	2.3E-09
	Project	2.2E-09	1.5E-08	1.3E-08	8.4E-09	8.0E-09	8.3E-10
7	Application	4.7E-09	3.5E-08	3.0E-08	2.0E-08	1.9E-08	1.8E-09
	Baseline	3.4E-09	2.6E-08	2.2E-08	1.5E-08	1.4E-08	1.3E-09
	Project	1.3E-09	9.1E-09	7.9E-09	5.2E-09	4.9E-09	5.1E-10
8	Application	2.4E-09	1.7E-08	1.5E-08	9.8E-09	9.4E-09	9.5E-10
	Baseline	1.1E-09	8.4E-09	7.2E-09	4.8E-09	4.6E-09	4.4E-10
	Project	1.3E-09	9.0E-09	7.8E-09	5.1E-09	4.9E-09	5.1E-10
9	Application	4.4E-09	3.0E-08	2.6E-08	1.7E-08	1.6E-08	1.7E-09
	Baseline	6.8E-10	4.8E-09	4.2E-09	2.7E-09	2.6E-09	2.6E-10
	Project	3.8E-09	2.6E-08	2.2E-08	1.5E-08	1.4E-08	1.4E-09
10	Application	5.1E-09	3.5E-08	3.0E-08	2.0E-08	1.9E-08	2.0E-09
	Baseline	3.7E-10	2.6E-09	2.2E-09	1.5E-09	1.4E-09	1.5E-10
	Project	4.8E-09	3.3E-08	2.9E-08	1.9E-08	1.8E-08	1.9E-09
11	Application	3.4E-09	2.3E-08	2.0E-08	1.3E-08	1.3E-08	1.3E-09
	Baseline	3.1E-10	2.1E-09	1.8E-09	1.2E-09	1.2E-09	1.2E-10
	Project	3.2E-09	2.2E-08	1.9E-08	1.2E-08	1.2E-08	1.2E-09
12	Application	3.3E-09	2.3E-08	2.0E-08	1.3E-08	1.2E-08	1.3E-09
	Baseline	4.6E-10	3.2E-09	2.8E-09	1.8E-09	1.8E-09	1.8E-10
	Project	2.9E-09	2.0E-08	1.7E-08	1.2E-08	1.1E-08	1.1E-09
13	Application	4.4E-09	3.0E-08	2.6E-08	1.7E-08	1.6E-08	1.7E-09
	Baseline	4.1E-10	2.9E-09	2.5E-09	1.6E-09	1.6E-09	1.6E-10
	Project	4.0E-09	2.8E-08	2.4E-08	1.6E-08	1.5E-08	1.6E-09
14	Application	8.1E-09	6.4E-08	5.4E-08	3.6E-08	3.5E-08	3.1E-09
	Baseline	7.0E-09	5.7E-08	4.8E-08	3.2E-08	3.1E-08	2.7E-09
	Project	1.1E-09	7.3E-09	6.4E-09	4.2E-09	4.0E-09	4.3E-10

Table F.21. Multimedia Model Results: Acenaphthylene

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	2.2E-08	1.8E-07	1.5E-07	1.0E-07	9.6E-08	8.0E-09
	Baseline	2.1E-08	1.7E-07	1.5E-07	9.8E-08	9.4E-08	7.8E-09
	Project	1.3E-08	9.4E-08	8.1E-08	5.4E-08	5.1E-08	4.9E-09
FL	Application	6.7E-09	4.6E-08	4.0E-08	2.6E-08	2.5E-08	2.6E-09
	Baseline	1.7E-09	1.2E-08	1.1E-08	7.1E-09	6.8E-09	6.3E-10
	Project	6.4E-09	4.3E-08	3.7E-08	2.5E-08	2.4E-08	2.4E-09
1	Application	1.2E-08	9.3E-08	7.9E-08	5.3E-08	5.0E-08	4.5E-09
	Baseline	1.1E-08	7.9E-08	6.8E-08	4.5E-08	4.3E-08	3.9E-09
	Project	3.2E-09	2.1E-08	1.8E-08	1.2E-08	1.2E-08	1.1E-09
2	Application	5.1E-09	3.6E-08	3.1E-08	2.1E-08	2.0E-08	1.9E-09
	Baseline	6.7E-10	4.5E-09	3.9E-09	2.6E-09	2.5E-09	2.5E-10
	Project	3.9E-09	2.6E-08	2.2E-08	1.5E-08	1.4E-08	1.4E-09
3	Application	9.6E-09	7.2E-08	6.1E-08	4.1E-08	3.9E-08	3.6E-09
	Baseline	6.9E-09	5.1E-08	4.3E-08	2.9E-08	2.8E-08	2.5E-09
	Project	3.6E-09	2.4E-08	2.0E-08	1.4E-08	1.3E-08	1.3E-09
4	Application	3.5E-09	2.4E-08	2.1E-08	1.4E-08	1.3E-08	1.3E-09
	Baseline	4.4E-10	2.9E-09	2.5E-09	1.7E-09	1.6E-09	1.6E-10
	Project	2.6E-09	1.7E-08	1.5E-08	9.8E-09	9.4E-09	9.2E-10
5	Application	4.4E-09	3.1E-08	2.7E-08	1.8E-08	1.7E-08	1.7E-09
	Baseline	5.6E-10	3.7E-09	3.2E-09	2.1E-09	2.0E-09	2.0E-10
	Project	3.3E-09	2.2E-08	1.9E-08	1.3E-08	1.2E-08	1.2E-09
6	Application	1.6E-08	1.3E-07	1.1E-07	7.4E-08	7.1E-08	6.1E-09
	Baseline	1.6E-08	1.2E-07	1.0E-07	7.0E-08	6.7E-08	5.7E-09
	Project	3.5E-09	2.3E-08	2.0E-08	1.3E-08	1.3E-08	1.2E-09
7	Application	9.4E-09	7.4E-08	6.3E-08	4.2E-08	4.0E-08	3.5E-09
	Baseline	8.8E-09	6.7E-08	5.7E-08	3.8E-08	3.7E-08	3.2E-09
	Project	2.2E-09	1.4E-08	1.2E-08	8.2E-09	7.9E-09	7.7E-10
8	Application	4.8E-09	3.6E-08	3.1E-08	2.0E-08	2.0E-08	1.8E-09
	Baseline	3.0E-09	2.1E-08	1.8E-08	1.2E-08	1.2E-08	1.1E-09
	Project	2.2E-09	1.4E-08	1.2E-08	8.1E-09	7.8E-09	7.6E-10
9	Application	8.7E-09	6.3E-08	5.4E-08	3.6E-08	3.4E-08	3.3E-09
	Baseline	1.8E-09	1.2E-08	1.1E-08	7.0E-09	6.7E-09	6.4E-10
	Project	6.2E-09	4.1E-08	3.5E-08	2.3E-08	2.2E-08	2.2E-09
10	Application	1.0E-08	7.2E-08	6.2E-08	4.1E-08	4.0E-08	3.8E-09
	Baseline	9.6E-10	6.5E-09	5.6E-09	3.7E-09	3.6E-09	3.5E-10
	Project	7.9E-09	5.2E-08	4.5E-08	3.0E-08	2.9E-08	2.8E-09
11	Application	6.8E-09	4.8E-08	4.2E-08	2.8E-08	2.6E-08	2.6E-09
	Baseline	8.0E-10	5.4E-09	4.6E-09	3.1E-09	3.0E-09	2.9E-10
	Project	5.2E-09	3.4E-08	3.0E-08	2.0E-08	1.9E-08	1.8E-09
12	Application	6.7E-09	4.8E-08	4.1E-08	2.7E-08	2.6E-08	2.5E-09
	Baseline	1.2E-09	8.3E-09	7.1E-09	4.7E-09	4.5E-09	4.4E-10
	Project	4.8E-09	3.2E-08	2.8E-08	1.8E-08	1.8E-08	1.7E-09
13	Application	8.8E-09	6.2E-08	5.4E-08	3.6E-08	3.4E-08	3.3E-09
	Baseline	1.1E-09	7.3E-09	6.3E-09	4.1E-09	4.0E-09	3.9E-10
	Project	6.6E-09	4.4E-08	3.8E-08	2.5E-08	2.4E-08	2.3E-09
14	Application	2.4E-08	1.9E-07	1.6E-07	1.1E-07	1.0E-07	9.0E-09
	Baseline	2.1E-08	1.7E-07	1.4E-07	9.6E-08	9.2E-08	7.8E-09
	Project	3.2E-09	2.1E-08	1.8E-08	1.2E-08	1.2E-08	1.2E-09

Table F.22. Multimedia Model Results: Anthracene

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	1.6E-09	3.7E-08	3.3E-08	2.2E-08	2.0E-08	3.2E-10
	Baseline	1.6E-09	3.7E-08	3.2E-08	2.1E-08	2.0E-08	3.2E-10
	Project	8.1E-10	2.1E-08	1.9E-08	1.2E-08	1.1E-08	1.3E-10
FL	Application	7.1E-10	1.4E-08	1.2E-08	7.9E-09	7.6E-09	1.8E-10
	Baseline	3.9E-10	5.7E-09	4.4E-09	3.1E-09	3.1E-09	1.3E-10
	Project	4.0E-10	1.0E-08	9.3E-09	6.0E-09	5.6E-09	6.5E-11
1	Application	9.5E-12	1.9E-10	1.7E-10	1.1E-10	1.1E-10	2.4E-12
	Baseline	6.1E-12	1.3E-10	1.1E-10	7.7E-11	7.3E-11	1.9E-12
	Project	9.4E-12	2.4E-10	2.2E-10	1.4E-10	1.3E-10	1.5E-12
2	Application	5.2E-12	9.3E-11	7.7E-11	5.3E-11	5.1E-11	1.6E-12
	Baseline	2.0E-12	2.5E-11	1.8E-11	1.3E-11	1.4E-11	9.8E-13
	Project	1.1E-11	2.9E-10	2.6E-10	1.7E-10	1.6E-10	1.8E-12
3	Application	8.0E-12	1.6E-10	1.3E-10	8.9E-11	8.6E-11	2.1E-12
	Baseline	4.5E-12	9.3E-11	7.7E-11	5.2E-11	5.0E-11	1.6E-12
	Project	1.0E-11	2.7E-10	2.4E-10	1.6E-10	1.4E-10	1.7E-12
4	Application	4.1E-12	6.9E-11	5.6E-11	3.8E-11	3.7E-11	1.4E-12
	Baseline	1.9E-12	2.3E-11	1.6E-11	1.2E-11	1.2E-11	9.5E-13
	Project	7.6E-12	1.9E-10	1.7E-10	1.1E-10	1.1E-10	1.2E-12
5	Application	4.7E-12	8.3E-11	6.8E-11	4.6E-11	4.5E-11	1.5E-12
	Baseline	1.9E-12	2.4E-11	1.7E-11	1.3E-11	1.3E-11	9.7E-13
	Project	9.6E-12	2.5E-10	2.2E-10	1.4E-10	1.3E-10	1.5E-12
6	Application	1.2E-11	2.5E-10	2.2E-10	1.4E-10	1.4E-10	3.0E-12
	Baseline	8.1E-12	1.9E-10	1.6E-10	1.1E-10	1.0E-10	2.4E-12
	Project	1.0E-11	2.6E-10	2.4E-10	1.5E-10	1.4E-10	1.6E-12
7	Application	7.8E-12	1.5E-10	1.3E-10	8.8E-11	8.4E-11	2.1E-12
	Baseline	5.3E-12	1.1E-10	9.5E-11	6.4E-11	6.2E-11	1.7E-12
	Project	6.3E-12	1.6E-10	1.5E-10	9.4E-11	8.8E-11	1.0E-12
8	Application	5.0E-12	8.9E-11	7.3E-11	5.0E-11	4.8E-11	1.5E-12
	Baseline	2.9E-12	5.0E-11	3.9E-11	2.8E-11	2.7E-11	1.2E-12
	Project	6.3E-12	1.6E-10	1.4E-10	9.4E-11	8.7E-11	1.0E-12
9	Application	7.4E-12	1.5E-10	1.2E-10	8.3E-11	7.9E-11	2.0E-12
	Baseline	2.4E-12	3.7E-11	2.8E-11	2.0E-11	2.0E-11	1.1E-12
	Project	1.8E-11	4.6E-10	4.1E-10	2.7E-10	2.5E-10	2.9E-12
10	Application	8.4E-12	1.7E-10	1.4E-10	9.5E-11	9.0E-11	2.2E-12
	Baseline	2.1E-12	2.9E-11	2.1E-11	1.5E-11	1.6E-11	1.0E-12
	Project	2.3E-11	5.9E-10	5.2E-10	3.4E-10	3.2E-10	3.7E-12
11	Application	6.2E-12	1.2E-10	9.8E-11	6.7E-11	6.4E-11	1.8E-12
	Baseline	2.0E-12	2.7E-11	1.9E-11	1.4E-11	1.5E-11	1.0E-12
	Project	1.5E-11	3.9E-10	3.4E-10	2.2E-10	2.1E-10	2.4E-12
12	Application	6.2E-12	1.2E-10	9.7E-11	6.5E-11	6.3E-11	1.8E-12
	Baseline	2.2E-12	3.1E-11	2.3E-11	1.7E-11	1.7E-11	1.0E-12
	Project	1.4E-11	3.6E-10	3.2E-10	2.1E-10	1.9E-10	2.2E-12
13	Application	7.5E-12	1.5E-10	1.2E-10	8.3E-11	7.9E-11	2.0E-12
	Baseline	2.1E-12	3.0E-11	2.2E-11	1.6E-11	1.6E-11	1.0E-12
	Project	1.9E-11	4.9E-10	4.4E-10	2.9E-10	2.7E-10	3.1E-12
14	Application	1.8E-09	4.2E-08	3.6E-08	2.4E-08	2.3E-08	3.5E-10
	Baseline	1.6E-09	3.6E-08	3.2E-08	2.1E-08	2.0E-08	3.2E-10
	Project	2.0E-10	5.2E-09	4.7E-09	3.0E-09	2.8E-09	3.3E-11

Table F.23. Multimedia Model Results: Benz[a]anthracene

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	1.4E-05	1.7E-04	1.3E-04	9.8E-05	9.7E-05	1.7E-06	1.0E-04
	Baseline	1.4E-05	1.7E-04	1.3E-04	9.7E-05	9.6E-05	1.7E-06	1.0E-04
	Project	7.3E-06	6.4E-05	5.0E-05	3.6E-05	3.6E-05	1.1E-06	3.8E-05
FL	Application	3.5E-06	2.2E-05	1.8E-05	1.2E-05	1.2E-05	5.5E-07	1.3E-05
	Baseline	9.7E-07	9.3E-06	7.2E-06	5.3E-06	5.2E-06	1.4E-07	5.6E-06
	Project	3.3E-06	2.0E-05	1.6E-05	1.2E-05	1.1E-05	5.2E-07	1.2E-05
1	Application	7.2E-06	6.8E-05	5.4E-05	3.9E-05	3.8E-05	9.8E-07	4.1E-05
	Baseline	6.2E-06	6.1E-05	4.8E-05	3.5E-05	3.4E-05	8.4E-07	3.7E-05
	Project	1.7E-06	1.2E-05	9.6E-06	6.8E-06	6.7E-06	2.5E-07	7.2E-06
2	Application	2.8E-06	1.7E-05	1.4E-05	9.6E-06	9.3E-06	4.2E-07	1.0E-05
	Baseline	3.4E-07	1.9E-06	1.6E-06	1.1E-06	1.1E-06	5.3E-08	1.2E-06
	Project	2.0E-06	1.4E-05	1.2E-05	8.3E-06	8.1E-06	2.9E-07	8.7E-06
3	Application	5.6E-06	4.9E-05	3.9E-05	2.8E-05	2.7E-05	7.7E-07	2.9E-05
	Baseline	3.9E-06	3.9E-05	3.0E-05	2.2E-05	2.1E-05	5.4E-07	2.3E-05
	Project	1.8E-06	1.3E-05	1.1E-05	7.6E-06	7.4E-06	2.7E-07	8.0E-06
4	Application	1.9E-06	1.1E-05	9.0E-06	6.4E-06	6.1E-06	2.8E-07	6.6E-06
	Baseline	2.2E-07	1.2E-06	1.0E-06	7.0E-07	6.7E-07	3.5E-08	7.3E-07
	Project	1.3E-06	9.6E-06	7.7E-06	5.5E-06	5.4E-06	2.0E-07	5.8E-06
5	Application	2.4E-06	1.4E-05	1.2E-05	8.1E-06	7.8E-06	3.6E-07	8.5E-06
	Baseline	2.8E-07	1.6E-06	1.3E-06	9.0E-07	8.7E-07	4.4E-08	9.5E-07
	Project	1.7E-06	1.2E-05	9.8E-06	7.0E-06	6.8E-06	2.5E-07	7.4E-06
6	Application	1.0E-05	1.2E-04	9.2E-05	6.7E-05	6.6E-05	1.3E-06	7.1E-05
	Baseline	9.6E-06	1.1E-04	8.8E-05	6.5E-05	6.4E-05	1.2E-06	6.9E-05
	Project	1.8E-06	1.3E-05	1.0E-05	7.5E-06	7.3E-06	2.7E-07	7.9E-06
7	Application	5.8E-06	6.3E-05	4.9E-05	3.6E-05	3.5E-05	7.5E-07	3.8E-05
	Baseline	5.3E-06	5.9E-05	4.6E-05	3.4E-05	3.3E-05	6.9E-07	3.5E-05
	Project	1.1E-06	8.1E-06	6.5E-06	4.7E-06	4.5E-06	1.7E-07	4.9E-06
8	Application	2.8E-06	2.3E-05	1.8E-05	1.3E-05	1.3E-05	3.9E-07	1.4E-05
	Baseline	1.7E-06	1.6E-05	1.2E-05	9.0E-06	8.9E-06	2.3E-07	9.5E-06
	Project	1.1E-06	8.0E-06	6.4E-06	4.6E-06	4.5E-06	1.6E-07	4.8E-06
9	Application	4.8E-06	3.2E-05	2.6E-05	1.8E-05	1.8E-05	7.1E-07	1.9E-05
	Baseline	9.5E-07	7.4E-06	5.9E-06	4.2E-06	4.1E-06	1.4E-07	4.4E-06
	Project	3.2E-06	2.4E-05	1.9E-05	1.4E-05	1.4E-05	4.7E-07	1.5E-05
10	Application	5.6E-06	3.6E-05	2.9E-05	2.1E-05	2.0E-05	8.3E-07	2.2E-05
	Baseline	5.0E-07	3.2E-06	2.6E-06	1.8E-06	1.8E-06	7.6E-08	1.9E-06
	Project	4.1E-06	3.2E-05	2.5E-05	1.8E-05	1.8E-05	6.0E-07	1.9E-05
11	Application	3.7E-06	2.3E-05	1.9E-05	1.3E-05	1.3E-05	5.5E-07	1.4E-05
	Baseline	4.1E-07	2.4E-06	2.0E-06	1.4E-06	1.4E-06	6.4E-08	1.5E-06
	Project	2.7E-06	2.0E-05	1.6E-05	1.1E-05	1.1E-05	3.9E-07	1.2E-05
12	Application	3.7E-06	2.4E-05	1.9E-05	1.4E-05	1.3E-05	5.4E-07	1.4E-05
	Baseline	6.4E-07	4.5E-06	3.6E-06	2.6E-06	2.5E-06	9.5E-08	2.7E-06
	Project	2.5E-06	1.9E-05	1.5E-05	1.1E-05	1.1E-05	3.7E-07	1.2E-05
13	Application	4.8E-06	3.1E-05	2.5E-05	1.8E-05	1.7E-05	7.1E-07	1.8E-05
	Baseline	5.6E-07	3.8E-06	3.0E-06	2.2E-06	2.1E-06	8.4E-08	2.3E-06
	Project	3.4E-06	2.6E-05	2.1E-05	1.5E-05	1.5E-05	5.1E-07	1.6E-05
14	Application	1.5E-05	1.7E-04	1.3E-04	9.5E-05	9.3E-05	1.9E-06	1.0E-04
	Baseline	1.3E-05	1.6E-04	1.2E-04	9.0E-05	8.9E-05	1.7E-06	9.5E-05
	Project	1.6E-06	7.8E-06	6.5E-06	4.5E-06	4.4E-06	2.6E-07	4.7E-06

Table F.24. Multimedia Model Results: Benzo(a)pyrene

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	6.1E-04	2.4E-02	2.1E-02	1.4E-02	1.3E-02	9.6E-06	1.5E-02
	Baseline	6.0E-04	2.4E-02	2.1E-02	1.4E-02	1.3E-02	9.3E-06	1.4E-02
	Project	3.5E-04	1.4E-02	1.2E-02	8.1E-03	7.5E-03	5.8E-06	8.3E-03
FL	Application	1.8E-04	7.1E-03	6.3E-03	4.1E-03	3.8E-03	3.0E-06	4.2E-03
	Baseline	4.6E-05	1.8E-03	1.6E-03	1.1E-03	9.8E-04	7.5E-07	1.1E-03
	Project	1.7E-04	6.7E-03	6.0E-03	3.9E-03	3.6E-03	2.9E-06	4.0E-03
1	Application	3.3E-04	1.3E-02	1.2E-02	7.7E-03	7.2E-03	5.4E-06	7.9E-03
	Baseline	2.9E-04	1.1E-02	1.0E-02	6.6E-03	6.2E-03	4.7E-06	6.8E-03
	Project	8.1E-05	3.2E-03	2.8E-03	1.9E-03	1.7E-03	1.3E-06	1.9E-03
2	Application	1.4E-04	5.5E-03	4.9E-03	3.2E-03	3.0E-03	2.3E-06	3.3E-03
	Baseline	1.7E-05	6.9E-04	6.1E-04	4.0E-04	3.7E-04	2.9E-07	4.1E-04
	Project	9.7E-05	3.8E-03	3.4E-03	2.2E-03	2.1E-03	1.6E-06	2.3E-03
3	Application	2.6E-04	1.0E-02	9.2E-03	6.0E-03	5.6E-03	4.3E-06	6.2E-03
	Baseline	1.8E-04	7.3E-03	6.4E-03	4.2E-03	3.9E-03	3.0E-06	4.3E-03
	Project	9.0E-05	3.6E-03	3.2E-03	2.1E-03	1.9E-03	1.5E-06	2.1E-03
4	Application	9.3E-05	3.7E-03	3.3E-03	2.1E-03	2.0E-03	1.6E-06	2.2E-03
	Baseline	1.1E-05	4.4E-04	4.0E-04	2.6E-04	2.4E-04	1.9E-07	2.6E-04
	Project	6.6E-05	2.6E-03	2.3E-03	1.5E-03	1.4E-03	1.1E-06	1.5E-03
5	Application	1.2E-04	4.7E-03	4.2E-03	2.7E-03	2.5E-03	2.0E-06	2.8E-03
	Baseline	1.4E-05	5.7E-04	5.1E-04	3.3E-04	3.1E-04	2.4E-07	3.4E-04
	Project	8.3E-05	3.3E-03	2.9E-03	1.9E-03	1.8E-03	1.4E-06	2.0E-03
6	Application	4.6E-04	1.8E-02	1.6E-02	1.1E-02	9.8E-03	7.2E-06	1.1E-02
	Baseline	4.3E-04	1.7E-02	1.5E-02	9.9E-03	9.2E-03	6.8E-06	1.0E-02
	Project	8.8E-05	3.5E-03	3.1E-03	2.0E-03	1.9E-03	1.5E-06	2.1E-03
7	Application	2.6E-04	1.0E-02	9.2E-03	6.0E-03	5.6E-03	4.2E-06	6.2E-03
	Baseline	2.4E-04	9.4E-03	8.4E-03	5.5E-03	5.1E-03	3.8E-06	5.7E-03
	Project	5.5E-05	2.2E-03	1.9E-03	1.3E-03	1.2E-03	9.1E-07	1.3E-03
8	Application	1.3E-04	5.2E-03	4.7E-03	3.0E-03	2.8E-03	2.2E-06	3.1E-03
	Baseline	7.8E-05	3.1E-03	2.8E-03	1.8E-03	1.7E-03	1.3E-06	1.9E-03
	Project	5.4E-05	2.1E-03	1.9E-03	1.2E-03	1.2E-03	9.0E-07	1.3E-03
9	Application	2.4E-04	9.3E-03	8.3E-03	5.4E-03	5.1E-03	3.9E-06	5.6E-03
	Baseline	4.6E-05	1.8E-03	1.6E-03	1.1E-03	9.9E-04	7.7E-07	1.1E-03
	Project	1.6E-04	6.1E-03	5.4E-03	3.6E-03	3.3E-03	2.6E-06	3.7E-03
10	Application	2.7E-04	1.1E-02	9.7E-03	6.3E-03	5.9E-03	4.6E-06	6.5E-03
	Baseline	2.5E-05	9.9E-04	8.8E-04	5.7E-04	5.3E-04	4.2E-07	5.9E-04
	Project	2.0E-04	7.8E-03	7.0E-03	4.6E-03	4.2E-03	3.3E-06	4.7E-03
11	Application	1.8E-04	7.2E-03	6.5E-03	4.2E-03	3.9E-03	3.1E-06	4.3E-03
	Baseline	2.1E-05	8.2E-04	7.3E-04	4.8E-04	4.4E-04	3.5E-07	4.9E-04
	Project	1.3E-04	5.1E-03	4.6E-03	3.0E-03	2.8E-03	2.2E-06	3.1E-03
12	Application	1.8E-04	7.2E-03	6.4E-03	4.1E-03	3.9E-03	3.0E-06	4.3E-03
	Baseline	3.1E-05	1.2E-03	1.1E-03	7.2E-04	6.7E-04	5.3E-07	7.4E-04
	Project	1.2E-04	4.8E-03	4.2E-03	2.8E-03	2.6E-03	2.0E-06	2.9E-03
13	Application	2.4E-04	9.3E-03	8.3E-03	5.4E-03	5.1E-03	3.9E-06	5.6E-03
	Baseline	2.8E-05	1.1E-03	9.8E-04	6.4E-04	5.9E-04	4.6E-07	6.5E-04
	Project	1.7E-04	6.6E-03	5.9E-03	3.8E-03	3.6E-03	2.8E-06	3.9E-03
14	Application	6.7E-04	2.7E-02	2.4E-02	1.5E-02	1.4E-02	1.1E-05	1.6E-02
	Baseline	5.9E-04	2.3E-02	2.1E-02	1.4E-02	1.3E-02	9.3E-06	1.4E-02
	Project	8.4E-05	3.3E-03	3.0E-03	1.9E-03	1.8E-03	1.5E-06	2.0E-03

Table F.25. Multimedia Model Results: Benzo(b)fluoranthene

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	4.4E-03	1.1E-02	1.0E-02	6.5E-03	6.1E-03	4.1E-06	6.8E-03
	Baseline	4.3E-03	1.1E-02	9.9E-03	6.4E-03	5.9E-03	4.0E-06	6.6E-03
	Project	2.7E-03	6.8E-03	6.1E-03	4.0E-03	3.7E-03	2.5E-06	4.1E-03
FL	Application	1.4E-03	3.6E-03	3.2E-03	2.1E-03	1.9E-03	1.3E-06	2.2E-03
	Baseline	3.4E-04	8.8E-04	7.9E-04	5.1E-04	4.8E-04	3.2E-07	5.3E-04
	Project	1.3E-03	3.4E-03	3.0E-03	2.0E-03	1.8E-03	1.2E-06	2.0E-03
1	Application	2.5E-03	6.4E-03	5.7E-03	3.7E-03	3.4E-03	2.3E-06	3.8E-03
	Baseline	2.1E-03	5.4E-03	4.9E-03	3.2E-03	3.0E-03	2.0E-06	3.3E-03
	Project	6.3E-04	1.6E-03	1.4E-03	9.3E-04	8.6E-04	5.8E-07	9.6E-04
2	Application	1.1E-03	2.7E-03	2.4E-03	1.6E-03	1.5E-03	1.0E-06	1.6E-03
	Baseline	1.4E-04	3.5E-04	3.1E-04	2.0E-04	1.9E-04	1.3E-07	2.1E-04
	Project	7.5E-04	1.9E-03	1.7E-03	1.1E-03	1.0E-03	7.0E-07	1.1E-03
3	Application	2.0E-03	5.0E-03	4.5E-03	2.9E-03	2.7E-03	1.8E-06	3.0E-03
	Baseline	1.4E-03	3.5E-03	3.1E-03	2.0E-03	1.9E-03	1.3E-06	2.1E-03
	Project	6.9E-04	1.8E-03	1.6E-03	1.0E-03	9.5E-04	6.5E-07	1.1E-03
4	Application	7.2E-04	1.8E-03	1.6E-03	1.1E-03	9.9E-04	6.7E-07	1.1E-03
	Baseline	8.7E-05	2.2E-04	2.0E-04	1.3E-04	1.2E-04	8.2E-08	1.3E-04
	Project	5.0E-04	1.3E-03	1.2E-03	7.5E-04	7.0E-04	4.7E-07	7.8E-04
5	Application	9.1E-04	2.3E-03	2.1E-03	1.4E-03	1.3E-03	8.6E-07	1.4E-03
	Baseline	1.1E-04	2.9E-04	2.6E-04	1.7E-04	1.5E-04	1.1E-07	1.7E-04
	Project	6.4E-04	1.6E-03	1.5E-03	9.5E-04	8.9E-04	6.0E-07	9.8E-04
6	Application	3.3E-03	8.5E-03	7.6E-03	5.0E-03	4.6E-03	3.1E-06	5.1E-03
	Baseline	3.1E-03	7.9E-03	7.2E-03	4.6E-03	4.3E-03	2.9E-06	4.8E-03
	Project	6.8E-04	1.7E-03	1.6E-03	1.0E-03	9.4E-04	6.4E-07	1.0E-03
7	Application	1.9E-03	4.9E-03	4.4E-03	2.8E-03	2.6E-03	1.8E-06	2.9E-03
	Baseline	1.7E-03	4.5E-03	4.0E-03	2.6E-03	2.4E-03	1.6E-06	2.7E-03
	Project	4.2E-04	1.1E-03	9.6E-04	6.3E-04	5.8E-04	3.9E-07	6.4E-04
8	Application	1.0E-03	2.6E-03	2.3E-03	1.5E-03	1.4E-03	9.4E-07	1.5E-03
	Baseline	5.9E-04	1.5E-03	1.3E-03	8.7E-04	8.1E-04	5.5E-07	9.0E-04
	Project	4.2E-04	1.1E-03	9.5E-04	6.2E-04	5.7E-04	3.9E-07	6.4E-04
9	Application	1.8E-03	4.6E-03	4.1E-03	2.7E-03	2.5E-03	1.7E-06	2.8E-03
	Baseline	3.5E-04	9.0E-04	8.1E-04	5.2E-04	4.9E-04	3.3E-07	5.4E-04
	Project	1.2E-03	3.0E-03	2.7E-03	1.8E-03	1.6E-03	1.1E-06	1.8E-03
10	Application	2.1E-03	5.4E-03	4.8E-03	3.1E-03	2.9E-03	2.0E-06	3.2E-03
	Baseline	1.9E-04	4.9E-04	4.4E-04	2.9E-04	2.7E-04	1.8E-07	3.0E-04
	Project	1.5E-03	3.9E-03	3.5E-03	2.3E-03	2.1E-03	1.4E-06	2.3E-03
11	Application	1.4E-03	3.6E-03	3.2E-03	2.1E-03	1.9E-03	1.3E-06	2.2E-03
	Baseline	1.6E-04	4.1E-04	3.7E-04	2.4E-04	2.2E-04	1.5E-07	2.5E-04
	Project	1.0E-03	2.5E-03	2.3E-03	1.5E-03	1.4E-03	9.4E-07	1.5E-03
12	Application	1.4E-03	3.5E-03	3.2E-03	2.1E-03	1.9E-03	1.3E-06	2.1E-03
	Baseline	2.4E-04	6.1E-04	5.5E-04	3.6E-04	3.3E-04	2.3E-07	3.7E-04
	Project	9.3E-04	2.4E-03	2.1E-03	1.4E-03	1.3E-03	8.7E-07	1.4E-03
13	Application	1.8E-03	4.6E-03	4.1E-03	2.7E-03	2.5E-03	1.7E-06	2.8E-03
	Baseline	2.1E-04	5.4E-04	4.9E-04	3.2E-04	2.9E-04	2.0E-07	3.3E-04
	Project	1.3E-03	3.3E-03	2.9E-03	1.9E-03	1.8E-03	1.2E-06	2.0E-03
14	Application	5.0E-03	1.3E-02	1.1E-02	7.3E-03	6.8E-03	4.6E-06	7.6E-03
	Baseline	4.3E-03	1.1E-02	9.8E-03	6.4E-03	5.9E-03	4.0E-06	6.6E-03
	Project	6.7E-04	1.7E-03	1.5E-03	9.9E-04	9.2E-04	6.3E-07	1.0E-03

