
AIR QUALITY ASSESSMENT

BlueScope Steel Limited Sinter Cooler Bed and Room De-Dusting Stack

9 January 2007 FINAL Revision 2

*Prepared for
CH2M HILL and BlueScope Steel*

*by
Holmes Air Sciences*

*Suite 2B, 14 Glen St
Eastwood NSW 2122
Phone : (02) 9874 8644
Fax : (02) 9874 8904
Email : has@holmair.com.au*

January 2007 _____ Holmes Air Sciences

BlueScope_SinterCoolerRDD_FINAL_rev2.doc

CONTENTS

1. INTRODUCTION.....	1
2. LOCAL SETTING AND PROJECT DESCRIPTION	1
2.1 Local Setting.....	1
2.2 Project Description.....	2
2.2.1 Introduction	2
2.2.2 Proposed modifications.....	2
3. AIR QUALITY GOALS	3
4. EXISTING ENVIRONMENT	4
4.1 Dispersion Meteorology	4
4.2 Local Climatic Conditions	5
4.3 Existing Air Quality	6
4.3.1 Particulate Matter	6
5. APPROACH TO ASSESSMENT.....	8
5.1 Introduction.....	8
5.2 Dispersion model input data and estimated emissions	9
5.2.1 Introduction	9
5.2.2 Sinter Cooler Bed.....	9
5.2.3 Sinter Plant Room De-dusting Precipitator and Stack	12
6. DUST DISPERSION MODELLING RESULTS	14
6.1 Introduction.....	14
6.2 Assessment of sources alone	14
6.3 Assessment including background concentrations	15
7. CONCLUSIONS	24
8. REFERENCES	24

Appendix A: Joint Wind Speed, Wind Direction and Stability Class Frequency Tables for BlueScope Meteorological Data

Appendix B: Sinter Cooler Particulate Monitoring Results

Appendix C: AUSPLUME output file

Appendix D: Top 30 predicted 24-hour average concentrations with and without existing background – Sinter Cooler bed and RDD stack

LIST OF TABLES

Table 1 : Air quality assessment criteria for particulate matter concentrations.....	3
Table 2 : NSW DEC criteria for dust fallout.....	3
Table 3: Frequency of occurrence of stability class at Port Kembla Steelworks	4
Table 4: Temperature, humidity and rainfall data for Wollongong University.....	5
Table 5 : PM ₁₀ air quality monitoring data for the study area	7
Table 6 : Discrete receptors – Australian Map Grid Coordinates.....	8
Table 7: Summary of dust monitoring results for Sinter Cooler Bed	9
Table 8: Data for dispersion modelling of existing Sinter Cooler Bed operation	10
Table 9: Summary of sinter cooler bed emissions particle sizing results	11
Table 10: Data for dispersion modelling of proposed Sinter Cooler Bed operation.....	12
Table 11: Protection of the Environment Operations (Clean Air) Regulations – applicability to room de-dusting stack.....	12
Table 12: Summary of dust monitoring results for Sinter Plant Room De-dusting Stack	13
Table 13: Data for dispersion modelling of Room De-dusting Stack	13
Table 14: Predicted particulate concentrations (µg/m ³)	14
Table 15: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 1 – existing operations Sinter Cooler Bed & RDD stack ..	16
Table 16: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 2 – existing operations Sinter Cooler Bed & RDD stack ..	17
Table 17: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 3 – existing operations Sinter Cooler Bed & RDD stack ..	18
Table 18: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 4 – existing operations Sinter Cooler Bed & RDD stack ..	19
Table 19: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 1 – proposed operations Sinter Cooler Bed & RDD stack	20
Table 20: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 2 – proposed operations Sinter Cooler Bed & RDD stack	21
Table 21: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 3 – proposed operations Sinter Cooler Bed & RDD stack	22
Table 22: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 4 – proposed operations Sinter Cooler Bed & RDD stack	23

LIST OF FIGURES

(all figures at the end of the report)

1. Location of study area, discrete receptors, meteorological and monitoring stations
2. Location of sinter cooler
3. Pseudo 3-dimensional representation of local terrain
4. Annual and seasonal wind-roses for Port Kembla (2003)
5. Sinter cooler – existing configuration and monitoring locations
6. Sinter cooler dust loads
7. Sinter cooler – proposed configuration and fan locations
8. Predicted maximum 24-hour average PM₁₀ concentrations due to cooler bed emissions (µg/m³)
9. Predicted maximum 24-hour average PM₁₀ concentrations due to room de-dusting stack emissions (µg/m³)
10. Predicted maximum 24-hour average PM₁₀ concentrations due to cooler bed and room de-dusting stack emissions (µg/m³)
11. Predicted annual average PM₁₀ concentrations due to cooler bed emissions (µg/m³)
12. Predicted annual average PM₁₀ concentrations due to room de-dusting stack emissions (µg/m³)
13. Predicted annual average PM₁₀ concentrations due to cooler bed and room de-dusting stack emissions (µg/m³)
14. Predicted annual average TSP concentrations due to cooler bed emissions (µg/m³)
15. Predicted annual average TSP concentrations due to room de-dusting stack emissions (µg/m³)
16. Predicted annual average TSP concentrations due to cooler bed and room de-dusting stack emissions (µg/m³)

1. INTRODUCTION

This report has been prepared by Holmes Air Sciences for CH2M HILL as part of an Environmental Assessment for the Sinter Plant upgrade being proposed by BlueScope Steel, Port Kembla. The purpose of this report is to quantitatively assess proposed changes to the Sinter Cooler Bed and the Sinter Plant Room De-dusting (RDD) Stack that may affect air emissions of particulate matter from BlueScope Steel's Port Kembla Steelworks.

BlueScope Steel proposes to make some modifications to the Sinter Cooler Bed as part of the upgrade that will assist in production optimisation. This modification would also result in more fine material being deposited at the top of the bed and evenly distributed across the bed. The existing particulate emissions profile from the cooler is not expected to change.

In addition to the changes to the Sinter Cooler Bed, the RDD will be overhauled and while this is unlikely to result in any significant change to the particulate emissions from the stack, it has been included in the assessment for completeness.

The report presents the results of dispersion modelling using the AUSPLUME model to predict ground level concentrations of particulate matter due to emissions from the sinter cooler and RDD stack for both the existing and proposed operations.

The report comprises the following sections:

- Description of plant operation and local environment;
- Review of dispersion characteristics of the area;
- Review of existing air quality;
- Dispersion modelling of emissions from existing operations and the proposed operations; and
- Assessment of air quality impacts.

2. LOCAL SETTING AND PROJECT DESCRIPTION

2.1 *Local Setting*

BlueScope Steel's Sinter Plant area is located within the BlueScope Steel steelworks at Port Kembla, south of Wollongong. **Figure 1** shows the location of the site and **Figure 2** shows the approximate location of the Sinter Cooler.

Within the steelworks site, the landuse is heavily industrialised, while residential areas exist to the north, west and south of the site. Port Kembla Harbour and the Pacific Ocean bound the site to the east. The study area is predominantly at low elevations with small hills over most of the region however the terrain rises sharply to the west of the freeway. A pseudo three-dimensional representation of the terrain in the study area is shown in **Figure 3**.

2.2 Project Description

2.2.1 Introduction

In the Raw Materials Handling Area, various iron ores are mixed with in-plant by-products (slags, dusts) to form a precisely blended ore stockpile. The blended ore is then transferred to the Sinter Plant. There, together with fine fluxes (limestone, serpentine, and dolomite), quick lime, fine coke, recycled fine sinter and in-house recycled de-dusting dusts are mixed with water to granulate the mixture which is then transferred to the Sinter Strand. The Sinter Strand is a continuous slow moving grate which carries the mixture through a Coke Ovens Gas (COG) fired ignition hood, which ignites the coke in the surface layer of the mixture. As the strand continues, air is drawn downwards through the mixture progressively igniting more coke further in the bed. When this flame front (at a temperature of approximately 1,300°C) reaches the bottom of the bed, the complete mixture has fused into a solid porous cake, and this sinter cake is discharged into a spiked roll crusher which breaks the cake into lumps. The lumps are then air cooled in the Sinter Cooler, screened, and dispatched to the Blast Furnace storage bins prior to use as a feed material in the iron making process.

The combustion products of the sintering process are drawn through the waste gas mains to the electrostatic precipitators to remove particulates and then they are sent to the Sinter Plant Waste Gas Cleaning Plant to remove gaseous emissions of sulphur oxides and air toxics before being discharged via the Sinter Plant Stack.

There is a ducted system around the Sinter Plant which collects free dust from the process. The dust is then drawn through electrostatic precipitators before being released to atmosphere via the Room De-dusting Stack (RDD stack).

The Sinter Strand and associated equipment are covered by a large building. However, this building is open at both ends and there is the potential for fugitive dust to escape the building. It is not possible to quantitatively assess the impact of these fugitive emissions and BlueScope Steel endeavour to keep them to a minimum using good house-keeping practices.

2.2.2 Proposed modifications

The modifications proposed that will affect the Sinter Cooler Bed are:

- New strand feed technology which will provide more reliable ignition/sintering and therefore reduce fine dust generation;
- Redesign of the transfer chute from the Sinter Strand to the Cooler Bed;
- An increase in the pan width by 500 mm; and
- Upgrade of the sinter cooler fans to provide greater fan capacities.

The Sinter Plant Room De-dusting Plant will not be modified, although the unit will be overhauled. Some of the major maintenance that will be carried out includes:

- Internals of plate precipitators will be replaced;
- Ductwork will be patched; and
- The system will be rebalanced.

3. AIR QUALITY GOALS

Table 1 and **Table 2** summarise the air quality goals that are relevant to this study as noted by the Department of Environment and Conservation (DEC, formerly NSW Environment Protection Authority, EPA) (NSW DEC, 2005). The air quality goals relate to the total dust burden in the air and not just the dust from the project. In other words, some consideration of background levels needs to be made when using these goals to assess impacts.

Table 1 : Air quality assessment criteria for particulate matter concentrations			
POLLUTANT	STANDARD / GOAL	AVERAGING PERIOD	AGENCY
Total suspended particulate matter (TSP)	90 µg/m ³	Annual mean	NHMRC ^(a)
Particulate matter < 10 µm (PM ₁₀)	50 µg/m ³	24-hour maximum	NSW DEC
	30 µg/m ³	Annual mean	NSW DEC long-term reporting goal
	50 µg/m ³	(24-hour average, 5 exceedances permitted per year)	NEPM ^(b)
Particulate matter < 2.5 µm (PM _{2.5})	8 µg/m ³	Annual mean	NEPM ^(c)
	25 µg/m ³	24-hour maximum	NEPM ^(c)

Notes:

- (a) NHMRC – National Health and Medical Research Council
- (b) NEPM – National Environmental Protection Measure
- (c) Long-term reporting goal, not yet applied to projects in NSW

Also included in **Table 1** are the NEPM reporting goals for the fine fraction of PM₁₀, namely PM_{2.5}. Epidemiological studies (**Dockery et al, 1993** for example) indicate that it is the finer particles, that is those below 2.5 µm in diameter and referred to as PM_{2.5}, that cause health impacts as they are taken deeper into the lung. As yet, Australia has no ambient goal for PM_{2.5} applied on a project basis.

In addition to health impacts, airborne dust also has the potential to cause nuisance impacts by depositing on surfaces. **Table 2** shows the maximum acceptable increase in dust deposition over the existing dust levels. These criteria for dust fallout levels are set to protect against nuisance impacts (NSW DEC, 2005).

Table 2 : NSW DEC criteria for dust fallout			
Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month

4. EXISTING ENVIRONMENT

This section describes the dispersion meteorology and local climatic conditions for the study area.

4.1 Dispersion Meteorology

Dispersion modelling requires information about the dispersion characteristics of the area. In particular, data are required for wind speed, wind direction, atmospheric stability class¹ and mixing height². In addition, the DEC has required that background concentrations be included in the modelling. To undertake this, data collected by BlueScope Steel in 2003 comprising hourly TEOM (Tapered Element Oscillating Microbalance) data and contemporaneous meteorological data were used for the modelling. Contemporaneous wind and TEOM data were 87% complete, that is, there were 7621 hours of data available from a possible maximum of 8760. The location of the meteorological station is shown in **Figure 1**.

Table 3 shows the frequency of occurrence of stability classes at the site. The annual average wind speed in 2003 was 4.2 m/s. This is consistent with a windy coastal site. Sigma-theta was used to determine stability class according to the method recommended by the US EPA (**US EPA, 1986**) and accepted by the NSW DEC. Mixing height was determined using a scheme defined by **Powell (1976)** for daytime conditions and an approach described by **Venkatram, (1980)** for night-time conditions.

Stability Class	Frequency of occurrence
A	0.2
B	0.9
C	5.3
D	72.9
E	18.6
F	2.1

Windroses from the data are shown in **Figure 4**. On an annual basis the winds exhibit a strong south to west component. This is also the case for autumn and winter. The southerly winds are also common in summer, but there is also a significant contribution from the northeast sector in both spring and summer.

Appendix A presents joint wind speed, wind direction and stability class frequency tables.

¹ In dispersion modelling stability class is used to categorise the rate at which a plume will disperse. In the Pasquill-Gifford stability class assignment scheme, as used in this study, there are six stability classes A through to F. Class A relates to unstable conditions such as might be found on a sunny day with light winds. In such conditions plumes will spread rapidly. Class F relates to stable conditions, such as occur when the sky is clear, the winds are light and an inversion is present. Plume spreading is slow in these circumstances. The intermediate classes B, C, D and E relate to intermediate dispersion conditions.

² The term mixed-layer height refers to the height of the turbulent layer of air near the earth's surface, into which ground-level emissions will be rapidly mixed. A plume emitted above the mixed-layer will remain isolated from the ground until such time as the mixed-layer reaches the height of the plume. The height of the mixed-layer is controlled mainly by convection (resulting from solar heating of the ground) and by mechanically generated turbulence as the wind blows over the rough ground.

4.2 Local Climatic Conditions

The Bureau of Meteorology collects climatic information from a site within the grounds of Wollongong University.

Temperature, humidity and rainfall data collected from the Wollongong station are presented in **Table 4 (Bureau of Meteorology, 2006)**. The temperature data show that January and February are typically the warmest months with a mean daily maximum of 25.6 °C. July is the coldest month with a mean daily minimum of 8.4 °C. Rainfall data collected at Wollongong show that March is the wettest month with a mean rainfall of 171 mm over 14 rain days.