Table F.26. Multimedia Model Results: Benzo(g,h,i)peylene

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	4.1E-03	2.0E-03	1.5E-03	1.1E-03	1.1E-03	2.1E-07	1.2E-03
	Baseline	4.0E-03	2.0E-03	1.5E-03	1.1E-03	1.1E-03	2.0E-07	1.2E-03
	Project	1.1E-03	5.5E-04	4.1E-04	3.1E-04	3.1E-04	1.3E-07	3.3E-04
FL	Application	2.0E-04	1.0E-04	7.4E-05	5.6E-05	5.5E-05	6.6E-08	6.0E-05
	Baseline	1.8E-04	8.9E-05	6.7E-05	5.0E-05	5.0E-05	1.6E-08	5.4E-05
	Project	1.8E-04	9.1E-05	6.8E-05	5.1E-05	5.1E-05	6.2E-08	5.5E-05
1	Application	1.2E-03	5.9E-04	4.4E-04	3.3E-04	3.3E-04	1.2E-07	3.6E-04
	Baseline	1.2E-03	5.8E-04	4.3E-04	3.3E-04	3.2E-04	1.0E-07	3.5E-04
	Project	3.2E-05	1.5E-05	1.2E-05	8.7E-06	8.6E-06	2.9E-08	9.4E-06
2	Application	3.2E-05	1.6E-05	1.2E-05	8.7E-06	8.6E-06	5.0E-08	9.4E-06
	Baseline	7.0E-06	3.4E-06	2.6E-06	1.9E-06	1.9E-06	6.4E-09	2.1E-06
	Project	5.1E-05	2.5E-05	1.9E-05	1.4E-05	1.4E-05	3.5E-08	1.5E-05
3	Application	7.5E-04	3.7E-04	2.8E-04	2.1E-04	2.1E-04	9.2E-08	2.3E-04
	Baseline	7.3E-04	3.6E-04	2.7E-04	2.0E-04	2.0E-04	6.4E-08	2.2E-04
	Project	3.0E-05	1.5E-05	1.1E-05	8.2E-06	8.1E-06	3.3E-08	8.9E-06
4	Application	1.2E-05	5.9E-06	4.4E-06	3.3E-06	3.3E-06	3.4E-08	3.6E-06
	Baseline	3.0E-06	1.5E-06	1.1E-06	8.2E-07	8.2E-07	4.1E-09	8.9E-07
	Project	1.9E-05	9.1E-06	6.8E-06	5.1E-06	5.1E-06	2.4E-08	5.6E-06
5	Application	1.7E-05	8.2E-06	6.2E-06	4.6E-06	4.6E-06	4.3E-08	5.0E-06
	Baseline	4.7E-06	2.3E-06	1.7E-06	1.3E-06	1.3E-06	5.3E-09	1.4E-06
	Project	2.6E-05	1.2E-05	9.3E-06	7.0E-06	6.9E-06	3.0E-08	7.6E-06
6	Application	2.6E-03	1.3E-03	9.7E-04	7.2E-04	7.2E-04	1.6E-07	7.8E-04
	Baseline	2.6E-03	1.3E-03	9.6E-04	7.2E-04	7.1E-04	1.5E-07	7.8E-04
	Project	3.2E-05	1.6E-05	1.2E-05	8.7E-06	8.7E-06	3.2E-08	9.5E-06
7	Application	1.3E-03	6.4E-04	4.8E-04	3.6E-04	3.6E-04	9.0E-08	3.9E-04
	Baseline	1.3E-03	6.3E-04	4.7E-04	3.5E-04	3.5E-04	8.2E-08	3.8E-04
	Project	2.6E-05	1.3E-05	9.6E-06	7.2E-06	7.2E-06	2.0E-08	7.8E-06
8	Application	3.0E-04	1.5E-04	1.1E-04	8.4E-05	8.4E-05	4.7E-08	9.1E-05
	Baseline	2.9E-04	1.5E-04	1.1E-04	8.2E-05	8.1E-05	2.8E-08	8.8E-05
	Project	1.9E-05	9.2E-06	6.9E-06	5.2E-06	5.1E-06	2.0E-08	5.6E-06
9	Application	1.8E-04	9.0E-05	6.7E-05	5.0E-05	5.0E-05	8.5E-08	5.5E-05
	Baseline	1.0E-04	5.0E-05	3.7E-05	2.8E-05	2.8E-05	1.7E-08	3.0E-05
	Project	1.8E-04	9.0E-05	6.7E-05	5.0E-05	5.0E-05	5.6E-08	5.4E-05
10	Application	1.5E-04	7.6E-05	5.7E-05	4.3E-05	4.2E-05	9.9E-08	4.6E-05
	Baseline	2.6E-05	1.3E-05	9.4E-06	7.1E-06	7.0E-06	9.1E-09	7.7E-06
	Project	2.7E-04	1.3E-04	9.9E-05	7.5E-05	7.4E-05	7.1E-08	8.1E-05
11	Application	7.1E-05	3.5E-05	2.6E-05	2.0E-05	1.9E-05	6.6E-08	2.1E-05
	Baseline	1.3E-05	6.3E-06	4.7E-06	3.5E-06	3.5E-06	7.6E-09	3.8E-06
	Project	1.2E-04	6.0E-05	4.5E-05	3.3E-05	3.3E-05	4.7E-08	3.6E-05
12	Application	1.2E-04	6.0E-05	4.5E-05	3.3E-05	3.3E-05	6.5E-08	3.6E-05
	Baseline	4.8E-05	2.4E-05	1.8E-05	1.3E-05	1.3E-05	1.1E-08	1.4E-05
	Project	1.5E-04	7.6E-05	5.7E-05	4.3E-05	4.2E-05	4.4E-08	4.6E-05
13	Application	1.3E-04	6.5E-05	4.8E-05	3.6E-05	3.6E-05	8.5E-08	3.9E-05
	Baseline	3.5E-05	1.7E-05	1.3E-05	9.8E-06	9.7E-06	1.0E-08	1.1E-05
	Project	2.0E-04	9.8E-05	7.3E-05	5.5E-05	5.4E-05	6.0E-08	5.9E-05
14	Application	3.7E-03	1.8E-03	1.4E-03	1.0E-03	1.0E-03	2.3E-07	1.1E-03
	Baseline	3.6E-03	1.8E-03	1.4E-03	1.0E-03	1.0E-03	2.0E-07	1.1E-03
	Project	1.5E-05	7.5E-06	5.6E-06	4.2E-06	4.2E-06	3.2E-08	4.5E-06

Table F.27. Multimedia Model Results: Benzo(k)fluoranthene

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	1.5E-03	2.5E-03	2.2E-03	1.4E-03	1.3E-03	8.1E-07	1.5E-03
	Baseline	1.5E-03	2.4E-03	2.1E-03	1.4E-03	1.3E-03	7.9E-07	1.5E-03
	Project	8.7E-04	1.4E-03	1.2E-03	8.2E-04	7.6E-04	4.9E-07	8.5E-04
FL	Application	4.4E-04	7.1E-04	6.4E-04	4.1E-04	3.9E-04	2.6E-07	4.3E-04
	Baseline	1.1E-04	1.8E-04	1.6E-04	1.1E-04	9.9E-05	6.3E-08	1.1E-04
	Project	4.2E-04	6.7E-04	6.0E-04	3.9E-04	3.6E-04	2.4E-07	4.1E-04
1	Application	8.4E-04	1.3E-03	1.2E-03	7.8E-04	7.2E-04	4.6E-07	8.1E-04
	Baseline	7.2E-04	1.2E-03	1.0E-03	6.7E-04	6.2E-04	3.9E-07	6.9E-04
	Project	2.0E-04	3.2E-04	2.9E-04	1.9E-04	1.8E-04	1.1E-07	2.0E-04
2	Application	3.4E-04	5.5E-04	4.9E-04	3.2E-04	3.0E-04	2.0E-07	3.3E-04
	Baseline	4.3E-05	6.9E-05	6.2E-05	4.0E-05	3.7E-05	2.5E-08	4.2E-05
	Project	2.4E-04	3.9E-04	3.4E-04	2.2E-04	2.1E-04	1.4E-07	2.3E-04
3	Application	6.5E-04	1.1E-03	9.3E-04	6.1E-04	5.7E-04	3.6E-07	6.3E-04
	Baseline	4.6E-04	7.3E-04	6.5E-04	4.3E-04	4.0E-04	2.5E-07	4.4E-04
	Project	2.2E-04	3.6E-04	3.2E-04	2.1E-04	1.9E-04	1.3E-07	2.2E-04
4	Application	2.3E-04	3.7E-04	3.3E-04	2.2E-04	2.0E-04	1.3E-07	2.2E-04
	Baseline	2.8E-05	4.5E-05	4.0E-05	2.6E-05	2.4E-05	1.6E-08	2.7E-05
	Project	1.6E-04	2.6E-04	2.3E-04	1.5E-04	1.4E-04	9.3E-08	1.6E-04
5	Application	2.9E-04	4.7E-04	4.2E-04	2.8E-04	2.6E-04	1.7E-07	2.9E-04
	Baseline	3.6E-05	5.7E-05	5.1E-05	3.3E-05	3.1E-05	2.1E-08	3.4E-05
	Project	2.1E-04	3.3E-04	3.0E-04	1.9E-04	1.8E-04	1.2E-07	2.0E-04
6	Application	1.1E-03	1.8E-03	1.6E-03	1.1E-03	1.0E-03	6.1E-07	1.1E-03
	Baseline	1.1E-03	1.7E-03	1.5E-03	1.0E-03	9.4E-04	5.7E-07	1.0E-03
	Project	2.2E-04	3.5E-04	3.2E-04	2.1E-04	1.9E-04	1.3E-07	2.1E-04
7	Application	6.5E-04	1.1E-03	9.3E-04	6.1E-04	5.7E-04	3.5E-07	6.3E-04
	Baseline	6.0E-04	9.6E-04	8.5E-04	5.6E-04	5.2E-04	3.2E-07	5.8E-04
	Project	1.4E-04	2.2E-04	1.9E-04	1.3E-04	1.2E-04	7.8E-08	1.3E-04
8	Application	3.3E-04	5.3E-04	4.7E-04	3.1E-04	2.9E-04	1.8E-07	3.2E-04
	Baseline	2.0E-04	3.1E-04	2.8E-04	1.8E-04	1.7E-04	1.1E-07	1.9E-04
	Project	1.3E-04	2.2E-04	1.9E-04	1.3E-04	1.2E-04	7.7E-08	1.3E-04
9	Application	5.9E-04	9.4E-04	8.4E-04	5.5E-04	5.1E-04	3.3E-07	5.7E-04
	Baseline	1.1E-04	1.8E-04	1.6E-04	1.1E-04	1.0E-04	6.5E-08	1.1E-04
	Project	3.8E-04	6.2E-04	5.5E-04	3.6E-04	3.4E-04	2.2E-07	3.7E-04
10	Application	6.8E-04	1.1E-03	9.8E-04	6.4E-04	5.9E-04	3.9E-07	6.6E-04
	Baseline	6.2E-05	1.0E-04	8.9E-05	5.8E-05	5.4E-05	3.6E-08	6.0E-05
	Project	4.9E-04	7.9E-04	7.0E-04	4.6E-04	4.3E-04	2.8E-07	4.8E-04
11	Application	4.6E-04	7.3E-04	6.5E-04	4.3E-04	4.0E-04	2.6E-07	4.4E-04
	Baseline	5.1E-05	8.3E-05	7.4E-05	4.8E-05	4.5E-05	3.0E-08	5.0E-05
	Project	3.2E-04	5.2E-04	4.6E-04	3.0E-04	2.8E-04	1.8E-07	3.1E-04
12	Application	4.5E-04	7.3E-04	6.4E-04	4.2E-04	3.9E-04	2.5E-07	4.3E-04
	Baseline	7.8E-05	1.2E-04	1.1E-04	7.3E-05	6.8E-05	4.4E-08	7.5E-05
	Project	3.0E-04	4.8E-04	4.3E-04	2.8E-04	2.6E-04	1.7E-07	2.9E-04
13	Application	5.9E-04	9.5E-04	8.4E-04	5.5E-04	5.1E-04	3.3E-07	5.7E-04
	Baseline	6.9E-05	1.1E-04	9.9E-05	6.4E-05	6.0E-05	3.9E-08	6.7E-05
	Project	4.1E-04	6.7E-04	5.9E-04	3.9E-04	3.6E-04	2.4E-07	4.0E-04
14	Application	1.7E-03	2.7E-03	2.4E-03	1.6E-03	1.5E-03	9.1E-07	1.6E-03
	Baseline	1.5E-03	2.4E-03	2.1E-03	1.4E-03	1.3E-03	7.9E-07	1.4E-03
	Project	2.1E-04	3.3E-04	3.0E-04	1.9E-04	1.8E-04	1.2E-07	2.0E-04

Table F.28. Multimedia Model Results: Chrysene

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	1.9E-04	7.6E-04	6.8E-04	4.4E-04	4.1E-04	5.7E-07	4.6E-04
	Baseline	1.8E-04	7.4E-04	6.7E-04	4.3E-04	4.0E-04	5.6E-07	4.5E-04
	Project	1.1E-04	4.6E-04	4.1E-04	2.7E-04	2.5E-04	3.5E-07	2.8E-04
FL	Application	6.0E-05	2.4E-04	2.2E-04	1.4E-04	1.3E-04	1.8E-07	1.5E-04
	Baseline	1.5E-05	5.9E-05	5.3E-05	3.5E-05	3.2E-05	4.5E-08	3.6E-05
	Project	5.7E-05	2.3E-04	2.1E-04	1.3E-04	1.2E-04	1.7E-07	1.4E-04
1	Application	1.1E-04	4.3E-04	3.9E-04	2.5E-04	2.3E-04	3.2E-07	2.6E-04
	Baseline	9.2E-05	3.7E-04	3.3E-04	2.1E-04	2.0E-04	2.8E-07	2.2E-04
	Project	2.7E-05	1.1E-04	9.6E-05	6.3E-05	5.8E-05	8.1E-08	6.5E-05
2	Application	4.5E-05	1.8E-04	1.6E-04	1.1E-04	9.9E-05	1.4E-07	1.1E-04
	Baseline	5.8E-06	2.3E-05	2.1E-05	1.4E-05	1.3E-05	1.8E-08	1.4E-05
	Project	3.2E-05	1.3E-04	1.2E-04	7.5E-05	6.9E-05	9.6E-08	7.7E-05
3	Application	8.4E-05	3.4E-04	3.0E-04	2.0E-04	1.8E-04	2.5E-07	2.0E-04
	Baseline	5.8E-05	2.4E-04	2.1E-04	1.4E-04	1.3E-04	1.8E-07	1.4E-04
	Project	3.0E-05	1.2E-04	1.1E-04	6.9E-05	6.5E-05	9.0E-08	7.2E-05
4	Application	3.1E-05	1.2E-04	1.1E-04	7.2E-05	6.7E-05	9.3E-08	7.4E-05
	Baseline	3.7E-06	1.5E-05	1.4E-05	8.8E-06	8.2E-06	1.1E-08	9.1E-06
	Project	2.2E-05	8.7E-05	7.8E-05	5.1E-05	4.7E-05	6.5E-08	5.2E-05
5	Application	3.9E-05	1.6E-04	1.4E-04	9.2E-05	8.5E-05	1.2E-07	9.4E-05
	Baseline	4.8E-06	1.9E-05	1.7E-05	1.1E-05	1.0E-05	1.5E-08	1.2E-05
	Project	2.7E-05	1.1E-04	1.0E-04	6.5E-05	6.0E-05	8.3E-08	6.6E-05
6	Application	1.4E-04	5.7E-04	5.2E-04	3.3E-04	3.1E-04	4.3E-07	3.4E-04
	Baseline	1.3E-04	5.4E-04	4.8E-04	3.1E-04	2.9E-04	4.0E-07	3.2E-04
	Project	2.9E-05	1.2E-04	1.1E-04	6.8E-05	6.4E-05	8.9E-08	7.1E-05
7	Application	8.2E-05	3.3E-04	3.0E-04	1.9E-04	1.8E-04	2.5E-07	2.0E-04
	Baseline	7.5E-05	3.0E-04	2.7E-04	1.8E-04	1.6E-04	2.3E-07	1.8E-04
	Project	1.8E-05	7.2E-05	6.5E-05	4.2E-05	3.9E-05	5.4E-08	4.3E-05
8	Application	4.3E-05	1.7E-04	1.5E-04	1.0E-04	9.3E-05	1.3E-07	1.0E-04
	Baseline	2.5E-05	1.0E-04	9.1E-05	5.9E-05	5.5E-05	7.6E-08	6.1E-05
	Project	1.8E-05	7.2E-05	6.5E-05	4.2E-05	3.9E-05	5.4E-08	4.3E-05
9	Application	7.7E-05	3.1E-04	2.8E-04	1.8E-04	1.7E-04	2.3E-07	1.9E-04
	Baseline	1.5E-05	6.1E-05	5.4E-05	3.5E-05	3.3E-05	4.5E-08	3.6E-05
	Project	5.1E-05	2.1E-04	1.8E-04	1.2E-04	1.1E-04	1.5E-07	1.2E-04
10	Application	9.0E-05	3.6E-04	3.2E-04	2.1E-04	2.0E-04	2.7E-07	2.2E-04
	Baseline	8.3E-06	3.3E-05	3.0E-05	1.9E-05	1.8E-05	2.5E-08	2.0E-05
	Project	6.5E-05	2.6E-04	2.4E-04	1.5E-04	1.4E-04	2.0E-07	1.6E-04
11	Application	6.0E-05	2.4E-04	2.2E-04	1.4E-04	1.3E-04	1.8E-07	1.5E-04
	Baseline	6.9E-06	2.8E-05	2.5E-05	1.6E-05	1.5E-05	2.1E-08	1.7E-05
	Project	4.3E-05	1.7E-04	1.5E-04	1.0E-04	9.3E-05	1.3E-07	1.0E-04
12	Application	5.9E-05	2.4E-04	2.1E-04	1.4E-04	1.3E-04	1.8E-07	1.4E-04
	Baseline	1.0E-05	4.2E-05	3.7E-05	2.4E-05	2.2E-05	3.1E-08	2.5E-05
	Project	4.0E-05	1.6E-04	1.4E-04	9.3E-05	8.6E-05	1.2E-07	9.6E-05
13	Application	7.8E-05	3.1E-04	2.8E-04	1.8E-04	1.7E-04	2.3E-07	1.9E-04
	Baseline	9.2E-06	3.7E-05	3.3E-05	2.1E-05	2.0E-05	2.8E-08	2.2E-05
	Project	5.5E-05	2.2E-04	2.0E-04	1.3E-04	1.2E-04	1.7E-07	1.3E-04
14	Application	2.1E-04	8.5E-04	7.7E-04	5.0E-04	4.6E-04	6.4E-07	5.1E-04
	Baseline	1.8E-04	7.4E-04	6.6E-04	4.3E-04	4.0E-04	5.5E-07	4.4E-04
	Project	2.9E-05	1.2E-04	1.0E-04	6.7E-05	6.2E-05	8.7E-08	6.9E-05

Table F.29. Multimedia Model Results: Dibenzo(a,h)anthracene

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	3.1E-03	1.7E-01	1.3E-01	9.6E-02	9.4E-02	1.3E-05	1.0E-01
	Baseline	3.1E-03	1.7E-01	1.3E-01	9.6E-02	9.4E-02	1.3E-05	1.0E-01
	Project	9.6E-04	5.2E-02	4.1E-02	3.0E-02	2.9E-02	7.8E-06	3.1E-02
FL	Application	2.4E-04	1.3E-02	1.1E-02	7.4E-03	7.2E-03	4.1E-06	7.8E-03
	Baseline	1.5E-04	8.2E-03	6.3E-03	4.6E-03	4.5E-03	1.0E-06	4.8E-03
	Project	2.2E-04	1.2E-02	9.8E-03	6.9E-03	6.6E-03	3.9E-06	7.2E-03
1	Application	1.0E-03	5.7E-02	4.4E-02	3.2E-02	3.1E-02	7.3E-06	3.4E-02
	Baseline	9.8E-04	5.4E-02	4.1E-02	3.0E-02	2.9E-02	6.3E-06	3.2E-02
	Project	1.3E-04	7.0E-03	5.8E-03	4.0E-03	3.8E-03	1.8E-06	4.2E-03
2	Application	1.4E-04	7.3E-03	6.3E-03	4.2E-03	4.0E-03	3.1E-06	4.4E-03
	Baseline	1.7E-05	9.0E-04	7.7E-04	5.2E-04	4.9E-04	4.0E-07	5.4E-04
	Project	1.6E-04	8.6E-03	7.1E-03	4.9E-03	4.7E-03	2.2E-06	5.2E-03
3	Application	7.0E-04	3.8E-02	3.0E-02	2.2E-02	2.1E-02	5.7E-06	2.3E-02
	Baseline	6.2E-04	3.4E-02	2.6E-02	1.9E-02	1.9E-02	4.0E-06	2.0E-02
	Project	1.4E-04	7.6E-03	6.3E-03	4.4E-03	4.2E-03	2.0E-06	4.5E-03
4	Application	8.7E-05	4.6E-03	4.0E-03	2.7E-03	2.5E-03	2.1E-06	2.7E-03
	Baseline	9.9E-06	5.3E-04	4.5E-04	3.0E-04	2.9E-04	2.6E-07	3.1E-04
	Project	1.0E-04	5.5E-03	4.6E-03	3.1E-03	3.0E-03	1.5E-06	3.3E-03
5	Application	1.1E-04	5.9E-03	5.2E-03	3.4E-03	3.2E-03	2.7E-06	3.5E-03
	Baseline	1.3E-05	7.0E-04	6.0E-04	4.0E-04	3.8E-04	3.3E-07	4.2E-04
	Project	1.3E-04	7.0E-03	5.8E-03	4.0E-03	3.8E-03	1.9E-06	4.2E-03
6	Application	2.0E-03	1.1E-01	8.6E-02	6.3E-02	6.2E-02	9.7E-06	6.7E-02
	Baseline	2.0E-03	1.1E-01	8.4E-02	6.2E-02	6.1E-02	9.1E-06	6.6E-02
	Project	1.4E-04	7.6E-03	6.3E-03	4.3E-03	4.1E-03	2.0E-06	4.5E-03
7	Application	1.0E-03	5.7E-02	4.4E-02	3.2E-02	3.1E-02	5.6E-06	3.4E-02
	Baseline	1.0E-03	5.6E-02	4.2E-02	3.1E-02	3.1E-02	5.1E-06	3.3E-02
	Project	9.0E-05	4.8E-03	4.0E-03	2.8E-03	2.6E-03	1.2E-06	2.9E-03
8	Application	3.0E-04	1.7E-02	1.3E-02	9.4E-03	9.1E-03	2.9E-06	9.9E-03
	Baseline	2.5E-04	1.4E-02	1.1E-02	7.7E-03	7.5E-03	1.7E-06	8.1E-03
	Project	8.6E-05	4.6E-03	3.8E-03	2.6E-03	2.5E-03	1.2E-06	2.7E-03
9	Application	3.1E-04	1.7E-02	1.4E-02	9.7E-03	9.3E-03	5.3E-06	1.0E-02
	Baseline	9.9E-05	5.4E-03	4.3E-03	3.0E-03	3.0E-03	1.0E-06	3.2E-03
	Project	3.0E-04	1.6E-02	1.3E-02	9.2E-03	8.8E-03	3.5E-06	9.6E-03
10	Application	3.3E-04	1.8E-02	1.5E-02	1.0E-02	9.7E-03	6.1E-06	1.1E-02
	Baseline	3.4E-05	1.9E-03	1.5E-03	1.1E-03	1.0E-03	5.7E-07	1.1E-03
	Project	3.9E-04	2.1E-02	1.7E-02	1.2E-02	1.2E-02	4.4E-06	1.3E-02
11	Application	2.0E-04	1.1E-02	9.1E-03	6.2E-03	5.8E-03	4.1E-06	6.4E-03
	Baseline	2.3E-05	1.2E-03	1.0E-03	7.1E-04	6.7E-04	4.7E-07	7.4E-04
	Project	2.4E-04	1.3E-02	1.0E-02	7.3E-03	7.0E-03	2.9E-06	7.6E-03
12	Application	2.3E-04	1.2E-02	1.0E-02	7.1E-03	6.7E-03	4.0E-06	7.3E-03
	Baseline	5.4E-05	2.9E-03	2.4E-03	1.7E-03	1.6E-03	7.1E-07	1.7E-03
	Project	2.4E-04	1.3E-02	1.0E-02	7.3E-03	7.0E-03	2.7E-06	7.6E-03
13	Application	2.8E-04	1.5E-02	1.3E-02	8.7E-03	8.3E-03	5.3E-06	9.0E-03
	Baseline	4.3E-05	2.3E-03	1.9E-03	1.3E-03	1.3E-03	6.3E-07	1.4E-03
	Project	3.2E-04	1.7E-02	1.4E-02	9.9E-03	9.5E-03	3.7E-06	1.0E-02
14	Application	2.9E-03	1.6E-01	1.2E-01	8.9E-02	8.7E-02	1.4E-05	9.4E-02
	Baseline	2.8E-03	1.6E-01	1.2E-01	8.7E-02	8.6E-02	1.2E-05	9.2E-02
	Project	6.0E-05	3.2E-03	2.8E-03	1.8E-03	1.7E-03	2.0E-06	1.9E-03