Table 4: Temperature, humidity and rainfall data for Wollongong University													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
9 am Mean Temperatures (°C) and Relative Humidity (%) (34 Years of record)													
Dry-bulb	22.2	22.2	21.2	19.4	16.6	13.9	13	14.3	16.7	18.5	19.3	21.4	18.3
Wet-bulb	18.6	19	17.7	15.4	13.2	10.6	9.4	10.2	12	14	15.4	17.4	14.5
Humidity	70	73	69	64	66	64	61	57	55	60	65	66	64
3 pm Mean Temperatures (°C) and Relative Humidity (%) (33 Years of record)													
Dry-bulb	23.6	23.9	22.8	20.8	18.6	16.3	15.7	16.8	18.2	19.5	20.7	22.9	20
Wet-bulb	19.7	20	18.6	16.5	14.3	12	11	11.8	13.2	15	16.3	18.4	15.6
Humidity	68	69	66	63	61	57	54	52	55	61	63	64	61
Daily Maximum Temperature (°C) (33 Years of record)													
Mean	25.6	25.6	24.5	22.5	20	17.6	17	18.2	20.3	22	22.8	25	21.7
Daily Minimum Temperature (°C) (33 Years of record)													
Mean	17.9	18.3	16.8	14.3	11.9	9.5	8.4	8.8	10.6	12.6	14.3	16.6	13.3
Rainfall (mm) (34 Years of record)													
Mean	135	160.5	171	133.5	115.1	108	60.4	88.4	64.2	100.5	113.6	93.7	1343.8
Raindays (Number) (34 Years of record)													
Mean	13.7	14.1	14.5	11.2	11.1	9.4	8.5	7.7	9	11.5	13.2	12.9	136.7

Station Number 68188 Latitude 34.4033 S Longitude 150.8795 E Elevation 25 m. Data collected 1970 to 2004
Source: **Bureau of Meteorology (2006)**

4.3 Existing Air Quality

One of the most difficult aspects in air quality assessments is accounting for existing levels of pollutants. At any location within the airshed, the concentration of a pollutant is determined by the contributions from all sources that have at some stage or another been upwind of the source. In an area such as the Illawarra region, which is known to experience complex wind flows, this could include recirculated pollutants which have moved through complicated pathways in sea breeze/land breeze cycles. In general, the further away a particular source is from the area of interest, the smaller will be its contribution to air pollution at the area of interest. However the larger the area considered the greater would be the number of sources contributing to the background.

Monitoring programs conducted by the DEC have produced a database on existing ambient air quality conditions in the Illawarra region. The closest stations to the site which measure PM₁₀ concentrations are located at Warrawong, Kembla Grange and Wollongong. The locations of these stations are shown in **Figure 1**. These are reported on a quarterly basis as monthly averages. A summary of peak and annual average concentrations are provided in **Table 5**.

4.3.1 Particulate Matter

Measurements of PM₁₀ have been reported on a monthly basis for all three DEC locations in the area. Maximum values and annual averages are included in **Table 5**. The annual averages and maximum recorded concentrations are also displayed. The annual average for each year is well below the DEC goal of 30 µg/m³, however maximum levels exceed the 24-hour goal on occasions as described by region below. It should be noted that the area was strongly affected by bushfires in December 2001.

Warrawong

This site recorded exceedances of the 24-hour goal during four months in 1995, one month in 2000 and two in 2001. The annual average PM₁₀ concentration is 21 µg/m³ which is below the annual goal of 30 µg/m³.

Kembla Grange

This site appears to have more frequent exceedances of the 24-hour goal, with levels above the goals recorded every year, except 1999 since 1995. However the annual average values are very similar to those recorded at Warrawong, which is close to 21 µg/m³.

Wollongong

PM₁₀ concentrations recorded at Wollongong were similar to those recorded at Warrawong, with values above the goal in 1995, followed by no recorded exceedances until December 2001. The annual average concentration was highest in 1995, in common with the other two sites, dropping to values below 20 µg/m³ since 1996.

Table 5 : PM₁₀ air quality monitoring data for the study area

Year	Warrawong	Wollongong	Kembla Grange
Highest 24-hour average (µg/m ³), Goal/standard : 50 µg/m ³			
1995	66	59	135
1996	49	37	53
1997	43	43	60
1998	34	48	73
1999	27	28	31
2000	53	49	89
2001	79	68	79
Annual average (µg/m ³), Goal/standard : 30 µg/m ³			
1995	28	27	25
1996	21	19	22
1997	18	18	21
1998	18	20	22
1999	14	13	15
2000	18	15	20
2001	24	16	21

Bold text identifies exceedence of the specified goal/standard

Data were also available from a TEOM monitor located to the south of the steelworks on the corner of Flagstaff Road and Bruce Road, Warrawong. Data collected by BlueScope Steel in 2003, showed an annual average PM₁₀ concentration of 22 µg/m³. There were 22 exceedances of the 24-hour PM₁₀ goal of 50 µg/m³ with a maximum 24-hour concentration of 297 µg/m³. The PM₁₀ data collected are from all sources in the vicinity of the monitor, not just as a result emissions from BlueScope Steel, were used as background for the modelling described below.

5. APPROACH TO ASSESSMENT

5.1 Introduction

Off-site pollutant concentrations due to emissions for each model scenario have been predicted using AUSPLUME Version 6. AUSPLUME is an advanced Gaussian dispersion model developed on behalf of the Victorian EPA (**VEPA, 1986**) and is based on the United States Environmental Protection Agency's Industrial Source Complex (ISC) model. It is widely used throughout Australia and is regarded as a "state-of-the-art" model. AUSPLUME is the model specified by the NSW DEC in the publication on approved methods for air quality assessments (**NSW DEC, 2005**).

PM₁₀ and TSP concentrations were predicted for each of the following scenarios:

- Current sinter cooler bed operation emissions
- Proposed sinter cooler bed operation emissions
- Current room de-dusting stack emissions
- Proposed room de-dusting stack emissions
- Cumulative impact of current sinter cooler bed and room de-dusting stack
- Cumulative impact of proposed sinter cooler bed and room de-dusting stack

The modelling has been performed using the meteorological information discussed in **Section 4.1** and the emissions information summarised in **Section 5.2**. Predictions were made over a grid of receptors 8km by 8km arranged at 250 m spacing around the area of interest. Four additional discrete receptors were also positioned at Cringila School, Berkeley Reservoirs, Coniston, and a location just north of the site in the reclaimed port facility. The locations of the discrete receptors are shown in **Figure 1** and coordinates given in **Table 6**.

Receptor no.	Location	Northing	Easting
1	Cringila School	304263	6183225
2	Berkeley Reservoir	303438	6183050
3	Coniston	305200	6187100
4	Port facility lands	306012	6185499

Buildings in the local area which would influence plume behaviour for each source have been included in the modelling. Terrain and landuse information in the study area have also been included.

5.2 Dispersion model input data and estimated emissions

5.2.1 Introduction

As well as meteorological information which describes the dispersive capacity of the atmosphere, dispersion models require information on the emission sources.

5.2.2 Sinter Cooler Bed

5.2.2.1 Existing operation

The Sinter Cooler Bed is configured like a volume or area source. However, the emissions are buoyant and have a reasonable velocity, and it is not possible to take these parameters into account when modelling volume or area sources in AUSPLUME. Therefore the cooler was represented as a series of 13 stack sources, herein referred to as "zones" (as shown in **Figure 5**).

The diameter of each stack was calculated to be 5.77 m, giving a total surface area of 340 m², which is equivalent to the total surface area of the existing bed.

Dust samples were taken in January 2002 at four locations around the circumference of the cooler (shown in **Figure 5**), and at four points across the width of the cooler at each of the locations. The results are summarised in **Table 7**. A discussion on the particle size of the dust is presented in **Section 5.2.2.1.1**.

Table 7: Summary of dust monitoring results for Sinter Cooler Bed				
Location	Temp (°C)	PM > 10	PM < = 10	TPM
		(mg/Nm ³)		
Location 1				
1 1	260	190.0	3.0	193.0
1 2	340	250.0	3.0	253.0
1 3	339	160.0	4.6	164.6
1 4	325	-	-	-
Average	316	200.0	3.5	203.5
Location 2				
2 1	127	24.0	0.8	24.8
2 2	129	23.0	0.8	23.8
2 3	153	64.0	2.8	66.8
2 4	190	50.0	0.1	50.1
Average	150	40.3	1.1	41.4
Location 3				
3 1	138	20.0	0.8	20.8
3 2	150	7.6	1.2	8.8
3 3	192	25.0	1.3	26.3
3 4	108	54.0	0.3	54.3
Average	147	26.7	0.9	27.6
Platform 4				
4 1	48	2.0	0.0	2.0
4 2	50	-	-	-
4 3	51	1.2	0.1	1.3
4 4	79	2.1	0.2	2.3
Average	57	1.8	0.1	1.9

The average of the data for each monitoring location was used in the dispersion modelling for the existing Sinter Cooler. It is not practical to use the highest concentrations as this would vastly overestimate the impact. In addition, regular sampling between February 2002 and September 2005 at Platform 1 has consistently measured TPM concentrations much lower than 203.5 mg/m³ (average concentrations are 99 mg/m³, with a maximum of 240 mg/m³ and a minimum of 13 mg/m³). The full set of monitoring results are attached in **Appendix B**.

Flows measured through the Zone 1 cooler fan in August 2005 showed a mean flow of 11,800 m³/min. There are currently three fans, therefore the total normalised flow through the cooler is 34,286 Nm³/min. The flow is considered to be uniform throughout the cooler bed due to the presence of a plenum (shared air space) into which the fans blow air prior to it passing up through the sinter.

Table 8 presents a summary of the data used in the dispersion model to simulate the current operation of the sinter cooler bed.

The total particulate matter emissions are calculated to be approximately 109 kg/h. The PM₁₀ fraction is 2.1%.

Table 8: Data for dispersion modelling of existing Sinter Cooler Bed operation								
Monitoring Location	Zone	Zone Diameter (m)	Exit Temperature (°C)	Flow at bed (Nm ³ /s)	Flow above bed (Am ³ /s)	Exit velocity (m/s)	Emission Rate	
							TPM	PM ≤ 10
							(mg/s per zone)	
1	1	5.77	316	43.96	94.84	3.6	8,946.6	155.3
	2		316	43.96	94.84	3.6	8,946.6	155.3
2	3		150	43.96	68.07	2.6	1,818.7	49.5
	4		150	43.96	68.07	2.6	1,818.7	49.5
	5		150	43.96	68.07	2.6	1,818.7	49.5
	6		150	43.96	68.07	2.6	1,818.7	49.5
3	7		147	43.96	67.63	2.6	1,211.0	39.6
	8		147	43.96	67.63	2.6	1,211.0	39.6
	9		147	43.96	67.63	2.6	1,211.0	39.6
	10		147	43.96	67.63	2.6	1,211.0	39.6
4	11		57	43.96	53.13	2.0	82.1	4.4
	12		57	43.96	53.13	2.0	82.1	4.4
	13		57	43.96	53.13	2.0	82.1	4.4
Total (kg/h)							108.9	2.5

5.2.2.1.1 Particle sizing of sinter cooler bed emissions

Figure 6 compares the concentrations of the total particulate matter (TPM) concentrations with the PM₁₀ concentrations that have been sampled from the sinter cooler between February 2002 and September 2005. This demonstrates that the PM₁₀ concentrations are consistently a significantly small percentage of the TPM. The average percentage over the period is 4.3%.

Additional particle sizing was undertaken in 2002 from samples taken at four points around the cooler at both the top and bottom. **Table 9** presents a summary of these data. The results demonstrate that the dust samples consistently showed less than 4% PM₁₀ fraction.

Table 9: Summary of sinter cooler bed emissions particle sizing results

Sample Location	% by size						
	Top				Bottom		
	Point 1	Point 2	Point 3	Point 4	Point 1	Point 2	Point 4
Particle size (um)	Platform 1						
> 10	98.3	98.8	No data	No data	No data	97.7	92.1
< 10	1.7	1.2				2.3	7.9
Particle size (um)	Platform 2						
> 10	No data	No data	95.6	No data	96.2	No data	No data
< 10			4.4		3.8		
Particle size (um)	Platform 3						
> 10	96.1	No data	94.9	No data	No data	No data	No data
< 10	3.9		5.1				
Particle size (um)	Platform 4						
> 10	No data	No data	92	99.9	No data	96.9	No data
< 10			8	0.1		3.1	

5.2.2.2 Proposed operation

The proposed changes to the Sinter Cooler would lengthen the plenum back to its original design, widen the cooler bed by 500 mm, and improve the air flow through the sinter.

Currently the emergency sprays are in full time operation on the third quarter of the bed to facilitate cooling of the sinter. With the proposed changes, the sprays would no longer be operated full-time. The effect of the dust emissions is expected to be minimal as the majority of the dust results from the first and second quarter of the bed.

Based on information provided by BlueScope Steel, it is proposed that there will be four fans operating. In addition, due to the proposed lengthening of the plenum, the cooler bed has been represented by 14 zones, compared with the 13 zones used to represent the existing bed. The proposed configuration and the proposed locations of the fans are shown in **Figure 7**.

The total area of the bed is proposed to increase to 420 m², giving an effective diameter of 6.18 m for each zone.

The total dust load will increase by approximately 20% (to 131 kg/hour). The PM₁₀ fraction is assumed to be 2.5%.

The emissions will be distributed around the cooler in the following percentages:

- Zone 14, and 1 – 3 : 49%
- Zone 4 – 6 : 30%
- Zone 7 – 9 : 17%
- Zone 10 – 13 : 4%

From this information an emission rate was calculated for each zone as presented in **Table 10**.

Table 10: Data for dispersion modelling of proposed Sinter Cooler Bed operation

Monitoring Location	Zone	Zone Diameter (m)	Exit Temperature (°C)	Flow at bed (Nm ³ /s)	Flow above bed (Am ³ /s)	Exit velocity (m/s)	Emission Rate	
							TPM	PM < = 10
							(mg/s per zone)	
1	14	6.18	370	51.9	122.2	4.1	4447.9	111.2
	1		370	51.9	122.2	4.1	4447.9	111.2
	2		320	51.9	112.7	3.8	4447.9	111.2
2	3		270	51.9	103.2	3.4	4447.9	111.2
	4		243	51.9	98.1	3.3	3631.0	90.8
	5		221	51.9	93.9	3.1	3631.0	90.8
	6		200	51.9	89.9	3.0	3631.0	90.8
3	7		180	51.9	86.1	2.9	2057.6	51.4
	8		165	51.9	83.2	2.8	2057.6	51.4
	9		150	51.9	80.4	2.7	2057.6	51.4
	10		135	51.9	77.5	2.6	363.1	9.1
4	11		120	51.9	74.7	2.5	363.1	9.1
	12		100	51.9	70.9	2.4	363.1	9.1
	13	85	51.9	68.0	2.3	363.1	9.1	
Total (kg/h)							130.7	3.3

A copy of an AUSPLUME output file is attached in **Appendix B**.

5.2.3 Sinter Plant Room De-dusting Precipitator and Stack

Approximately every six minutes the last zone of the precipitator raps, this causes a “puff” a visible dust from the RDD stack. The proposed modifications will not affect the requirement to rap the last zone of the RDD precipitator, although there are some discussions underway within BlueScope Steel to minimise this. One of the options being considered is to condition the inlet to the RDD precipitator using atomising water sprays. This would optimise the resistivity of the dust making it easier to collect and possibly the layer of particles collected on the plates would be a bit stickier and less likely to be re-entrained. Adding additional collection capacity would minimise the effect, however the root cause and potential for a visible puff would still remain.