Table F.30. Multimedia Model Results: Fluoranthene

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	2.1E-05	5.9E-04	5.3E-04	3.4E-04	3.2E-04	1.5E-06	3.5E-04
	Baseline	2.0E-05	5.8E-04	5.2E-04	3.4E-04	3.1E-04	1.5E-06	3.5E-04
	Project	1.3E-05	3.6E-04	3.2E-04	2.1E-04	1.9E-04	9.1E-07	2.1E-04
FL	Application	6.6E-06	1.9E-04	1.7E-04	1.1E-04	1.0E-04	4.8E-07	1.1E-04
	Baseline	1.6E-06	4.6E-05	4.1E-05	2.7E-05	2.5E-05	1.2E-07	2.7E-05
	Project	6.2E-06	1.8E-04	1.6E-04	1.0E-04	9.5E-05	4.5E-07	1.1E-04
1	Application	1.2E-05	3.3E-04	3.0E-04	1.9E-04	1.8E-04	8.5E-07	2.0E-04
	Baseline	1.0E-05	2.9E-04	2.6E-04	1.7E-04	1.6E-04	7.3E-07	1.7E-04
	Project	2.9E-06	8.2E-05	7.4E-05	4.8E-05	4.5E-05	2.1E-07	5.0E-05
2	Application	5.0E-06	1.4E-04	1.3E-04	8.2E-05	7.6E-05	3.6E-07	8.4E-05
	Baseline	6.3E-07	1.8E-05	1.6E-05	1.0E-05	9.7E-06	4.6E-08	1.1E-05
	Project	3.5E-06	9.9E-05	8.9E-05	5.8E-05	5.4E-05	2.5E-07	5.9E-05
3	Application	9.3E-06	2.6E-04	2.3E-04	1.5E-04	1.4E-04	6.7E-07	1.6E-04
	Baseline	6.4E-06	1.8E-04	1.6E-04	1.1E-04	9.9E-05	4.6E-07	1.1E-04
	Project	3.3E-06	9.2E-05	8.2E-05	5.3E-05	5.0E-05	2.4E-07	5.5E-05
4	Application	3.4E-06	9.5E-05	8.5E-05	5.5E-05	5.1E-05	2.4E-07	5.7E-05
	Baseline	4.1E-07	1.2E-05	1.0E-05	6.7E-06	6.3E-06	3.0E-08	6.9E-06
	Project	2.4E-06	6.7E-05	6.0E-05	3.9E-05	3.6E-05	1.7E-07	4.0E-05
5	Application	4.3E-06	1.2E-04	1.1E-04	7.0E-05	6.5E-05	3.1E-07	7.2E-05
	Baseline	5.2E-07	1.5E-05	1.3E-05	8.6E-06	8.0E-06	3.8E-08	8.9E-06
	Project	3.0E-06	8.5E-05	7.6E-05	4.9E-05	4.6E-05	2.2E-07	5.1E-05
6	Application	1.6E-05	4.5E-04	4.0E-04	2.6E-04	2.4E-04	1.1E-06	2.7E-04
	Baseline	1.5E-05	4.2E-04	3.7E-04	2.4E-04	2.3E-04	1.1E-06	2.5E-04
	Project	3.2E-06	9.0E-05	8.1E-05	5.2E-05	4.9E-05	2.3E-07	5.4E-05
7	Application	9.1E-06	2.6E-04	2.3E-04	1.5E-04	1.4E-04	6.5E-07	1.5E-04
	Baseline	8.3E-06	2.3E-04	2.1E-04	1.4E-04	1.3E-04	5.9E-07	1.4E-04
	Project	2.0E-06	5.6E-05	5.0E-05	3.2E-05	3.0E-05	1.4E-07	3.3E-05
8	Application	4.7E-06	1.3E-04	1.2E-04	7.7E-05	7.2E-05	3.4E-07	8.0E-05
	Baseline	2.8E-06	7.8E-05	7.0E-05	4.6E-05	4.2E-05	2.0E-07	4.7E-05
	Project	2.0E-06	5.5E-05	5.0E-05	3.2E-05	3.0E-05	1.4E-07	3.3E-05
9	Application	8.5E-06	2.4E-04	2.1E-04	1.4E-04	1.3E-04	6.2E-07	1.4E-04
	Baseline	1.7E-06	4.7E-05	4.2E-05	2.7E-05	2.5E-05	1.2E-07	2.8E-05
	Project	5.6E-06	1.6E-04	1.4E-04	9.2E-05	8.6E-05	4.0E-07	9.5E-05
10	Application	9.9E-06	2.8E-04	2.5E-04	1.6E-04	1.5E-04	7.2E-07	1.7E-04
	Baseline	9.0E-07	2.6E-05	2.3E-05	1.5E-05	1.4E-05	6.6E-08	1.5E-05
	Project	7.1E-06	2.0E-04	1.8E-04	1.2E-04	1.1E-04	5.2E-07	1.2E-04
11	Application	6.6E-06	1.9E-04	1.7E-04	1.1E-04	1.0E-04	4.8E-07	1.1E-04
	Baseline	7.6E-07	2.1E-05	1.9E-05	1.2E-05	1.2E-05	5.5E-08	1.3E-05
	Project	4.7E-06	1.3E-04	1.2E-04	7.7E-05	7.1E-05	3.4E-07	7.9E-05
12	Application	6.5E-06	1.8E-04	1.6E-04	1.1E-04	9.9E-05	4.7E-07	1.1E-04
	Baseline	1.1E-06	3.2E-05	2.9E-05	1.9E-05	1.7E-05	8.2E-08	1.9E-05
	Project	4.4E-06	1.2E-04	1.1E-04	7.1E-05	6.7E-05	3.2E-07	7.4E-05
13	Application	8.5E-06	2.4E-04	2.1E-04	1.4E-04	1.3E-04	6.2E-07	1.4E-04
	Baseline	1.0E-06	2.8E-05	2.5E-05	1.6E-05	1.5E-05	7.3E-08	1.7E-05
	Project	6.0E-06	1.7E-04	1.5E-04	9.9E-05	9.2E-05	4.4E-07	1.0E-04
14	Application	2.3E-05	6.6E-04	5.9E-04	3.9E-04	3.6E-04	1.7E-06	4.0E-04
	Baseline	2.0E-05	5.7E-04	5.1E-04	3.3E-04	3.1E-04	1.5E-06	3.4E-04
	Project	3.1E-06	8.8E-05	7.9E-05	5.1E-05	4.8E-05	2.3E-07	5.3E-05

Table F.32. Multimedia Model Results: Indeno(1,2,3-c,d)pyrene

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	5.0E-05	1.4E-03	1.1E-03	7.8E-04	7.5E-04	1.5E-06	8.1E-04
	Baseline	4.9E-05	1.4E-03	1.1E-03	7.7E-04	7.4E-04	1.5E-06	8.0E-04
	Project	2.8E-05	5.9E-04	5.0E-04	3.4E-04	3.2E-04	9.4E-07	3.5E-04
FL	Application	1.4E-05	2.4E-04	2.1E-04	1.4E-04	1.3E-04	4.9E-07	1.4E-04
	Baseline	3.7E-06	8.2E-05	6.9E-05	4.7E-05	4.5E-05	1.2E-07	4.9E-05
	Project	1.3E-05	2.3E-04	2.0E-04	1.3E-04	1.2E-04	4.7E-07	1.4E-04
1	Application	2.7E-05	6.2E-04	5.1E-04	3.5E-04	3.4E-04	8.7E-07	3.7E-04
	Baseline	2.3E-05	5.3E-04	4.5E-04	3.1E-04	2.9E-04	7.5E-07	3.2E-04
	Project	6.5E-06	1.2E-04	1.1E-04	7.2E-05	6.8E-05	2.2E-07	7.4E-05
2	Application	1.1E-05	2.0E-04	1.7E-04	1.1E-04	1.1E-04	3.7E-07	1.2E-04
	Baseline	1.4E-06	2.3E-05	2.0E-05	1.4E-05	1.3E-05	4.7E-08	1.4E-05
	Project	7.7E-06	1.5E-04	1.3E-04	8.6E-05	8.2E-05	2.6E-07	8.9E-05
3	Application	2.1E-05	4.6E-04	3.9E-04	2.7E-04	2.5E-04	6.9E-07	2.8E-04
	Baseline	1.5E-05	3.4E-04	2.8E-04	2.0E-04	1.9E-04	4.8E-07	2.0E-04
	Project	7.2E-06	1.4E-04	1.2E-04	7.9E-05	7.5E-05	2.4E-07	8.2E-05
4	Application	7.5E-06	1.3E-04	1.1E-04	7.6E-05	7.2E-05	2.5E-07	7.9E-05
	Baseline	8.9E-07	1.5E-05	1.3E-05	8.6E-06	8.0E-06	3.1E-08	8.9E-06
	Project	5.2E-06	1.0E-04	8.5E-05	5.8E-05	5.5E-05	1.8E-07	6.0E-05
5	Application	9.5E-06	1.7E-04	1.4E-04	9.8E-05	9.1E-05	3.2E-07	1.0E-04
	Baseline	1.1E-06	1.9E-05	1.7E-05	1.1E-05	1.0E-05	3.9E-08	1.1E-05
	Project	6.6E-06	1.3E-04	1.1E-04	7.4E-05	7.0E-05	2.2E-07	7.6E-05
6	Application	3.8E-05	9.7E-04	7.9E-04	5.5E-04	5.3E-04	1.2E-06	5.8E-04
	Baseline	3.5E-05	9.2E-04	7.6E-04	5.3E-04	5.0E-04	1.1E-06	5.5E-04
	Project	7.1E-06	1.4E-04	1.2E-04	7.9E-05	7.4E-05	2.4E-07	8.2E-05
7	Application	2.1E-05	5.3E-04	4.3E-04	3.0E-04	2.9E-04	6.7E-07	3.1E-04
	Baseline	2.0E-05	4.9E-04	4.0E-04	2.8E-04	2.7E-04	6.1E-07	2.9E-04
	Project	4.4E-06	8.4E-05	7.2E-05	4.9E-05	4.6E-05	1.5E-07	5.0E-05
8	Application	1.1E-05	2.2E-04	1.9E-04	1.3E-04	1.2E-04	3.5E-07	1.3E-04
	Baseline	6.4E-06	1.4E-04	1.2E-04	8.2E-05	7.8E-05	2.0E-07	8.5E-05
	Project	4.3E-06	8.3E-05	7.0E-05	4.8E-05	4.5E-05	1.5E-07	5.0E-05
9	Application	1.9E-05	3.5E-04	3.0E-04	2.0E-04	1.9E-04	6.3E-07	2.1E-04
	Baseline	3.7E-06	7.3E-05	6.2E-05	4.2E-05	4.0E-05	1.2E-07	4.4E-05
	Project	1.2E-05	2.4E-04	2.1E-04	1.4E-04	1.3E-04	4.2E-07	1.5E-04
10	Application	2.2E-05	4.0E-04	3.5E-04	2.3E-04	2.2E-04	7.4E-07	2.4E-04
	Baseline	2.0E-06	3.5E-05	3.1E-05	2.1E-05	1.9E-05	6.7E-08	2.1E-05
	Project	1.6E-05	3.1E-04	2.7E-04	1.8E-04	1.7E-04	5.3E-07	1.9E-04
11	Application	1.5E-05	2.6E-04	2.3E-04	1.5E-04	1.4E-04	4.9E-07	1.6E-04
	Baseline	1.6E-06	2.8E-05	2.5E-05	1.6E-05	1.5E-05	5.6E-08	1.7E-05
	Project	1.0E-05	2.0E-04	1.7E-04	1.2E-04	1.1E-04	3.5E-07	1.2E-04
12	Application	1.4E-05	2.7E-04	2.3E-04	1.5E-04	1.5E-04	4.8E-07	1.6E-04
	Baseline	2.5E-06	4.7E-05	4.0E-05	2.7E-05	2.6E-05	8.4E-08	2.8E-05
	Project	9.7E-06	1.9E-04	1.6E-04	1.1E-04	1.0E-04	3.2E-07	1.1E-04
13	Application	1.9E-05	3.5E-04	3.0E-04	2.0E-04	1.9E-04	6.3E-07	2.1E-04
	Baseline	2.2E-06	4.0E-05	3.5E-05	2.3E-05	2.2E-05	7.5E-08	2.4E-05
	Project	1.3E-05	2.6E-04	2.2E-04	1.5E-04	1.4E-04	4.5E-07	1.6E-04
14	Application	5.5E-05	1.4E-03	1.1E-03	7.9E-04	7.5E-04	1.7E-06	8.2E-04
	Baseline	4.8E-05	1.3E-03	1.0E-03	7.3E-04	7.0E-04	1.5E-06	7.6E-04
	Project	6.6E-06	1.0E-04	8.9E-05	5.9E-05	5.5E-05	2.3E-07	6.0E-05

Table F.31. Multimedia Model Results: Fluorene

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	1.0E-07	2.1E-06	1.7E-06	1.2E-06	1.1E-06	3.9E-08
	Baseline	1.0E-07	2.1E-06	1.7E-06	1.2E-06	1.1E-06	3.8E-08
	Project	3.4E-08	9.6E-07	8.6E-07	5.6E-07	5.2E-07	1.0E-08
FL	Application	6.6E-08	1.0E-06	7.8E-07	5.5E-07	5.5E-07	2.7E-08
	Baseline	5.3E-08	6.4E-07	4.4E-07	3.3E-07	3.4E-07	2.3E-08
	Project	1.7E-08	4.8E-07	4.3E-07	2.8E-07	2.6E-07	5.0E-09
1	Application	7.6E-08	1.3E-06	1.1E-06	7.5E-07	7.3E-07	3.0E-08
	Baseline	7.3E-08	1.3E-06	1.0E-06	6.9E-07	6.8E-07	2.9E-08
	Project	7.8E-09	2.2E-07	2.0E-07	1.3E-07	1.2E-07	2.4E-09
2	Application	5.4E-08	7.9E-07	6.0E-07	4.3E-07	4.3E-07	2.3E-08
	Baseline	4.6E-08	5.0E-07	3.3E-07	2.6E-07	2.7E-07	2.1E-08
	Project	9.4E-09	2.7E-07	2.4E-07	1.6E-07	1.5E-07	2.8E-09
3	Application	6.8E-08	1.1E-06	9.0E-07	6.3E-07	6.2E-07	2.7E-08
	Baseline	6.3E-08	9.6E-07	7.4E-07	5.3E-07	5.2E-07	2.6E-08
	Project	8.7E-09	2.5E-07	2.2E-07	1.5E-07	1.4E-07	2.6E-09
4	Application	4.9E-08	6.5E-07	4.8E-07	3.5E-07	3.5E-07	2.1E-08
	Baseline	4.6E-08	4.9E-07	3.1E-07	2.5E-07	2.6E-07	2.1E-08
	Project	6.4E-09	1.8E-07	1.6E-07	1.1E-07	9.9E-08	1.9E-09
5	Application	5.2E-08	7.3E-07	5.4E-07	3.9E-07	3.9E-07	2.2E-08
	Baseline	4.6E-08	5.0E-07	3.2E-07	2.5E-07	2.6E-07	2.1E-08
	Project	8.1E-09	2.3E-07	2.1E-07	1.3E-07	1.3E-07	2.4E-09
6	Application	8.8E-08	1.7E-06	1.4E-06	9.4E-07	9.1E-07	3.4E-08
	Baseline	8.7E-08	1.6E-06	1.3E-06	9.1E-07	8.7E-07	3.3E-08
	Project	8.6E-09	2.5E-07	2.2E-07	1.4E-07	1.3E-07	2.6E-09
7	Application	6.7E-08	1.1E-06	8.9E-07	6.2E-07	6.1E-07	2.7E-08
	Baseline	6.8E-08	1.1E-06	8.7E-07	6.1E-07	6.0E-07	2.8E-08
	Project	5.3E-09	1.5E-07	1.4E-07	8.8E-08	8.2E-08	1.6E-09
8	Application	5.3E-08	7.6E-07	5.7E-07	4.1E-07	4.1E-07	2.3E-08
	Baseline	5.2E-08	6.7E-07	4.8E-07	3.6E-07	3.6E-07	2.3E-08
	Project	5.3E-09	1.5E-07	1.3E-07	8.7E-08	8.1E-08	1.6E-09
9	Application	6.5E-08	1.1E-06	8.5E-07	5.9E-07	5.8E-07	2.6E-08
	Baseline	4.9E-08	5.9E-07	4.0E-07	3.1E-07	3.1E-07	2.2E-08
	Project	1.5E-08	4.3E-07	3.8E-07	2.5E-07	2.3E-07	4.5E-09
10	Application	7.0E-08	1.2E-06	9.5E-07	6.6E-07	6.5E-07	2.8E-08
	Baseline	4.7E-08	5.3E-07	3.5E-07	2.7E-07	2.8E-07	2.1E-08
	Project	1.9E-08	5.5E-07	4.9E-07	3.2E-07	3.0E-07	5.7E-09
11	Application	5.9E-08	9.2E-07	7.1E-07	5.0E-07	5.0E-07	2.5E-08
	Baseline	4.7E-08	5.1E-07	3.4E-07	2.6E-07	2.7E-07	2.1E-08
	Project	1.3E-08	3.6E-07	3.2E-07	2.1E-07	2.0E-07	3.8E-09
12	Application	5.9E-08	9.2E-07	7.1E-07	5.0E-07	4.9E-07	2.4E-08
	Baseline	4.8E-08	5.4E-07	3.7E-07	2.8E-07	2.9E-07	2.1E-08
	Project	1.2E-08	3.3E-07	3.0E-07	1.9E-07	1.8E-07	3.5E-09
13	Application	6.5E-08	1.1E-06	8.5E-07	6.0E-07	5.8E-07	2.7E-08
	Baseline	4.7E-08	5.3E-07	3.6E-07	2.8E-07	2.8E-07	2.1E-08
	Project	1.6E-08	4.6E-07	4.1E-07	2.7E-07	2.5E-07	4.9E-09
14	Application	1.1E-07	2.3E-06	1.9E-06	1.3E-06	1.2E-06	4.1E-08
	Baseline	1.0E-07	2.1E-06	1.7E-06	1.2E-06	1.1E-06	3.8E-08
	Project	8.4E-09	2.4E-07	2.2E-07	1.4E-07	1.3E-07	2.5E-09

Table F.33. Multimedia Model Results: Phenanthrene

Receptor	Case	ILCR Quotient						
		Infant	Toddler	Child	Teen	Adult	Worker	Composite
RSA-MPOI	Application	9.7E-06	2.5E-04	2.2E-04	1.4E-04	1.3E-04	1.5E-06	1.5E-04
	Baseline	9.4E-06	2.4E-04	2.1E-04	1.4E-04	1.3E-04	1.5E-06	1.4E-04
	Project	5.9E-06	1.5E-04	1.3E-04	8.6E-05	8.0E-05	9.2E-07	8.9E-05
FL	Application	3.1E-06	7.8E-05	7.0E-05	4.5E-05	4.2E-05	4.8E-07	4.7E-05
	Baseline	7.5E-07	1.9E-05	1.7E-05	1.1E-05	1.0E-05	1.2E-07	1.1E-05
	Project	2.9E-06	7.4E-05	6.6E-05	4.3E-05	4.0E-05	4.6E-07	4.4E-05
1	Application	5.5E-06	1.4E-04	1.2E-04	8.0E-05	7.5E-05	8.6E-07	8.3E-05
	Baseline	4.7E-06	1.2E-04	1.1E-04	6.9E-05	6.5E-05	7.4E-07	7.1E-05
	Project	1.4E-06	3.5E-05	3.1E-05	2.0E-05	1.9E-05	2.2E-07	2.1E-05
2	Application	2.3E-06	5.9E-05	5.3E-05	3.4E-05	3.2E-05	3.7E-07	3.5E-05
	Baseline	3.0E-07	7.5E-06	6.7E-06	4.4E-06	4.1E-06	4.7E-08	4.5E-06
	Project	1.6E-06	4.1E-05	3.7E-05	2.4E-05	2.2E-05	2.6E-07	2.5E-05
3	Application	4.3E-06	1.1E-04	9.8E-05	6.3E-05	5.9E-05	6.8E-07	6.5E-05
	Baseline	3.0E-06	7.6E-05	6.8E-05	4.4E-05	4.1E-05	4.7E-07	4.6E-05
	Project	1.5E-06	3.9E-05	3.4E-05	2.2E-05	2.1E-05	2.4E-07	2.3E-05
4	Application	1.6E-06	4.0E-05	3.6E-05	2.3E-05	2.1E-05	2.5E-07	2.4E-05
	Baseline	1.9E-07	4.9E-06	4.3E-06	2.8E-06	2.6E-06	3.0E-08	2.9E-06
	Project	1.1E-06	2.8E-05	2.5E-05	1.6E-05	1.5E-05	1.7E-07	1.7E-05
5	Application	2.0E-06	5.1E-05	4.5E-05	2.9E-05	2.7E-05	3.1E-07	3.0E-05
	Baseline	2.5E-07	6.2E-06	5.6E-06	3.6E-06	3.4E-06	3.9E-08	3.7E-06
	Project	1.4E-06	3.6E-05	3.2E-05	2.1E-05	1.9E-05	2.2E-07	2.1E-05
6	Application	7.3E-06	1.9E-04	1.7E-04	1.1E-04	1.0E-04	1.1E-06	1.1E-04
	Baseline	6.8E-06	1.7E-04	1.6E-04	1.0E-04	9.4E-05	1.1E-06	1.0E-04
	Project	1.5E-06	3.8E-05	3.4E-05	2.2E-05	2.1E-05	2.4E-07	2.3E-05
7	Application	4.2E-06	1.1E-04	9.6E-05	6.2E-05	5.8E-05	6.6E-07	6.4E-05
	Baseline	3.8E-06	9.8E-05	8.7E-05	5.7E-05	5.3E-05	6.0E-07	5.8E-05
	Project	9.2E-07	2.3E-05	2.1E-05	1.4E-05	1.3E-05	1.4E-07	1.4E-05
8	Application	2.2E-06	5.5E-05	5.0E-05	3.2E-05	3.0E-05	3.4E-07	3.3E-05
	Baseline	1.3E-06	3.3E-05	2.9E-05	1.9E-05	1.8E-05	2.0E-07	2.0E-05
	Project	9.1E-07	2.3E-05	2.1E-05	1.3E-05	1.3E-05	1.4E-07	1.4E-05
9	Application	4.0E-06	1.0E-04	9.0E-05	5.8E-05	5.4E-05	6.2E-07	6.0E-05
	Baseline	7.7E-07	2.0E-05	1.7E-05	1.1E-05	1.1E-05	1.2E-07	1.2E-05
	Project	2.6E-06	6.6E-05	5.9E-05	3.8E-05	3.6E-05	4.1E-07	4.0E-05
10	Application	4.6E-06	1.2E-04	1.0E-04	6.8E-05	6.3E-05	7.2E-07	7.0E-05
	Baseline	4.2E-07	1.1E-05	9.6E-06	6.2E-06	5.8E-06	6.7E-08	6.4E-06
	Project	3.3E-06	8.5E-05	7.6E-05	4.9E-05	4.6E-05	5.3E-07	5.1E-05
11	Application	3.1E-06	7.8E-05	7.0E-05	4.5E-05	4.2E-05	4.9E-07	4.7E-05
	Baseline	3.5E-07	8.9E-06	8.0E-06	5.2E-06	4.9E-06	5.6E-08	5.4E-06
	Project	2.2E-06	5.5E-05	5.0E-05	3.2E-05	3.0E-05	3.4E-07	3.3E-05
12	Application	3.0E-06	7.6E-05	6.8E-05	4.5E-05	4.1E-05	4.8E-07	4.6E-05
	Baseline	5.3E-07	1.3E-05	1.2E-05	7.8E-06	7.3E-06	8.3E-08	8.0E-06
	Project	2.0E-06	5.2E-05	4.6E-05	3.0E-05	2.8E-05	3.2E-07	3.1E-05
13	Application	4.0E-06	1.0E-04	9.0E-05	5.8E-05	5.4E-05	6.2E-07	6.0E-05
	Baseline	4.7E-07	1.2E-05	1.1E-05	6.9E-06	6.4E-06	7.4E-08	7.1E-06
	Project	2.8E-06	7.1E-05	6.4E-05	4.1E-05	3.8E-05	4.4E-07	4.3E-05
14	Application	1.1E-05	2.8E-04	2.5E-04	1.6E-04	1.5E-04	1.7E-06	1.7E-04
	Baseline	9.4E-06	2.4E-04	2.1E-04	1.4E-04	1.3E-04	1.5E-06	1.4E-04
	Project	1.5E-06	3.7E-05	3.3E-05	2.2E-05	2.0E-05	2.3E-07	2.2E-05

Table F.34. Multimedia Model Results: Pyrene

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	3.2E-07	2.5E-06	2.0E-06	1.4E-06	1.4E-06	3.5E-08
	Baseline	3.2E-07	2.5E-06	2.0E-06	1.4E-06	1.3E-06	3.4E-08
	Project	9.9E-08	9.1E-07	8.1E-07	5.3E-07	4.9E-07	2.7E-09
FL	Application	2.1E-07	1.4E-06	1.0E-06	7.7E-07	7.8E-07	3.2E-08
	Baseline	1.7E-07	1.1E-06	7.3E-07	5.6E-07	5.9E-07	3.0E-08
	Project	4.8E-08	4.4E-07	4.0E-07	2.6E-07	2.4E-07	1.3E-09
1	Application	2.3E-07	1.7E-06	1.3E-06	9.4E-07	9.4E-07	3.2E-08
	Baseline	2.3E-07	1.6E-06	1.2E-06	9.0E-07	9.0E-07	3.2E-08
	Project	2.3E-08	2.1E-07	1.9E-07	1.2E-07	1.1E-07	6.3E-10
2	Application	1.7E-07	1.1E-06	8.2E-07	6.2E-07	6.3E-07	3.0E-08
	Baseline	1.5E-07	9.1E-07	6.0E-07	4.8E-07	5.0E-07	3.0E-08
	Project	2.7E-08	2.5E-07	2.3E-07	1.5E-07	1.4E-07	7.5E-10
3	Application	2.1E-07	1.5E-06	1.1E-06	8.2E-07	8.2E-07	3.1E-08
	Baseline	2.0E-07	1.4E-06	1.0E-06	7.4E-07	7.4E-07	3.1E-08
	Project	2.5E-08	2.4E-07	2.1E-07	1.4E-07	1.3E-07	7.0E-10
4	Application	1.6E-07	1.0E-06	7.1E-07	5.4E-07	5.6E-07	2.9E-08
	Baseline	1.5E-07	8.9E-07	5.9E-07	4.7E-07	4.9E-07	3.0E-08
	Project	1.9E-08	1.7E-07	1.5E-07	9.9E-08	9.2E-08	5.1E-10
5	Application	1.6E-07	1.1E-06	7.8E-07	5.8E-07	6.0E-07	3.0E-08
	Baseline	1.5E-07	9.0E-07	5.9E-07	4.7E-07	5.0E-07	3.0E-08
	Project	2.4E-08	2.2E-07	1.9E-07	1.3E-07	1.2E-07	6.5E-10
6	Application	2.7E-07	2.1E-06	1.6E-06	1.1E-06	1.1E-06	3.3E-08
	Baseline	2.7E-07	2.0E-06	1.6E-06	1.1E-06	1.1E-06	3.3E-08
	Project	2.5E-08	2.3E-07	2.1E-07	1.3E-07	1.3E-07	6.9E-10
7	Application	2.1E-07	1.5E-06	1.1E-06	8.1E-07	8.2E-07	3.1E-08
	Baseline	2.1E-07	1.5E-06	1.1E-06	8.2E-07	8.2E-07	3.2E-08
	Project	1.5E-08	1.4E-07	1.3E-07	8.3E-08	7.7E-08	4.2E-10
8	Application	1.7E-07	1.1E-06	8.1E-07	6.1E-07	6.2E-07	3.0E-08
	Baseline	1.7E-07	1.1E-06	7.5E-07	5.7E-07	5.9E-07	3.0E-08
	Project	1.5E-08	1.4E-07	1.3E-07	8.2E-08	7.6E-08	4.2E-10
9	Application	2.0E-07	1.4E-06	1.1E-06	7.8E-07	7.8E-07	3.1E-08
	Baseline	1.6E-07	9.9E-07	6.7E-07	5.2E-07	5.4E-07	3.0E-08
	Project	4.4E-08	4.0E-07	3.6E-07	2.3E-07	2.2E-07	1.2E-09
10	Application	2.2E-07	1.5E-06	1.2E-06	8.5E-07	8.5E-07	3.1E-08
	Baseline	1.5E-07	9.2E-07	6.2E-07	4.9E-07	5.1E-07	3.0E-08
	Project	5.6E-08	5.2E-07	4.6E-07	3.0E-07	2.8E-07	1.5E-09
11	Application	1.9E-07	1.3E-06	9.4E-07	6.9E-07	7.0E-07	3.0E-08
	Baseline	1.5E-07	9.2E-07	6.1E-07	4.8E-07	5.1E-07	3.0E-08
	Project	3.7E-08	3.4E-07	3.0E-07	2.0E-07	1.8E-07	1.0E-09
12	Application	1.9E-07	1.3E-06	9.4E-07	6.9E-07	7.0E-07	3.0E-08
	Baseline	1.5E-07	9.4E-07	6.3E-07	5.0E-07	5.2E-07	3.0E-08
	Project	3.4E-08	3.2E-07	2.8E-07	1.8E-07	1.7E-07	9.4E-10
13	Application	2.0E-07	1.4E-06	1.1E-06	7.8E-07	7.8E-07	3.1E-08
	Baseline	1.5E-07	9.3E-07	6.3E-07	4.9E-07	5.2E-07	3.0E-08
	Project	4.7E-08	4.3E-07	3.9E-07	2.5E-07	2.3E-07	1.3E-09
14	Application	3.4E-07	2.7E-06	2.1E-06	1.5E-06	1.5E-06	3.5E-08
	Baseline	3.2E-07	2.4E-06	1.9E-06	1.4E-06	1.3E-06	3.4E-08
	Project	2.4E-08	2.2E-07	2.0E-07	1.3E-07	1.2E-07	6.8E-10

Table F.35. Multimedia Model Results: Formaldehyde

Receptor	Case	Hazard Quotient					
		Infant	Toddler	Child	Teen	Adult	Worker
RSA-MPOI	Application	1.5E-07	2.2E-07	1.6E-07	1.1E-07	1.3E-07	8.2E-08
	Baseline	1.5E-07	2.2E-07	1.6E-07	1.1E-07	1.2E-07	8.1E-08
	Project	9.1E-08	1.3E-07	9.8E-08	6.6E-08	7.5E-08	5.0E-08
FL	Application	4.8E-08	6.9E-08	5.1E-08	3.4E-08	3.9E-08	2.6E-08
	Baseline	1.2E-08	1.7E-08	1.3E-08	8.6E-09	9.7E-09	6.5E-09
	Project	4.5E-08	6.5E-08	4.9E-08	3.3E-08	3.7E-08	2.5E-08
1	Application	8.4E-08	1.2E-07	9.2E-08	6.2E-08	7.0E-08	4.7E-08
	Baseline	7.2E-08	1.1E-07	7.9E-08	5.3E-08	6.0E-08	4.0E-08
	Project	2.1E-08	3.1E-08	2.3E-08	1.5E-08	1.7E-08	1.2E-08
2	Application	3.6E-08	5.3E-08	3.9E-08	2.6E-08	3.0E-08	2.0E-08
	Baseline	4.6E-09	6.7E-09	5.0E-09	3.3E-09	3.8E-09	2.5E-09
	Project	2.5E-08	3.7E-08	2.7E-08	1.8E-08	2.1E-08	1.4E-08
3	Application	6.6E-08	9.8E-08	7.3E-08	4.9E-08	5.5E-08	3.7E-08
	Baseline	4.6E-08	6.8E-08	5.0E-08	3.4E-08	3.8E-08	2.6E-08
	Project	2.3E-08	3.4E-08	2.5E-08	1.7E-08	1.9E-08	1.3E-08
4	Application	2.4E-08	3.6E-08	2.6E-08	1.8E-08	2.0E-08	1.3E-08
	Baseline	3.0E-09	4.3E-09	3.2E-09	2.2E-09	2.4E-09	1.6E-09
	Project	1.7E-08	2.5E-08	1.9E-08	1.2E-08	1.4E-08	9.4E-09
5	Application	3.1E-08	4.5E-08	3.3E-08	2.3E-08	2.6E-08	1.7E-08
	Baseline	3.8E-09	5.5E-09	4.1E-09	2.8E-09	3.1E-09	2.1E-09
	Project	2.2E-08	3.2E-08	2.4E-08	1.6E-08	1.8E-08	1.2E-08
6	Application	1.1E-07	1.7E-07	1.2E-07	8.4E-08	9.5E-08	6.3E-08
	Baseline	1.1E-07	1.6E-07	1.2E-07	7.8E-08	8.8E-08	5.8E-08
	Project	2.3E-08	3.4E-08	2.5E-08	1.7E-08	1.9E-08	1.3E-08
7	Application	6.5E-08	9.6E-08	7.1E-08	4.8E-08	5.4E-08	3.6E-08
	Baseline	5.9E-08	8.8E-08	6.5E-08	4.4E-08	4.9E-08	3.3E-08
	Project	1.4E-08	2.1E-08	1.5E-08	1.0E-08	1.2E-08	7.9E-09
8	Application	3.4E-08	5.0E-08	3.7E-08	2.5E-08	2.8E-08	1.9E-08
	Baseline	2.0E-08	2.9E-08	2.2E-08	1.5E-08	1.6E-08	1.1E-08
	Project	1.4E-08	2.1E-08	1.5E-08	1.0E-08	1.2E-08	7.8E-09
9	Application	6.1E-08	9.0E-08	6.6E-08	4.5E-08	5.1E-08	3.4E-08
	Baseline	1.2E-08	1.8E-08	1.3E-08	8.7E-09	9.9E-09	6.6E-09
	Project	4.0E-08	5.9E-08	4.4E-08	2.9E-08	3.3E-08	2.2E-08
10	Application	7.2E-08	1.0E-07	7.8E-08	5.2E-08	5.9E-08	3.9E-08
	Baseline	6.5E-09	9.6E-09	7.1E-09	4.8E-09	5.4E-09	3.6E-09
	Project	5.1E-08	7.5E-08	5.6E-08	3.8E-08	4.2E-08	2.8E-08
11	Application	4.8E-08	7.0E-08	5.2E-08	3.5E-08	3.9E-08	2.6E-08
	Baseline	5.5E-09	8.0E-09	5.9E-09	4.0E-09	4.5E-09	3.0E-09
	Project	3.4E-08	4.9E-08	3.7E-08	2.5E-08	2.8E-08	1.9E-08
12	Application	4.7E-08	6.8E-08	5.1E-08	3.4E-08	3.9E-08	2.6E-08
	Baseline	8.2E-09	1.2E-08	8.9E-09	6.0E-09	6.7E-09	4.5E-09
	Project	3.1E-08	4.6E-08	3.4E-08	2.3E-08	2.6E-08	1.7E-08
13	Application	6.1E-08	9.0E-08	6.6E-08	4.5E-08	5.1E-08	3.4E-08
	Baseline	7.2E-09	1.1E-08	7.8E-09	5.3E-09	5.9E-09	4.0E-09
	Project	4.3E-08	6.4E-08	4.7E-08	3.2E-08	3.6E-08	2.4E-08
14	Application	1.7E-07	2.5E-07	1.8E-07	1.2E-07	1.4E-07	9.3E-08
	Baseline	1.4E-07	2.1E-07	1.6E-07	1.1E-07	1.2E-07	8.0E-08
	Project	2.3E-08	3.3E-08	2.4E-08	1.6E-08	1.9E-08	1.3E-08

APPENDIX G: BASELINE MONITORING PROGRAM

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1.0 INTRODUCTION

As part of the human health risk assessment, vegetation and soil samples were collected for chemical analyses. The baseline chemical concentrations of COPCs found in saskatoon berries, bearberry, and mineral soil collected throughout the LSA are summarized in Tables 3.0-1 to 3.0-3. Complete lab data are provided in Appendix G-1.