In-stack concentrations for the RDD stack are currently required to comply with Protection of the Environment Operations (Clean Air) Regulation standards (POEO) for Group 1 operations. On and from 1 January 2008, concentrations will be required to comply with standards for Group 2 operations, and on and from 1 January 2012, concentrations will be required to comply with Group 5 standards. **Table 11** presents a summary of the applicable concentrations.

Table 11: Protection of the Environment Operations (Clean Air) Regulations – applicability to room de-dusting stack

Applicable date	Applicable group	Standard of concentration (mg/m ³)
Current	Group 1	400
On and from 1 January 2008	Group 2	250
On and from 1 January 2012	Group 5	100

Regular samples are taken from the RDD stack by BlueScope Steel. The stack samples presented in **Table 12** include the puff of emissions that occurs during the final stage rapping. The results shown are taken directly from the sampling reports.

These results demonstrate that aside from the sample taken on 29th September 2004, the in-stack concentrations comply with the most stringent of the POEO regulations for Group 5.

Table 12: Summary of dust monitoring results for Sinter Plant Room De-dusting Stack

Sample Date	Run ID	Stack Diameter (m)	Exit Temp (°C)	Exit velocity (m/s)	Flowrate (Nm ³ /s)	TSP		PM ₁₀	
						Conc ⁿ (mg/Nm ³)	Emission Rate (g/s)	Conc ⁿ (mg/m ³)	Emission Rate (g/s)
19/12/2003	Run 1	5	63	13	200	20	4.0	11	2.2
	Run 2	5	55	13	200	33	6.6	14	2.8
20/12/2003	Run 3	5	55	13	200	32	6.4	16	3.2
29/01/2004	Run 1	5	51	12	190	62	11.8	27	5.1
	Run 2	5	60	13	190	62	11.8	27	5.1
28/09/2004	Run 1	5	45	13	210	180	37.8	No Data	
	Run 2	5	46	13	210	180	37.8	No Data	
17/05/2004	Run 1	5	44	13	210	53	11.1	22	4.6
	Run 2	5	50	13	210	47	9.9	22	4.6
06/12/2004	Run 1	5	50	12	190	35	6.7	16	3.0
	Run 2	5	59	12	190	38	7.2	19	3.6
08/12/2004	Run 3	5	56	12	190	36	6.8	18	3.4
26/05/2005	Run 1	5	43	12	200	40	8.0	22	4.4
	Run 2	5	41	12	200	25	5.0	14	2.8
28/10/2005	Run 1	5	58	12	190	30	5.7	18	3.4
	Run 2	5	60	12	190	34	6.5	16	3.0
Average		5	53	13	198	57	11.4	19	3.7

The average of the sampling data was used in the dispersion modelling for the existing Sinter Plant Room De-dusting Stack and includes 'puff' events, as summarised in **Table 13**.

In assessing the impact of the increase in sinter production and the effect of the proposed overhaul of the Room De-dusting ESP, several balancing inputs need to be considered:

- The increase in production may increase the dust load coming from transfer points.
- The fixing of the holes in the ductwork is expected to decrease the volume of air, and hence increase the dust concentration, due to the smaller volume of fresh air leaking into the system and the more efficient collection of dust at the suction points.
- The ESP is expected to perform more efficiently due to the overhaul, the lower volume of air and the higher the dust concentration.
- The lower volume of air may lead to an increase in air temperature, however this is expected to be balanced by the removal of the Hot Feeders.

Table 13 summarises the input data for both the existing and proposed operation of the Room De-dusting Stack.

Table 13: Data for dispersion modelling of Room De-dusting Stack

Stack Height (m)	Stack Diameter (m)	Exit velocity (m/s)	Exit Temperature (°C)	Emission Rate	
				PM ₁₀	TSP
				(mg/s)	
Existing Operation					
48	5	13	53	3700	11400
Proposed operation					
48	5	10	53	3700	11400

6. DUST DISPERSION MODELLING RESULTS

6.1 Introduction

This section provides an interpretation of the results obtained from the dispersion modelling.

Model predictions have been made at ground-level due to emissions from the Sinter Cooler Bed, the RDD stack and the cumulative emissions, across the modelling grid and at four community based receptors (shown on **Figure 1**).

6.2 Assessment of sources alone

Table 14 presents the predicted concentrations of PM₁₀ due to the operation of the existing and proposed Sinter Cooler Bed, RDD stack and the cumulative impact, without considering the existing background.

Table 14: Predicted particulate concentrations (µg/m³)							
Scenario		Existing operations			Proposed operations		
Pollutant		PM₁₀		TSP	PM₁₀		TSP
<i>Averaging Period</i>		<i>24-hour</i>	<i>Annual</i>	<i>Annual</i>	<i>24-hour</i>	<i>Annual</i>	<i>Annual</i>
<i>Assessment Criteria</i>							
Receptor Name	ID	<i>50 µg/m³</i>	<i>30 µg/m³</i>	<i>90 µg/m³</i>	<i>50 µg/m³</i>	<i>30 µg/m³</i>	<i>90 µg/m³</i>
Due to emissions from Sinter Cooler Bed							
Cringila School	1	0.31	0.04	1.50	0.37	0.04	1.77
Berkeley Reservoirs	2	0.26	0.03	1.13	0.34	0.03	1.39
Coniston	3	0.34	0.04	1.66	0.41	0.05	1.90
Port facility lands	4	0.53	0.06	2.17	0.51	0.06	2.22
Due to emissions from RDD Stack							
Cringila School	1	0.91	0.11	0.32	1.02	0.12	0.38
Berkeley Reservoirs	2	0.83	0.09	0.29	0.91	0.11	0.32
Coniston	3	1.18	0.14	0.43	1.23	0.15	0.47
Port facility lands	4	2.13	0.20	0.61	2.39	0.24	0.74
Due to emissions from Sinter Cooler Bed & RDD Stack							
Cringila School	1	1.16	0.14	1.82	1.34	0.17	2.15
Berkeley Reservoirs	2	1.09	0.12	1.42	1.25	0.14	1.72
Coniston	3	1.52	0.18	2.08	1.63	0.20	2.37
Port facility lands	4	2.66	0.26	2.78	2.90	0.30	2.96

Figure 8 to **Figure 10** present the predicted maximum cumulative 24-hour average PM₁₀ concentration at ground-level. The maximum off-site concentration due to the existing operations in the nearest residential area is approximately 2.7 µg/m³. With the proposed operations the predicted cumulative concentrations are predicted to increase marginally to 3.0 µg/m³. These concentrations do not include background concentrations. Impacts in the context of background concentrations are considered in **Section 6.3**.

Figure 11 to **Figure 13** present the annual average PM₁₀ concentrations at ground-level. The concentrations in the residential areas due to the existing operations are less than 0.3 µg/m³. With the proposed operations the predicted concentrations are not expected to change. When added to the existing annual average concentrations in the vicinity of the site that are measured at the TEOM of approximately 20 µg/m³, the concentrations due to the cooler bed and RDD would not cause an exceedence of the annual goal of 30 µg/m³.

Figure 14 to **Figure 16** present the annual average TSP concentrations at ground-level. The concentrations in the residential areas due to the existing operations are less than 3 $\mu\text{g}/\text{m}^3$. With the proposed operations the predicted concentrations are not expected to change significantly.

6.3 Assessment including background concentrations

To investigate the impact of the source on the background concentrations, concentrations were predicted at the four discrete receptors as a result of the emissions of the sinter cooler bed and room de-dusting stack alone and additionally as a result of including the existing background concentrations in the model.

Table 15 to **Table 18** present the top 30 predicted 24-hour average concentrations of PM_{10} at the four discrete receptors for the existing operations of the sinter cooler bed and room de-dusting stack, both with and without the existing background concentrations included.

Table 19 to **Table 22** present the top 30 24-hour average predicted concentrations with and without the background included at the four discrete receptors for the proposed operations.

The predicted concentrations due to the emissions from the Sinter Cooler Bed and RDD stack as individual sources are presented in **Appendix D**.

It is important to note that the predicted maximum ground-level concentrations due to the sources alone do not occur on the same day as the predicted maximum ground-level concentrations with the sources plus background.

The top 30 predictions are dominated by the background. The cooler bed and RDD emissions currently add a maximum of 2.7 $\mu\text{g}/\text{m}^3$ at Receptor 4 to the PM_{10} 24-hour average concentrations. With the proposed modifications, the maximum added is 2.9 $\mu\text{g}/\text{m}^3$ at Receptor 4. These maxima do not occur on the same day as the maximum background level.

As discussed in **Section 4.3**, the TEOM dataset which reflects the air quality in the vicinity of the site (not just concentrations due to BlueScope Steel operations) already contains 22 exceedances of the PM_{10} 24-hour goal of 50 $\mu\text{g}/\text{m}^3$. There are no additional exceedances of the goal with the upgraded facility operating, and the contribution from the cooler is very small.

It is concluded that the overall impacts that the Sinter Cooler Bed and RDD stack have on air quality is currently relatively small and is unlikely to change significantly with the proposed modifications.

Table 15: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 1 – existing operations Sinter Cooler Bed & RDD stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	1.2	4/02/2003	20.0	21.2	297.0	20/03/2003	297.0	0.0
2	1.1	3/11/2003	13.6	14.7	99.1	30/01/2003	98.3	0.8
3	1.0	23/02/2003	16.7	17.7	92.5	26/01/2003	92.0	0.5
4	1.0	9/12/2003	10.1	11.1	81.5	25/12/2003	80.7	0.8
5	0.9	25/12/2003	80.7	81.5	76.3	19/12/2003	75.6	0.7
6	0.9	14/12/2003	15.4	16.3	70.4	31/12/2003	69.8	0.6
7	0.9	1/02/2003	24.3	25.2	68.2	21/01/2003	68.1	0.1
8	0.8	24/02/2003	13.2	14.0	64.4	23/07/2003	64.4	0.0
9	0.8	13/01/2003	15.6	16.3	63.5	8/01/2003	63.4	0.1
10	0.8	3/02/2003	16.4	17.1	61.4	20/11/2003	61.0	0.4
11	0.8	24/10/2003	35.5	36.3	60.6	29/01/2003	60.4	0.2
12	0.8	30/01/2003	98.3	99.0	59.9	7/01/2003	59.9	0.0
13	0.7	6/01/2003	53.8	54.5	59.5	28/02/2003	59.4	0.1
14	0.7	3/08/2003	24.1	24.8	58.1	18/01/2003	57.6	0.5
15	0.7	19/12/2003	75.6	76.3	55.0	23/08/2003	55.0	0.0
16	0.6	31/12/2003	69.8	70.4	55.0	18/12/2003	54.6	0.4
17	0.6	28/11/2003	13.5	14.1	54.9	19/03/2003	54.6	0.3
18	0.6	14/02/2003	25.8	26.4	54.5	6/01/2003	53.8	0.7
19	0.6	26/03/2003	15.4	16.0	54.0	17/01/2003	53.8	0.2
20	0.6	13/02/2003	25.6	26.1	53.0	17/12/2003	53.0	0.0
21	0.5	3/01/2003	19.0	19.5	51.2	25/01/2003	51.1	0.1
22	0.5	28/08/2003	14.5	15.0	51.0	5/08/2003	50.8	0.2
23	0.5	15/12/2003	21.4	21.9	49.8	15/02/2003	49.7	0.1
24	0.5	26/01/2003	92.0	92.5	47.8	26/12/2003	47.8	0.0
25	0.5	22/02/2003	19.8	20.3	47.7	11/12/2003	47.4	0.3
26	0.5	5/11/2003	33.6	34.1	46.8	6/11/2003	46.8	0.0
27	0.5	18/01/2003	57.6	58.1	46.8	5/06/2003	46.8	0.0
28	0.4	21/10/2003	32.5	33.0	46.5	22/09/2003	46.2	0.3
29	0.4	29/03/2003	14.9	15.3	46.3	24/01/2003	46.1	0.2
30	0.4	23/10/2003	19.3	19.8	44.5	4/11/2003	44.2	0.3

Table 16: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 2 – existing operations Sinter Cooler Bed & RDD stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	1.1	3/11/2003	13.6	14.7	297.0	20/03/2003	297.0	1.1
2	1.0	9/12/2003	10.1	11.1	98.9	30/01/2003	98.3	1.0
3	0.9	14/12/2003	15.4	16.3	92.4	26/01/2003	92.0	0.9
4	0.9	23/02/2003	17.7	18.6	81.3	25/12/2003	80.7	0.9
5	0.9	4/02/2003	21.0	21.9	76.2	19/12/2003	75.6	0.9
6	0.8	1/02/2003	25.2	26.0	70.3	31/12/2003	69.8	0.8
7	0.8	3/08/2003	24.1	24.8	68.2	21/01/2003	68.1	0.8
8	0.7	24/10/2003	15.3	16.0	64.4	23/07/2003	64.4	0.7
9	0.7	13/01/2003	16.4	17.1	63.5	8/01/2003	63.4	0.7
10	0.7	25/12/2003	80.7	81.3	61.3	20/11/2003	61.0	0.7
11	0.7	24/02/2003	14.0	14.6	60.6	29/01/2003	60.4	0.7
12	0.6	19/12/2003	75.6	76.2	59.9	7/01/2003	59.9	0.6
13	0.6	3/02/2003	17.0	17.6	59.5	28/02/2003	59.4	0.6
14	0.6	30/01/2003	99.0	99.5	58.1	18/01/2003	57.6	0.6
15	0.5	31/12/2003	70.4	71.0	55.1	23/08/2003	55.0	0.5
16	0.5	6/01/2003	54.4	54.9	54.9	18/12/2003	54.6	0.5
17	0.5	28/03/2003	11.6	12.1	54.9	19/03/2003	54.6	0.5
18	0.5	18/01/2003	58.1	58.6	54.3	6/01/2003	53.8	0.5
19	0.5	3/01/2003	19.5	20.0	54.0	17/01/2003	53.8	0.5
20	0.5	26/03/2003	16.0	16.4	53.0	17/12/2003	53.0	0.5
21	0.5	14/02/2003	26.4	26.8	51.2	25/01/2003	51.1	0.5
22	0.5	28/08/2003	14.5	15.0	50.9	5/08/2003	50.8	0.5
23	0.4	13/02/2003	26.1	26.5	49.8	15/02/2003	49.7	0.4
24	0.4	8/05/2003	21.2	21.6	47.8	26/12/2003	47.8	0.4
25	0.4	28/11/2003	13.5	14.0	47.6	11/12/2003	47.4	0.4
26	0.4	5/11/2003	33.6	34.0	46.8	6/11/2003	46.8	0.4
27	0.4	29/03/2003	15.4	15.8	46.8	5/06/2003	46.8	0.4
28	0.4	4/10/2003	13.6	14.0	46.4	22/09/2003	46.2	0.4
29	0.4	14/05/2003	15.5	15.9	46.2	24/01/2003	46.1	0.4
30	0.4	23/04/2003	9.2	9.6	44.4	4/11/2003	44.2	0.4