2.0 METHODS

Plant tissue and soil samples were collected across the Project area to determine baseline conditions of chemicals of potential concern (COPCs). This baseline data were used to assess existing conditions and risks as well as to model and assess potential risks to health and ecological systems that could result from Project activities.

Sampling for vegetation and soils was conducted on two occasions: July 22 - 31, 2014 and September 5 - 9, 2014. Sampling was undertaken in conjunction with the vegetation baseline monitoring program, in plots where suitable vegetation and soils could be found for the purpose of human health sampling. Vegetation samples were to be collected from plant species indigenous to the project area and collected from parts of the plant that are typically consumed by humans, such as berries, leaves, or edible roots. The vegetation typically collected for these purposes (willow, alder, and/or Labrador tea leaves) were not present in the Project area in densities high enough to sample. Bearberry (*Arctostaphylos uva-ursi*), which is frequently used by local First Nation's people in ceremonies and in the making of tobacco, was therefore collected instead. Berries were harvested from saskatoon (*Amelanchier alnifolia*). Mineral soils are preferred to Organic wetland soils for baseline human health assessments and therefore only mineral soil was collected.

Saskatoon berries and bearberry leaves were collected from 13 and 12 locations across the Project area, respectively. For each species, enough vegetation was collected to fill two 125 mL jars to ensure sufficient amounts of sample were available for chemical analyses. In total, 21 soil samples were collected, taken from the same location where the vegetation samples were collected. Mineral soil samples were collected from the top 15 cm of the soil profile, close to the rooting zone of the sampled vegetation. Enough soil was collected to fill one 125 mL jar and approximately 1/3 of a lab-provided soil sample bag (23 cm x 24.5 cm), to ensure sufficient of soil were collected for testing. Sampling locations are presented in Figure G-1.

3.0 RESULTS

The baseline chemical concentrations of COPCs found in saskatoon berries, bearberry, and mineral soil collected throughout the LSA are summarized in Tables 3.0-1 to 3.0-3. Complete lab data are provided in Appendix G-1.

Table 3.0-1 Baseline Chemistry Results for Saskatoon Berry Samples

COPC	Units	Detection Limit	Concentration [1]		
			Mean	Maximum	95th Percentile
Aluminum	µg/g	1	35.3	62.9	54.9
Antimony	µg/g	0.5	<0.5	<0.5	<0.5
Arsenic	µg/g	0.2	0.31	0.45	0.42
Barium	µg/g	0.03	379.9	634	570.4
Beryllium	µg/g	0.01	<0.01	<0.01	<0.01
Bismuth	µg/g	0.5	1.03	2.3	1.94
Boron	µg/g	0.5	25.73	33.3	32.94
Cadmium	µg/g	0.05	0.83	3.29	2.58
Chromium	µg/g	0.04	0.17	0.37	0.36
Cobalt	µg/g	0.05	0.15	0.22	0.21
Copper	µg/g	0.05	5.52	7.14	6.84
Iron	µg/g	1	87.1	123	120.6
Lead	µg/g	0.3	0.59	0.59	0.59
Lithium	µg/g	0.1	0.41	0.62	0.62
Magnesium	µg/g	1	3,777.7	5,560	5,350
Manganese	µg/g	0.3	435.1	1,330	1,222
Mercury	µg/g	0.003	0.01	0.011	0.010
Molybdenum	µg/g	0.05	0.60	2.23	2.05
Nickel	µg/g	0.1	1.49	5.3	3.72
Phosphorus	µg/g	1	6,483.9	13,200	11,340
Potassium	µg/g	5	16,563.9	27,700	25,000
Selenium	µg/g	0.3	1.69	3.58	2.87
Silicon	µg/g	1	154.7	270	266.4
Silver	µg/g	0.2	2.88	12.3	9.38
Sodium	µg/g	1	21.8	51.2	44
Strontium	µg/g	0.02	51.5	141	109.7
Sulfur	µg/g	1	1,206.2	1,830	1,668

Table 3.0-1 Baseline Chemistry Results for Saskatoon Berry Samples

COPC	Units	Detection Limit	Concentration [1]		
			Mean	Maximum	95th Percentile
Thallium	µg/g	0.3	0.31	0.31	0.31
Tin	µg/g	0.2	0.27	0.3	0.30
Titanium	µg/g	0.05	2.81	4.17	3.92
Vanadium	µg/g	0.1	13.09	20.1	19.56
Zinc	µg/g	0.1	71.9	116	112.4
Zirconium	µg/g	0.05	0.09	0.12	0.12
Naphthalene	µg/g	1	2.80	13.7	7.56
Acenaphthylene	µg/g	0.24	0.42	0.75	0.69
Acenaphthene	µg/g	0.15	0.47	1.06	1.05
Fluorene	µg/g	0.16	1.05	4.02	2.33
Phenanthrene	µg/g	0.2	8.31	51.5	26.28
Anthracene	µg/g	0.24	0.75	1.10	1.07
Fluoranthene	µg/g	0.2	0.98	4.19	2.55
Pyrene	µg/g	0.16	0.97	4.33	2.86
Benz(a)anthracene	µg/g	0.36	1.55	2.40	2.32
Chrysene	µg/g	0.2	1.90	12.40	8.16
Benzo(b+j)fluoranthene	µg/g	0.3	2.49	22.5	11.03
Benzo(k)fluoranthene	µg/g	0.2	0.25	0.25	0.25
Benzo(a)pyrene	µg/g	0.3	0.99	1.85	1.74
Indeno(1,2,3-cd)pyrene	µg/g	0.5	1.11	1.11	1.11
Dibenz(a,h)anthracene	µg/g	0.4	1.06	1.52	1.47
Benzo(ghi)perylene	µg/g	0.4	1.60	3.60	3.30

[1] sample size = 13

Table 3.1-2 Baseline Chemistry Results for Bearberry Leaf Samples

COPC	Units	Detection Limit	Concentration [1]		
			Mean	Maximum	95th Percentile
Aluminum	µg/g	1	112.0	410	358.9
Antimony	µg/g	0.5	0.61	0.71	0.70
Arsenic	µg/g	0.2	0.31	0.35	0.35
Barium	µg/g	0.03	100.8	173	160.4
Beryllium	µg/g	0.01	<0.01	<0.01	<0.01
Bismuth	µg/g	0.5	1.45	1.96	1.91
Boron	µg/g	0.5	10.29	14.7	14.26
Cadmium	µg/g	0.05	0.08	0.09	0.09
Chromium	µg/g	0.04	0.51	2.53	1.76
Cobalt	µg/g	0.05	0.15	0.5	0.39
Copper	µg/g	0.05	4.08	5.45	5.23
Iron	µg/g	1	196.10	791	630.95
Lead	µg/g	0.3	<0.3	<0.3	<0.3
Lithium	µg/g	0.1	0.20	0.43	0.35
Magnesium	µg/g	1	1,346.4	1,780	1,725
Manganese	µg/g	0.3	42.45	138	129.2
Mercury	µg/g	0.003	0.00	0.007	0.006
Molybdenum	µg/g	0.05	0.09	0.10	0.10
Nickel	µg/g	0.1	1.63	3.03	2.92
Phosphorus	µg/g	1	1,376.7	1,980	1,848
Potassium	µg/g	5	6,399.2	10,100	9,209
Selenium	µg/g	0.3	1.08	2.54	2.34
Silicon	µg/g	1	120.1	202	201.5
Silver	µg/g	0.2	2.59	9.82	7.69
Sodium	µg/g	1	21.7	108	63.0
Strontium	µg/g	0.02	20.3	54	39.27

Table 3.1-2 Baseline Chemistry Results for Bearberry Leaf Samples

COPC	Units	Detection Limit	Concentration [1]		
			Mean	Maximum	95th Percentile
Sulfur	µg/g	1	837.6	1,070	1,029.9
Thallium	µg/g	0.3	<0.3	<0.3	<0.3
Tin	µg/g	0.2	0.25	0.29	0.28
Titanium	µg/g	0.05	3.94	9.81	8.69
Vanadium	µg/g	0.1	4.89	6.47	6.26
Zinc	µg/g	0.1	47.52	90.8	76.39
Zirconium	µg/g	0.05	0.20	0.52	0.50
Naphthalene	µg/g	1	2.75	4.49	3.74
Acenaphthylene	µg/g	0.24	0.34	0.41	0.40
Acenaphthene	µg/g	0.15	0.31	0.64	0.56
Fluorene	µg/g	0.16	0.75	1.42	1.18
Phenanthrene	µg/g	0.2	5.20	11.31	8.70
Anthracene	µg/g	0.24	0.62	1.2	1.12
Fluoranthene	µg/g	0.2	0.64	1.26	1.12
Pyrene	µg/g	0.16	0.60	0.90	0.89
Benz(a)anthracene	µg/g	0.36	<0.36	<0.36	<0.36
Chrysene	µg/g	0.2	0.66	2.45	1.79
Benzo(b+j)fluoranthene	µg/g	0.3	1.06	3.18	2.31
Benzo(k)fluoranthene	µg/g	0.2	0.39	0.39	0.39
Benzo(a)pyrene	µg/g	0.3	<0.3	<0.3	<0.3
Indeno(1,2,3-cd)pyrene	µg/g	0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	µg/g	0.4	<0.4	<0.4	<0.4
Benzo(ghi)perylene	µg/g	0.4	0.63	0.75	0.74

[1] sample size = 13

Table 3.1-3 Baseline Chemistry Results for Soil Samples

COPC	Units	Detection Limit	Concentration [1, 2]		
			Mean	Maximum	95th Percentile
Mercury	mg/kg	0.01	0.04	0.1	0.09
Aluminum	mg/kg	20	10,327.14	19,300	18,300
Antimony	mg/kg	0.2	<0.2	<0.2	<0.2
Arsenic	mg/kg	0.2	4.18	11.6	7.3
Barium	mg/kg	1	256.3	417	387
Beryllium	mg/kg	0.1	0.65	1.1	0.9
Bismuth	mg/kg	0.5	0.54	0.7	0.66
Cadmium	mg/kg	0.01	0.76	2.04	1.73
Chromium	mg/kg	0.5	14.9	38	32.2
Calcium	mg/kg	200	6,547.6	57,900	11,700
Cobalt	mg/kg	0.1	8.4	17.5	13.8
Copper	mg/kg	1	19.1	49.8	34.3
Iron	mg/kg	100	18,281.0	36,300	33,200
Lead	mg/kg	5	12.46	17.2	16.1
Magnesium	mg/kg	100	3,004.8	9,900	8,100
Manganese	mg/kg	10	555.4	1,380	1,250
Molybdenum	mg/kg	1	1.28	1.4	1.39
Nickel	mg/kg	0.5	20.12	37.6	31.2
Phosphorus	mg/kg	30	601.7	1,310	850
Selenium	mg/kg	0.3	0.50	0.9	0.83
Silicon	mg/kg	50	671.0	910	830
Silver	mg/kg	0.1	0.24	0.6	0.48
Strontium	mg/kg	1	26.3	68	58
Thallium	mg/kg	0.05	0.14	0.22	0.18
Tin	mg/kg	1	1.41	1.9	1.9
Titanium	mg/kg	0.5	300.1	1,180	724

Table 3.1-3 Baseline Chemistry Results for Soil Samples

COPC	Units	Detection Limit	Concentration [1, 2]		
			Mean	Maximum	95th Percentile
Vanadium	mg/kg	0.1	35.07	69.5	64.8
Zinc	mg/kg	1	86.1	149	144
Naphthalene	mg/kg	0.01	0.80	3.26	3.18
Acenaphthylene	mg/kg	0.05	<0.05	<0.05	<0.05
Acenaphthene	mg/kg	0.05	<0.05	<0.05	<0.05
Fluorene	mg/kg	0.05	0.24	0.58	0.53
Phenanthrene	mg/kg	0.01	1.60	8.01	7.30
Anthracene	mg/kg	0.003	0.02	0.02	0.02
Fluoranthene	mg/kg	0.01	0.30	0.41	0.40
Pyrene	mg/kg	0.01	0.41	0.55	0.55
Benzo(a)anthracene	mg/kg	0.01	0.23	0.3	0.3
Chrysene	mg/kg	0.05	1.12	2.11	2.10
Benzo(b+j)fluoranthene	mg/kg	0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	mg/kg	0.05	0.11	0.17	0.16
Benzo(a)pyrene	mg/kg	0.05	0.13	0.2	0.20
Indeno(1,2,3-c,d)pyrene	mg/kg	0.05	0.06	0.09	0.09
Dibenzo(a,h)anthracene	mg/kg	0.05	0.08	0.09	0.09
Benzo(g,h,i)perylene	mg/kg	0.05	0.14	0.19	0.19
IACR_Coarse	Index of Additive Cancer Risk	0.001	<0.001	<0.001	<0.001
IACR_Fine	Index of Additive Cancer Risk	0.001	<0.001	<0.001	<0.001
Nitrobenzene-d5	%	23-130	100.5	119	118.5
2-Fluorobiphenyl	%	30-130	88.9	101	98
p-Terphenyl-d14	%	18-137	91.3	128	122
Moisture	%	0.1	17.25	22.8	22.45
Benzo(b)fluoranthene	ug/g	0.03	0.74	1.16	1.16

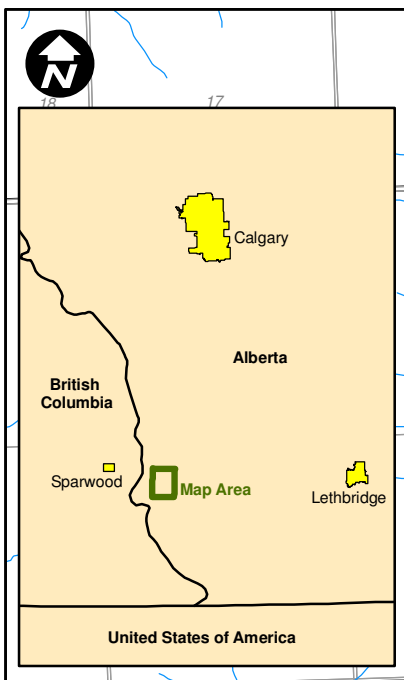
Table 3.1-3 Baseline Chemistry Results for Soil Samples

COPC	Units	Detection Limit	Concentration [1, 2]		
			Mean	Maximum	95th Percentile
2-Methylnaphthalene	ug/g	0.03	1.21	5.16	5.03
Naphthalene-D8 (surr)	%	50-130	94.47	103	102.3
Quinoline-d7	%	50-130	89.67	120	119.3

[1] sample size = 21

[2] depth of samples: 0-15 cm

FIGURES



Rg 4
Rg 3 W5M
Tp 9
Tp 8
Tp 7
Forestry Trunk Road
Daisy Creek
Caudron Creek
Nez Percé Creek
Blairmore Creek
Mom Creek
Gold Creek
Green Creek
Pelletier Creek
McGillivray Creek
Crowsnest River
York Creek
North York Creek
Coleman
Blairmore
Frank
40
3

LEGEND

- Human Health Sample Location
- Primary Highway
- Secondary Highway
- Existing Trails
- Existing Railway
- Road Access
- CHPP Facilities
- Existing Powerline
- Overland Conveyor
- Proposed Pipeline
- Proposed Powerline
- Railway Loop
- Mine Permit Boundary
- Coal Handling Processing Plant and Infrastructure
- Ultimate Pit Extent
- Ultimate Dump Extent
- Topsoil Storage
- Construction Camp
- Ponds and Ditches
- Undisturbed Area

Land Ownership

- Crown
- Crown (MLL Held By Riversdale)
- Private (Riversdale)
- Private (Other)
- MD of Crowsnest Pass
- Crown (ROE Held By Devon)

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

MILLENNIUM EMS Solutions Ltd.

TITLE

HUMAN HEALTH SAMPLE LOCATIONS

NOTES

AltaLIS, 2015; Golder, 2015; NRCAN, 2015; Riversdale, 2015
Datum/Projection: UTM NAD 83 Zone 11

PROJECT: 14-00201-01
DRAWN BY: SL/JDC
CHECKED BY: DT
DATE: OCTOBER 06, 2015

0 1 2 4
Kilometres

FIGURE

G.1

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201\MXD\Final Figures\Veg\Fig G.1 - Human Health Sample Locations.mxd

APPENDIX G-1: VEGETATION AND SOIL SAMPLING LAB RESULTS

Sample ID			RP-5BE	GM051BE	GM148BE	GM107BE	GM302BE
Medium			Vegetation				
Northing[1]			5504575	5505278	5509896	5503424	5504032
Easting[1]			685311	686808	684804	681979	684221
# of Samples					1		
Type of Vegetation Sampled			Saskatoon Berries	Bearberry leaves	Bearberry leaves	Saskatoon berries	Bearberry leaves
Chemical Analysed	Detection Limit	Units	Chemical Concentration				
Aluminum	1	µg/g	10.1	75.9	317	36.8	49.5
Antimony	0.5	µg/g	ND	ND	ND	ND	ND
Arsenic	0.2	µg/g	ND	0.26	ND	0.28	ND
Barium	0.03	µg/g	259	81.5	150	169	121
Beryllium	0.01	µg/g	ND	ND	ND	ND	ND
Bismuth	0.5	µg/g	ND	ND	ND	ND	ND
Boron	0.5	µg/g	24.4	13.9	7.38	18	9.18
Cadmium	0.05	µg/g	0.9	0.09	ND	ND	ND
Chromium	0.04	µg/g	ND	ND	0.98	0.06	0.05
Cobalt	0.05	µg/g	ND	ND	ND	ND	ND
Copper	0.05	µg/g	4.7	5.45	2.81	5.09	5.05
Iron	1	µg/g	52.7	121	500	93.3	241
Lead	0.3	µg/g	ND	ND	ND	ND	ND
Lithium	0.1	µg/g	ND	ND	0.1	0.12	ND
Magnesium	1	µg/g	2220	1520	1390	4090	1780
Manganese	0.3	µg/g	85.8	138	25.6	200	122
Mercury	0.003	µg/g	0.004	0.004	0.007	0.007	0.005
Molybdenum	0.05	µg/g	0.21	ND	ND	0.47	ND
Nickel	0.1	µg/g	0.74	2.83	1.16	0.25	1.45
Phosphorus	1	µg/g	2610	1740	1100	3760	1980
Potassium	5	µg/g	13300	8480	4980	12500	10100
Selenium	0.3	µg/g	ND	ND	ND	ND	0.51
Silicon	1	µg/g	50.2	131	201	226	114
Silver	0.2	µg/g	ND	ND	ND	ND	ND
Sodium	1	µg/g	8.3	15.1	15.3	11.3	108
Strontium	0.02	µg/g	16.7	14.5	54	25.7	22.6
Sulfur	1	µg/g	1300	1070	667	1540	927
Thallium	0.3	µg/g	ND	ND	ND	ND	ND
Tin	0.2	µg/g	ND	ND	ND	ND	0.25
Titanium	0.05	µg/g	1.27	2.86	9.81	2.22	2.47
Vanadium	0.1	µg/g	5.47	3.87	4.2	10.1	4.41
Zinc	0.1	µg/g	62.3	64.6	45.9	33.4	64
Zirconium	0.05	µg/g	ND	ND	0.06	ND	ND
Naphthalene	1	µg/kg	1.3	2.9	1.7	ND	ND
Naphthalene (duplicate)	1	µg/kg	-	-	-	-	-
Acenaphthylene	0.24	µg/kg	ND	0.27	ND	ND	ND
Acenaphthylene (duplicate)	0.24	µg/kg	-	-	-	-	-
Acenaphthene	0.15	µg/kg	0.17	ND	ND	ND	0.64
Acenaphthene (duplicate)	0.15	µg/kg	-	-	-	-	-
Fluorene	0.16	µg/kg	0.51	0.96	0.28	0.76	0.70
Fluorene (duplicate)	0.16	µg/kg	-	-	-	-	-
Phenanthrene	0.2	µg/kg	2.9	6.5	2.0	3.1	1.4
Phenanthrene (duplicate)	0.2	µg/kg	-	-	-	-	-
Anthracene	0.24	µg/kg	0.40	1.2	0.27	ND	0.38
Anthracene (duplicate)	0.24	µg/kg	-	-	-	-	-
Fluoranthene	0.2	µg/kg	0.61	0.72	0.21	0.35	ND
Fluoranthene (duplicate)	0.2	µg/kg	-	-	-	-	-
Pyrene	0.16	µg/kg	0.38	0.49	0.29	0.69	ND
Pyrene (duplicate)	0.16	µg/kg	-	-	-	-	-
Benz(a)anthracene	0.36	µg/kg	ND	ND	ND	ND	ND
Benz(a)anthracene (duplicate)	0.36	µg/kg	-	-	-	-	-
Chrysene	0.2	µg/kg	0.20	0.48	ND	0.31	ND
Chrysene (duplicate)	0.2	µg/kg	-	-	-	-	-
Benzo(b+j)fluoranthene	0.3	µg/kg	0.41	1.6	ND	ND	ND
Benzo(b+j)fluoranthene (duplicate)	0.3	µg/kg	-	-	-	-	-
Benzo(k)fluoranthene	0.2	µg/kg	0.25	ND	ND	ND	ND
Benzo(k)fluoranthene (duplicate)	0.2	µg/kg	-	-	-	-	-
Benzo(a)pyrene	0.3	µg/kg	0.33	ND	ND	ND	ND
Benzo(a)pyrene (duplicate)	0.3	µg/kg					
Indeno(1,2,3-cd)pyrene	0.5	µg/kg	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene (duplicate)	0.5	µg/kg					
Dibenz(a,h)anthracene	0.4	µg/kg	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene (duplicate)	0.4	µg/kg	-	-	-	-	-
Benzo(ghi)perylene	0.4	µg/kg	ND	ND	ND	ND	ND
Benzo(ghi)perylene (duplicate)	0.4	µg/kg	-	-	-	-	-

MILLENNIUM
EMS Solutions Ltd.

Sample ID			Sample ID			GM308BE	GM515BL	GM515BL	GM516BL	GM517BL
Medium			Medium			Vegetation				
Northing[1]			Northing[1]			5505385	5500931	5500931	5501748	5502784
Easting[1]			Easting[1]			684389	683160	683160	683474	683910
# of Samples			# of Samples					1		
Type of Vegetation Sampled			Type of Vegetation Sampled			Saskatoon berries	Saskatoon berries	Bearberry leaves	Saskatoon berries	Saskatoon berries
Chemical Analysed	Detection Limit	Units	Chemical Analysed	Detection Limit	Units	Chemical Concentration				
Aluminum	1	µg/g	Aluminum	1	µg/g	7.79	62.9	72.6	44.6	39.4
Antimony	0.5	µg/g	Antimony	0.5	µg/g	ND	ND	0.71	ND	ND
Arsenic	0.2	µg/g	Arsenic	0.2	µg/g	ND	ND	ND	0.3	ND
Barium	0.03	µg/g	Barium	0.03	µg/g	191	442	102	528	360
Beryllium	0.01	µg/g	Beryllium	0.01	µg/g	ND	ND	ND	ND	ND
Bismuth	0.5	µg/g	Bismuth	0.5	µg/g	ND	0.59	1.96	0.53	0.95
Boron	0.5	µg/g	Boron	0.5	µg/g	16.4	32.1	12.7	32.7	31.9
Cadmium	0.05	µg/g	Cadmium	0.05	µg/g	0.42	0.11	ND	0.23	0.22
Chromium	0.04	µg/g	Chromium	0.04	µg/g	ND	0.37	0.21	ND	0.05
Cobalt	0.05	µg/g	Cobalt	0.05	µg/g	ND	ND	0.12	0.14	ND
Copper	0.05	µg/g	Copper	0.05	µg/g	7.14	5.87	4.5	6.64	6.44
Iron	1	µg/g	Iron	1	µg/g	67.5	123	105	119	103
Lead	0.3	µg/g	Lead	0.3	µg/g	ND	ND	ND	ND	ND
Lithium	0.1	µg/g	Lithium	0.1	µg/g	ND	0.39	0.26	0.61	0.5
Magnesium	1	µg/g	Magnesium	1	µg/g	3520	4290	1230	5210	3410
Manganese	0.3	µg/g	Manganese	0.3	µg/g	1330	496	23.8	784	436
Mercury	0.003	µg/g	Mercury	0.003	µg/g	0.003	0.008	0.005	0.009	0.009
Molybdenum	0.05	µg/g	Molybdenum	0.05	µg/g	0.21	0.23	ND	0.13	0.46
Nickel	0.1	µg/g	Nickel	0.1	µg/g	1.89	0.99	2.05	1.3	1.47
Phosphorus	1	µg/g	Phosphorus	1	µg/g	4670	6880	1680	7740	8770
Potassium	5	µg/g	Potassium	5	µg/g	27700	20700	7320	14500	14500
Selenium	0.3	µg/g	Selenium	0.3	µg/g	1.13	1.1	2.54	3.58	1.89
Silicon	1	µg/g	Silicon	1	µg/g	127	270	134	264	180
Silver	0.2	µg/g	Silver	0.2	µg/g	ND	12.3	9.82	5	3.37
Sodium	1	µg/g	Sodium	1	µg/g	6.02	39.2	12.1	32.7	25.1
Strontium	0.02	µg/g	Strontium	0.02	µg/g	45.8	38	11.5	40.7	39.4
Sulfur	1	µg/g	Sulfur	1	µg/g	1560	1830	997	1130	1100
Thallium	0.3	µg/g	Thallium	0.3	µg/g	ND	ND	ND	ND	ND
Tin	0.2	µg/g	Tin	0.2	µg/g	ND	ND	ND	ND	0.27
Titanium	0.05	µg/g	Titanium	0.05	µg/g	1.1	4.17	3.79	3.3	3.75
Vanadium	0.1	µg/g	Vanadium	0.1	µg/g	8.5	16.1	4.83	19.2	13.1
Zinc	0.1	µg/g	Zinc	0.1	µg/g	110	84	39.6	52.4	87.2
Zirconium	0.05	µg/g	Zirconium	0.05	µg/g	ND	0.12	0.06	0.07	ND
Naphthalene	1	µg/kg	Naphthalene	1	µg/kg	1.6	2.13	2.09	1.64	1.76
Naphthalene (duplicate)	1	µg/kg	Naphthalene (duplicate)	1	µg/kg	-	-	-	-	-
Acenaphthylene	0.24	µg/kg	Acenaphthylene	0.24	µg/kg	ND	0.37	ND	ND	0.29
Acenaphthylene (duplicate)	0.24	µg/kg	Acenaphthylene (duplicate)	0.24	µg/kg	-	-	-	-	-
Acenaphthene	0.15	µg/kg	Acenaphthene	0.15	µg/kg	ND	ND	0.16	0.17	ND
Acenaphthene (duplicate)	0.15	µg/kg	Acenaphthene (duplicate)	0.15	µg/kg	-	-	-	-	-
Fluorene	0.16	µg/kg	Fluorene	0.16	µg/kg	0.66	1.21	0.53	0.69	0.80
Fluorene (duplicate)	0.16	µg/kg	Fluorene (duplicate)	0.16	µg/kg	-	-	-	-	-
Phenanthrene	0.2	µg/kg	Phenanthrene	0.2	µg/kg	4.8	5.48	5.53	4.69	5.13
Phenanthrene (duplicate)	0.2	µg/kg	Phenanthrene (duplicate)	0.2	µg/kg	-	-	-	-	-
Anthracene	0.24	µg/kg	Anthracene	0.24	µg/kg	1.1	ND	ND	ND	ND
Anthracene (duplicate)	0.24	µg/kg	Anthracene (duplicate)	0.24	µg/kg	-	-	-	-	-
Fluoranthene	0.2	µg/kg	Fluoranthene	0.2	µg/kg	0.71	1.21	1.03	1.11	0.79
Fluoranthene (duplicate)	0.2	µg/kg	Fluoranthene (duplicate)	0.2	µg/kg	-	-	-	-	-
Pyrene	0.16	µg/kg	Pyrene	0.16	µg/kg	0.47	0.73	0.88	0.54	0.57
Pyrene (duplicate)	0.16	µg/kg	Pyrene (duplicate)	0.16	µg/kg	-	-	-	-	-
Benz(a)anthracene	0.36	µg/kg	Benz(a)anthracene	0.36	µg/kg	2.4	ND	ND	ND	ND
Benz(a)anthracene (duplicate)	0.36	µg/kg	Benz(a)anthracene (duplicate)	0.36	µg/kg	-	-	-	-	-
Chrysene	0.2	µg/kg	Chrysene	0.2	µg/kg	ND	0.92	0.47	0.37	0.30
Chrysene (duplicate)	0.2	µg/kg	Chrysene (duplicate)	0.2	µg/kg	-	-	-	-	-
Benzo(b+j)fluoranthene	0.3	µg/kg	Benzo(b+j)fluoranthene	0.3	µg/kg	0.39	1.07	0.65	0.56	0.81
Benzo(b+j)fluoranthene (duplicate)	0.3	µg/kg	Benzo(b+j)fluoranthene (duplicate)	0.3	µg/kg	-	-	-	-	-
Benzo(k)fluoranthene	0.2	µg/kg	Benzo(k)fluoranthene	0.2	µg/kg	ND	ND	ND	ND	ND
Benzo(k)fluoranthene (duplicate)	0.2	µg/kg	Benzo(k)fluoranthene (duplicate)	0.2	µg/kg	-	-	-	-	-
Benzo(a)pyrene	0.3	µg/kg	Benzo(a)pyrene	0.3	µg/kg	ND	0.78	ND	ND	ND
Benzo(a)pyrene (duplicate)	0.3	µg/kg	Benzo(a)pyrene (duplicate)	0.3	µg/kg					
Indeno(1,2,3-cd)pyrene	0.5	µg/kg	Indeno(1,2,3-cd)pyrene	0.5	µg/kg	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene (duplicate)	0.5	µg/kg	Indeno(1,2,3-cd)pyrene (duplicate)	0.5	µg/kg					
Dibenz(a,h)anthracene	0.4	µg/kg	Dibenz(a,h)anthracene	0.4	µg/kg	ND	0.60	ND	ND	ND
Dibenz(a,h)anthracene (duplicate)	0.4	µg/kg	Dibenz(a,h)anthracene (duplicate)	0.4	µg/kg	-	-	-	-	-
Benzo(ghi)perylene	0.4	µg/kg	Benzo(ghi)perylene	0.4	µg/kg	ND	0.57	ND	ND	ND
Benzo(ghi)perylene (duplicate)	0.4	µg/kg	Benzo(ghi)perylene (duplicate)	0.4	µg/kg	-	-	-	-	-

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Sample ID			Sample ID			GM517BL	GM520BL	GM520BL	GM522BL	HH01
Medium			Medium			Vegetation				
Northing[1]			Northing[1]			5502784	5500512	5500512	5502449	5509147
Easting[1]			Easting[1]			683910	683739	683739	684104	687065
# of Samples			# of Samples			1				
Type of Vegetation Sampled			Type of Vegetation Sampled			Bearberry leaves	Saskatoon berries	Bearberry leaves	Saskatoon berries	Saskatoon berries
Chemical Analysed	Detection Limit	Units	Chemical Analysed	Detection Limit	Units	Chemical Concentration				
Aluminum	1	µg/g	Aluminum	1	µg/g	41	33.5	50.5	31.8	49.5
Antimony	0.5	µg/g	Antimony	0.5	µg/g	ND	ND	ND	ND	ND
Arsenic	0.2	µg/g	Arsenic	0.2	µg/g	0.35	ND	ND	0.25	ND
Barium	0.03	µg/g	Barium	0.03	µg/g	43.5	414	115	260	634
Beryllium	0.01	µg/g	Beryllium	0.01	µg/g	ND	ND	ND	ND	ND
Bismuth	0.5	µg/g	Bismuth	0.5	µg/g	1.16	ND	ND	2.3	ND
Boron	0.5	µg/g	Boron	0.5	µg/g	12.7	33.3	14.7	20.5	24
Cadmium	0.05	µg/g	Cadmium	0.05	µg/g	ND	0.09	ND	0.07	1.71
Chromium	0.04	µg/g	Chromium	0.04	µg/g	0.1	ND	0.4	ND	ND
Cobalt	0.05	µg/g	Cobalt	0.05	µg/g	0.08	0.22	0.08	0.06	ND
Copper	0.05	µg/g	Copper	0.05	µg/g	3.81	5.72	4.2	4.53	5.28
Iron	1	µg/g	Iron	1	µg/g	66.3	80.8	75.8	73.4	98
Lead	0.3	µg/g	Lead	0.3	µg/g	ND	0.59	ND	ND	ND
Lithium	0.1	µg/g	Lithium	0.1	µg/g	0.19	0.4	0.18	0.6	0.62
Magnesium	1	µg/g	Magnesium	1	µg/g	1170	3800	1550	3160	3410
Manganese	0.3	µg/g	Manganese	0.3	µg/g	17.4	239	22.3	99.8	1150
Mercury	0.003	µg/g	Mercury	0.003	µg/g	0.005	0.009	0.004	0.006	0.005
Molybdenum	0.05	µg/g	Molybdenum	0.05	µg/g	ND	1.93	0.1	2.23	0.38
Nickel	0.1	µg/g	Nickel	0.1	µg/g	1.39	0.49	0.81	0.75	5.3
Phosphorus	1	µg/g	Phosphorus	1	µg/g	1410	13200	1310	6640	7900
Potassium	5	µg/g	Potassium	5	µg/g	5760	22700	5930	13800	13700
Selenium	0.3	µg/g	Selenium	0.3	µg/g	0.8	1.67	1.63	1.6	0.97
Silicon	1	µg/g	Silicon	1	µg/g	98.6	173	89.6	210	106
Silver	0.2	µg/g	Silver	0.2	µg/g	2.72	2.05	1.47	0.77	0.54
Sodium	1	µg/g	Sodium	1	µg/g	13.9	17.5	15.8	51.2	20.5
Strontium	0.02	µg/g	Strontium	0.02	µg/g	7.81	141	20.9	23.2	80.8
Sulfur	1	µg/g	Sulfur	1	µg/g	953	1360	874	1080	1050
Thallium	0.3	µg/g	Thallium	0.3	µg/g	ND	ND	ND	ND	0.31
Tin	0.2	µg/g	Tin	0.2	µg/g	0.21	ND	ND	ND	0.25
Titanium	0.05	µg/g	Titanium	0.05	µg/g	2.3	2.73	2.69	2.94	3.40
Vanadium	0.1	µg/g	Vanadium	0.1	µg/g	4.5	14	5.61	11.7	12.9
Zinc	0.1	µg/g	Zinc	0.1	µg/g	40.3	79.5	90.8	95.6	116
Zirconium	0.05	µg/g	Zirconium	0.05	µg/g	0.09	ND	0.11	ND	0.12
Naphthalene	1	µg/kg	Naphthalene	1	µg/kg	2.60	2.05	2.51	1.6	1.58
Naphthalene (duplicate)	1	µg/kg	Naphthalene (duplicate)	1	µg/kg	2.71	-	-	-	-
Acenaphthylene	0.24	µg/kg	Acenaphthylene	0.24	µg/kg	ND	0.26	ND	ND	ND
Acenaphthylene (duplicate)	0.24	µg/kg	Acenaphthylene (duplicate)	0.24	µg/kg	ND	-	-	-	-
Acenaphthene	0.15	µg/kg	Acenaphthene	0.15	µg/kg	0.33	0.16	0.19	ND	ND
Acenaphthene (duplicate)	0.15	µg/kg	Acenaphthene (duplicate)	0.15	µg/kg	0.43	-	-	-	-
Fluorene	0.16	µg/kg	Fluorene	0.16	µg/kg	0.73	0.97	0.86	0.80	0.72
Fluorene (duplicate)	0.16	µg/kg	Fluorene (duplicate)	0.16	µg/kg	0.87	-	-	-	-
Phenanthrene	0.2	µg/kg	Phenanthrene	0.2	µg/kg	5.55	5.65	6.00	4.43	5.04
Phenanthrene (duplicate)	0.2	µg/kg	Phenanthrene (duplicate)	0.2	µg/kg	6.53	-	-	-	-
Anthracene	0.24	µg/kg	Anthracene	0.24	µg/kg	ND	ND	ND	ND	ND
Anthracene (duplicate)	0.24	µg/kg	Anthracene (duplicate)	0.24	µg/kg	ND	-	-	-	-
Fluoranthene	0.2	µg/kg	Fluoranthene	0.2	µg/kg	1.26	0.60	0.90	ND	0.36
Fluoranthene (duplicate)	0.2	µg/kg	Fluoranthene (duplicate)	0.2	µg/kg	0.90	-	-	-	-
Pyrene	0.16	µg/kg	Pyrene	0.16	µg/kg	0.75	0.53	0.69	0.26	0.48
Pyrene (duplicate)	0.16	µg/kg	Pyrene (duplicate)	0.16	µg/kg	0.74	-	-	-	-
Benz(a)anthracene	0.36	µg/kg	Benz(a)anthracene	0.36	µg/kg	ND	ND	ND	ND	0.70
Benz(a)anthracene (duplicate)	0.36	µg/kg	Benz(a)anthracene (duplicate)	0.36	µg/kg	ND	-	-	-	-
Chrysene	0.2	µg/kg	Chrysene	0.2	µg/kg	0.25	ND	ND	ND	0.48
Chrysene (duplicate)	0.2	µg/kg	Chrysene (duplicate)	0.2	µg/kg	0.20	-	-	-	-
Benzo(b+j)fluoranthene	0.3	µg/kg	Benzo(b+j)fluoranthene	0.3	µg/kg	0.91	0.55	0.58	0.42	0.51
Benzo(b+j)fluoranthene (duplicate)	0.3	µg/kg	Benzo(b+j)fluoranthene (duplicate)	0.3	µg/kg	0.79	-	-	-	-
Benzo(k)fluoranthene	0.2	µg/kg	Benzo(k)fluoranthene	0.2	µg/kg	ND	ND	ND	ND	ND
Benzo(k)fluoranthene (duplicate)	0.2	µg/kg	Benzo(k)fluoranthene (duplicate)	0.2	µg/kg	ND	-	-	-	-
Benzo(a)pyrene	0.3	µg/kg	Benzo(a)pyrene	0.3	µg/kg	ND	ND	ND	ND	ND
Benzo(a)pyrene (duplicate)	0.3	µg/kg	Benzo(a)pyrene (duplicate)	0.3	µg/kg	ND				
Indeno(1,2,3-cd)pyrene	0.5	µg/kg	Indeno(1,2,3-cd)pyrene	0.5	µg/kg	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene (duplicate)	0.5	µg/kg	Indeno(1,2,3-cd)pyrene (duplicate)	0.5	µg/kg	ND				
Dibenz(a,h)anthracene	0.4	µg/kg	Dibenz(a,h)anthracene	0.4	µg/kg	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene (duplicate)	0.4	µg/kg	Dibenz(a,h)anthracene (duplicate)	0.4	µg/kg	ND	-	-	-	-
Benzo(ghi)perylene	0.4	µg/kg	Benzo(ghi)perylene	0.4	µg/kg	ND	ND	ND	ND	ND
Benzo(ghi)perylene (duplicate)	0.4	µg/kg	Benzo(ghi)perylene (duplicate)	0.4	µg/kg	ND	-	-	-	-

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Sample ID			Sample ID			HH09	HH08	HH02	HH05	HH03
Medium			Medium					Vegetation		
Northing[1]			Northing[1]			5509777	5508530	5509136	5504195	5507967
Easting[1]			Easting[1]			685099	685140	687060	685402	686921
# of Samples			# of Samples					1		
Type of Vegetation Sampled			Type of Vegetation Sampled			Saskatoon berries	Bearberry leaves	Bearberry leaves	Saskatoon berries	Saskatoon berries
Chemical Analysed	Detection Limit	Units	Chemical Analysed	Detection Limit	Units	Chemical Concentration				
Aluminum	1	µg/g	Aluminum	1	µg/g	48.6	59.5	98.7	27.1	29.5
Antimony	0.5	µg/g	Antimony	0.5	µg/g	ND	ND	ND	ND	ND
Arsenic	0.2	µg/g	Arsenic	0.2	µg/g	0.28	0.31	ND	ND	ND
Barium	0.03	µg/g	Barium	0.03	µg/g	454	60.7	103	502	459
Beryllium	0.01	µg/g	Beryllium	0.01	µg/g	ND	ND	ND	ND	ND
Bismuth	0.5	µg/g	Bismuth	0.5	µg/g	0.87	1.06	1.61	0.84	1.1
Boron	0.5	µg/g	Boron	0.5	µg/g	19.8	8.8	10.8	30.6	32.1
Cadmium	0.05	µg/g	Cadmium	0.05	µg/g	0.23	ND	ND	ND	3.29
Chromium	0.04	µg/g	Chromium	0.04	µg/g	0.11	0.23	0.27	ND	0.11
Cobalt	0.05	µg/g	Cobalt	0.05	µg/g	0.19	0.11	ND	ND	0.16
Copper	0.05	µg/g	Copper	0.05	µg/g	5.42	3.84	4.58	4.96	6.41
Iron	1	µg/g	Iron	1	µg/g	84.1	93.1	105	69	87.9
Lead	0.3	µg/g	Lead	0.3	µg/g	ND	ND	ND	ND	ND
Lithium	0.1	µg/g	Lithium	0.1	µg/g	0.33	0.12	0.23	0.36	0.26
Magnesium	1	µg/g	Magnesium	1	µg/g	4350	1330	1680	5560	4030
Manganese	0.3	µg/g	Manganese	0.3	µg/g	419	13.7	49.4	54	240
Mercury	0.003	µg/g	Mercury	0.003	µg/g	0.006	0.002	0.005	0.01	0.011
Molybdenum	0.05	µg/g	Molybdenum	0.05	µg/g	0.14	ND	ND	0.97	0.16
Nickel	0.1	µg/g	Nickel	0.1	µg/g	1.86	1.17	2.24	0.57	2.67
Phosphorus	1	µg/g	Phosphorus	1	µg/g	5130	1340	1380	10100	5160
Potassium	5	µg/g	Potassium	5	µg/g	18200	6070	6460	13800	23200
Selenium	0.3	µg/g	Selenium	0.3	µg/g	1.29	1.48	0.63	1.62	2
Silicon	1	µg/g	Silicon	1	µg/g	99	85.5	95.9	133	85
Silver	0.2	µg/g	Silver	0.2	µg/g	0.85	0.52	0.24	0.49	ND
Sodium	1	µg/g	Sodium	1	µg/g	19.4	8.72	26.1	21.9	16.8
Strontium	0.02	µg/g	Strontium	0.02	µg/g	88.8	27.2	18.8	36.4	75.8
Sulfur	1	µg/g	Sulfur	1	µg/g	778	846	880	945	1200
Thallium	0.3	µg/g	Thallium	0.3	µg/g	ND	ND	ND	ND	ND
Tin	0.2	µg/g	Tin	0.2	µg/g	ND	ND	ND	0.3	ND
Titanium	0.05	µg/g	Titanium	0.05	µg/g	3.16	3.39	3.89	2.99	2.65
Vanadium	0.1	µg/g	Vanadium	0.1	µg/g	16	5.18	6.47	20.1	15.2
Zinc	0.1	µg/g	Zinc	0.1	µg/g	39	31.2	60.2	63.9	55.9
Zirconium	0.05	µg/g	Zirconium	0.05	µg/g	0.08	0.11	ND	0.08	ND
Naphthalene	1	µg/kg	Naphthalene	1	µg/kg	1.28	3.23	3.02	2.43	2.53
Naphthalene (duplicate)	1	µg/kg	Naphthalene (duplicate)	1	µg/kg	-	3.34	-	-	-
Acenaphthylene	0.24	µg/kg	Acenaphthylene	0.24	µg/kg	ND	ND	ND	ND	ND
Acenaphthylene (duplicate)	0.24	µg/kg	Acenaphthylene (duplicate)	0.24	µg/kg	-	ND	-	-	-
Acenaphthene	0.15	µg/kg	Acenaphthene	0.15	µg/kg	ND	0.32	ND	1.06	0.21
Acenaphthene (duplicate)	0.15	µg/kg	Acenaphthene (duplicate)	0.15	µg/kg	-	0.32	-	-	-
Fluorene	0.16	µg/kg	Fluorene	0.16	µg/kg	0.93	0.59	1.05	0.92	0.71
Fluorene (duplicate)	0.16	µg/kg	Fluorene (duplicate)	0.16	µg/kg	-	0.65	-	-	-
Phenanthrene	0.2	µg/kg	Phenanthrene	0.2	µg/kg	2.97	4.40	11.31	9.47	2.89
Phenanthrene (duplicate)	0.2	µg/kg	Phenanthrene (duplicate)	0.2	µg/kg	-	4.45	-	-	-
Anthracene	0.24	µg/kg	Anthracene	0.24	µg/kg	ND	ND	ND	ND	ND
Anthracene (duplicate)	0.24	µg/kg	Anthracene (duplicate)	0.24	µg/kg	-	ND	-	-	-
Fluoranthene	0.2	µg/kg	Fluoranthene	0.2	µg/kg	0.34	0.33	0.58	1.05	0.41
Fluoranthene (duplicate)	0.2	µg/kg	Fluoranthene (duplicate)	0.2	µg/kg	-	0.31	-	-	-
Pyrene	0.16	µg/kg	Pyrene	0.16	µg/kg	0.32	0.42	0.90	1.07	0.38
Pyrene (duplicate)	0.16	µg/kg	Pyrene (duplicate)	0.16	µg/kg	-	0.39	-	-	-
Benz(a)anthracene	0.36	µg/kg	Benz(a)anthracene	0.36	µg/kg	ND	ND	ND	ND	ND
Benz(a)anthracene (duplicate)	0.36	µg/kg	Benz(a)anthracene (duplicate)	0.36	µg/kg	-	ND	-	-	-
Chrysene	0.2	µg/kg	Chrysene	0.2	µg/kg	ND	0.54	2.45	1.81	0.35
Chrysene (duplicate)	0.2	µg/kg	Chrysene (duplicate)	0.2	µg/kg	-	0.46	-	-	-
Benzo(b+j)fluoranthene	0.3	µg/kg	Benzo(b+j)fluoranthene	0.3	µg/kg	0.33	0.66	3.18	1.65	0.69
Benzo(b+j)fluoranthene (duplicate)	0.3	µg/kg	Benzo(b+j)fluoranthene (duplicate)	0.3	µg/kg	-	0.64	-	-	-
Benzo(k)fluoranthene	0.2	µg/kg	Benzo(k)fluoranthene	0.2	µg/kg	ND	ND	0.39	ND	ND
Benzo(k)fluoranthene (duplicate)	0.2	µg/kg	Benzo(k)fluoranthene (duplicate)	0.2	µg/kg	-	ND	-	-	-
Benzo(a)pyrene	0.3	µg/kg	Benzo(a)pyrene	0.3	µg/kg	ND	ND	ND	ND	ND
Benzo(a)pyrene (duplicate)	0.3	µg/kg	Benzo(a)pyrene (duplicate)	0.3	µg/kg		ND			
Indeno(1,2,3-cd)pyrene	0.5	µg/kg	Indeno(1,2,3-cd)pyrene	0.5	µg/kg	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene (duplicate)	0.5	µg/kg	Indeno(1,2,3-cd)pyrene (duplicate)	0.5	µg/kg		ND			
Dibenz(a,h)anthracene	0.4	µg/kg	Dibenz(a,h)anthracene	0.4	µg/kg	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene (duplicate)	0.4	µg/kg	Dibenz(a,h)anthracene (duplicate)	0.4	µg/kg	-	ND	-	-	-
Benzo(ghi)perylene	0.4	µg/kg	Benzo(ghi)perylene	0.4	µg/kg	ND	ND	0.50	0.63	ND
Benzo(ghi)perylene (duplicate)	0.4	µg/kg	Benzo(ghi)perylene (duplicate)	0.4	µg/kg	-	ND	-	-	-

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Sample ID			Sample ID			GM513BL	GM508BL	GM506BL	HH04	HH04
Medium			Medium					Vegatation		
Northing[1]			Northing[1]			5509604	5506977	5506136	5507636	5507636
Easting[1]			Easting[1]			685249	684583	687019	686500	686500
# of Samples			# of Samples					1		
Type of Vegetation Sampled			Type of Vegetation Sampled			Bearberry leaves	Bearberry leaves	Bearberry leaves	Bearberry leaves	Saskatoon berries
Chemical Analysed	Detection Limit	Units	Chemical Analysed	Detection Limit	Units	Chemical Concentration				
Aluminum	1	µg/g	Aluminum	1	µg/g	49.8	51	69	410	37.2
Antimony	0.5	µg/g	Antimony	0.5	µg/g	ND	ND	0.51	ND	ND
Arsenic	0.2	µg/g	Arsenic	0.2	µg/g	ND	ND	ND	ND	0.45
Barium	0.03	µg/g	Barium	0.03	µg/g	66.6	126	173	67.3	267
Beryllium	0.01	µg/g	Beryllium	0.01	µg/g	ND	ND	ND	ND	ND
Bismuth	0.5	µg/g	Bismuth	0.5	µg/g	ND	ND	ND	ND	ND
Boron	0.5	µg/g	Boron	0.5	µg/g	4.97	9	9.16	10.2	18.7
Cadmium	0.05	µg/g	Cadmium	0.05	µg/g	ND	ND	0.07	ND	1.87
Chromium	0.04	µg/g	Chromium	0.04	µg/g	0.22	0.35	0.22	2.53	0.31
Cobalt	0.05	µg/g	Cobalt	0.05	µg/g	0.08	ND	0.08	0.5	0.13
Copper	0.05	µg/g	Copper	0.05	µg/g	2.8	3.56	3.53	4.81	3.51
Iron	1	µg/g	Iron	1	µg/g	67.9	80.1	107	791	80.1
Lead	0.3	µg/g	Lead	0.3	µg/g	ND	ND	ND	ND	ND
Lithium	0.1	µg/g	Lithium	0.1	µg/g	0.13	0.16	0.16	0.43	0.31
Magnesium	1	µg/g	Magnesium	1	µg/g	907	1200	1300	1100	2060
Manganese	0.3	µg/g	Manganese	0.3	µg/g	12.1	17.6	31.7	35.8	123
Mercury	0.003	µg/g	Mercury	0.003	µg/g	0.003	0.002	0.003	0.005	0.006
Molybdenum	0.05	µg/g	Molybdenum	0.05	µg/g	ND	ND	0.08	ND	0.23
Nickel	0.1	µg/g	Nickel	0.1	µg/g	0.8	1.1	1.52	3.03	1.08
Phosphorus	1	µg/g	Phosphorus	1	µg/g	1250	1120	1110	1100	1730
Potassium	5	µg/g	Potassium	5	µg/g	6480	4820	5670	4720	6730
Selenium	0.3	µg/g	Selenium	0.3	µg/g	0.4	0.32	0.38	2.1	ND
Silicon	1	µg/g	Silicon	1	µg/g	87.4	111	91.4	202	87.3
Silver	0.2	µg/g	Silver	0.2	µg/g	ND	ND	2.36	0.97	0.58
Sodium	1	µg/g	Sodium	1	µg/g	11.4	10.3	13.6	9.95	13.4
Strontium	0.02	µg/g	Strontium	0.02	µg/g	22.2	11.5	25.3	6.73	16.7
Sulfur	1	µg/g	Sulfur	1	µg/g	739	708	659	731	807
Thallium	0.3	µg/g	Thallium	0.3	µg/g	ND	ND	ND	ND	ND
Tin	0.2	µg/g	Tin	0.2	µg/g	ND	ND	0.29	0.24	ND
Titanium	0.05	µg/g	Titanium	0.05	µg/g	2.69	2.75	2.9	7.77	2.8
Vanadium	0.1	µg/g	Vanadium	0.1	µg/g	3.57	4.89	5.05	6.09	7.76
Zinc	0.1	µg/g	Zinc	0.1	µg/g	20.8	28	45.5	39.3	55.2
Zirconium	0.05	µg/g	Zirconium	0.05	µg/g	ND	ND	0.46	0.52	0.07
Naphthalene	1	µg/kg	Naphthalene	1	µg/kg	2.77	2.19	4.49	3.33	13.7
Naphthalene (duplicate)	1	µg/kg	Naphthalene (duplicate)	1	µg/kg	-	-	-	-	-
Acenaphthylene	0.24	µg/kg	Acenaphthylene	0.24	µg/kg	0.41	ND	ND	ND	0.75
Acenaphthylene (duplicate)	0.24	µg/kg	Acenaphthylene (duplicate)	0.24	µg/kg	-	-	-	-	-
Acenaphthene	0.15	µg/kg	Acenaphthene	0.15	µg/kg	ND	ND	0.24	0.19	1.03
Acenaphthene (duplicate)	0.15	µg/kg	Acenaphthene (duplicate)	0.15	µg/kg	-	-	-	-	-
Fluorene	0.16	µg/kg	Fluorene	0.16	µg/kg	1.42	0.74	0.55	0.59	4.02
Fluorene (duplicate)	0.16	µg/kg	Fluorene (duplicate)	0.16	µg/kg	-	-	-	-	-
Phenanthrene	0.2	µg/kg	Phenanthrene	0.2	µg/kg	4.36	4.22	3.28	7.29	51.5
Phenanthrene (duplicate)	0.2	µg/kg	Phenanthrene (duplicate)	0.2	µg/kg	-	-	-	-	-
Anthracene	0.24	µg/kg	Anthracene	0.24	µg/kg	ND	ND	ND	ND	ND
Anthracene (duplicate)	0.24	µg/kg	Anthracene (duplicate)	0.24	µg/kg	-	-	-	-	-
Fluoranthene	0.2	µg/kg	Fluoranthene	0.2	µg/kg	0.65	0.29	0.33	0.75	4.19
Fluoranthene (duplicate)	0.2	µg/kg	Fluoranthene (duplicate)	0.2	µg/kg	-	-	-	-	-
Pyrene	0.16	µg/kg	Pyrene	0.16	µg/kg	0.62	0.39	0.36	0.86	4.33
Pyrene (duplicate)	0.16	µg/kg	Pyrene (duplicate)	0.16	µg/kg	-	-	-	-	-
Benz(a)anthracene	0.36	µg/kg	Benz(a)anthracene	0.36	µg/kg	ND	ND	ND	ND	ND
Benz(a)anthracene (duplicate)	0.36	µg/kg	Benz(a)anthracene (duplicate)	0.36	µg/kg	-	-	-	-	-
Chrysene	0.2	µg/kg	Chrysene	0.2	µg/kg	0.67	0.33	0.25	1.12	12.4
Chrysene (duplicate)	0.2	µg/kg	Chrysene (duplicate)	0.2	µg/kg	-	-	-	-	-
Benzo(b+j)fluoranthene	0.3	µg/kg	Benzo(b+j)fluoranthene	0.3	µg/kg	1.05	0.54	0.81	1.32	22.5
Benzo(b+j)fluoranthene (duplicate)	0.3	µg/kg	Benzo(b+j)fluoranthene (duplicate)	0.3	µg/kg	-	-	-	-	
Benzo(k)fluoranthene	0.2	µg/kg	Benzo(k)fluoranthene	0.2	µg/kg	ND	ND	ND	ND	ND
Benzo(k)fluoranthene (duplicate)	0.2	µg/kg	Benzo(k)fluoranthene (duplicate)	0.2	µg/kg	-	-	-	-	-
Benzo(a)pyrene	0.3	µg/kg	Benzo(a)pyrene	0.3	µg/kg	ND	ND	ND	ND	1.85
Benzo(a)pyrene (duplicate)	0.3	µg/kg	Benzo(a)pyrene (duplicate)	0.3	µg/kg					-
Indeno(1,2,3-cd)pyrene	0.5	µg/kg	Indeno(1,2,3-cd)pyrene	0.5	µg/kg	ND	ND	ND	ND	1.11
Indeno(1,2,3-cd)pyrene (duplicate)	0.5	µg/kg	Indeno(1,2,3-cd)pyrene (duplicate)	0.5	µg/kg					-
Dibenz(a,h)anthracene	0.4	µg/kg	Dibenz(a,h)anthracene	0.4	µg/kg	ND	ND	ND	ND	1.52
Dibenz(a,h)anthracene (duplicate)	0.4	µg/kg	Dibenz(a,h)anthracene (duplicate)	0.4	µg/kg	-	-	-	-	-
Benzo(ghi)perylene	0.4	µg/kg	Benzo(ghi)perylene	0.4	µg/kg	ND	ND	ND	0.44	3.60
Benzo(ghi)perylene (duplicate)	0.4	µg/kg	Benzo(ghi)perylene (duplicate)	0.4	µg/kg	-	-	-	-	-