Table 17: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 3 – existing operations Sinter Cooler Bed & RDD stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	1.5	17/11/2003	19.4	20.9	297.0	20/03/2003	297.0	0.0
2	1.3	6/12/2003	13.6	14.9	98.4	30/01/2003	98.3	0.1
3	1.1	5/03/2003	21.4	22.5	92.2	26/01/2003	92.0	0.2
4	1.1	7/12/2003	12.6	13.7	80.8	25/12/2003	80.7	0.1
5	1.1	18/11/2003	16.3	17.3	76.4	19/12/2003	75.6	0.8
6	0.9	16/10/2003	17.1	18.0	69.9	31/12/2003	69.8	0.1
7	0.9	22/01/2003	31.2	32.1	68.4	21/01/2003	68.1	0.3
8	0.9	5/12/2003	22.4	23.3	64.5	23/07/2003	64.4	0.1
9	0.8	19/12/2003	75.6	76.4	63.5	8/01/2003	63.4	0.1
10	0.8	12/11/2003	21.3	22.2	61.6	20/11/2003	61.0	0.6
11	0.8	20/12/2003	19.0	19.7	60.6	29/01/2003	60.4	0.2
12	0.7	11/01/2003	11.0	11.8	60.0	28/02/2003	59.4	0.6
13	0.7	8/02/2003	26.8	27.5	59.9	7/01/2003	59.9	0.0
14	0.7	22/10/2003	13.7	14.4	57.8	18/01/2003	57.6	0.2
15	0.7	11/11/2003	17.3	17.9	55.0	23/08/2003	55.0	0.0
16	0.7	28/01/2003	16.6	17.2	54.9	18/12/2003	54.6	0.3
17	0.7	19/01/2003	20.0	20.7	54.6	19/03/2003	54.6	0.0
18	0.7	27/11/2003	11.6	12.3	53.9	17/01/2003	53.8	0.1
19	0.6	20/11/2003	61.0	61.6	53.8	6/01/2003	53.8	0.0
20	0.6	2/12/2003	10.8	11.4	53.0	17/12/2003	53.0	0.0
21	0.6	12/01/2003	16.5	17.1	51.1	25/01/2003	51.1	0.0
22	0.6	22/03/2003	19.9	20.5	50.8	5/08/2003	50.8	0.0
23	0.6	28/02/2003	59.4	60.0	49.8	15/02/2003	49.7	0.1
24	0.6	12/05/2003	8.3	8.9	48.2	26/12/2003	47.8	0.4
25	0.6	27/01/2003	36.8	37.4	47.8	11/12/2003	47.4	0.4
26	0.6	2/01/2003	19.0	19.5	47.0	6/11/2003	46.8	0.2
27	0.6	14/02/2003	25.8	26.4	46.8	5/06/2003	46.8	0.0
28	0.6	24/03/2003	12.1	12.6	46.3	22/09/2003	46.2	0.1
29	0.6	26/10/2003	8.7	9.3	46.1	24/01/2003	46.1	0.0
30	0.6	8/12/2003	11.8	12.4	44.3	4/11/2003	44.2	0.1

Table 18: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 4 – existing operations Sinter Cooler Bed & RDD stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	2.7	17/11/2003	19.4	22.1	297.0	20/03/2003	297.0	0.0
2	2.0	6/12/2003	13.6	15.6	98.5	30/01/2003	98.3	0.2
3	1.7	5/03/2003	21.4	23.1	92.3	26/01/2003	92.0	0.3
4	1.6	22/01/2003	31.2	32.8	80.8	25/12/2003	80.7	0.1
5	1.6	5/12/2003	22.4	24.0	76.6	19/12/2003	75.6	1.0
6	1.4	18/11/2003	16.3	17.7	69.9	31/12/2003	69.8	0.1
7	1.4	7/12/2003	12.6	14.1	68.7	21/01/2003	68.1	0.6
8	1.4	11/01/2003	11.0	12.5	64.7	23/07/2003	64.4	0.3
9	1.4	8/02/2003	26.8	28.2	63.6	8/01/2003	63.4	0.2
10	1.4	27/01/2003	36.8	38.2	61.2	20/11/2003	61.0	0.2
11	1.3	16/10/2003	17.1	18.3	60.8	29/01/2003	60.4	0.4
12	1.3	19/01/2003	20.0	21.3	60.0	28/02/2003	59.4	0.6
13	1.2	22/10/2003	13.7	14.9	59.9	7/01/2003	59.9	0.0
14	1.2	14/02/2003	25.8	27.0	58.0	18/01/2003	57.6	0.4
15	1.2	22/03/2003	19.9	21.1	55.0	23/08/2003	55.0	0.0
16	1.2	28/01/2003	16.6	17.7	54.9	18/12/2003	54.6	0.3
17	1.0	30/03/2003	10.7	11.7	54.7	19/03/2003	54.6	0.1
18	1.0	19/12/2003	75.6	76.6	53.9	17/01/2003	53.8	0.1
19	1.0	9/01/2003	24.8	25.7	53.8	6/01/2003	53.8	0.0
20	0.9	11/11/2003	17.3	18.2	53.0	17/12/2003	53.0	0.0
21	0.9	17/02/2003	26.0	26.9	51.1	25/01/2003	51.1	0.0
22	0.9	26/11/2003	12.2	13.1	50.8	5/08/2003	50.8	0.0
23	0.9	27/11/2003	11.6	12.5	49.9	15/02/2003	49.7	0.2
24	0.9	12/11/2003	21.3	22.2	48.4	26/12/2003	47.8	0.6
25	0.8	20/12/2003	19.0	19.8	47.9	11/12/2003	47.4	0.5
26	0.8	10/01/2003	19.6	20.4	46.9	6/11/2003	46.8	0.1
27	0.8	8/12/2003	11.8	12.6	46.8	5/06/2003	46.8	0.0
28	0.8	7/11/2003	22.7	23.5	46.2	22/09/2003	46.2	0.0
29	0.8	12/01/2003	16.5	17.3	46.1	24/01/2003	46.1	0.0
30	0.7	6/10/2003	13.0	13.7	44.4	4/11/2003	44.2	0.2

Table 19: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 1 – proposed operations Sinter Cooler Bed & RDD stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	1.3	4/02/2003	20.0	21.3	297.0	20/03/2003	297.0	0.0
2	1.3	3/11/2003	35.5	36.8	99.2	30/01/2003	98.3	0.9
3	1.2	9/12/2003	13.5	14.7	92.6	26/01/2003	92.0	0.6
4	1.2	23/02/2003	16.7	17.9	81.7	25/12/2003	80.7	1.0
5	1.1	25/12/2003	75.6	76.6	76.4	19/12/2003	75.6	0.8
6	1.0	14/12/2003	10.1	11.1	70.5	31/12/2003	69.8	0.7
7	1.0	1/02/2003	24.3	25.3	68.2	21/01/2003	68.1	0.1
8	0.9	24/02/2003	13.2	14.1	64.4	23/07/2003	64.4	0.0
9	0.9	13/01/2003	15.6	16.5	63.5	8/01/2003	63.4	0.1
10	0.9	24/10/2003	19.3	20.2	61.4	20/11/2003	61.0	0.4
11	0.9	30/01/2003	98.3	99.2	60.7	29/01/2003	60.4	0.3
12	0.9	3/02/2003	16.4	17.2	59.9	7/01/2003	59.9	0.0
13	0.9	3/08/2003	24.1	25.0	59.6	28/02/2003	59.4	0.2
14	0.8	6/01/2003	53.8	54.6	58.2	18/01/2003	57.6	0.6
15	0.8	19/12/2003	21.4	22.2	55.1	18/12/2003	54.6	0.5
16	0.7	31/12/2003	80.7	81.4	55.0	23/08/2003	55.0	0.0
17	0.7	28/11/2003	33.6	34.3	55.0	19/03/2003	54.6	0.4
18	0.7	26/03/2003	15.4	16.1	54.6	6/01/2003	53.8	0.8
19	0.7	14/02/2003	25.8	26.5	54.1	17/01/2003	53.8	0.3
20	0.7	13/02/2003	25.6	26.2	53.0	17/12/2003	53.0	0.0
21	0.6	3/01/2003	19.0	19.6	51.3	25/01/2003	51.1	0.2
22	0.6	28/08/2003	14.5	15.1	51.0	5/08/2003	50.8	0.2
23	0.6	26/01/2003	92.0	92.6	49.8	15/02/2003	49.7	0.1
24	0.6	5/11/2003	13.6	14.2	47.8	26/12/2003	47.8	0.0
25	0.6	15/12/2003	15.4	16.0	47.7	11/12/2003	47.4	0.3
26	0.6	18/01/2003	57.6	58.2	46.8	6/11/2003	46.8	0.0
27	0.6	22/02/2003	19.8	20.3	46.8	5/06/2003	46.8	0.0
28	0.5	21/10/2003	32.5	33.1	46.5	22/09/2003	46.2	0.3
29	0.5	29/03/2003	24.1	24.6	46.3	24/01/2003	46.1	0.2
30	0.5	4/10/2003	13.6	14.1	44.5	4/11/2003	44.2	0.3

Table 20: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 2 – proposed operations Sinter Cooler Bed & RDD stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	1.3	3/11/2003	13.6	14.9	297.0	20/03/2003	297.0	0.0
2	1.2	9/12/2003	10.1	11.2	98.9	30/01/2003	98.3	0.6
3	1.0	14/12/2003	15.4	16.4	92.5	26/01/2003	92.0	0.5
4	1.0	23/02/2003	16.7	17.7	81.4	25/12/2003	80.7	0.7
5	1.0	4/02/2003	20.0	21.0	76.3	19/12/2003	75.6	0.7
6	0.9	3/08/2003	24.1	25.0	70.4	31/12/2003	69.8	0.6
7	0.9	1/02/2003	24.3	25.2	68.2	21/01/2003	68.1	0.1
8	0.8	24/10/2003	35.5	36.3	64.4	23/07/2003	64.4	0.0
9	0.8	25/12/2003	80.7	81.4	63.5	8/01/2003	63.4	0.1
10	0.8	13/01/2003	15.6	16.3	61.3	20/11/2003	61.0	0.3
11	0.7	24/02/2003	13.2	13.9	60.6	29/01/2003	60.4	0.2
12	0.7	19/12/2003	75.6	76.3	59.9	7/01/2003	59.9	0.0
13	0.6	31/12/2003	69.8	70.4	59.5	28/02/2003	59.4	0.1
14	0.6	30/01/2003	98.3	98.9	58.1	18/01/2003	57.6	0.5
15	0.6	3/02/2003	16.4	17.0	55.1	23/08/2003	55.0	0.1
16	0.5	28/03/2003	11.1	11.7	55.0	18/12/2003	54.6	0.4
17	0.5	6/01/2003	53.8	54.3	54.9	19/03/2003	54.6	0.3
18	0.5	26/03/2003	15.4	15.9	54.3	6/01/2003	53.8	0.5
19	0.5	18/01/2003	57.6	58.1	54.0	17/01/2003	53.8	0.2
20	0.5	3/01/2003	19.0	19.5	53.0	17/12/2003	53.0	0.0
21	0.5	28/08/2003	14.5	15.0	51.2	25/01/2003	51.1	0.1
22	0.5	14/02/2003	25.8	26.3	51.0	5/08/2003	50.8	0.2
23	0.5	8/05/2003	21.2	21.7	49.8	15/02/2003	49.7	0.1
24	0.5	5/11/2003	33.6	34.1	47.8	26/12/2003	47.8	0.0
25	0.5	13/02/2003	25.6	26.1	47.7	11/12/2003	47.4	0.3
26	0.5	28/11/2003	13.5	14.0	46.8	6/11/2003	46.8	0.0
27	0.5	29/03/2003	14.9	15.4	46.8	5/06/2003	46.8	0.0
28	0.5	4/10/2003	13.6	14.1	46.4	22/09/2003	46.2	0.2
29	0.5	14/05/2003	15.5	16.0	46.2	24/01/2003	46.1	0.1
30	0.5	23/04/2003	9.2	9.7	44.4	4/11/2003	44.2	0.2

Table 21: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 3 – proposed operations Sinter Cooler Bed & RDD stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	1.6	17/11/2003	19.4	21.1	297.0	20/03/2003	297.0	0.0
2	1.4	6/12/2003	13.6	15.0	98.5	30/01/2003	98.3	0.2
3	1.2	5/03/2003	21.4	22.6	92.3	26/01/2003	92.0	0.3
4	1.2	7/12/2003	12.6	13.8	80.8	25/12/2003	80.7	0.1
5	1.2	18/11/2003	16.3	17.4	76.6	19/12/2003	75.6	1.0
6	1.0	16/10/2003	17.1	18.1	69.9	31/12/2003	69.8	0.1
7	1.0	19/12/2003	75.6	76.6	68.4	21/01/2003	68.1	0.3
8	1.0	22/01/2003	31.2	32.2	64.5	23/07/2003	64.4	0.1
9	0.9	5/12/2003	22.4	23.4	63.5	8/01/2003	63.4	0.1
10	0.9	12/11/2003	21.3	22.3	61.7	20/11/2003	61.0	0.7
11	0.9	20/12/2003	19.0	19.8	60.7	29/01/2003	60.4	0.3
12	0.8	8/02/2003	26.8	27.6	60.1	28/02/2003	59.4	0.7
13	0.8	11/01/2003	11.0	11.8	59.9	7/01/2003	59.9	0.0
14	0.7	27/11/2003	11.6	12.4	57.8	18/01/2003	57.6	0.2
15	0.7	2/12/2003	10.8	11.5	55.0	23/08/2003	55.0	0.3
16	0.7	11/11/2003	17.3	18.0	54.9	18/12/2003	54.6	0.0
17	0.7	28/01/2003	16.6	17.3	54.6	19/03/2003	54.6	0.0
18	0.7	22/10/2003	13.7	14.4	53.9	17/01/2003	53.8	0.1
19	0.7	20/11/2003	61.0	61.7	53.8	6/01/2003	53.8	0.0
20	0.7	19/01/2003	20.0	20.8	53.0	17/12/2003	53.0	0.0
21	0.7	12/05/2003	8.3	9.0	51.1	25/01/2003	51.1	0.0
22	0.7	28/02/2003	59.4	60.1	50.8	5/08/2003	50.8	0.0
23	0.7	12/01/2003	16.5	17.2	49.8	15/02/2003	49.7	0.1
24	0.7	22/03/2003	19.9	20.5	48.2	26/12/2003	47.8	0.4
25	0.7	2/01/2003	19.0	19.6	47.8	11/12/2003	47.4	0.4
26	0.6	27/01/2003	36.8	37.4	47.0	6/11/2003	46.8	0.2
27	0.6	8/12/2003	11.8	12.4	46.8	5/06/2003	46.8	0.0
28	0.6	24/03/2003	12.1	12.7	46.3	22/09/2003	46.2	0.1
29	0.6	26/10/2003	8.7	9.3	46.1	24/01/2003	46.1	0.0
30	0.6	14/02/2003	25.8	26.5	44.3	4/11/2003	44.2	0.1