MEMS Sample ID			RP-5BE	GM051BE	GM148BE	GM107BE	GM302BE	GM308BE
Medium			Soil					
Northing[1]			5504575	5505278	5509896	5503424	5504032	5505385
Easting[1]			685311	686808	684804	681979	684221	684389
# of Samples			1					
Depth of Soil Samples			0 - 15 cm					
Chemical Analysed	Detection Limit	Units	Chemical Concentration					
Mercury	0.01	mg/kg	0.02	0.01	0.05	0.05	ND	ND
Aluminum	20.00	mg/kg	9470.00	8600.00	19300.00	8780.00	9180.00	7380.00
Antimony	0.20	mg/kg	ND	ND	ND	ND	ND	ND
Arsenic	0.20	mg/kg	3.50	3.60	6.70	2.10	2.40	2.20
Barium	1.00	mg/kg	180.00	292.00	278.00	225.00	233.00	154.00
Beryllium	0.10	mg/kg	0.80	0.70	0.70	0.40	0.60	0.50
Bismuth	0.50	mg/kg	0.70	0.60	0.50	0.60	0.50	0.50
Cadmium	0.01	mg/kg	1.29	1.09	0.63	0.47	0.23	0.15
Chromium	0.50	mg/kg	17.00	9.80	38.00	7.70	14.10	6.50
Calcium	200.00	mg/kg	1700.00	1000.00	2900.00	10700.00	1000.00	1000.00
Cobalt	0.10	mg/kg	10.70	8.70	17.50	5.10	8.80	5.90
Copper	1.00	mg/kg	23.10	13.10	49.80	11.00	10.60	5.00
Iron	100.00	mg/kg	19100.00	20800.00	36300.00	10100.00	19900.00	14800.00
Lead	5.00	mg/kg	14.10	12.00	11.60	11.50	12.00	12.40
Magnesium	100.00	mg/kg	2300.00	1500.00	7200.00	2000.00	1600.00	900.00
Manganese	10.00	mg/kg	571.00	867.00	769.00	559.00	700.00	804.00
Molybdenum	1.00	mg/kg	1.10	1.30	ND	ND	ND	ND
Nickel	0.50	mg/kg	30.10	17.10	37.60	9.30	12.30	5.80
Phosphorus	30.00	mg/kg	580.00	710.00	670.00	360.00	530.00	56.00
Selenium	0.30	mg/kg	0.30	ND	0.40	ND	ND	ND
Silicon	50.00	mg/kg	790.00	740.00	760.00	830.00	760.00	820.00
Silver	0.10	mg/kg	0.60	0.30	0.20	0.30	0.20	0.20
Strontium	1.00	mg/kg	11.00	14.00	43.00	33.00	17.00	17.00
Thallium	0.05	mg/kg	0.22	0.17	0.17	0.13	0.18	0.17
Tin	1.00	mg/kg	1.50	1.70	1.90	1.70	1.90	1.50
Titanium	0.50	mg/kg	109.00	205.00	617.00	301.00	212.00	353.00
Vanadium	0.10	mg/kg	33.20	23.60	69.50	17.70	33.70	34.10
Zinc	1.00	mg/kg	113.00	85.00	100.00	46.00	82.00	45.00
Naphthalene	0.01	mg/kg	0.02	ND	0.09	0.05	0.01	ND
Acenaphthylene	0.05	mg/kg	ND	ND	ND	ND	ND	ND
Acenaphthene	0.05	mg/kg	ND	ND	ND	ND	ND	ND
Fluorene	0.05	mg/kg	ND	ND	ND	ND	ND	ND
Phenanthrene	0.01	mg/kg	0.03	ND	0.08	0.08	0.02	ND
Anthracene	0.00	mg/kg	ND	ND	ND	ND	0.02	ND
Fluoranthene	0.01	mg/kg	ND	ND	ND	ND	ND	ND
Pyrene	0.01	mg/kg	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	0.01	mg/kg	ND	ND	ND	ND	ND	ND
Chrysene	0.05	mg/kg	ND	ND	ND	ND	ND	ND
Benzo(b+j)fluoranthene	0.05	mg/kg	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	0.05	mg/kg	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	0.05	mg/kg	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	0.05	mg/kg	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	0.05	mg/kg	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	0.05	mg/kg	ND	ND	ND	ND	ND	ND
IACR_Coarse	0.00		ND	ND	ND	ND	ND	ND
IACR_Fine	0.00		ND	ND	ND	ND	ND	ND
Nitrobenzene-d5	23-130	%	92.00	92.00	87.00	119.00	117.00	96.00
2-Fluorobiphenyl	30-130	%	98.00	94.00	87.00	90.00	90.00	101.00
p-Terphenyl-d14	18-137	%	122.00	115.00	115.00	128.00	41.00	112.00

[1] UTM zone 11, NAD 83

[2] mg/kg and µg/kg are equivalent units

MEMS Sample ID			GM515BL	GM516BL	GM517BL	GM520BL	GM522BL	HH01
Medium			Soil					
Northing[1]			5500931	5501748	5502784	5500512	5502449	5509147
Easting[1]			683160	683474	683910	683739	684104	687065
# of Samples			1					
Depth of Soil Samples			0 - 15 cm					
Chemical Analysed	Detection Limit	Units	Chemical Concentration					
Mercury	0.01	mg/kg	ND	0.01	ND	0.02	0.04	0.09
Aluminum	20.00	mg/kg	10300.00	8090.00	6090.00	13900.00	6800.00	3570.00
Antimony	0.20	mg/kg	ND	ND	ND	ND	ND	ND
Arsenic	0.20	mg/kg	4.80	1.60	1.50	2.90	4.00	3.50
Barium	1.00	mg/kg	228.00	176.00	129.00	283.00	156.00	296.00
Beryllium	0.10	mg/kg	0.60	0.30	0.30	0.70	0.60	0.90
Bismuth	0.50	mg/kg	0.50	ND	ND	0.50	ND	ND
Cadmium	0.01	mg/kg	0.24	0.17	0.15	0.68	0.48	1.42
Chromium (III+VI)	0.50	mg/kg	13.20	8.80	6.80	14.80	9.40	7.40
Calcium	200.00	mg/kg	3500.00	3800.00	2100.00	8000.00	57900.00	4100.00
Cobalt	0.10	mg/kg	7.00	5.10	2.70	9.80	4.40	7.10
Copper	1.00	mg/kg	13.00	5.10	3.80	23.00	13.00	29.30
Iron	100.00	mg/kg	16300.00	10700.00	8950.00	17900.00	10700.00	8220.00
Lead	5.00	mg/kg	11.50	10.30	7.20	12.10	13.20	17.20
Magnesium	100.00	mg/kg	2400.00	1500.00	1200.00	2700.00	9900.00	700.00
Manganese	10.00	mg/kg	399.00	533.00	296.00	649.00	321.00	155.00
Molybdenum	1.00	mg/kg	ND	ND	ND	ND	ND	ND
Nickel	0.50	mg/kg	15.40	9.80	6.50	16.70	11.50	27.90
Phosphorus	30.00	mg/kg	510.00	270.00	210.00	780.00	840.00	390.00
Selenium	0.30	mg/kg	ND	ND	ND	0.50	0.30	0.70
Silicon	50.00	mg/kg	590.00	530.00	550.00	700.00	910.00	570.00
Silver	0.10	mg/kg	ND	ND	ND	ND	ND	0.10
Strontium	1.00	mg/kg	16.00	16.00	17.00	68.00	58.00	26.00
Thallium	0.05	mg/kg	0.09	0.08	0.07	0.11	0.09	0.16
Tin	1.00	mg/kg	1.30	1.20	1.20	ND	1.10	1.30
Titanium	0.50	mg/kg	300.00	255.00	229.00	305.00	138.00	56.70
Vanadium	0.10	mg/kg	29.20	18.00	15.10	28.20	24.70	29.80
Zinc	1.00	mg/kg	106.00	47.00	38.00	94.00	63.00	94.00
Moisture	0.10	%	19.20	20.00	18.00	20.50	22.30	18.30
Acenaphthene	0.03	ug/g	ND	ND	ND	ND	ND	ND
Acenaphthylene	0.03	ug/g	ND	ND	ND	ND	ND	ND
Anthracene	0.03	ug/g	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	0.03	ug/g	ND	ND	ND	ND	ND	0.30
Benzo(a)pyrene	0.03	ug/g	0.04	ND	ND	ND	ND	0.17
Benzo(b)fluoranthene	0.03	ug/g	0.03	ND	ND	ND	ND	1.16
Benzo(g,h,i)perylene	0.03	ug/g	ND	ND	ND	ND	ND	0.11
Benzo(k)fluoranthene	0.03	ug/g	ND	ND	ND	ND	ND	0.17
Chrysene	0.03	ug/g	0.06	ND	ND	ND	0.03	2.11
Dibenzo(a,h)anthracene	0.03	ug/g	ND	ND	ND	ND	ND	0.07
Fluoranthene	0.03	ug/g	ND	ND	ND	ND	ND	0.37
Fluorene	0.03	ug/g	ND	ND	ND	ND	ND	0.24
Indeno(1,2,3-c,d)pyrene	0.03	ug/g	ND	ND	ND	ND	ND	0.05
2-Methylnaphthalene	0.03	ug/g	0.29	0.06	0.07	0.14	0.13	5.16
Naphthalene	0.03	ug/g	0.11	ND	ND	0.06	0.06	3.26
Phenanthrene	0.03	ug/g	0.19	0.04	0.05	0.09	0.10	6.99
Pyrene	0.03	ug/g	ND	ND	ND	ND	ND	0.52
2-Fluorobiphenyl		%	81.00	91.00	83.00	86.00	92.00	78.00
Naphthalene-D8 (surr)		%	93.00	97.00	90.00	97.00	89.00	93.00
p-Terphenyl		%	77.00	81.00	83.00	86.00	87.00	83.00
Quinoline-d7		%	82.00	79.00	90.00	83.00	93.00	104.00

[1] UTM zone 11, NAD 83

[2] mg/kg and µg/kg are equivalent units

MEMS Sample ID			HH09	HH08	HH02	HH05	HH03
Medium			Soil				
Northing[1]			5509777	5508530	5509136	5504195	5507967
Easting[1]			685099	685140	687060	685402	686921
# of Samples			1				
Depth of Soil Samples			0 - 15 cm				
Chemical Analysed	Detection Limit	Units	Chemical Concentration				
Mercury	0.01	mg/kg	ND	0.01	0.04	0.10	ND
Aluminum	20.00	mg/kg	15900.00	18300.00	3410.00	3000.00	10600.00
Antimony	0.20	mg/kg	ND	ND	ND	ND	ND
Arsenic	0.20	mg/kg	4.70	11.60	2.50	4.00	2.80
Barium	1.00	mg/kg	293.00	387.00	268.00	367.00	322.00
Beryllium	0.10	mg/kg	0.40	0.60	0.80	0.80	0.90
Bismuth	0.50	mg/kg	ND	ND	ND	ND	0.50
Cadmium	0.01	mg/kg	0.32	1.23	1.27	2.04	0.94
Chromium (III+VI)	0.50	mg/kg	22.50	32.20	5.50	5.80	12.60
Calcium	200.00	mg/kg	3700.00	4800.00	3600.00	11700.00	2200.00
Cobalt	0.10	mg/kg	8.50	11.60	5.90	9.00	7.40
Copper	1.00	mg/kg	12.00	31.30	26.00	34.30	8.00
Iron	100.00	mg/kg	24500.00	33200.00	6660.00	9970.00	20300.00
Lead	5.00	mg/kg	9.60	11.20	15.10	15.70	16.10
Magnesium	100.00	mg/kg	3900.00	8100.00	600.00	1200.00	1100.00
Manganese	10.00	mg/kg	562.00	1250.00	228.00	243.00	271.00
Molybdenum	1.00	mg/kg	ND	1.30	ND	1.40	ND
Nickel	0.50	mg/kg	20.30	31.10	20.80	29.80	20.30
Phosphorus	30.00	mg/kg	790.00	790.00	390.00	830.00	1310.00
Selenium	0.30	mg/kg	ND	ND	0.60	0.90	ND
Silicon	50.00	mg/kg	660.00	480.00	600.00	660.00	710.00
Silver	0.10	mg/kg	ND	ND	0.10	0.20	ND
Strontium	1.00	mg/kg	21.00	31.00	26.00	32.00	22.00
Thallium	0.05	mg/kg	0.11	0.09	0.15	0.18	0.17
Tin	1.00	mg/kg	1.00	1.80	1.00	1.40	1.10
Titanium	0.50	mg/kg	607.00	724.00	50.80	39.20	131.00
Vanadium	0.10	mg/kg	53.70	64.80	20.80	24.70	35.80
Zinc	1.00	mg/kg	81.00	117.00	83.00	149.00	96.00
Moisture	0.10	%	19.00	11.20	18.70	12.70	22.80
Acenaphthene	0.03	ug/g	ND	ND	ND	ND	ND
Acenaphthylene	0.03	ug/g	ND	ND	ND	ND	ND
Anthracene	0.03	ug/g	ND	ND	ND	ND	ND
Benzo(a)anthracene	0.03	ug/g	ND	ND	0.30	0.25	ND
Benzo(a)pyrene	0.03	ug/g	ND	ND	0.19	0.20	ND
Benzo(b)fluoranthene	0.03	ug/g	ND	ND	1.10	1.15	ND
Benzo(g,h,i)perylene	0.03	ug/g	ND	ND	0.19	0.17	ND
Benzo(k)fluoranthene	0.03	ug/g	ND	ND	0.13	0.11	ND
Chrysene	0.03	ug/g	ND	ND	1.85	2.07	ND
Dibenzo(a,h)anthracene	0.03	ug/g	ND	ND	0.09	0.08	ND
Fluoranthene	0.03	ug/g	ND	ND	0.34	0.41	ND
Fluorene	0.03	ug/g	ND	ND	0.58	0.06	ND
Indeno(1,2,3-c,d)pyrene	0.03	ug/g	ND	ND	0.09	0.07	ND
2-Methylnaphthalene	0.03	ug/g	ND	0.03	4.92	2.54	0.03
Naphthalene	0.03	ug/g	ND	ND	2.37	3.12	0.04
Phenanthrene	0.03	ug/g	ND	ND	6.75	8.01	0.07
Pyrene	0.03	ug/g	ND	ND	0.55	0.44	ND
2-Fluorobiphenyl		%	88.00	95.00	82.00	86.00	92.00
Naphthalene-D8 (surr)		%	92.00	103.00	93.00	97.00	95.00
p-Terphenyl		%	94.00	87.00	94.00	93.00	84.00
Quinoline-d7		%	80.00	92.00	120.00	88.00	78.00

[1] UTM zone 11, NAD 83

[2] mg/kg and µg/kg are equivalent units

MEMS Sample ID			GM513BL	GM508BL	GM506BL	HH04
Medium			Soil			
Northing[1]			5509604	5506977	5506136	5507636
Easting[1]			685249	684583	687019	686500
# of Samples			1			
Depth of Soil Samples			0 - 15 cm			
Chemical Analysed	Detection Limit	Units	Chemical Concentration			
Mercury	0.01	mg/kg	ND	ND	0.02	0.04
Aluminum	20.00	mg/kg	16200.00	10500.00	17500.00	10000.00
Antimony	0.20	mg/kg	ND	ND	ND	ND
Arsenic	0.20	mg/kg	5.00	7.30	4.30	6.80
Barium	1.00	mg/kg	254.00	157.00	417.00	287.00
Beryllium	0.10	mg/kg	0.50	0.70	0.70	1.10
Bismuth	0.50	mg/kg	ND	ND	ND	ND
Cadmium	0.01	mg/kg	0.19	0.18	1.73	1.06
Chromium (III+VI)	0.50	mg/kg	26.40	13.60	24.20	16.30
Calcium	200.00	mg/kg	3700.00	3100.00	4100.00	2900.00
Cobalt	0.10	mg/kg	8.90	6.90	13.80	12.50
Copper	1.00	mg/kg	14.90	19.80	31.70	24.20
Iron	100.00	mg/kg	25800.00	20300.00	31200.00	18200.00
Lead	5.00	mg/kg	9.30	11.60	12.60	15.30
Magnesium	100.00	mg/kg	4900.00	2300.00	5400.00	1700.00
Manganese	10.00	mg/kg	516.00	148.00	1380.00	442.00
Molybdenum	1.00	mg/kg	ND	ND	ND	ND
Nickel	0.50	mg/kg	19.40	19.10	30.60	31.20
Phosphorus	30.00	mg/kg	630.00	510.00	850.00	630.00
Selenium	0.30	mg/kg	ND	ND	ND	0.30
Silicon	50.00	mg/kg	590.00	560.00	600.00	680.00
Silver	0.10	mg/kg	ND	ND	ND	ND
Strontium	1.00	mg/kg	28.00	25.00	22.00	9.00
Thallium	0.05	mg/kg	0.09	0.14	0.13	0.15
Tin	1.00	mg/kg	1.60	1.10	1.40	ND
Titanium	0.50	mg/kg	1180.00	208.00	236.00	46.30
Vanadium	0.10	mg/kg	58.70	37.60	48.90	34.70
Zinc	1.00	mg/kg	56.00	75.00	144.00	95.00
Moisture	0.10	%	14.40	18.60	14.70	8.36
Acenaphthene	0.03	ug/g	ND	ND	ND	ND
Acenaphthylene	0.03	ug/g	ND	ND	ND	ND
Anthracene	0.03	ug/g	ND	ND	ND	ND
Benzo(a)anthracene	0.03	ug/g	ND	0.21	ND	0.07
Benzo(a)pyrene	0.03	ug/g	ND	ND	ND	0.06
Benzo(b)fluoranthene	0.03	ug/g	ND	ND	ND	0.28
Benzo(g,h,i)perylene	0.03	ug/g	ND	ND	ND	0.08
Benzo(k)fluoranthene	0.03	ug/g	ND	ND	ND	0.04
Chrysene	0.03	ug/g	ND	1.21	ND	0.49
Dibenzo(a,h)anthracene	0.03	ug/g	ND	ND	ND	ND
Fluoranthene	0.03	ug/g	ND	ND	ND	0.07
Fluorene	0.03	ug/g	ND	ND	ND	0.09
Indeno(1,2,3-c,d)pyrene	0.03	ug/g	ND	ND	ND	0.03
2-Methylnaphthalene	0.03	ug/g	ND	ND	0.03	1.12
Naphthalene	0.03	ug/g	ND	ND	ND	0.42
Phenanthrene	0.03	ug/g	ND	ND	0.05	1.44
Pyrene	0.03	ug/g	ND	ND	ND	0.11
2-Fluorobiphenyl		%	90.00	89.00	90.00	83.00
Naphthalene-D8 (surr)		%	102.00	87.00	96.00	93.00
p-Terphenyl		%	75.00	86.00	94.00	81.00
Quinoline-d7		%	81.00	119.00	75.00	81.00

[1] UTM zone 11, NAD 83

[2] mg/kg and µg/kg are equivalent units

APPENDIX H: SCREENING WILDLIFE RISK ASSESSMENT

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1.0 INTRODUCTION

The screening-level wildlife risk assessment (screening-level WRA), conducted in parallel to the human health risk assessment (HHRA), evaluates potential adverse population-level effects to terrestrial wildlife that may be associated with chemical emissions from the Grassy Mountain Coal Project (the Project) in the Regional Study Area (RSA). While the human health risk assessment is focused on potential effects to individuals, the WRA is aimed at assessing population-level effects that could lead to a decline or change in the abundance or distribution of a population over time. The focus of the screening-level WRA is to examine long-term chronic health risks to wildlife, aiming to assess population-level effects over time.

Potential risks to wildlife associated with chemicals of potential concern (COPC) that may be emitted from the Project into the air, combined with existing or approved developments, and potentially deposited onto soil and surface water within the RSA were evaluated. The screening-level WRA used modelled air concentration data from the Air Quality Assessment (Consultant Report #1a) to evaluate long-term (chronic) and select short-term (acute) health risks to wildlife from exposure to air through inhalation. The multimedia model used for the HHRA (Consultants Report #12, Section 5.2.2 and Appendix E) was used to evaluate exposure from soil and surface water through ingestion. To assess potential risks to terrestrial wildlife, predicted air concentrations were compared with inhalation toxicity reference values (TRVs) protective of wildlife, predicted soil concentrations were compared to soil quality guidelines (protective of wildlife), and surface water concentrations were compared to surface water quality guidelines (protective aquatic life receptors and of wildlife).

The general assessment approach was the same as for the HHRA, including evaluation of the baseline, and application cases. Further details on the scope of the assessment including the project specific Provincial and Federal terms of reference (TOR); temporal and spatial assumptions; boundaries of the RSA and Local Study Area (LSA); and, predicted soil concentration methodology can be found in the HHRA (Consultant Report 12, Section 2.0). The methods and assumptions applied in the air dispersion modelling can be found in the Air Quality Assessment (Consultant Report #1, Section 2.5). The risk assessment methodology (problem formulation, hazard and exposure assessment, and risk characterization) was also the same as the HHRA (Consultant Report 12, Section 5.0), with exceptions as described below.

1.1 Methods

This screening-level WRA was conducted according to the principles and guidance presented in *Ecological Risk Assessment Guidance* (Environment Canada, 2012) and a *Framework for Ecological Risk Assessment* (CCME, 1996). As outlined in this guidance, a screening-level risk assessment is the initial tier in an ecological assessment and as such employs conservative assumptions regarding chemical exposure and toxicity to receptors. The steps of a screening-level assessment follow the traditional risk assessment framework that includes problem formulation, exposure assessment, toxicity assessment, and risk characterization. Each of these steps is further defined in the HHRA (Consultant Report 12, Section 5.0).

The Canadian Environmental Assessment Agency's *Guidelines for the Preparation of an Environmental Impact Statement* and the Alberta Energy Regulator's *Terms of Reference of Environmental Impact Assessment* prepared for the Grassy Mountain Coal Project guided the scope, requirements and principles adhered to in this screening-level WRA. For the purposes of this assessment health of the wildlife population in the RSA was identified as the valued component (VC).

In order to quantify or measure potential effects to wildlife populations a measurement metric is required. For air, a hazard quotient (HQ), the ratio between the predicted COPC concentrations in air and inhalation TRVs was calculated. An HQ less than 1.0 indicates no adverse effects are predicted for any receptors. Due to the number of conservative assumptions purposefully built into risk assessment methodology, an HQ greater than 1.0 does not automatically indicate a potential risk of adverse health effects. Instead, it is an indication that additional, in-depth assessment is required for the individual risk result. The additional assessment includes a review of the conservative assumptions made in the toxicity and exposure assessment steps in order to determine whether the result represents a potential risk of adverse health effects, or is a result of the conservative assumptions made during the calculations.

For soil, predicted COPC concentrations in soil from air deposition were compared to the corresponding soil quality guidelines for wildlife. For surface water, predicted COPC concentrations in surface water from air deposition were compared to the corresponding surface water quality guidelines for the protection of freshwater aquatic life (FAL) and wildlife watering. If the predicted air, soil and surface water concentrations are less than their respective inhalation TRV, soil quality guideline or surface water quality guideline, no impacts are predicted for wildlife.

2.0 PROBLEM FORMULATION

The purpose of the problem formulation is to focus the risk assessment and identify the COPC, wildlife receptors, and exposure pathways that will be considered.

2.1 Chemicals of Potential Concern

The COPC included in the screening-level WRA (Table H.1) are the same as those identified for the HHRA; any emissions which could potentially result in changes to environmental quality were considered as potential COPC. The methods applied for COPC screening are provided in the HHRA (Consultant Report 12, Section 5.1.1).

Table H.1 Chemicals of Potential Concern (COPCs) Emitted to Air

Chemical Group	Chemicals
Criteria Air Contaminants	Carbon Monoxide (CO) Nitrogen Dioxide (NO_2) Sulphur Dioxide (SO_2) Particulate Matter <2.5 µm ($PM_{2.5}$)
Metals	Aluminum Antimony Arsenic Barium Beryllium Cadmium Chromium II, III Chromium VI Cobalt Copper Lead Manganese Mercury Molybdenum Nickel Selenium Thallium Uranium Vanadium Zinc
Polycyclic Aromatic Hydrocarbons (PAH)	Acenaphthene Acenaphthylene Anthracene Benz[a]anthracene Benzo(a)pyrene

Table H.1 Chemicals of Potential Concern (COPCs) Emitted to Air	
Chemical Group	**Chemicals**
	Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Phenanthrene Pyrene
Volatile Organic Compounds (VOCs)	Benzene Toluene Xylenes Propylene Formaldehyde Acetaldehyde Acrolein

Of the chemicals listed in Table H.1, those that could potentially be deposited and accumulate in soils and surface water were determined through an evaluation of their physical-chemical properties. As outlined in the HHRA (Consultant Report 12, Section 5.1.1), those COPCs with low volatility indicating a potential to deposit and those which could potentially accumulate in plant or animal tissue over time were identified for assessment of the potential risks to wildlife associated with non-inhalation pathways. Results of this screening are presented below in Table H.2.

Table H.2 Chemicals of Potential Concern Included in the Soil and Surface Water Assessment	
Chemical Group	**Chemicals**
Metals	Aluminum Antimony Arsenic Barium Beryllium

Table H.2 Chemicals of Potential Concern Included in the Soil and Surface Water Assessment

Chemical Group	Chemicals
	Cadmium Chromium (II, III and VI) Cobalt Copper Lead Manganese Mercury Molybdenum Nickel Selenium Thallium Uranium Vanadium Zinc
Polycyclic Aromatic Hydrocarbons (PAH)	Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Phenanthrene Pyrene
Volatile Organic Compounds (VOC)	Formaldehyde

The fate of project related PAHs that could potentially be released to air is dependent on their physical-chemical properties. Low-volatile PAHs with more than five rings, characterized by having a low vapour pressure are found adsorbed onto airborne particulates after emission (Wania and Mackay, 1996). The settling of PAHs associated with particulates is subject to the weight and physical

parameters of the carrier particle (Maliszewska-Kordybach, 1999). Details of the deposition and accumulation of COPC in soil and surface water are provided in Appendix E.

2.2 Wildlife Receptors

Potential wildlife receptors include any species potentially present within the RSA, including resident and migratory populations. Potential risks to wildlife were not assessed for individual species. To assess risk predicted air concentrations of COPC were compared to wildlife toxicity data and predicted soil and surface water concentrations were compared against established soil and surface water quality guidelines protective of wildlife.

Since none of the identified COPCs are expected to biomagnify up the food chain and in most cases they are metabolized in higher organisms; exposures are expected to be highest for primary consumers (CCME, 2010; US EPA, 1999).

Receptors relevant to the study area are summarised in the Baseline Wildlife Survey (Consultant Report #9). A list of at risk wildlife including sensitive, special concern, and threatened or endangered species were reviewed (Consultant Report #9, Table 2.4-2) to ensure these receptors were sufficiently considered in the screening-level WRA.

2.3 Exposure Pathways

Exposure pathways are evaluated to identify potential routes by which wildlife could be exposed to COPC from the Project and the significance of these pathways to exposure. Potential risk can only exist when sufficient quantities of a contaminant reach a receptor via inhalation, ingestion or dermal exposure.

Project COPC will be emitted to air and direct inhalation of air is expected to be the primary exposure pathway. Maximum predicted air concentrations were used for assessing acute and chronic inhalation exposures for wildlife.

Secondary exposure via ingestion of soil, surface water, or local food sources that have accumulated COPC through deposition or uptake is also a potential exposure pathway. Soil concentrations were compared to available AEP (2016) Tier 1 surface soil guidelines protective of the wildlife soil and food ingestion pathway, and the US EPA (2010) ecological soil screening levels protective of avian and mammalian wildlife. In addition, secondary exposure via ingestion of surface water was also evaluated. Surface water concentrations were compared to the available Tier 1 surface water quality guidelines (ESRD 2014, AEP 2016). Applicable exposure pathways are summarized below in Table H.3.

Table H.3 Exposure Pathways

Exposure Pathway	Evaluated	Rationale
Inhalation	Yes	Wildlife may inhale chemicals emitted to air from Project operations.
Ingestion of surface water	Yes	This project is not expected to directly impact water quality (Consultant Report 5: Surface Water Quality and Consultant Report 6: Aquatic Assessments) but deposition was considered in the multimedia model. Surface water ingestion is considered to be the primary route of exposure for wildlife and dermal contact is adequately protected by meeting surface water quality guidelines for the protection of wildlife watering.
Dermal contact with surface water	Yes	
Dermal contact with soil	No	Dermal contact for wildlife is typically not quantitatively assessed due to the presence of hair and feathers on mammals and birds which prevent significant dermal exposure to soil; typically dermal exposure is expected to be <5% of total exposure (CCME, 2006).
Ingestion of soil	Yes	Airborne emissions from the Project may deposit onto soils. Wildlife ingest small amounts of soil during foraging preening and grooming.
Ingestion of plants	Yes	Airborne emissions from the Project may deposit onto plant surfaces and soils. Chemicals may be taken up by plants and become food sources for wildlife.
Ingestion of fish	No	No impacts on surface water are predicted (Consultant Report #6, Aquatic Assessment); comparison of predicted deposition of COPC onto surface water indicate estimated surface water concentrations are below guidelines protective of FAL.
Ingestion of prey	No	Identified COPCs are not expected to biomagnify up the food chain and in most cases they are metabolized in higher organisms; for COPC that do biomagnify this pathway is considered as part of the soil quality guideline however (CCME, 2006).

2.4 Conceptual Site Model

A tabular presentation of the source, exposure media, potential exposure pathways and example wildlife receptors is presented in Table H.4. As noted above, a COPC can only pose a potential health risk if it can reach a receptor through an exposure pathway at a concentration causing an adverse effect.

Table H.4 Conceptual Site Model for Wildlife

Source	Exposure Media	Potential Exposure Pathways	Example Wildlife Receptor	
			Avian	Mammalian
Air Emissions	Air	Inhalation	X	X
	Soil	Ingestion	X	X
	Surface Water	Ingestion	X	X
Source → **Receptor**				

3.0 EXPOSURE ASSESSMENT

The exposure assessment involves the estimation of the amount of each COPC that wildlife could potentially be exposed to, based on reasonable worst-case assumptions. Exposure *via* acute and chronic inhalation of airborne COPC was determined from predicted air quality concentrations for the exposure averaging period specific to acute or chronic exposure. Results of the air dispersion modelling are provided in the HHRA (Consultant Report #12 – Appendix C Acute Inhalation Results and Consultant Report #12 - Appendix E Chronic Inhalation Results); methods of the air dispersion modelling are provided in the Air Quality Assessment (Consultant Report #1, Section 5). Maximum predicted 1-hour, 24-hour and annual average concentrations of COPC were used in the acute and chronic inhalation assessment. For purposes of estimating exposure, it was assumed that wildlife would be continuously exposed for the averaging periods being evaluated.