Table 22: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 4 – proposed operations Sinter Cooler Bed & RDD stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	2.9	17/11/2003	19.4	22.3	298.0	20/03/2003	297.0	1.0
2	2.2	6/12/2003	13.6	15.9	98.5	30/01/2003	98.3	0.2
3	1.9	5/03/2003	21.4	23.3	92.4	26/01/2003	92.0	0.4
4	1.8	22/01/2003	31.2	33.0	80.8	25/12/2003	80.7	0.1
5	1.8	5/12/2003	22.4	24.2	76.9	19/12/2003	75.6	1.3
6	1.7	7/12/2003	12.6	14.3	69.9	31/12/2003	69.8	0.1
7	1.6	18/11/2003	16.3	17.9	68.7	21/01/2003	68.1	0.6
8	1.6	8/02/2003	26.8	28.4	64.7	23/07/2003	64.4	0.3
9	1.5	27/01/2003	36.8	38.3	63.6	8/01/2003	63.4	0.2
10	1.5	11/01/2003	11.0	12.5	61.2	20/11/2003	61.0	0.2
11	1.5	16/10/2003	17.1	18.5	60.9	29/01/2003	60.4	0.5
12	1.4	19/01/2003	20.0	21.4	60.1	28/02/2003	59.4	0.7
13	1.3	28/01/2003	16.6	17.9	59.9	7/01/2003	59.9	0.0
14	1.3	22/10/2003	13.7	15.0	58.1	18/01/2003	57.6	0.5
15	1.3	22/03/2003	19.9	21.2	55.0	23/08/2003	55.0	0.0
16	1.3	14/02/2003	25.8	27.1	54.9	18/12/2003	54.6	0.3
17	1.3	19/12/2003	75.6	76.9	54.7	19/03/2003	54.6	0.1
18	1.1	30/03/2003	10.7	11.8	53.9	17/01/2003	53.8	0.1
19	1.1	12/11/2003	21.3	22.5	53.8	6/01/2003	53.8	0.0
20	1.1	11/11/2003	17.3	18.3	53.0	17/12/2003	53.0	0.0
21	1.1	17/02/2003	26.0	27.1	51.1	25/01/2003	51.1	0.0
22	1.0	9/01/2003	24.8	25.8	50.8	5/08/2003	50.8	0.0
23	1.0	27/11/2003	11.6	12.6	49.9	15/02/2003	49.7	0.2
24	1.0	20/12/2003	19.0	19.9	48.5	26/12/2003	47.8	0.7
25	1.0	26/11/2003	12.2	13.2	48.0	11/12/2003	47.4	0.6
26	1.0	8/12/2003	11.8	12.7	46.9	6/11/2003	46.8	0.1
27	0.9	10/01/2003	19.6	20.5	46.8	5/06/2003	46.8	0.0
28	0.9	7/11/2003	22.7	23.6	46.2	22/09/2003	46.2	0.0
29	0.9	7/09/2003	17.3	18.1	46.1	24/01/2003	46.1	0.0
30	0.8	12/01/2003	16.5	17.3	44.4	4/11/2003	44.2	0.2

7. CONCLUSIONS

This report has examined the air quality impacts associated with the proposed modifications to the Sinter Cooler and the Room De-dedusting precipitator in the Sinter Plant at BlueScope Steel's Port Kembla Steelworks. The approach to the assessment has been to compare the proposed operational scenario with the existing operating scenario.

Dispersion modelling using the AUSPLUME model has been used to predict the changes to ground-level pollutant concentrations that may arise from the proposed operational scenario.

It is concluded that air quality impacts due to the existing and proposed operation of the Sinter Cooler and room de-dusting precipitator are minimal both in isolation and in combination. The predicted concentrations would be difficult to detect against the existing background levels.

8. REFERENCES

Bureau of Meteorology (2006)

Climatic Averages Australia, Bureau of Meteorology website, www.bom.gov.au

Dockery D W, Pope C A, Xiping Xu, Spengler J D, Ware J H, Fay M E, Ferris B G and Speizer F E (1993)

"An association between air pollution and mortality in six US cities" The New England Journal of Medicine, Volume 329, Number 24, 1753-1759.

Powell D C (1976)

"A Formulation of Time-varying Depths of Daytime Mixed Layer and Nighttime Stable Layer for Use in Air Pollution Assessment Models", Annual Report for 1976, Part 3, Battelle PNL Atmospheric Sciences, 185-189.

NSW DEC, 2005

"Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW", August 2005

US EPA (1986)

"Guideline on air quality models (revised)", Prepared by United States Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711, EPA-450/2-78-027R.

Venkatram A (1980)

"Dispersion from an elevated source in a convective boundary layer", Atmospheric Environment, Volume 10, 1-10.

VEPA (1986)

"The Ausplume Gaussian Plume Dispersion Model", Environment Protection Authority, Olderfleet Buildings, 477 Collins Street, Melbourne Victoria 3000, Publication Number 264.

Appendix A: Joint Wind Speed, Wind Direction and Stability Class Frequency Tables for BlueScope Meteorological Data

STATISTICS FOR FILE: C:\Jobs\BSSinter\Met\2003_met.aus
 MONTHS: All
 HOURS : All
 OPTION: Frequency

PASQUILL STABILITY CLASS 'A'

WIND SECTOR	Wind Speed Class (m/s)								TOTAL
	0.50 TO 1.50	1.50 TO 3.00	3.00 TO 4.50	4.50 TO 6.00	6.00 TO 7.50	7.50 TO 9.00	9.00 TO 10.50	GREATER THAN 10.50	
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000130	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.000260
SE	0.000000	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000130
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000130
SSW	0.000651	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000651
SW	0.000260	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000260
WSW	0.000391	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000391
W	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000130
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
CALM									0.000000
TOTAL	0.001563	0.000260	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.001953

MEAN WIND SPEED (m/s) = 1.39
 NUMBER OF OBSERVATIONS = 15

PASQUILL STABILITY CLASS 'B'

WIND SECTOR	Wind Speed Class (m/s)								TOTAL
	0.50 TO 1.50	1.50 TO 3.00	3.00 TO 4.50	4.50 TO 6.00	6.00 TO 7.50	7.50 TO 9.00	9.00 TO 10.50	GREATER THAN 10.50	
NNE	0.000000	0.000000	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.000130
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.000130
E	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000130
ESE	0.000000	0.000391	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000391
SE	0.000391	0.000781	0.000391	0.000000	0.000000	0.000000	0.000000	0.000000	0.001563
SSE	0.000521	0.000651	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.001172
S	0.000260	0.000911	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.001302
SSW	0.000521	0.000781	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.001432
SW	0.000781	0.000260	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.001042
WSW	0.000521	0.000260	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000781
W	0.000260	0.000651	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000911
WNW	0.000000	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000130
NW	0.000000	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000130
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
CALM									0.000000
TOTAL	0.003385	0.004948	0.000911	0.000000	0.000000	0.000000	0.000000	0.000000	0.009245

MEAN WIND SPEED (m/s) = 1.94
 NUMBER OF OBSERVATIONS = 71

PASQUILL STABILITY CLASS 'C'

Wind Speed Class (m/s)

WIND SECTOR	0.50 TO 1.50	1.50 TO 3.00	3.00 TO 4.50	4.50 TO 6.00	6.00 TO 7.50	7.50 TO 9.00	9.00 TO 10.50	GREATER THAN 10.50	TOTAL
NNE	0.000000	0.000260	0.000391	0.001042	0.000000	0.000000	0.000000	0.000000	0.001693
NE	0.000000	0.000260	0.000260	0.001042	0.000000	0.000000	0.000000	0.000000	0.001563
ENE	0.000000	0.000391	0.000521	0.000391	0.000000	0.000000	0.000000	0.000000	0.001302
E	0.000000	0.000000	0.000521	0.000391	0.000000	0.000000	0.000000	0.000000	0.000911
ESE	0.000260	0.001563	0.001042	0.001172	0.000000	0.000000	0.000000	0.000000	0.004036
SE	0.000260	0.002474	0.002734	0.001953	0.000000	0.000000	0.000000	0.000000	0.007422
SSE	0.000130	0.002734	0.003125	0.002344	0.000000	0.000000	0.000000	0.000000	0.008333
S	0.001432	0.002604	0.002734	0.001302	0.000000	0.000000	0.000000	0.000000	0.008073
SSW	0.001042	0.001953	0.001302	0.000391	0.000000	0.000000	0.000000	0.000000	0.004688
SW	0.000521	0.002214	0.000521	0.000130	0.000000	0.000000	0.000000	0.000000	0.003385
WSW	0.000781	0.002214	0.000651	0.000260	0.000000	0.000000	0.000000	0.000000	0.003906
W	0.000260	0.001953	0.001302	0.000260	0.000000	0.000000	0.000000	0.000000	0.003776
WNW	0.000130	0.001432	0.000651	0.000260	0.000000	0.000000	0.000000	0.000000	0.002474
NW	0.000000	0.001172	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.001302
NNW	0.000000	0.000000	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.000130
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
CALM									0.000000
TOTAL	0.004818	0.021224	0.016016	0.010938	0.000000	0.000000	0.000000	0.000000	0.052995

MEAN WIND SPEED (m/s) = 3.25
NUMBER OF OBSERVATIONS = 407

PASQUILL STABILITY CLASS 'D'

Wind Speed Class (m/s)

WIND SECTOR	0.50 TO 1.50	1.50 TO 3.00	3.00 TO 4.50	4.50 TO 6.00	6.00 TO 7.50	7.50 TO 9.00	9.00 TO 10.50	GREATER THAN 10.50	TOTAL
NNE	0.000000	0.000391	0.005339	0.011589	0.014453	0.010417	0.002995	0.000391	0.045573
NE	0.000000	0.001823	0.012240	0.014714	0.015495	0.007292	0.001823	0.000391	0.053776
ENE	0.000000	0.003385	0.012370	0.010807	0.007682	0.001563	0.000260	0.000000	0.036068
E	0.000130	0.003125	0.010156	0.011328	0.003125	0.000260	0.000000	0.000000	0.028125
ESE	0.000130	0.004818	0.007552	0.003906	0.000781	0.000130	0.000260	0.000000	0.017578
SE	0.000391	0.007161	0.012760	0.007031	0.003646	0.000651	0.000000	0.000000	0.031641
SSE	0.000521	0.006510	0.016927	0.017578	0.013411	0.003516	0.000651	0.000000	0.059115
S	0.001042	0.008333	0.023177	0.025391	0.011719	0.003516	0.001302	0.000130	0.074609
SSW	0.001432	0.011198	0.026302	0.029167	0.007422	0.000260	0.000000	0.000000	0.075781
SW	0.003385	0.022526	0.026563	0.009635	0.002214	0.000130	0.000000	0.000000	0.064453
WSW	0.004297	0.017708	0.019141	0.016276	0.010156	0.001823	0.001172	0.000000	0.070573
W	0.002474	0.013932	0.016536	0.022266	0.015234	0.008333	0.002995	0.001172	0.082943
WNW	0.001432	0.015755	0.008464	0.005859	0.001693	0.000521	0.000391	0.000000	0.034115
NW	0.000521	0.012630	0.013281	0.005078	0.001302	0.000521	0.000391	0.000260	0.033984
NNW	0.000000	0.001302	0.008464	0.007031	0.000651	0.000130	0.000000	0.000000	0.017578
N	0.000000	0.000000	0.000000	0.000781	0.001172	0.000391	0.000521	0.000000	0.002865
CALM									0.000130
TOTAL	0.015755	0.130599	0.219271	0.198438	0.110156	0.039453	0.012760	0.002344	0.728906

MEAN WIND SPEED (m/s) = 4.70
NUMBER OF OBSERVATIONS = 5598

PASQUILL STABILITY CLASS 'E'

Wind Speed Class (m/s)

WIND SECTOR	0.50 TO 1.50	1.50 TO 3.00	3.00 TO 4.50	4.50 TO 6.00	6.00 TO 7.50	7.50 TO 9.00	9.00 TO 10.50	GREATER THAN 10.50	TOTAL
NNE	0.000000	0.000000	0.000130	0.000130	0.000000	0.000000	0.000000	0.000000	0.000260
NE	0.000000	0.000781	0.000781	0.000000	0.000000	0.000000	0.000000	0.000000	0.001563
ENE	0.000130	0.000521	0.000781	0.000260	0.000000	0.000000	0.000000	0.000000	0.001693
E	0.000260	0.001172	0.001563	0.000260	0.000000	0.000000	0.000000	0.000000	0.003255
ESE	0.000260	0.000781	0.000521	0.000130	0.000000	0.000000	0.000000	0.000000	0.001693
SE	0.000130	0.001172	0.000260	0.000130	0.000000	0.000000	0.000000	0.000000	0.001693
SSE	0.000651	0.001823	0.000260	0.000391	0.000000	0.000000	0.000000	0.000000	0.003125
S	0.001042	0.003385	0.001953	0.000130	0.000000	0.000000	0.000000	0.000000	0.006510
SSW	0.001953	0.007943	0.003385	0.000521	0.000000	0.000000	0.000000	0.000000	0.013802
SW	0.003385	0.020182	0.019141	0.000781	0.000000	0.000000	0.000000	0.000000	0.043490
WSW	0.003125	0.018620	0.016667	0.001953	0.000000	0.000000	0.000000	0.000000	0.040365
W	0.002734	0.010547	0.006641	0.001693	0.000000	0.000000	0.000000	0.000000	0.021615
WNW	0.001823	0.010417	0.009896	0.001042	0.000000	0.000000	0.000000	0.000000	0.023177
NW	0.000260	0.008203	0.009505	0.000391	0.000000	0.000000	0.000000	0.000000	0.018359
NNW	0.000000	0.001302	0.003385	0.000130	0.000000	0.000000	0.000000	0.000000	0.004818
N	0.000000	0.000000	0.000391	0.000000	0.000000	0.000000	0.000000	0.000000	0.000391
CALM									0.000000
TOTAL	0.015755	0.086849	0.075260	0.007943	0.000000	0.000000	0.000000	0.000000	0.185807

MEAN WIND SPEED (m/s) = 2.89
NUMBER OF OBSERVATIONS = 1427

PASQUILL STABILITY CLASS 'F'

Wind Speed Class (m/s)

WIND SECTOR	0.50 TO 1.50	1.50 TO 3.00	3.00 TO 4.50	4.50 TO 6.00	6.00 TO 7.50	7.50 TO 9.00	9.00 TO 10.50	GREATER THAN 10.50	TOTAL
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000130
SE	0.000781	0.000260	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.001042
SSE	0.000260	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000260
S	0.000130	0.001042	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.001172
SSW	0.001172	0.001693	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002865
SW	0.001693	0.004688	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.006380
WSW	0.001302	0.004036	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.005339
W	0.000781	0.000521	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.001302
WNW	0.000260	0.001302	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.001563
NW	0.000000	0.001042	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.001042
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
CALM									0.000000
TOTAL	0.006510	0.014583	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.021094

MEAN WIND SPEED (m/s) = 1.97
NUMBER OF OBSERVATIONS = 162

ALL PASQUILL STABILITY CLASSES

Wind Speed Class (m/s)