Chronic exposure via inhalation to all COPC was considered. Exposures to criteria air contaminants (SO_2, NO_2, and $PM_{2.5}$) were identified to be driving the results of the HHRA; to ensure exposure to these contaminants were adequately assessed for wildlife both acute and inhalation exposure was considered, with the exception of CO for which chronic exposure is not considered. Acute exposure to other COPC was not evaluated. The air concentrations applied in the screening-level WRA were conservatively assumed to be the worst-case values predicted to occur at the RSA-maximum point of impingement (RSA-MPOI). As discussed above, the focus of this assessment was aimed at population effects over time for which chronic exposure is a more appropriate measure.

The concentrations of COPC in soil were measured in soil for the Baseline Case and predicted for the Application Case scenarios. The soil concentrations were predicted using multimedia modelling that estimated the movement of the COPC emitted by the Project and deposition onto soil. The concentrations of COPC in surface water were measured in water for the Baseline Case and predicted for the Application Case scenarios. The surface water concentrations were predicted using multimedia modelling that estimated the movement of the COPC emitted by the Project and deposition onto surface water. The model takes into account the physical/chemical properties of the COPC as well as the physical environment where deposition occurs. The predicted soil and surface water concentrations were calculated using the air concentrations predicted for the RSA-MPOI location.

Details of the multimedia model methods, assumptions and a worked example are provided in Appendix E.

4.0 TOXICITY ASSESSMENT

The toxicity assessment involves establishing exposure limits (TRVs) protective of wildlife receptors that would not have effects at the population level. TRVs are chemical-specific estimates of an exposure level that is not likely to cause unacceptable adverse effects on growth, reproduction or survival of wildlife receptors.

Information on the wildlife inhalation toxicity of the COPC was obtained from the scientific literature related to the exposure of laboratory test animals such as mice, rats and guinea pigs. Virtually no controlled studies have been identified where wildlife species were exposed to the COPC. This therefore requires that health effects be extrapolated from laboratory animals to the wildlife species being assessed. Uncertainty factors (UF) are applied to account for possible differences in physiology and sensitivity between species.

For the screen assessment, oral TRVs were not established for wildlife. To assess this exposure pathway, the predicted soil and surface water concentrations were conservatively compared to direct soil and surface water guidelines protective of wildlife species. The AEP (2016) wildlife soil and food ingestion guidelines and US EPA Ecological Soil Screening levels (Eco-SSL) (US EPA 2010) designed to be protective of ecological receptors that come in contact with and consume biota growing in the soil. The surface water guidelines are protective of fresh water aquatic life and other wildlife receptors.

4.1 Acute Toxicity Reference Values

Inhalation TRVs were established for short-term or acute exposure for criteria air contaminants (CAC) only. Acute exposures generally extend over a period ranging from hours to less than 30 days. Acute

toxicity information is often limited to lethal concentration values (LC_{50}) for most COPC, which is the concentration lethal to 50% of the test animals. The lowest value reported for all species was used to derive the acute TRV, and therefore no uncertainty factors were applied to account for differences between species. Consistent with CCME (2006) a UF of 10 was applied for using LC_{50} data instead of either a lowest observable adverse effect level (LOAEL) or no observable adverse effect level (NOAEL). An additional UF of 10 was applied to account for the limited amount of available literature.

One acute TRV was established for all mammalian wildlife receptors, based on mammalian laboratory animals; the same was done for avian receptors. The literature review for acute TRVs consisted of a search of the following:

- Agency for Toxic Substances and Disease Registry (ATSDR);
- International Programme on Chemical Safety (IPSCS);
- National Toxicity Program Chemical Repository (NTP);
- US National Library of Medicine's Hazardous Substances Databank (HSDB) and ChemIDplus.

Table H.5 provides the acute inhalation TRVs established for each of the COPC; where no data was available the COPC are marked ND (no data).

Table H.5 Acute Inhalation Wildlife TRVs – Criteria Air Contaminants

COPC	Receptor Group	Averaging Period	TRV (mg/m^3)	Endpoint	Rationale	Reference
Carbon Monoxide	Avian	1 hour	15.5	Mortality	An LC50 of 1,334 ppm (1,550 mg/m^3) was identified in wild birds. A UF of 100 was applied for use of an LC value (10) and the application of a single study (10).	ChemID Plus, 2012
	Mammal	1 hour	20.78	Mortality	An LC50 of 2,078 mg/m^3 was identified in rats exposed via inhalation to carbon monoxide for four hours. A UF of 100 was applied for use of an LC value (10) and the application of a single study (10).	Ramamoorthy *et al.*, 1995
Nitrogen Dioxide	Avian	ND	ND	ND	ND	ND
	Mammal	1 hour	0.56	Mortality	An LC50 of 56 mg/m^3 was identified in guinea pigs exposed via inhalation to nitrogen dioxide for 1 hour. A UF of 100 was applied for use of an LC value (10) and the application of a single study (10).	HSBD, 2012

Table H.5 Acute Inhalation Wildlife TRVs – Criteria Air Contaminants

COPC	Receptor Group	Averaging Period	TRV (mg/m^3)	Endpoint	Rationale	Reference
Sulphur Dioxide	Avian	1 hour	26	Mortality	An LC20 of 1,000 ppm (2,600 mg/m^3) was identified in white leghorn poultry continuously exposed to sulphur dioxide vapours of 0 to 5,000 ppm for 1 hour. A UF of 100 was applied for use of an LC value (10) and the application of a single study (10).	Fedde and Kuhlman, 1979
	Mammal	1 hour	26	Mortality	An LC50 of 2,600 mg/m^3 was obtained for mice exposed to sulphur dioxide for 4 hours via inhalation. A UF of 100 was applied for use of an LC value (10) and the application of a single study (10).	HSBD, 2012
Particulate Matter <2.5 um	Mammal	24 hour	30 ug/m^3	Mortality and morbidity	This TRV is based on the 3 year average of the annual 98th percentile of the 24-hour average concentration. Developed for humans this value is based on the epidemiological association between acute exposure to ambient fine particulates and increase population mortality and morbidity.	CCME, 2000; 2012

No wildlife toxicity information was available for $PM_{2.5.}$ A substantial portion of the predicted air concentration for $PM_{2.5}$ is predicted to be associated with Project activity. Due to the wildlife data limitations a human inhalation TRV was conservatively applied for both the acute and chronic assessments. These values were established to be protective of adverse human health effects, and believed to be a highly conservative application to wildlife.

4.2 Chronic Toxicity Reference Values

Inhalation TRVs were identified for long-term or chronic exposure for all COPC where data permits. Chronic exposures occur continuously over extended periods longer than 30 days, ideally throughout an animal's lifetime. Chronic TRVs were established using guidance described by the British Columbia Ministry of Water, Land and Air Protection (BC MWLAP, 1998). Based on this guidance, the goal of a screening-level WRA is to protect enough individuals so that a viable population and community of organisms can be maintained. Consideration of endpoints that have an effect on a species' population including reproduction, development and survivorship were considered in establishing chronic TRVs; development and growth endpoints were considered acceptable if these were the only endpoints available.

Chronic TRVs were established for all COPC from available toxicological data based on ecological population-level endpoints. The lowest reported NOAEL value for all species associated with population-level effects was selected. Preference was given to an available NOAEL to reduce the likelihood of underestimating potential risk to sensitive wildlife species, however, in the absence of an available value the lowest LOAEL was used as the TRV applying an uncertainty factor to account for the use of a LOAEL. The literature review for chronic TRVs consisted of a search of the following:

- ATSDR;
- Government of California, Office of Environmental Health Hazard Assessment (OEHHA);
- Health Canada and Environment Canada (Government of Canada);
- International programme on chemical safety (IPSCS);
- Massachusetts Government Department of Environmental Protection;
- National Toxicity Program Chemical Repository (NTP);
- Netherlands' National Institute of Public Health and Environment (RIVM);
- US National Library of Medicine's Hazardous Substances Databank (HSDB) and ChemIDplus;
- World Health Organization (WHO); and
- United States Environmental Protection Agency (US EPA).

No inhalation toxicity values are available for propylene, beryllium, lead, molybdenum, selenium, thallium, zinc, and the aromatic non-volatile polycyclic aromatic hydrocarbon (PAH) group (C17-C34) which includes benz(a)anthracene, benzo(a)pyrene, benzo(b) fluoranthene, benzo(g,h,i)perylene, benzo(k)lfuoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

The CCME (2010) conducted a detailed literature review of available mammalian and wildlife studies of non-carcinogenic endpoints and reported limited mammalian data for non-carcinogenic end-points is limited and no chronic data for the evaluation of avian species. Predominantly the available data describes studies of laboratory mammals for human health investigations of carcinogenic endpoints (CCME 2010).

For the purposes of the current assessment, oral toxicity values provided as daily threshold effect doses (DTEDs) for PAHs were obtained from CCME (2010) and then converted to an inhalation based TRVs using the formula below.

$TRV_i = TRV_o(BW)/I_a$

Where:

TRV_o = toxicity reference value – oral exposure
BW = body weight (kg live weight)
I_a = inhalation rate (m^3 air/d),
TRV_i = toxicity reference value – inhalation exposure

CCME (2010) TRVs were not available for benzo(g,h,i)perylene, dibenz(a,h)anthracene, or indeno(1,2,3-cd)pyrene, and for those compounds the 10th percentile NOAEL for aromatics toxicity data, for a mouse, of 0.6 mg/kg day, was applied. The aromatics TRV is a conservative value that is considerably lower than the DTED values provided for the various other PAHs (CCME 2010).

As reliable inhalation rates for wildlife are not readily available, allometric equations, based on body mass, were used to estimate inhalation rates of resting mammals (Stahl 1967).

$I_a = (0.54576(BW)^{0.8})$

Where:

I_a = inhalation rate (m^3 air/d)
BW = body weight (kg live weight)

A table summarizing the calculated inhalation rates for various identified wildlife receptors is included in Table H-6. As the calculated inhalation rates are based on body weight, the smallest identified species of concern, the Little Brown Bat, was used to derive inhalation based TRVs that would be protective of wildlife species in the Study Area. An avian receptor was not included in this assessment as the basis of the oral TRVs were mammalian.

Table H.6 Calculated Wildlife Inhalation Rates

Species	Body weight (kg)[a]	Calculated Inhalation Rate (m^3/d)
Little Brown Bat	0.008	0.011
Hoary Bat	0.026	0.029
Silver-haired Bat	0.010	0.014
Water Vole	0.35	0.24
Red-tailed Chipmunk	0.06	0.058

Table H.6 Calculated Wildlife Inhalation Rates		
Species	**Body weight (kg)[a]**	**Calculated Inhalation Rate (m^3/d)**
American Badger	9	3.2
Bobcat	18.3	5.6
Canada Lynx	17	5.3
Fisher	6	2.3
Wolverine	18	5.5
Grizzly Bear	350	59

a – HWW (2016)

No chronic duration studies were identified for avian receptors. This therefore requires that health effects be extrapolated from mammalian laboratory animals. A UF of 10 was applied to mammalian TRVs in order to account for the possibility of inter-species differences. Table H.7 provides the chronic inhalation TRVs established for each of the COPC; where no data was available the COPC are marked ND (no data).

Table H.7 Chronic Inhalation Wildlife TRVs

COPC	Receptor Group	TRV (mg/m^3)	Endpoint	Rationale[1]	Reference
Criteria Air Contaminants					
Nitrogen Dioxide	Mammal/Avian	0.0025	Developmental effects	A NOAEL of 0.1 mg/m^3 was obtained from rats exposed to 0, 0.05, 0.1, 1 or 10 mg/m^3 for 6 hours/day, 7 days/week through gestation until 2 months old.	Tabacova *et al.*, 1985
	Human	40[5]	Respiratory effects in humans	See Appendix B	WHO 2005; 2000.
Sulphur Dioxide	Mammal/Avian	0.26	Respiratory effects	This TRV was identified in guinea pigs exposed continuously to a sulphur dioxide concentrations of 0.34, 2.6 or 15 mg/m3 for 52 weeks.	HSBD, 2012
Particulate Matter <2.5 um	Human/ Mammal/Avian	10	Premature mortality	This TRV is the annual average standard set by CCME, developed for humans, and based on various epidemiological studies.	CCME, 2012
Polycyclic Aromatic Hydrocarbons					
Acenaphthene[2]	Mammal/Avian	12.3	Developmental and reproductive effects	A NOAEL of 100 ppm (491 mg/m3) was identified in pregnant mice exposed to 0, 100, 500, or 1,500 ppm high flash aromatic naptha for 6 hours/day on gestation day 6 -15. This value was adjusted for continuous exposure.	MA DEP, 2003
Acenaphthylene[2]					
Anthracene[2]					

Table H.7 Chronic Inhalation Wildlife TRVs

COPC	Receptor Group	TRV (mg/m³)	Endpoint	Rationale[1]	Reference
Benzo(a)anthracene[3]	Mammal/Avian	1.4	Immune	Oral toxicity value converted to an inhalation TRV.	CCME, 2010
Benzo(a)pyrene[3]	Mammal/Avian	0.14	Reproduction		CCME, 2010
Benzo(b)fluoranthene[3]	Mammal/Avian	1.4	Immune		CCME, 2010
Benzo(g,h,i)perylene[3,4]	Mammal/Avian	0.042	Reproduction		CCME, 2010
Benzo(k)fluoranthene[3]	Mammal/Avian	1.4	Immune		CCME, 2010
Chrysene[3]	Mammal/Avian	1.4	Immune		CCME, 2010
Dibenzo(a,h)anthracene[3,4]	Mammal/Avian	0.042	Reproduction		CCME, 2010
Fluoranthene[2]	Mammal/Avian	12.3	Developmental and reproductive effects	A NOAEL of 100 ppm (491 mg/m3) was identified in pregnant mice exposed to 0, 100, 500, or 1,500 ppm high flash aromatic naptha for 6 hours/day on gestation day 6 -15. This value was adjusted for continuous.	MA DEP, 2003
Fluorene[2]					
Indeno(1,2,3-cd)pyrene[3,4]	Mammal/Avian	0.042	Reproduction	Oral toxicity value converted to an inhalation TRV.	CCME, 2010
Phenanthrene[2]	Mammal/Avian	12.3	Developmental and reproductive effects	A NOAEL of 100 ppm (491 mg/m3) was identified in pregnant mice exposed to 0, 100, 500, or 1,500 ppm high flash aromatic naptha for 6 hours/day on gestation day 6 -15. This value was adjusted for continuous exposure.	MA DEP, 2003
Pyrene[2]					

Table H.7 Chronic Inhalation Wildlife TRVs

COPC	Receptor Group	TRV (mg/m^3)	Endpoint	Rationale[1]	Reference
Volatile Organic Compounds					
Benzene	Mammal/Avian	1.5	Developmental effects	A LOAEL of 47 ppm (150 mg/m^3) was obtained by exposing rats to 0, 47, 141, 470 or 939 ppm benzene on gestation days 7 - 14 for 24hours/day. The TRV applied an uncertainty factor of 10 for the use of a LOAEL.	Government of Canada, 1993
Toluene	Mammal/Avian	0.73	Reproductive effects	A LOAEL of 100 ppm (375 mg/m^3) in mice was obtained after exposure to toluene via inhalation for 6.5 hours/day, 5 day/week for 14 weeks. The LOAEL was adjusted for continuous exposure. An uncertainty factor of 10 was applied to account for the use of a LOAEL.	ATSDR, 2000; Government of Canada, 1992
Xylenes	Mammal/Avian	1.5	Developmental effects	A LOAEL of 150 mg/m3 in rats exposed to xylenes for gestation days 7 through 14 was obtained. An uncertainty factor of 10 was applied for the use of a LOAEL.	ATSDR, 2007b
Acetaldehyde	Mammal/Avian	1.3	Growth effects	Rats were exposed to 400, 1000, 2200 or 5000 ppm acetaldehyde for 6 hours/day, 5 days/week for 4 weeks. A NOAEL of 400 ppm (720 mg/m^3) was obtained and adjusted for continuous exposure. An uncertainty factor of 10 was applied for the use of a subchronic.	Government of Canada, 2000
Acrolein	Mammal/Avian	0.016	Growth effects	Rats were exposed to 0, 0.4, 1.4, or 4.9 ppm acrolein for 6 hours/day, 5 days/week for 13 weeks. A NOAEL of 0.4 ppm (0.9 mg/m^3) was identified and adjusted for continuous exposure.	US EPA, 2003

Table H.7 Chronic Inhalation Wildlife TRVs

COPC	Receptor Group	TRV (mg/m^3)	Endpoint	Rationale[1]	Reference
Formaldehyde	Mammal/Avian	0.045	Reproductive survival and growth effects	A NOAEL of 2 ppm (2.5 mg/m^3) was identified in rats exposed to 0, 2, 5.6, or 14.3 ppm formaldehyde for 6 hours/day, 5 days/week for 24 months. This value was adjusted for continuous exposure.	ATSDR, 1999a; ATSDR 2010
Propylene	Mammal/Avian	ND	ND	ND	ND
Metals					
Aluminum	Mammal/Avian	0.011	Growth	A NOAEL of 0.65 mg/m^3 was identified in F344 rats exposed for 6 hours/day, 5 days/week for 12 to 24 months. This value was adjusted for continuous.	ATSDR, 2008a
Antimony	Mammal/Avian	0.36	Mortality	A NOAEL of 17.5 mg/m^3 was identified in rats exposed for 7 hours/day, 5 days/week for 52 weeks. This value was adjusted for continuous.	ATSDR, 1992
Arsenic	Mammal/Avian	0.2	Developmental effects	A NOAEL of 8 mg/m^3 was identified in rats exposed to 0.2 mg/m^3 (arsenic trioxide) for 6 hours/day from 14 days prior to mating through gestation day 19. This value was adjusted for continuous.	ATSDR, 2007a
Barium	Mammal/Avian	0.011	Growth effects	A NOAEL of 0.8 mg/m^3 was identified in rats exposed to 0.8 or 3.6 mg/m^3 barium (as barium carbonate dust) for 4 hours/day, 6 days/week for 4 months. The NOAEL was adjusted to continuous exposure.	WHO 2001a; RIVM 2001; US EPA 1998
Beryllium	Mammal/Avian	ND	ND	ND	ND
Cadmium	Mammal/Avian	0.00003	Developmental effects	A LOAEL of 0.02 mg/m^3 was identified in rats	ATSDR,

Table H.7 Chronic Inhalation Wildlife TRVs

COPC	Receptor Group	TRV (mg/m^3)	Endpoint	Rationale[1]	Reference
				exposed to cadmium (as cadmium oxide) for 5 hours/day, 5 days/week for 5 months prior to mating, during mating and the first 20 days of gestation. The LOAEL was adjusted to continuous exposure. An uncertainty factor of 10 was applied for use of a LOAEL.	2012a
Chromium (total)	Mammal/Avian	0.0092	Reproductive and growth effects	A NOAEL of 0.1 mg/mg^3 was identified in rats exposed to a 3:2 mixture of chromium (VI) trioxide and chromium (III) oxide for 22 hours/day, 7 days/week for 18 months. This value was adjusted for continuous.	ATSDR, 2012b
Chromium (VI)	Mammal/Avian	0.009	Growth	A NOAEL of 0.1 mg/m^3 was identified for male Wistar rats exposed to hexavalent chromium for 22 hours/day, 7 days/week for 18 months. This value was adjusted for continuous.	ATSDR, 2012b
Cobalt	Mammal/Avian	0.0002	Reproductive effects	A LOAEL of 1.14 mg/m^3 exposed to 0, 1.14, 3.8, or 11.38 mg/m^3 cobalt sulphate heptahydrate for 6 hours/day, 5 days/week, for 13 weeks. This value was adjusted for continuous exposure.	ATSDR, 2004
Copper	Mammal/Avian	0.025	Respiratory	A LOAEL of 2.5 mg/m^3 was identified in rats exposed to 2.5 or 19.6 mg/m^3 copper (as copper chloride) for 4 months. An uncertainty factor of 10 was applied to account for use of a LOAEL.	WHO 1998
Lead	Mammal/Avian	ND	ND	ND	ND
Manganese	Mammal/Avian	0.005	Developmental effects	A LOAEL of 0.05 mg/m^3 was identified in the offspring of rats exposed to 0, 0.05, 0.5 or 1	ATSDR,

Table H.7 Chronic Inhalation Wildlife TRVs

COPC	Receptor Group	TRV (mg/m^3)	Endpoint	Rationale[1]	Reference
				mg/m^3 manganese sulphate for 6 hours/day, 7 days/week, from breeding up to post-natal day 18. No adjustment for continuous exposure was made due to the nature of the critical endpoint.	2012c
Mercury	Mammal/Avian	0.005	Developmental effects	A LOAEL of 0.05 mg/m^3 was identified in offspring of Sprague Dawley rats exposed to inorganic mercury for 1 to 4 hours/day, 7 days/week during post-partum days 11 to 17. No adjustment for continuous exposure was made due to the nature of the critical endpoint.	ATSDR, 1999b; ATSDR 2013a
Molybdenum	Mammal/Avian	ND	ND	ND	ND
Nickel	Mammal/Avian	0.002	Growth effects	A NOAEL of 0.11 mg/m^3 was identified in rats exposed to 0, 0.11, or 0.73 mg/m^3 nickel subsulphide for 6 hours/day, 5 days/week for 104 weeks. This value was adjusted for continuous exposure.	ATSDR, 2005
Selenium	Mammal/Avian	ND	ND	ND	ND
Thallium	Mammal/Avian	ND	ND	ND	ND
Uranium	Mammal/Avian	0.05	Mortality (4.5%)	A LOAEL of 5 mg/m^3 was identified in dogs exposed to uranium dioxide for 5.4 hour/day, 5 days/week for 5 yr. An uncertainty factor of 10 was applied for use of a LOAEL.	ATSDR, 2013b

Table H.7 Chronic Inhalation Wildlife TRVs

COPC	Receptor Group	TRV (mg/m^3)	Endpoint	Rationale[1]	Reference
Vanadium	Mammal/Avian	0.00089	Respiratory	A NOAEL of 0.5 mg/m^3 was identified in rats and mice exposed to vanadium pentoxide for 6 hours/day, 5 days/week for 13 weeks. The NOAEL was adjusted to continuous exposure. An uncertainty factor of 10 was applied to account for subchronic.	ATSDR, 2012d
Zinc	Mammal/Avian	ND	ND	ND	ND

1 - no avian data was available; an uncertainty factor of 10 was applied the mammalian TRV to account for inter species differences and protection of avian receptors.

2 - toxicology on compounds within the C9-C16 carbon range were assessed as a group

3 – non-carcinogenic TRVs for these PAHs were only available for oral exposure for mammalian specifies. Oral toxicity values for PAHs CCME (2010) were applied and then converted to inhalation based TRVs using the following formula: $TRV_o(BW)/I_a = TRV_i$ where; TRV_o = oral exposure TRV, BW = body weight (kg), Ia = inhalation rate (m^3 air/d) and TRV_i = inhalation TRV

4 – oral TRV based on the work of Foster Wheeler (1997) as referenced in CCME (2010).

5 – The estimated TRV was much lower than the human TRV and below what the WHO considers as background ambient levels (15 µg/m3) (WHO 1997); this value was considered to be too conservative as the vales use in HHRA for protection of individual human health human was much higher. Thus, the human TRV was conservatively applied in the wildlife risk assessment.

ND - no data

4.3 Soil Quality Guidelines

The AEP Tier 1 Soil Quality Guidelines were developed to be protective of wildlife soil and food ingestion for the most stringent land use (*i.e.* agricultural or natural land use) (AEP, 2016). The Alberta soil quality guidelines were consistent with CCME (2006) protocols and were calculated using the same models.

The US EPA Eco-SSLs refer to the concentration in soil that is considered protective of wildlife receptors that come in contact with, and consume biota living in or on soil (US EPA, 2010). Eco-SSL values are currently available for metals and organics. Eco-SSL values for mammalian wildlife were derived for high molecular weight PAHs (1.1 mg/kg) and low molecular weight PAHs (100 mg/kg); Eco-SSL values for PAHs in this assessment were assigned by their molecular weight. Table H.8 summarizes the soil quality guidelines available from the AEP and US EPA and the respective test organisms.

Where a soil quality guideline value was unavailable, a search of regulatory agencies was conducted to identify an appropriate soil quality guideline; soil quality guidelines from other sources. Preference was given to guidelines from Canadian regulatory agencies and guidelines that specified mammal or applicable wildlife receptors.

Table H.8 Soil Quality Guidelines Protective of Wildlife (mg/kg)

COPC	AEP SQG[1]	US EPA Eco-SSL[2]				Other
	Wildlife	Avian	Avian Test Organism	Mammal	Mammal Test Organism	
Polycyclic Aromatic Compounds						
Acenapthene	21.5	ND	ND	100	Ground insectivore, shrew	-
Acenaphthylene	ND	ND	ND	100	Ground insectivore, shrew	-
Anthracene	61.5	ND	ND	100	Ground insectivore, shrew	-
Benz(a)anthracene	6.2	ND	ND	100	Ground insectivore, shrew	-

Table H.8 Soil Quality Guidelines Protective of Wildlife (mg/kg)

COPC	AEP SQG[1]	US EPA Eco-SSL[2]				Other
	Wildlife	Avian	Avian Test Organism	Mammal	Mammal Test Organism	
Benzo(a)pyrene	0.6	ND	ND	1.1	Ground insectivore, shrew	-
Benzo(b)fluoranthene	6.2	ND	ND	1.1	Ground insectivore, shrew	-
Benzo(g,h,i)perylene	ND	ND	ND	1.1	Ground insectivore, shrew	-
Benzo(k)fluoranthene	6.2	ND	ND	1.1	Ground insectivore, shrew	-
Chrysene	6.2	ND	ND	100	Ground insectivore, shrew	-
Dibenz(a,h)anthracene	ND	ND	ND	1.1	Ground insectivore, shrew	-
Fluoranthene	15.4	ND	ND	100	Ground insectivore, shrew	-
Fluorene	15.4	ND	ND	100	Ground insectivore, shrew	-
Indeno(1,2,3-cd)pyrene	ND	ND	ND	1.1	Ground insectivore, shrew	-
Phenanthrene	43	ND	ND	100	Ground insectivore, shrew	-
Pyrene	7.7	ND	ND	100	Ground insectivore, shrew	-

Table H.8 Soil Quality Guidelines Protective of Wildlife (mg/kg)

COPC	AEP SQG[1]	US EPA Eco-SSL[2]				Other
	Wildlife	Avian	Avian Test Organism	Mammal	Mammal Test Organism	
Volatile Organic Compounds						
Formaldehyde	ND	ND	ND	ND	ND	ND
Metals						
Aluminum[3]	ND	ND	ND	ND	ND	50
Antimony	ND	ND	ND	0.27	Ground insectivore, shrew	-
Arsenic	ND	43	Ground insectivore, woodcock	46	Ground insectivore, shrew	-
Barium	10,000	ND	ND	2,000	Ground insectivore, shrew	-
Beryllium	ND	ND	ND	21	Herbivore, vole	-
Cadmium	3.8	0.77	Ground insectivore, woodcock	0.36	Ground insectivore, shrew	-
Chromium (total)	ND	26	Ground insectivore, woodcock	34	Ground insectivore, shrew	-
Chromium (VI)	ND	ND	ND	130	Ground insectivore, shrew	-
Cobalt	ND	120	Ground insectivore, woodcock	230	Ground insectivore, shrew	-
Copper	ND	28	Ground insectivore, woodcock	49	Ground insectivore, shrew	-

Table H.8 Soil Quality Guidelines Protective of Wildlife (mg/kg)

COPC	AEP SQG[1]	US EPA Eco-SSL[2]				Other
	Wildlife	Avian	Avian Test Organism	Mammal	Mammal Test Organism	
Lead	ND	11	Ground insectivore, woodcock	56	Ground insectivore, shrew	-
Manganese	ND	4,300	Ground insectivore, woodcock	4,000	Ground insectivore, shrew	-
Mercury[4]	ND	ND	ND	ND	ND	2
Molybdenum[4]	ND	ND	ND	ND	ND	10
Nickel	ND	210	Herbivore, dove	130	Carnivore, weasel	-
Selenium	ND	1.2	Ground insectivore, woodcock	0.63	Ground insectivore, shrew	-
Thallium[5]	ND	ND	ND	ND	ND	56.9
Uranium[6]	ND	ND	ND	ND	ND	5
Vanadium	ND	7.8	Ground insectivore, woodcock	280	Ground insectivore, shrew	-
Zinc	ND	46	Ground insectivore, woodcock	79	Ground insectivore, shrew	-

1 - AEP, 2016

2 - US EPA, 2010

3 - ORNL, 1997; US EPA 2005 - objective protective of phototoxic effects to biota

4 - MDDEP, 2002 objective protective of wildlife, flora and the environment

5 - US EPA, 2003b - objective protective of mammals

6 - ORNL, 1997; US EPA, 2005 - objective protective of phytotoxic effects to biota

ND - no data

4.4 Surface Water Quality Guidelines

The AEP Tier 1 Surface Water Quality Guidelines were developed in keeping with the intent of the *Environmental Protection and Enhancement Act* (EPEA), the *Water Act*, the Framework for Water Management and Planning (including the strategy for the Protection of the Aquatic Environment that it contains), and the Water for Life (WFL) strategy, and the idea that all existing and potential uses of water should be protected (ESRD, 2014).

Predicted concentrations for all COPCs included in the multimedia model were compared to the current Alberta surface water quality guidelines for both FAL and wildlife watering (ESRD, 2014; AEP, 2016). In the absence of an available wildlife watering value the surface water quality guideline for livestock watering (ESRD, 2014) has been provided (Table H.9). In all cases, the FAL guidelines are either equal to or are more conservative than the water quality guidelines for wildlife watering.

Table H.9 Comparison of Maximum Predicted Surface Water Concentrations (mg/L) to Surface Water Quality Guidelines Protective of both Aquatic and Wildlife

COPC	Surface Water Quality Guideline (mg/L)	
	Aquatic Life[a]	Wildlife Water[b]
Acenaphthene	0.0058	NGR
Acenaphthylene	-	-
Aluminium	0.05	5[C]
Anthracene	0.000012	NGR
Antimony	-	-
Arsenic	0.005	0.025[C]
Barium	-	-
Benz(a)anthracene	0.000018	NGR
Benzo(a)pyrene	0.000015	NGR
Benzo(b)fluoranthene	-	-
Benzo(g,h,i)perylene	-	-
Benzo(k)fluoranthene	-	NGR
Beryllium	0.1	0.1[C]
Cadmium	0.00004	0.08[C]
Chromium	0.0089	0.05[C]

Table H.9 Comparison of Maximum Predicted Surface Water Concentrations (mg/L) to Surface Water Quality Guidelines Protective of both Aquatic and Wildlife

COPC	Surface Water Quality Guideline (mg/L)	
	Aquatic Life[a]	Wildlife Water[b]
Chrysene	-	-
Cobalt	0.0025	1[C]
Copper	0.007	0.5[C]
Dibenz(ah)anthracene	-	-
Fluoranthene	0.00004	NGR
Fluorene	0.003	NGR
Formaldehyde	-	-
Indeno(1,2,3-cd)pyrene	-	-
Lead	0.001	0.1[C]
Manganese	0.2	-
Mercury	0.000005	0.003[C]
Molybdenum	0.073	0.5[C]
Nickel	0.004	1[C]
Phenanthrene	0.0004	NGR
Pyrene	0.000025	NGR
Selenium	0.001	0.05[C]
Thallium	0.0008	-
Uranium	0.015	0.2[C]
Vanadium	0.1	0.1[C]
Zinc	0.03	0.05[C]

a – Protection of Freshwater Aquatic Life Guidelines (FAL) obtained from Alberta Environment & Sustainable Resource Development (ESRD) Environmental Quality Guidelines for Alberta Surface Waters (ESRD 2014).

b – Wildlife Watering Guidelines obtained from Alberta Environment & Parks (AEP).Tier 1 Soil and Groundwater Remediation Guidelines – Appendix C Table C-11 (AEP 2016).

c – Livestock Watering Guidelines are presented in absence of an available Wildlife Watering Guideline and were obtained from ESRD (2014).

NGR – no guideline required as the calculated guideline value exceeds aqueous solubility (AEP 2016).

5.0 RISK CHARACTERIZATION

Risk characterization is the final step in the screening level risk assessment that combines the exposure and toxicity assessments to evaluate potential risks to wildlife receptors. Potential risk is estimated through a comparison of the predicted environmental concentrations with the appropriate TRV and/or guideline for each COPC. For the screening-level WRA, the worst-case air concentrations predicted to occur at the RSA-MPOI were assumed.

A risk quotient of less than 1.0 indicates that the predicted exposure is less than the exposure limit and adverse effects are not expected. A risk quotient exceeding 1.0 does not necessarily indicate that an adverse effect will occur, but rather that there is less confidence that adverse effects will not occur based on the screening-level assessment. Several conservative assumptions are purposely built into a screening level risk assessment; when a hazard quotient (HQ) exceeds 1.0 a closer examination of assumptions and input parameters may be undertaken to determine whether a risk of potential adverse health effect exists, or if the predicted exposure is within the conservative margin of safety.

5.1 Inhalation Exposure Assessment

Risk characterization for inhalation exposure involved comparing the maximum predicted COPC concentration in air for each of the assessment cases to the wildlife inhalation TRV using the following equation:

Inhalation Hazard Quotient = Maximum predicted air concentration (mg/m^3) / TRV (mg/m^3)

The HQ values for the baseline and application assessment case for the RSA-MPOI are presented for acute and chronic inhalation in Table H.10 and H.11, respectively.

Table H.10 Maximum Acute Inhalation Hazard Quotients for Wildlife

Parameter	Predicted Risk Quotients			
	RSA-MPOI			
	Baseline (mammals)	Application (mammals)	Baseline (avian)	Application (avian)
Criteria Air Contaminants				
Carbon Monoxide	7.9E-05	6.8E-03	1.1E-02	9.2E-01
Nitrogen Dioxide	1.2E-03	1.3E-02	-	-
Sulphur Dioxide	1.3E-07	2.8E-05	1.3E-05	2.8E-03
Particulate Matter <2.5 µm	5.7E-01	**1.4E+00**	5.7E-01	**1.4E+00**

*MPOI – Maximum Point of Impingement.

Acute inhalation risk estimates, expressed as HQ values, are based on a 1-hour exposure averaging period for all COPC, with the exception of $PM_{2.5}$ that applied an exposure period of 24-hours to correspond with the available TRV. All HQs for mammals and avian receptors were below 1.0 for the Baseline and Application Cases, with the exception of $PM_{2.5}$ in the Application Case, where a HQ of 1.4 was calculated. It is worth noting that that due to data limitations the TRV applied to wildlife for $P.M_{2.5}$ was derived for humans, and is based on human epidemiological studies that take into account sensitive human groups (see Toxicity Assessment, and Tables H.5 and H.7). This TRV was considered a highly conservative value for use in a WRA. In consideration of all conservative assumptions in assessing risk to wildlife, the minimal increase in HQ is not considered to indicate a potential risk of population-level adverse health effects in wildlife due to the predicted Project emissions.

Table H.11 Predicted Chronic Inhalation Hazard Quotients for Wildlife

Parameter	Predicted Risk Quotients	
	RSA-MPOI	
	Baseline (mammals/avian)	Application (mammals/avian)
Criteria Air Contaminants		
Nitrogen Dioxide	5.0E-01	1.4E+00
Sulphur Dioxide	8.1E-05	1.3E-03
Particulate Matter <2.5 µm	3.1E-05	7.8E-04
Polycyclic Aromatic Hydrocarbons		
Acenaphthene	1.8E-08	1.8E-08
Acenaphthylene	3.6E-08	3.6E-08
Anthracene	4.8E-09	4.8E-09
Benz(a)anthracene	2.1E-08	2.1E-08
Benzo(a)pyrene	8.8E-08	8.8E-08
Benzo(b)fluoranthene	3.8E-08	3.8E-08
Benzo(g,h,i)perylene	6.3E-07	6.4E-07
Benzo(k)fluoranthene	7.5E-09	7.5E-09
Chrysene	5.2E-08	5.3E-08
Dibenz(a,h)anthracene	3.9E-07	4.0E-07

Table H.11 Predicted Chronic Inhalation Hazard Quotients for Wildlife		
Parameter	**Predicted Risk Quotients**	
	RSA-MPOI	
	Baseline (mammals/avian)	**Application (mammals/avian)**
Fluoranthene	1.6E-08	1.6E-08
Fluorene	5.0E-08	5.0E-08
Indeno(1,2,3-cd)pyrene	4.7E-07	4.7E-07
Phenanthrene	1.6E-07	1.6E-07
Pyrene	1.4E-08	1.4E-08
Volatile Organic Compounds		
Benzene	2.5E-05	2.5E-05
Toluene	1.8E-05	1.8E-05
Xylenes	6.2E-06	6.2E-06
Acetaldehyde	9.3E-07	9.3E-07
Acrolein	2.4E-05	2.4E-05
Formaldehyde	8.4E-05	8.4E-05
Propylene	-	-
Metals		
Aluminum	8.7E-05	8.7E-05
Antimony	1.1E-07	3.3E-07
Arsenic	7.5E-06	7.6E-06
Barium	9.6E-04	3.0E-03
Beryllium	-	-
Cadmium	2.9E-03	5.8E-03
Chromium (total)	5.7E-05	9.0E-05
Chromium (VI)[1]	5.8E-05	9.2E-05
Cobalt	1.4E-03	4.5E-03
Copper	7.0E-05	1.4E-04
Lead	-	-

Table H.11 Predicted Chronic Inhalation Hazard Quotients for Wildlife		
Parameter	**Predicted Risk Quotients**	
	RSA-MPOI	
	Baseline (mammals/avian)	**Application (mammals/avian)**
Manganese	3.4E-05	3.4E-05
Mercury	1.1E-06	3.5E-06
Molybdenum	-	-
Nickel	4.9E-04	1.6E-03
Selenium	-	-
Thallium	-	-
Uranium	1.6E-06	5.1E-06
Vanadium	2.2E-03	3.6E-03
Zinc	-	-

"-" No TRV

*MPOI – Maximum Point of Impingement.

Chronic HQs are based on the annual exposure averaging period for all COPC. All chronic HQ values were below 1.0 for the Baseline and Applications Cases, with the exception of nitrogen dioxide (Application HQ = 1.4). Additional evaluation of this input parameter of this COPC results was conducted to determine whether and HQ = 1.4 indicated potential risk of adverse health effects, or is the result of conservative assumptions typical to health risk assessment methodology. The use of a human TRV is considered a conservative value for use in a WRA as it is designed to be protective of individual not a population (see Toxicity Assessment, Table H.7). The RSA-MPOI for NO_2 is predicted to occur on the edge of the pit boundary (Consultants Report #1a, Figure 5.2-4 and 5.4-4); a location unlikely to be frequented on a long term basis due to the Project mining activities. The HQs calculated for other locations within the LSA and RSA were substantially lower than those predicted at the RSA-MPOI (Consultant Report #12, Section 6.2, Tables 6.2-3). Evaluation of all these lines of evidence indicate that the predict HQ of 1.4 for chronic inhalation of NO2 to wildlife not an indication of potential health risk within the LSA or RSA.

5.2 Soil Assessment

A comparison of maximum predicted COPC concentrations in soil to soil quality guidelines is presented in Table H.12. The predicted soil concentrations did not exceed soil quality guidelines for any of the COPC assessed; therefore, it is expected that potential risks to wildlife would be negligible.

Table H.12 Comparison of Maximum Predicted Soil Concentration (mg/kg) to Soil Quality Guidelines Protective of Wildlife.

COPC	Regional Study Area			Soil Quality Guidelines for Wildlife (mg/kg)			
	Application	Baseline	Project	AEP SQG[1]	US EPA Eco-SSL[2]		
				Wildlife	Avian	Mammal	Other
Polycyclic Aromatic Compounds							
Acenapthene	1.18E-10	1.16E-10	7.19E-11	21.5	ND	100	-
Acenaphthylene	3.54E-10	3.47E-10	2.15E-10	ND	ND	100	-
Anthracene	2.00E-05	2.00E-05	6.74E-12	61.5	ND	100	-
Benz(a)anthracene	2.28E-13	2.23E-13	1.39E-13	6.2	ND	100	-
Benzo(a)pyrene	1.82E-13	1.78E-13	1.10E-13	0.6	ND	1.1	-
Benzo(b)fluoranthene	1.41E-13	1.38E-13	8.58E-14	6.2	ND	1.1	-
Benzo(g,h,i)perylene	6.17E-15	6.03E-15	3.75E-15	ND	ND	1.1	-
Benzo(k)fluoranthene	2.15E-14	2.10E-14	1.30E-14	6.2	ND	1.1	-
Chrysene	2.23E-13	2.19E-13	1.36E-13	6.2	ND	100	-
Dibenz(a,h)anthracene	6.07E-14	5.94E-14	3.69E-14	ND	ND	1.1	-
Fluoranthene	3.85E-11	3.76E-11	2.34E-11	15.4	ND	100	-
Fluorene	5.29E-04	5.29E-04	7.01E-11	15.4	ND	100	-
Indeno(1,2,3-cd)pyrene	9.37E-16	9.17E-16	5.69E-16	ND	ND	1.1	-
Phenanthrene	3.55E-10	3.47E-10	2.16E-10	43	ND	100	-
Pyrene	5.46E-04	5.46E-04	8.46E-12	7.7	ND	100	-
Volatile Organic Compounds							
Formaldehyde	9.74E-12	9.52E-12	5.92E-12	ND	ND	ND	ND
Metals							
Aluminum[3]	1.83E+01	1.83E+01	1.83E-09	ND	ND	ND	50
Antimony	2.73E-06	6.25E-07	2.73E-06	ND	ND	0.27	-

Table H.12 Comparison of Maximum Predicted Soil Concentration (mg/kg) to Soil Quality Guidelines Protective of Wildlife.

COPC	Regional Study Area			Soil Quality Guidelines for Wildlife (mg/kg)			
	Application	Baseline	Project	AEP SQG[1]	US EPA Eco-SSL[2]		
				Wildlife	Avian	Mammal	Other
Arsenic	7.30E-03	7.30E-03	3.59E-06	ND	43	46	-
Barium	8.13E+01	1.89E+01	8.09E+01	10,000	ND	2,000	-
Beryllium	9.00E-04	9.00E-04	2.11E-07	ND	ND	21	-
Cadmium	1.75E-03	1.73E-03	1.96E-05	3.8	0.77	0.36	-
Chromium (total)	3.20E-02	3.20E-02	9.56E-07	ND	26	34	-
Chromium (VI)	3.20E-02	3.20E-02	9.56E-07	ND	ND	130	-
Cobalt	1.38E-02	1.38E-02	2.05E-05	ND	120	230	-
Copper	3.44E-02	3.43E-02	8.31E-05	ND	28	49	-
Lead	1.61E-02	1.61E-02	1.68E-06	ND	11	56	-
Manganese	1.25E+00	1.25E+00	7.23E-09	ND	4,300	4,000	-
Mercury[4]	9.15E-05	9.03E-05	1.51E-06	ND	ND	ND	2
Molybdenum[4]	1.39E-03	1.39E-03	9.67E-06	ND	ND	ND	10
Nickel	3.12E-02	3.12E-02	2.22E-05	ND	210	130	-
Selenium	8.31E-04	8.30E-04	5.51E-07	ND	1.2	0.63	-
Thallium[5]	1.80E-04	1.80E-04	4.59E-09	ND	ND	ND	56.9
Uranium[6]	6.09E-07	1.39E-07	6.09E-07	ND	ND	ND	5
Vanadium	6.48E-02	6.48E-02	3.19E-06	ND	7.8	280	-
Zinc	1.44E-01	1.44E-01	4.17E-04	ND	46	79	-

1 - AEP, 2016

2 - US EPA, 2010

3 - ORNL, 1997; US EPA 2005 - objective protective of phototoxic effects to biota

4 - MDDEP, 2002 objective protective of wildlife, flora and the environment

5 - US EPA, 2003b - objective protective of mammals

6 - ORNL, 1997; US EPA, 2005 - objective protective of phytotoxic effects to biota

ND - no data

No soil concentration exceeded their respective soil quality guideline; therefore, it was concluded that potential risks to wildlife from soil would be negligible.

5.3 Surface Water Assessment

All modelled surface water concentrations in the RSA are below the Alberta surface water quality guidelines for FAL and wildlife watering (ESRD, 2014; AEP, 2016). In cases where guidelines are not available, predicted COPC concentrations are well below laboratory detection limits (antimony and PAH COPCs), or below guidelines for other exposure pathways, such as human drinking water ingestion (barium). No adverse health risks to human health (Consultant Report #12 Section 6.3 and Appendix F) or the environment (including aquatic life receptors and wildlife) are predicted due to surface water exposure pathways and requirement for further mitigation is not indicated.

The comparison of the predicted surface water concentrations and the surface water quality guidelines is presented in Table H.13.

Table H.13 Comparison of Maximum Predicted Surface Water Concentrations (mg/L) to Surface Water Quality Guidelines Protective of both Aquatic and Wildlife

COPC	Predicted Surface Water Concentration from Multimedia Model (mg/L)	Surface Water Quality Guideline (mg/L)	
	RSA-MPOI	Fresh Aquatic Life[a]	Wildlife Watering[b]
Acenaphthene	7.92E-09	0.0058	NGR
Acenaphthylene	2.27E-08	-	-
Aluminium	4.90E-08	0.05	5[C]
Anthracene	3.02E-09	0.000012	NGR
Antimony	1.41E-06	-	-
Arsenic	7.90E-06	0.005	0.025[C]
Barium	3.90E-02	-	-
Benz(a)anthracene	1.53E-09	0.000018	NGR
Benzo(a)pyrene	6.31E-10	0.000015	NGR
Benzo(b)fluoranthene	2.72E-09	-	-
Benzo(g,h,i)perylene	1.36E-09	-	-
Benzo(k)fluoranthene	5.35E-10	-	NGR
Beryllium	1.49E-05	0.1	0.1[C]
Cadmium	1.94E-05	0.00004	0.08[C]
Chromium	8.84E-05	0.0089	0.05[C]

Table H.13 Comparison of Maximum Predicted Surface Water Concentrations (mg/L) to Surface Water Quality Guidelines Protective of both Aquatic and Wildlife

COPC	Predicted Surface Water Concentration from Multimedia Model (mg/L)	Surface Water Quality Guideline (mg/L)	
	RSA-MPOI	Fresh Aquatic Life[a]	Wildlife Watering[b]
Chrysene	3.76E-09	-	-
Cobalt	1.06E-04	0.0025	1[C]
Copper	3.75E-04	0.007	0.5[C]
Dibenz(ah)anthracene	8.49E-10	-	-
Fluoranthene	9.89E-09	0.00004	NGR
Fluorene	3.14E-08	0.003	NGR
Formaldehyde	5.83E-07	-	-
Indeno(1,2,3-cd)pyrene	1.02E-09	-	-
Lead	1.64E-04	0.001	0.1[C]
Manganese	8.74E-08	0.2	-
Mercury	2.08E-06	0.000005	0.003[C]
Molybdenum	2.38E-05	0.073	0.5[C]
Nickel	3.68E-04	0.004	1[C]
Phenanthrene	1.00E-07	0.0004	NGR
Pyrene	6.28E-09	0.000025	NGR
Selenium	1.81E-05	0.001	0.05[C]
Thallium	7.47E-06	0.0008	-
Uranium	2.99E-05	0.015	0.2[C]
Vanadium	3.47E-04	0.1	0.1[C]
Zinc	1.93E-03	0.03	0.05[C]

a – Freshwater Aquatic Life Guidelines (FAL) obtained from Alberta Environment & Sustainable Resource Development (ESRD) Environmental Quality Guidelines for Alberta Surface Waters (ESRD 2014).

b – Wildlife Watering Guidelines obtained from Alberta Environment & Parks (AEP).Tier 1 Soil and Groundwater Remediation Guidelines – Appendix C Table C-11 (AEP 2016).

c – Livestock Watering Guidelines are presented in absence of an available Wildlife Watering Guideline and were obtained from ESRD (2014).

NGR – no guideline required as the calculated guideline value exceeds aqueous solubility (AEP 2016).

No surface water concentration exceeded their respective FAL or wildlife watering guideline; therefore, it was concluded that potential risks to wildlife from surface water would be negligible.

6.0 CONSERVATIVE ASSUMPTIONS

- Wildlife receptors were assumed to be exposed to maximum predicted air concentrations at the MPOI for the LSA and RSA for the entire exposure period considered (annual for chronic, 1 hour for acute with the exception of $PM_{2.5}$ that is 24-hour).
- For the chronic endpoints, wildlife receptors were assumed to spend their entire lifetime within the project area; however, most wildlife species will move within their home ranges that overlap the project area.
- Soil concentrations were calculated without accounting for transformation and loss processes like soil erosion and leaching.
- The operating life of the Project is expected to be 25 years, but 80 years of deposition was assumed to consider potential cumulative impacts.
- Instead of species-specific oral TRVs, generic soil and surface water quality guidelines protective of wildlife were used to assess potential risk from soil and surface water.
- Due to data limitations an inhalation TRV for $PM_{2.5}$ developed for humans was conservatively applied to wildlife.
- Chronic inhalation TRVs were developed using NOAELs selected for the most sensitive species and applied uncertainty factors where appropriate; established TRVs are therefore believed to be highly conservative.
- The chemical form that the test organism is exposed to in a laboratory is normally selected to maximize uptake into the blood stream. The use of highly bioaccessible forms often results in elevated exposures relative to uptake in the environment. In natural environments chemicals are often much less bioaccessible for a variety of reasons. For this reason the TRV are likely highly conservative.

7.0 UNCERTAINTY ASSESSMENT

In general, the uncertainties for the HHRA also apply for the screening-level wildlife health risk assessment. Uncertainties specific to the screening-level WRA are detailed below:

- The Grizzly Bear and Little Brown Bat have been identified as threatened or endangered species present in the study area. There is some uncertainty as to whether the inhalation TRVs applied for mammals would be protective of these receptors. While they are both mammals, little information is available on the nesting habitat for this bat species and how this species could be exposed to Project COPC is uncertain. Due to the large range of the Grizzly Bear, this

receptor's habitat is expected to overlap parts of the study area and actual exposure will therefore be lower than assumed in the screening-level WRA.

- The appropriateness of the use of toxicity data derived from laboratory animals to wildlife is uncertain due to differing physiology and potential uptake.
- A soil quality objective was not available for formaldehyde thus this COPC was not included in the ingestion exposure pathway assessment.
- An inhalation risk hazard quotient could not be established where no chronic inhalation TRV was available, including propylene, beryllium, lead, molybdenum, selenium, thallium and zinc.

8.0 CONCLUSIONS

The results of the screening-level WRA indicates that there are no expected population-level adverse effects associated with Project emissions on the health of wildlife in the study areas. The maximum predicted air concentrations associated with Project emission do no exceed either the acute or chronic TRVs protective of wildlife, with the exception of $PM_{2.5}$ in the acute inhalation assessment and nitrogen dioxide in the chronic inhalation assessment which were only slightly greater than 1.0. These results were not considered indicative of a risk of adverse wildlife health effects as they: conservatively used the TRV derived for human exposures and occurred only at the worst-case RSA-MPOI locations.

Maximum predicted long-term soil concentrations did not exceed the soil quality guidelines protective of wildlife, and predicted water concentrations did not exceed surface water guidelines protective of either freshwater aquatic life or wildlife watering.

9.0 REFERENCES

AEP (Alberta Environment and Parks). 2016. Tier 1 Soil and Groundwater Remediation Guidelines. Land and Forestry Policy Branch, Policy Division. 195 pp.

ATSDR (Agency for Toxic Substances and Disease Registry). 1992. Toxicological Profile for Antimony. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. December 1992.

ATSDR (Agency for Toxic Substances and Disease Registry). 1999a. Toxicological Profile for Formaldehyde. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. July 1999.

ATSDR (Agency for Toxic Substances and Disease Registry). 1999b. Toxicological Profile for Mercury. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. March 1999.

ATSDR (Agency for Toxic Substances and Disease Registry). 2000. Toxicological Profile for Toluene. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. September 2000.

ATSDR (Agency for Toxic Substances and Disease Registry). 2004. Toxicological Profile for Cobalt. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. April, 2004.

ATSDR (Agency for Toxic Substances and Disease Registry). 2005. Toxicological Profile for Nickel. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. August 2005.

ATSDR (Agency for Toxic Substances and Disease Registry). 2007a. Toxicological Profile for Arsenic. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. August 2007.

ATSDR (Agency for Toxic Substances and Disease Registry). 2007b. Toxicological Profile for Xylenes. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. August 2007.

ATSDR (Agency for Toxic Substances and Disease Registry). 2008. Toxicological Profile for Aluminum. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. September 2008.

ATSDR (Agency for Toxic Substances and Disease Registry). 2010. Addendum to the Toxicological Profile for Formaldehyde. Atlanta, GA: Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine. October 2010.

ATSDR (Agency for Toxic Substances and Disease Registry). 2012a. Toxicological Profile for Cadmium. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. September 2012.

ATSDR (Agency for Toxic Substances and Disease Registry). 2012b. Toxicological Profile for Chromium. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. September 2012.

ATSDR (Agency for Toxic Substances and Disease Registry). 2012c. Toxicological Profile for Manganese. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. September 2012.

ATSDR (Agency for Toxic Substances and Disease Registry). 2012d. Toxicological Profile for Vanadium. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. September 2012.

ATSDR (Agency for Toxic Substances and Disease Registry). 2013a. Addendum to the Toxicological Profile for Mercury (Alkyl and Dialkyl Compounds). Atlanta, GA: Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences. March 2013.

ATSDR (Agency for Toxic Substances and Disease Registry). 2013b. Toxicological Profile for Uranium. Atlanta, GA: United States Department of Health and Human Services, Public Health Service. February 2013.

CCME (Canadian Council of Ministers of the Environment). 1996. A framework for Ecological Risk Assessment: General Guidance. The National Contaminated Sites Remediation Program. Winnipeg, Manitoba.

CCME (Canadian Council of Ministers of the Environment). 2000. Canada-Wide Standards for Particulate Matter (PM) and Ozone. Endorsed by CCME Council of Ministers, June 5-6, 2000, Quebec City, QC. Available at: http://www.ccme.ca/assets/pdf/pmozone_standard_e.pdf Accessed October 2013.

CCME. 2006. A Protocol for the Derivation of Environmental and Human Health Soil Quality Guidelines. Winnipeg, Manitoba. PN 1332.

CCME (Canadian Council of Ministers of the Environment). 2010. Canadian Soil Quality Guidelines for Carcinogenic and other Polycyclic Aromatic Hydrocarbons (Environmental and Human Health Effects), Scientific Criteria document.

CCME (Canadian Council of Ministers of the Environment). 2012. Canada-Wide Standards for Particulate Matter and Ozone, 2012 Final Report. Winnipeg, MB. ISBN 978-1-77202-009-0 Available at: http://www.ccme.ca/files/Resources/air/pm_ozone/PN_1526_2012_CWS_for_PM_and_Ozone_Final_Report.pdf.

ChemIDplus. 2012. Database on-line search. ChemIDplus, Toxicology Data Network (TOXNET), United States National Library of Medicine. Available at http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp.

Environment Canada, 2012. Ecological Risk Assessment Guidance for Federal Contaminated Sites. Vancouver, BC.

ESRD (Alberta Environment and Sustainable Resource Development). 2014. Environmental Quality Guidelines for Alberta Surface Waters, Water Policy Branch, Policy Division, Edmonton, 48 pp.

Fedde, M.R. and Kuhlmann, W.D. 1979. Cardiopulmonary responses to inhaled sulphur dioxide in the poultry. Poultry Science 58(6): 1584-1591.

Government of Canada. 1992. Canadian Environmental Protection Act. Priority Substances List Assessment Report No. 4. Toluene. Environment Canada and Health Canada. Ottawa, Ontario: Minister of Supply and Services Canada, 1992. ISBN 0-662-19950-2.

Government of Canada. 1993. Benzene. Environment Canada and Health Canada. Ottawa, Ontario: Minister of Supply and Services Canada, 1993. ISBN 0-662-20434-4.

Government of Canada. 2000. Canadian Environmental Protection Act. Priority Substances List Assessment Report: Acetaldehyde. Environment Canada and Health Canada. ISBN 0-662-28654-5.

Maliszewska-Kordybach, B. 1999. Sources, Concentration, Fate and Effects of Polycyclic Aromatic Hydrocarbons (PAHs) in the Environment. Part A:PAHs in Air. Polish Journal of Environmental Studies. V. 8, 3:131-136.

MA DEP (Massachusetts Department of Environmental Protection). 2003. Updated petroleum hydrocarbon fraction toxicity values for VPH / EPH / APH methodology, Final. Boston, MA: Office of Research and Standards, Massachusetts Department of Environmental Protection. November 2003.

MDDEP (Contaminated sites and hazardous materials department, Government of Quebec). 2002. Soil Protection of Contaminated Sites Rehabilitation Policy. Appendix 2/ Generic criteria for soils and groundwater. Available at: http://www.mddelcc.gouv.qc.ca/sol/terrains/politique-en/appendix2-Table1.htm

HSDB (Hazardous Substances Data Bank). 2012. Database on-line search. Hazardous Substances Data Bank (HSDB), Toxicological Data Network (TOXNET), United States National Library of Medicine. Available at http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB.

ONRL (Oak Ridge National Laboratory). 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision. Efronymson, R.A., Will, M.E., Suter II, G.W., and Wooten, A.C. Prepared for the U.S. Department of Energy, Office of Environmental Management. November 1997.

Ramamoorthy, S., Baddaloo, E.G., Ramamoorthy, S. 1995. Handbook of Chemical Toxicity Profiles of Biological Species. Volume II. Avian and Mammalian Species. Boca Raton, FL: CRC Lewis Publishers.

RIVM (National Institute of Public Health and the Environment, NIPHE). 2001. Re-evaluation of human toxicological maximum permissible risk levels. RIVM Report 711701 025. March 2001.

Tabacova, S., Nikiforov, B. and Balabaeva, L. 1985. Postnatal effects of maternal exposure to nitrogen dioxide. Neurobehav. Toxicol. Teratol. 7(6):785-789.

TPHCWG (Total Petroleum Hydrocarbon Criteria Working Group). 1997. Selection of representative TPH fractions based on fate and transport considerations. Vol. 3. Amherst Scientific Publishers. Amherst, MA.

US EPA (United States Environmental Protection Agency). 1998. IRIS Summary of Barium and Compounds (CASRN 7440-39-3). Reference Concentration for Chronic Inhalation Exposure (RfC). Available at: http://www.epa.gov/ncea/iris/subst/0010.htm#refinhal.

US EPA (United States Environmental Protection Agency). 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste combustion Facilities. Appendix C and D. http://www.epa.gov/osw/hazard/tsd/td/combust/ecorisk.htm

US EPA (United States Environmental Protection Agency). 2003a. IRIS Summary of Acrolein (CASRN 107-02-8). Reference Concentration for Chronic Inhalation Exposure (RfC). Available at: http://www.epa.gov/ncea/iris/subst/0364.htm#refinhal.

US EPA (United States Environmental Protection Agency). 2003b. RCRA Ecological Screening Levels. August 2003. Available at: http://www.epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf

US EPA (United States Environmental Protection Agency). 2005. Guidance for Developing Ecological Soil Screening Levels. Revised Edition. Available at: http://www.epa.gov/ecotox/ecossl/pdf/ecossl_guidance_chapters.pdf

US EPA (United States Environmental Protection Agency). 2010. Ecological Soil Screening Levels. Available online here: http://www.epa.gov/ecotox/ecossl/

Wania F., Mackay D. 1996. Tracking the distribution of persistent organic pollutants. Environm. Sci. Technol. 30:390-.

WHO. 1997. United Nations Environment Programme, International Labour Organisation, World Health Organization, International Programme on Chemical Safety. Environmental Health Criteria 188. Nitrogen Oxides (Second Edition). World Health Organization, Geneva. Available at: http://www.inchem.org/documents/ehc/ehc/ehc188.htm#PartNumber:9. Accessed October 2013.

WHO (World Health Organization). 1998. Environmental Health Criteria 200. Copper. WHO: Geneva, 1998. ISBN 92 4 157200 0.

WHO (World Health Organization). 2001. Concise International Chemical Assessment Document 33. Barium and Barium Compounds. WHO: Geneva, 2001. ISBN 92 4 153033 2.