WIND SECTOR	0.50	1.50	3.00	4.50	6.00	7.50	9.00	GREATER	TOTAL
	TO 1.50	TO 3.00	TO 4.50	TO 6.00	TO 7.50	TO 9.00	TO 10.50	THAN 10.50	
NNE	0.000000	0.000651	0.005990	0.012760	0.014453	0.010417	0.002995	0.000391	0.047656
NE	0.000000	0.002865	0.013281	0.015755	0.015495	0.007292	0.001823	0.000391	0.056901
ENE	0.000130	0.004297	0.013802	0.011458	0.007682	0.001563	0.000260	0.000000	0.039193
E	0.000521	0.004297	0.012240	0.011979	0.003125	0.000260	0.000000	0.000000	0.032422
ESE	0.000781	0.007682	0.009245	0.005208	0.000781	0.000130	0.000260	0.000000	0.024089
SE	0.001953	0.011979	0.016146	0.009115	0.003646	0.000651	0.000000	0.000000	0.043490
SSE	0.002083	0.011719	0.020313	0.020313	0.013411	0.003516	0.000651	0.000000	0.072005
S	0.004036	0.016276	0.027995	0.026823	0.011719	0.003516	0.001302	0.000130	0.091797
SSW	0.006771	0.023568	0.031120	0.030078	0.007422	0.000260	0.000000	0.000000	0.099219
SW	0.010026	0.049870	0.046224	0.010547	0.002214	0.000130	0.000000	0.000000	0.119010
WSW	0.010417	0.042839	0.036458	0.018490	0.010156	0.001823	0.001172	0.000000	0.121354
W	0.006641	0.027604	0.024479	0.024219	0.015234	0.008333	0.002995	0.001172	0.110677
WNW	0.003646	0.029036	0.019010	0.007161	0.001693	0.000521	0.000391	0.000000	0.061458
NW	0.000781	0.023177	0.022917	0.005469	0.001302	0.000521	0.000391	0.000260	0.054818
NNW	0.000000	0.002604	0.011979	0.007161	0.000651	0.000130	0.000000	0.000000	0.022526
N	0.000000	0.000000	0.000391	0.000781	0.001172	0.000391	0.000521	0.000000	0.003255
CALM									0.000130
TOTAL	0.047786	0.258464	0.311589	0.217318	0.110156	0.039453	0.012760	0.002344	1.000000

MEAN WIND SPEED (m/s) = 4.20
NUMBER OF OBSERVATIONS = 7680

FREQUENCY OF OCCURENCE OF STABILITY CLASSES

A : 0.2%
B : 0.9%
C : 5.3%
D : 72.9%
E : 18.6%
F : 2.1%

Appendix B: Sinter Cooler Particulate Monitoring Results

Measured Particulate Matter Concentrations from Platform 1 of the Sinter Cooler Bed								
Date	Time Start	Time Finish	TPM (mg/Nm ³)	>PM ₁₀ (mg/Nm ³)	<PM ₁₀ (mg/Nm ³)	<&>PM ₁₀ (mg/Nm ³)	Temp (°C)	Location
08-Feb-02	10:15	11:30		453	<0.1	453	365	1
08-Feb-02	13:00	14:15		627	20.0	647	303	1
22-Feb-02	9:30	10:30		181			298	1
22-Feb-02	11:45	12:45		372			345	1
22-Feb-02	14:00	15:00		224			358	1
22-Feb-02	16:15	17:15		362			350	1
01-Mar-02	14:00	17:45		264	9.8	274	341	1
06-Mar-02	11:30	12:45		194	<0.1	194	326	1
06-Mar-02	15:00	16:00		170	6.1	176	316	1
06-Mar-02	18:15	19:15		111	14.0	125	284	1
15-Mar-02	9:00	9:45		243	7.0	250	381	1
15-Mar-02	10:50	11:20		179	5.4	184	413	1
15-Mar-02	12:30	13:30		138	5.1	143	373	1
15-Mar-02	15:00	15:30		130	<0.2	130	361	1
20-Mar-02	19:00	20:00		338	<0.7	338	349	1
20-Mar-02	21:05	21:50		150	5.4	155	325	1
22-Mar-02	15:25	16:10		184	3.8	188	381	1
22-Mar-02	18:10	18:55		55	3.6	59	357	1
27-Mar-02	9:00	19:30	214				358	1
01-May-02	10:04	12:04		200	4.0	204	361	1
01-May-02	13:05	15:05		290	3.3	293	330	1
01-May-02	16:00	18:10		268	4.0	272	353	1
06-May-02	10:35	12:35		276	7.0	283	270	1
06-May-02	13:25	15:25		339	<0.3	339	295	1
06-May-02	16:15	18:15		446	1.8	448	339	1
08-May-02	9:35	11:35		382	4.1	386	367	1
08-May-02	12:35	14:02		200	<0.5	200	339	1
08-May-02	16:00	18:00		261	<0.4	261	306	1
28-Jun-02	9:48	11:10		79	14.0	93	299	1
28-Jun-02	12:20	14:20		49	5.4	54	271	1
28-Jun-02	15:10	17:10		28	2.3	30	302	1
16-Aug-02	9:00	11:00		74	3.0	77	367	1
16-Aug-02	12:00	14:00		93	8.6	102	316	1
16-Aug-02	15:00	17:30		88	<0.3	88	364	1
17-Oct-02	10:50	12:50	49				304	1
18-Oct-02	10:00	12:00	67				344	1
18-Oct-02	13:15	15:15		12	<0.4	12	312	1
18-Oct-02	16:40	18:40		80	20.0	100	312	1
23-Oct-02	11:00	13:00	63				299	1
23-Oct-02	13:40	15:40	30				286	1
23-Oct-02	16:00	17:50		50	5.1	55	296	1
15-Nov-02	10:50	12:50		53	<0.4	53	338	1
15-Nov-02	13:30	15:30			11.0		255	1
15-Nov-02	16:10	18:10		51	2.6	54	319	1
13-Dec-02	9:20	11:21		130	2.5	133	348	1
13-Dec-02	12:15	16:35	75				366	1
13-Dec-02	17:20	19:20		100	7.2	107	337	1
10-Jan-03	9:00	11:00		75	2.2	77	330	1
10-Jan-03	11:50	13:50		94	4.5	99	291	1
10-Jan-03	14:30	16:30		61	2.1	63	365	1
10-Jan-03	17:30	19:30		80	2.6	83	354	1
12-Feb-03	9:00	11:00		120	4.2	124	399	1
12-Feb-03	11:50	13:50		180	4.0	184	388	1
12-Feb-03	15:00	16:30	230				388	1
12-Feb-03	17:00	18:00	200				394	1
04-Apr-03	10:55	12:55		90	1.6	92	328	1
04-Apr-03	13:50	15:50		84	5.6	90	335	1
04-Apr-03	16:45	18:45		91	2.4	93	351	1
02-May-03	14:00	16:00		100	2.8	103	342	1

Measured Particulate Matter Concentrations from Platform 1 of the Sinter Cooler Bed *continued*

Date	Time Start	Time Finish	TPM (mg/Nm ³)	>PM ₁₀ (mg/Nm ³)	<PM ₁₀ (mg/Nm ³)	<&>PM ₁₀ (mg/Nm ³)	Temp (°C)	Location
27-Jun-03	8:45	9:34		120	39.0	159	331	1
07-Jul-03	9:50	11:50		110	5.9	116	345	1
07-Jul-03	12:35	14:35		120	6.1	126	295	1
07-Jul-03	16:15	18:15		87	5.0	92	333	1
25-Jul-03	9:30	11:30		110	2.6	113	355	1
25-Jul-03	12:30	14:30		130	5.5	136	372	1
25-Jul-03	15:30	18:30		93	3.2	96	358	1
12-Sep-03	10:10	12:10		61	1.8	63	333	1
12-Sep-03	13:00	15:00		43	2.9	46	326	1
17-Oct-03	13:00	15:00		70	3.2	73	335	1
20-Nov-03	9:50	11:50		69	6.7	76	386	1
20-Nov-03	13:00	15:00		81	7.3	88	411	1
20-Nov-03	16:00	18:00		130	16.0	146	408	1
20-Dec-03	10:00	12:00			3.8		380	1
09-Jan-04	12:00	14:00			7.0		248	1
09-Jan-04	15:00	18:00			6.4		379	1
02-Apr-04	9:30	13:30	39		1.2	39	391	1
02-Apr-04	14:20	18:20	34		1.1	34	390	1
30-Apr-04	10:35	16:55	48		1.9	48	310	1
28-May-04	8:45	16:45	50		0.9	50	341	1
25-Jun-04	9:30	17:30	72		2.4	72	310	1
20-Aug-04	11:45	19:45			3.0			1
23-Aug-04	9:40	20:07	170			170	380	1
24-Aug-04	8:30	14:30	82			82	360	1
25-Aug-04	8:40	15:50	120			120	460	1
10-Sep-04	9:40	16:30	130		3.0	130	330	1
05-Oct-04	9:10	15:20	83			83	354	1
07-Oct-04	9:45	16:06	61			61	381	1
08-Oct-04	9:20	15:35	45			45	350	1
15-Oct-04	14:45	18:00	98			98	330	1
18-Oct-04	8:50	15:50	96			96	340	1
12-Nov-04	9:40	12:10	13		1.5	13	398	1
10-Dec-04	9:10	15:40	65		3.0	65	350	1
07-Jan-05	9:10	15:00	130		3.4	130	485	1
04-Feb-05	10:10	12:20	39		2.3	39	351	1
01-Apr-05	10:45	17:30	130		3.0	130	443	1
15-Apr-05	10:50	16:00	99		2.9	99	435	1
18-May-05	10:35	16:35	110		1.4	110	365	1
08-Jul-05	10:40	16:40	240		1.6	240	380	1
02-Sep-05	10:50	16:50	160		1.5	160	311	1
Average concentration			98.1	160.7	5.4	139		
Maximum concentration			240	627	39	647		
Minimum concentration			13	12	0.9	12		

Appendix C: AUSPLUME output file

 Sinter Cooler stack - proposed area - revised inputs June 2006

Concentration or deposition	Concentration
Emission rate units	milligrams/secon
Concentration units	micrograms/m3
Units conversion factor	1.00E+03
Constant background concentration	0.00E+00
Terrain effects	Egan method
Smooth stability class changes?	No
Other stability class adjustments ("urban modes")	None
Ignore building wake effects?	No
Decay coefficient (unless overridden by met. file)	0.000
Anemometer height	10 m
Roughness height at the wind vane site	0.300 m

DISPERSION CURVES

Horizontal dispersion curves for sources <100m high	Pasquill-Gifford
Vertical dispersion curves for sources <100m high	Pasquill-Gifford
Horizontal dispersion curves for sources >100m high	Briggs Rural
Vertical dispersion curves for sources >100m high	Briggs Rural
Enhance horizontal plume spreads for buoyancy?	Yes
Enhance vertical plume spreads for buoyancy?	Yes
Adjust horizontal P-G formulae for roughness height?	Yes
Adjust vertical P-G formulae for roughness height?	Yes
Roughness height	0.800m
Adjustment for wind directional shear	None

PLUME RISE OPTIONS

Gradual plume rise?	Yes
Stack-tip downwash included?	Yes
Building downwash algorithm:	PRIME method.
Entrainment coeff. for neutral & stable lapse rates	0.60,0.60
Partial penetration of elevated inversions?	No
Disregard temp. gradients in the hourly met. file?	No

and in the absence of boundary-layer potential temperature gradients given by the hourly met. file, a value from the following table (in K/m) is used:

Wind Speed Category	Stability Class					
	A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES

Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES

24 hours
average over all hours

Sinter Cooler stack - proposed area - revised inputs June 2006

SOURCE GROUPS

Group No.	Members						
1	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
2	RDD						
3	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	RDD						

1

Sinter Cooler stack - proposed area - revised inputs June 2006

SOURCE CHARACTERISTICS

STACK SOURCE: 1

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed	Effective building dimensions (in metres)																	
306420	6184165	9m	10m	6.18m	370C	4.1m/s																		
Flow direction			10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°										
Effective building width			37	38	37	36	37	37	37	36	33	30	54	40										
Effective building height			45	45	45	45	45	45	45	45	45	45	35	35										
Along-flow building length			30	26	20	15	18	24	28	32	35	37	95	96										
Along-flow distance from stack			-38	-31	-24	-15	-10	-7	-4	0	3	6	17	17										
Across-flow distance from stack			-25	-28	-31	-32	-33	-33	-32	-29	-27	-23	-8	3										
Flow direction			130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°										
Effective building width			50	60	48	61	32	35	37	38	38	36	36	38										
Effective building height			35	35	35	35	45	45	45	45	45	45	45	45										
Along-flow building length			110	111	94	91	36	33	30	26	20	15	18	23										
Along-flow distance from stack			15	12	7	2	12	10	8	6	3	1	-8	-16										
Across-flow distance from stack			4	20	35	44	16	21	25	28	31	33	33	33										
Flow direction			250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°										
Effective building width			37	36	33	30	51	51	51	53	54	61	32	35										
Effective building height			45	45	45	45	45	45	45	45	45	45	35	45										
Along-flow building length			28	32	35	37	35	28	19	19	27	91	36	33										
Along-flow distance from stack			-24	-32	-38	-43	-127	-128	-125	-123	-121	-93	-48	-43										
Across-flow distance from stack			31	29	27	23	36	17	-4	-24	-43	-44	-16	-21										

(Constant) emission rate = 1.11E+02 milligrams/second
No gravitational settling or scavenging.

STACK SOURCE: 2

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed	Effective building dimensions (in metres)																	
306416	6184168	9m	10m	6.18m	320C	3.8m/s																		
Flow direction			10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°										
Effective building width			37	38	37	60	94	37	37	36	33	30	54	40										
Effective building height			45	45	45	25	35	45	45	45	45	45	35	35										
Along-flow building length			30	26	20	8	33	24	28	32	35	37	95	96										
Along-flow distance from stack			-40	-33	-24	7	10	-5	-1	3	7	11	22	21										
Across-flow distance from stack			-29	-33	-36	8	-64	-37	-36	-33	-30	-25	-10	2										
Flow direction			130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°										
Effective building width			50	60	48	61	32	35	37	38	38	60	94	38										
Effective building height			35	35	35	35	45	45	45	45	45	25	35	45										
Along-flow building length			110	111	94	91	36	33	30	26	20	8	33	23										
Along-flow distance from stack			20	17	12	6	16	13	11	7	4	-14	-43	-18										
Across-flow distance from stack			4	21	37	47	19	25	29	33	36	-8	64	37										

Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width	37	36	33	30	51	51	51	53	54	61	32	35
Effective building height	45	45	45	45	45	45	45	45	45	35	45	45
Along-flow building length	28	32	35	37	35	28	19	19	27	91	36	33
Along-flow distance from stack	-27	-35	-42	-48	-132	-133	-130	-128	-126	-97	-51	-46
Across-flow distance from stack	36	33	30	25	37	17	-4	-25	-45	-47	-19	-25

(Constant) emission rate = 1.11E+02 milligrams/secon
No gravitational settling or scavenging.

STACK SOURCE: 3

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed						
306413	6184172	9m	10m	6.18m	270C	3.4m/s						
Effective building dimensions (in metres)												
Flow direction	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°
Effective building width	37	38	58	60	60	94	91	86	77	30	54	40
Effective building height	45	45	25	25	25	35	35	35	35	45	35	35
Along-flow building length	30	26	18	8	7	48	61	73	83	37	95	96
Along-flow distance from stack	-43	-35	1	6	6	14	18	21	23	14	26	26
Across-flow distance from stack	-33	-37	2	3	5	-64	-56	-47	-37	-28	-13	1
Flow direction	130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°
Effective building width	50	60	48	61	32	35	37	38	58	60	60	94
Effective building height	35	35	35	35	45	45	45	45	25	25	25	35
Along-flow building length	110	111	94	91	36	33	30	26	18	8	7	48
Along-flow distance from stack	25	22	17	11	20	17	14	10	-18	-13	-12	-62
Across-flow distance from stack	3	21	38	48	21	28	33	37	-2	-3	-5	64
Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width	91	85	77	30	51	51	51	53	54	61	32	35
Effective building height	35	35	35	45	45	45	45	45	45	35	45	45
Along-flow building length	61	73	83	37	35	28	19	19	27	91	36	33
Along-flow distance from stack	-79	-94	-106	-51	-136	-137	-135	-133	-131	-102	-56	-50
Across-flow distance from stack	56	47	37	28	40	19	-3	-25	-45	-48	-21	-28

(Constant) emission rate = 1.11E+02 milligrams/secon
No gravitational settling or scavenging.

STACK SOURCE: 4

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed						
306411	6184177	9m	10m	6.18m	243C	3.3m/s						
Effective building dimensions (in metres)												
Flow direction	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°
Effective building width	37	55	58	60	60	58	91	86	77	67	54	40
Effective building height	45	25	25	25	25	25	35	35	35	35	35	35
Along-flow building length	30	28	18	8	7	18	61	73	83	90	95	96
Along-flow distance from stack	-48	-8	-3	3	4	15	18	22	25	28	29	30
Across-flow distance from stack	-36	-4	-3	-2	-1	7	-62	-52	-42	-29	-17	-3
Flow direction	130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°
Effective building width	50	60	48	91	32	35	37	54	58	60	60	58
Effective building height	35	35	35	35	45	45	45	25	25	25	25	25
Along-flow building length	110	111	94	114	36	33	30	28	18	8	7	18
Along-flow distance from stack	29	27	22	16	25	22	19	-19	-15	-11	-11	-33
Across-flow distance from stack	1	19	37	46	22	30	36	4	3	2	1	-7
Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width	91	85	77	67	51	51	51	53	54	61	32	35
Effective building height	35	35	35	35	45	45	45	45	45	35	45	45
Along-flow building length	61	73	83	90	35	28	19	19	27	91	36	33
Along-flow distance from stack	-79	-95	-108	-118	-140	-142	-139	-138	-136	-107	-61	-55
Across-flow distance from stack	62	53	42	30	44	23	0	-23	-45	-48	-22	-30

(Constant) emission rate = 9.08E+01 milligrams/secon
No gravitational settling or scavenging.

STACK SOURCE: 5

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
306411	6184183	9m	10m	6.18m	221C	3.1m/s

Effective building dimensions (in metres)													
Flow direction	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°	
Effective building width	37	55	58	60	60	58	55	86	77	67	54	40	
Effective building height	45	25	25	25	25	25	25	35	35	35	35	35	
Along-flow building length	30	28	18	8	7	18	27	73	83	90	95	96	
Along-flow distance from stack	-54	-14	-8	-2	0	12	6	21	25	29	31	33	
Across-flow distance from stack	-37	-6	-6	-5	-5	2	5	-58	-48	-35	-22	-8	

Effective building dimensions (in metres)													
Flow direction	130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°	
Effective building width	50	60	48	61	32	35	37	54	58	60	60	58	
Effective building height	35	35	35	35	45	45	45	25	25	25	25	25	
Along-flow building length	110	111	94	91	36	33	30	28	18	8	7	18	
Along-flow distance from stack	33	32	27	22	31	28	25	-14	-10	-6	-7	-30	
Across-flow distance from stack	-4	16	34	46	21	30	37	6	6	5	5	-2	

Effective building dimensions (in metres)													
Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°	
Effective building width	55	85	77	67	54	51	51	53	54	61	32	35	
Effective building height	25	35	35	35	35	45	45	45	45	35	45	45	
Along-flow building length	28	73	83	90	95	28	19	19	27	91	36	33	
Along-flow distance from stack	-34	-94	-108	-119	-126	-145	-143	-142	-141	-113	-67	-61	
Across-flow distance from stack	-5	59	48	35	22	28	4	-19	-42	-46	-21	-30	

(Constant) emission rate = 9.08E+01 milligrams/second
No gravitational settling or scavenging.

STACK SOURCE: 6

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
306413	6184188	9m	10m	6.18m	200C	3.0m/s

Effective building dimensions (in metres)													
Flow direction	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°	
Effective building width	37	55	58	60	60	58	55	50	77	67	54	40	
Effective building height	45	25	25	25	25	25	25	25	35	35	35	35	
Along-flow building length	30	28	18	8	7	18	27	36	83	90	95	96	
Along-flow distance from stack	-59	-19	-13	-7	-5	7	3	-2	23	28	31	34	
Across-flow distance from stack	-36	-6	-6	-7	-8	-2	1	4	-53	-40	-28	-13	

Effective building dimensions (in metres)													
Flow direction	130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°	
Effective building width	50	60	48	61	32	35	37	54	58	60	60	58	
Effective building height	35	35	35	35	45	45	45	25	25	25	25	25	
Along-flow building length	110	111	94	91	36	33	30	28	18	8	7	18	
Along-flow distance from stack	35	35	31	26	36	33	30	-8	-5	-1	-2	-25	
Across-flow distance from stack	-10	11	30	43	19	28	36	6	6	7	8	2	

Effective building dimensions (in metres)													
Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°	
Effective building width	55	50	77	67	54	51	51	53	54	61	32	35	
Effective building height	25	25	35	35	35	45	45	45	45	35	45	45	
Along-flow building length	28	36	83	90	95	28	19	19	27	91	36	33	
Along-flow distance from stack	-30	-34	-106	-118	-126	-145	-145	-145	-145	-117	-71	-66	
Across-flow distance from stack	-1	-4	53	41	28	33	9	-14	-37	-43	-19	-28	

(Constant) emission rate = 9.08E+01 milligrams/second
No gravitational settling or scavenging.

STACK SOURCE: 7

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
306416	6184192	9m	10m	6.18m	180C	2.9m/s

Effective building dimensions (in metres)													
Flow direction	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°	
Effective building width	37	55	58	60	60	58	55	50	43	67	54	40	
Effective building height	45	25	25	25	25	25	25	25	25	35	35	35	
Along-flow building length	30	28	18	8	7	18	27	36	44	90	95	96	
Along-flow distance from stack	-64	-24	-18	-12	-10	3	-2	-6	-10	25	30	33	
Across-flow distance from stack	-33	-4	-6	-7	-9	-4	-2	0	3	-45	-32	-18	

Effective building dimensions (in metres)													
Flow direction	130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°	
Effective building width	50	60	48	61	32	35	37	54	58	60	60	58	
Effective building height	35	35	35	35	45	45	45	25	25	25	25	25	
Along-flow building length	110	111	94	91	36	33	30	28	18	8	7	18	
Along-flow distance from stack	35	36	33	29	39	37	34	-4	1	4	3	-21	
Across-flow distance from stack	-15	6	25	39	15	25	33	4	6	7	9	4	

Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width	55	50	43	67	54	51	51	53	54	61	32	35
Effective building height	25	25	25	35	35	45	45	45	45	35	45	45
Along-flow building length	28	36	44	90	95	28	19	19	27	91	36	33
Along-flow distance from stack	-26	-30	-34	-116	-125	-145	-145	-146	-147	-120	-75	-70
Across-flow distance from stack	2	0	-3	45	33	38	14	-10	-33	-38	-15	-25

(Constant) emission rate = 5.14E+01 milligrams/second
No gravitational settling or scavenging.

STACK SOURCE: 8

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
306421	6184196	9m	10m	6.18m	165C	2.8m/s

	Effective building dimensions (in metres)											
Flow direction	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°
Effective building width	37	55	58	60	60	58	55	50	43	67	54	40
Effective building height	45	25	25	25	25	25	25	25	25	35	35	35
Along-flow building length	30	28	18	8	7	18	27	36	44	90	95	96
Along-flow distance from stack	-68	-30	-24	-18	-16	-4	-8	-12	-15	21	26	31
Across-flow distance from stack	-29	-1	-3	-6	-9	-5	-4	-3	-2	-50	-38	-24

Flow direction	130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°
Effective building width	50	60	48	61	32	35	37	54	58	60	60	58
Effective building height	35	35	35	35	45	45	45	25	25	25	25	25
Along-flow building length	110	111	94	91	36	33	30	28	18	8	7	18
Along-flow distance from stack	34	36	34	31	42	41	39	2	7	11	10	-14
Across-flow distance from stack	-21	-1	19	32	9	20	29	1	4	6	9	5

Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width	55	50	43	67	54	51	51	53	54	61	32	35
Effective building height	25	25	25	35	35	45	45	45	45	35	45	45
Along-flow building length	28	36	44	90	95	28	19	19	27	91	36	33
Along-flow distance from stack	-20	-25	-29	-111	-121	-142	-144	-146	-148	-122	-78	-74
Across-flow distance from stack	4	3	2	50	38	44	21	-3	-26	-32	-9	-20

(Constant) emission rate = 5.14E+01 milligrams/second
No gravitational settling or scavenging.

STACK SOURCE: 9

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
306426	6184197	9m	10m	6.18m	150C	2.7m/s

	Effective building dimensions (in metres)											
Flow direction	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°
Effective building width	37	38	58	60	60	58	55	50	43	36	54	40
Effective building height	45	45	25	25	25	25	25	25	25	25	35	35
Along-flow building length	30	26	18	8	7	18	27	36	44	50	95	96
Along-flow distance from stack	-70	-63	-28	-22	-21	-9	-13	-17	-20	-23	22	27
Across-flow distance from stack	-24	-34	0	-3	-6	-3	-3	-3	-3	-2	-41	-28

Flow direction	130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°
Effective building width	50	60	48	61	32	35	37	38	58	60	60	58
Effective building height	35	35	35	35	45	45	45	45	25	25	25	25
Along-flow building length	110	111	94	91	36	33	30	26	18	8	7	18
Along-flow distance from stack	31	33	32	30	43	42	41	38	10	15	14	-10
Across-flow distance from stack	-25	-5	14	27	4	15	24	34	-1	3	6	3

Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width	55	50	43	35	54	51	51	53	54	53	32	35
Effective building height	25	25	25	25	35	45	45	45	45	45	45	45
Along-flow building length	28	36	44	50	95	28	19	19	27	34	36	33
Along-flow distance from stack	-15	-20	-24	-28	-117	-139	-141	-143	-146	-143	-78	-75
Across-flow distance from stack	3	3	3	2	41	47	25	2	-22	-44	-4	-15

(Constant) emission rate = 5.14E+01 milligrams/second
No gravitational settling or scavenging.

STACK SOURCE: 10

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed												
306431	6184197	9m	10m	6.18m	135C	2.6m/s												
		Effective building dimensions (in metres)																
Flow direction		10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°					
Effective building width		37	38	58	60	60	58	55	50	43	36	54	40					
Effective building height		45	45	25	25	25	25	25	25	25	25	35	35					
Along-flow building length		30	26	18	8	7	18	27	36	44	50	95	96					
Along-flow distance from stack		-71	-65	-30	-26	-24	-13	-17	-22	-25	-28	17	23					
Across-flow distance from stack		-19	-29	5	1	-3	-1	-1	-2	-3	-3	-42	-30					
Flow direction		130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°					
Effective building width		50	60	48	61	32	35	37	38	38	60	60	58					
Effective building height		35	35	35	35	45	45	45	45	45	25	25	25					
Along-flow building length		110	111	94	91	36	33	30	26	20	8	7	18					
Along-flow distance from stack		27	30	30	28	42	42	42	40	37	18	18	-5					
Across-flow distance from stack		-28	-9	10	23	-1	10	19	29	37	-1	3	1					
Flow direction		250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°					
Effective building width		55	50	43	35	54	40	51	53	54	53	32	35					
Effective building height		25	25	25	25	35	35	45	45	45	45	45	45					
Along-flow building length		28	36	44	50	95	96	19	19	27	34	36	33					
Along-flow distance from stack		-10	-15	-19	-23	-112	-119	-137	-140	-143	-142	-77	-75					
Across-flow distance from stack		1	2	3	3	42	30	28	6	-17	-40	1	-10					

(Constant) emission rate = 9.10E+00 milligrams/second
 No gravitational settling or scavenging.

STACK SOURCE: 11

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed												
306436	6184196	9m	10m	6.18m	120C	2.5m/s												
		Effective building dimensions (in metres)																
Flow direction		10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°					
Effective building width		37	38	37	60	60	58	55	50	43	36	54	40					
Effective building height		45	45	45	25	25	25	25	25	25	25	35	35					
Along-flow building length		30	26	20	8	7	18	27	36	44	50	95	96					
Along-flow distance from stack		-71	-66	-58	-28	-28	-17	-22	-26	-30	-33	12	18					
Across-flow distance from stack		-14	-24	-32	5	1	3	1	0	-2	-3	-43	-32					
Flow direction		130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°					
Effective building width		50	60	48	61	32	35	37	38	38	60	60	58					
Effective building height		35	35	35	35	45	45	45	45	45	25	25	25					
Along-flow building length		110	111	94	91	36	33	30	26	20	8	7	18					
Along-flow distance from stack		22	26	26	26	40	41	42	40	38	20	21	-1					
Across-flow distance from stack		-31	-12	6	18	-6	5	14	24	33	-5	-1	-3					
Flow direction		250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°					
Effective building width		55	50	43	35	54	40	51	53	54	53	32	35					
Effective building height		25	25	25	25	35	35	45	45	45	45	45	45					
Along-flow building length		28	36	44	50	95	96	19	19	27	34	36	33					
Along-flow distance from stack		-6	-10	-14	-18	-107	-114	-132	-136	-140	-139	-75	-74					
Across-flow distance from stack		-1	0	2	3	43	32	30	9	-13	-35	5	-5					

(Constant) emission rate = 9.10E+00 milligrams/second
 No gravitational settling or scavenging.

STACK SOURCE: 12

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed								
306441	6184192	9m	10m	6.18m	100C	2.4m/s								
							Effective building dimensions (in metres)							
Flow direction			10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°
Effective building width			37	38	37	36	60	58	55	50	43	67	54	40
Effective building height			45	45	45	45	25	25	25	25	25	35	35	35
Along-flow building length			30	26	20	15	7	18	27	36	44	90	95	96
Along-flow distance from stack			-68	-64	-57	-49	-29	-19	-25	-31	-35	1	6	12
Across-flow distance from stack			-9	-18	-26	-34	8	9	7	5	3	-49	-41	-31
Flow direction			130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°
Effective building width			50	60	48	61	32	35	37	38	38	36	60	58
Effective building height			35	35	35	35	45	45	45	45	45	45	25	25
Along-flow building length			110	111	94	91	36	33	30	26	20	15	7	18
Along-flow distance from stack			16	20	20	20	35	37	39	38	37	35	22	1
Across-flow distance from stack			-31	-14	3	15	-10	-1	9	18	26	34	-8	-9
Flow direction			250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width			55	50	43	67	54	40	51	53	54	53	32	35
Effective building height			25	25	25	35	35	35	45	45	45	45	45	45
Along-flow building length			28	36	44	90	95	96	19	19	27	34	36	33
Along-flow distance from stack			-2	-6	-9	-91	-101	-108	-126	-130	-134	-134	-71	-70
Across-flow distance from stack			-7	-5	-3	50	41	31	30	10	-11	-32	10	1

(Constant) emission rate = 9.10E+00 milligrams/second
No gravitational settling or scavenging.

STACK SOURCE: 13

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed								
306444	6184188	9m	10m	6.18m	85C	2.3m/s								
							Effective building dimensions (in metres)							
Flow direction			10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°
Effective building width			37	38	37	36	37	94	91	86	77	67	54	40
Effective building height			45	45	45	45	45	35	35	35	35	35	35	35
Along-flow building length			30	26	20	15	18	48	61	73	83	90	95	96
Along-flow distance from stack			-64	-61	-55	-48	-43	-21	-17	-13	-8	-3	2	7
Across-flow distance from stack			-5	-14	-21	-29	-35	-62	-61	-57	-53	-46	-38	-29
Flow direction			130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°
Effective building width			50	60	48	61	32	35	37	38	38	36	36	94
Effective building height			35	35	35	35	45	45	45	45	45	45	45	35
Along-flow building length			110	111	94	91	36	33	30	26	20	15	18	48
Along-flow distance from stack			11	15	15	16	31	33	35	36	35	34	26	-27
Across-flow distance from stack			-30	-13	3	14	-12	-4	5	14	22	29	35	62
Flow direction			250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width			91	85	77	67	54	40	51	53	54	53	32	35
Effective building height			35	35	35	35	35	35	45	45	45	45	45	45
Along-flow building length			61	73	83	90	95	96	19	19	27	34	36	33
Along-flow distance from stack			-44	-61	-75	-87	-97	-103	-121	-125	-129	-129	-66	-66
Across-flow distance from stack			61	58	53	46	38	29	29	10	-11	-30	12	4

(Constant) emission rate = 9.10E+00 milligrams/second
No gravitational settling or scavenging.

STACK SOURCE: 14

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed								
306426	6184163	9m	10m	6.18m	370C	4.1m/s								
							Effective building dimensions (in metres)							
Flow direction			10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°
Effective building width			37	38	37	36	37	37	37	36	33	30	51	40
Effective building height			45	45	45	45	45	45	45	45	45	45	45	35
Along-flow building length			30	26	20	15	18	24	28	32	35	37	35	96
Along-flow distance from stack			-37	-31	-25	-17	-13	-11	-9	-6	-3	0	85	10
Across-flow distance from stack			-18	-22	-25	-27	-27	-28	-28	-26	-25	-22	-36	2
Flow direction			130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°
Effective building width			50	60	54	61	32	35	37	38	38	36	36	38
Effective building height			35	35	45	35	45	45	45	45	45	45	45	45
Along-flow building length			110	111	27	91	36	33	30	26	20	15	18	23
Along-flow distance from stack			9	7	90	-2	9	8	8	6	5	3	-5	-12
Across-flow distance from stack			2	17	39	39	10	15	18	22	25	27	28	28

Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width	37	36	33	30	51	51	51	53	54	61	32	35
Effective building height	45	45	45	45	45	45	45	45	45	35	45	45
Along-flow building length	28	32	35	37	35	28	19	19	27	91	36	33
Along-flow distance from stack	-19	-26	-32	-37	-121	-122	-119	-117	-117	-89	-45	-41
Across-flow distance from stack	28	26	25	22	36	18	-2	-21	-39	-39	-10	-15

(Constant) emission rate = 1.11E+02 milligrams/secon
No gravitational settling or scavenging.

STACK SOURCE: RDD

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
306571	6184059	9m	48m	5.00m	53C	10.0m/s

Flow direction	Effective building dimensions (in metres)											
	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°
Effective building width	0	0	0	0	0	0	0	0	45	49	51	51
Effective building height	0	0	0	0	0	0	0	0	45	45	45	45
Along-flow building length	0	0	0	0	0	0	0	0	47	42	35	28
Along-flow distance from stack	0	0	0	0	0	0	0	0	-84	-87	-87	-84
Across-flow distance from stack	0	0	0	0	0	0	0	0	35	24	12	-1

Flow direction	130°	140°	150°	160°	170°	180°	190°	200°	210°	220°	230°	240°
Effective building width	50	53	54	53	0	0	0	0	0	0	0	0
Effective building height	45	45	45	45	0	0	0	0	0	0	0	0
Along-flow building length	19	19	27	34	0	0	0	0	0	0	0	0
Along-flow distance from stack	-79	-75	-73	-70	0	0	0	0	0	0	0	0
Across-flow distance from stack	-12	-24	-35	-45	0	0	0	0	0	0	0	0

Flow direction	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°	360°
Effective building width	0	0	45	49	51	51	51	53	54	53	0	0
Effective building height	0	0	45	45	45	45	45	45	45	45	0	0
Along-flow building length	0	0	47	42	35	28	19	19	27	34	0	0
Along-flow distance from stack	0	0	37	45	51	56	59	56	47	36	0	0
Across-flow distance from stack	0	0	-35	-23	-12	0	12	24	35	45	0	0

(Constant) emission rate = 3.70E+03 milligrams/secon
No gravitational settling or scavenging.

1

Sinter Cooler stack - proposed area - revised inputs June 2006

RECEPTOR LOCATIONS

The Cartesian receptor grid has the following x-values (or eastings):
301000.m 301250.m 301500.m 301750.m 302000.m 302250.m 302500.m
302750.m 303000.m 303250.m 303500.m 303750.m 304000.m 304250.m
304500.m 304750.m 305000.m 305250.m 305500.m 305750.m 306000.m
306250.m 306500.m 306750.m 307000.m 307250.m 307500.m 307750.m
308000.m 308250.m 308500.m 308750.m 309000.m

and these y-values (or northings):
6180000.m 6180250.m 6180500.m 6180750.m 6181000.m 6181250.m 6181500.m
6181750.m 6182000.m 6182250.m 6182500.m 6182750.m 6183000.m 6183250.m
6183500.m 6183750.m 6184000.m 6184250.m 6184500.m 6184750.m 6185000.m
6185250.m 6185500.m 6185750.m 6186000.m 6186250.m 6186500.m 6186750.m
6187000.m 6187250.m 6187500.m 6187750.m 6188000.m

DISCRETE RECEPTOR LOCATIONS (in metres)

No.	X	Y	ELEVN	HEIGHT	No.	X	Y	ELEVN	HEIGHT
1	304263	6183225	65.5	0.0	3	305200	6187100	34.8	0.0
2	303438	6183050	100.6	0.0	4	306012	6185499	0.6	0.0

METEOROLOGICAL DATA : AUSPLUME Modelling File (Met MANAGER)

AVERAGE OVER ALL HOURS FOR SOURCE GROUP No. 1
in micrograms/m3

X (km) : 301.000 301.250 301.500 301.750 302.000 302.250							
Y (km)							
6188.000	1.25E-02	1.29E-02	1.39E-02	1.51E-02	1.64E-02	1.76E-02	
6187.750	1.21E-02	1.24E-02	1.30E-02	1.39E-02	1.52E-02	1.64E-02	
6187.500	1.16E-02	1.21E-02	1.26E-02	1.34E-02	1.45E-02	1.55E-02	
6187.250	1.14E-02	1.16E-02	1.22E-02	1.29E-02	1.39E-02	1.49E-02	
6187.000	1.16E-02	1.14E-02	1.17E-02	1.24E-02	1.33E-02	1.43E-02	
6186.750	1.16E-02	1.13E-02	1.13E-02	1.18E-02	1.27E-02	1.37E-02	
6186.500	1.11E-02	1.09E-02	1.09E-02	1.14E-02	1.23E-02	1.32E-02	
6186.250	1.05E-02	1.08E-02	1.11E-02	1.16E-02	1.21E-02	1.28E-02	
6186.000	1.03E-02	1.06E-02	1.09E-02	1.12E-02	1.16E-02	1.21E-02	
6185.750	1.03E-02	1.05E-02	1.07E-02	1.08E-02	1.10E-02	1.14E-02	
6185.500	1.05E-02	1.06E-02	1.07E-02	1.06E-02	1.07E-02	1.11E-02	
6185.250	1.08E-02	1.08E-02	1.09E-02	1.08E-02	1.09E-02	1.14E-02	
6185.000	1.07E-02	1.09E-02	1.09E-02	1.11E-02	1.15E-02	1.22E-02	
6184.750	1.07E-02	1.10E-02	1.14E-02	1.19E-02	1.28E-02	1.37E-02	
6184.500	1.14E-02	1.17E-02	1.25E-02	1.34E-02	1.46E-02	1.56E-02	
6184.250	1.20E-02	1.27E-02	1.37E-02	1.50E-02	1.65E-02	1.80E-02	
6184.000	1.26E-02	1.35E-02	1.48E-02	1.65E-02	1.86E-02	2.08E-02	
6183.750	1.29E-02	1.41E-02	1.56E-02	1.75E-02	2.00E-02	2.29E-02	
6183.500	1.32E-02	1.42E-02	1.59E-02	1.79E-02	2.03E-02	2.31E-02	
6183.250	1.33E-02	1.45E-02	1.60E-02	1.78E-02	2.00E-02	2.25E-02	
6183.000	1.34E-02	1.44E-02	1.54E-02	1.72E-02	1.89E-02	2.07E-02	
6182.750	1.30E-02	1.39E-02	1.51E-02	1.63E-02	1.77E-02	1.92E-02	
6182.500	1.28E-02	1.36E-02	1.46E-02	1.57E-02	1.68E-02	1.81E-02	
6182.250	1.26E-02	1.34E-02	1.42E-02	1.51E-02	1.62E-02	1.75E-02	
6182.000	1.23E-02	1.31E-02	1.40E-02	1.49E-02	1.59E-02	1.70E-02	
6181.750	1.23E-02	1.30E-02	1.39E-02	1.47E-02	1.58E-02	1.68E-02	
6181.500	1.21E-02	1.29E-02	1.38E-02	1.46E-02	1.55E-02	1.67E-02	
6181.250	1.21E-02	1.28E-02	1.36E-02	1.45E-02	1.53E-02	1.64E-02	
6181.000	1.20E-02	1.28E-02	1.35E-02	1.43E-02	1.51E-02	1.62E-02	
6180.750	1.19E-02	1.25E-02	1.33E-02	1.41E-02	1.51E-02	1.58E-02	
6180.500	1.18E-02	1.24E-02	1.32E-02	1.40E-02	1.47E-02	1.54E-02	
6180.250	1.16E-02	1.23E-02	1.30E-02	1.36E-02	1.43E-02	1.50E-02	
6180.000	1.17E-02	1.21E-02	1.27E-02	1.33E-02	1.39E-02	1.46E-02	

X (km) : 302.500 302.750 303.000 303.250 303.500 303.750							
Y (km)							
6188.000	1.88E-02	2.03E-02	2.21E-02	2.43E-02	2.65E-02	2.86E-02	
6187.750	1.77E-02	1.92E-02	2.11E-02	2.34E-02	2.58E-02	2.82E-02	
6187.500	1.66E-02	1.81E-02	2.00E-02	2.23E-02	2.48E-02	2.75E-02	
6187.250	1.59E-02	1.73E-02	1.90E-02	2.12E-02	2.37E-02	2.66E-02	
6187.000	1.54E-02	1.68E-02	1.83E-02	2.03E-02	2.26E-02	2.55E-02	
6186.750	1.48E-02	1.61E-02	1.76E-02	1.94E-02	2.17E-02	2.44E-02	
6186.500	1.42E-02	1.54E-02	1.68E-02	1.85E-02	2.06E-02	2.31E-02	
6186.250	1.35E-02	1.46E-02	1.58E-02	1.74E-02	1.93E-02	2.18E-02	
6186.000	1.28E-02	1.36E-02	1.48E-02	1.62E-02	1.80E-02	2.01E-02	
6185.750	1.21E-02	1.28E-02	1.38E-02	1.51E-02	1.66E-02	1.84E-02	
6185.500	1.17E-02	1.23E-02	1.32E-02	1.41E-02	1.53E-02	1.69E-02	
6185.250	1.19E-02	1.23E-02	1.30E-02	1.39E-02	1.47E-02	1.56E-02	
6185.000	1.29E-02	1.34E-02	1.41E-02	1.47E-02	1.51E-02	1.54E-02	
6184.750	1.42E-02	1.49E-02	1.59E-02	1.69E-02	1.77E-02	1.78E-02	
6184.500	1.62E-02	1.69E-02	1.84E-02	1.99E-02	2.12E-02	2.13E-02	
6184.250	1.86E-02	1.92E-02	2.16E-02	2.43E-02	2.65E-02	2.76E-02	
6184.000	2.20E-02	2.23E-02	2.52E-02	2.87E-02	3.21E-02	3.41E-02	
6183.750	2.50E-02	2.60E-02	2.82E-02	3.27E-02	3.63E-02	3.93E-02	
6183.500	2.53E-02	2.70E-02	2.97E-02	3.43E-02	3.90E-02	4.21E-02	
6183.250	2.43E-02	2.61E-02	2.87E-02	3.30E-02	3.80E-02	4.16E-02	
6183.000	2.25E-02	2.40E-02	2.59E-02	3.01E-02	3.56E-02	3.97E-02	
6182.750	2.07E-02	2.17E-02	2.28E-02	2.61E-02	3.20E-02	3.69E-02	
6182.500	1.93E-02	2.04E-02	2.13E-02	2.43E-02	2.94E-02	3.43E-02	
6182.250	1.86E-02	1.99E-02	2.12E-02	2.37E-02	2.78E-02	3.24E-02	
6182.000	1.83E-02	1.96E-02	2.13E-02	2.36E-02	2.71E-02	3.06E-02	
6181.750	1.80E-02	1.93E-02	2.09E-02	2.32E-02	2.60E-02	2.84E-02	
6181.500	1.78E-02	1.91E-02	2.09E-02	2.25E-02	2.45E-02	2.68E-02	
6181.250	1.76E-02	1.89E-02	2.03E-02	2.16E-02	2.35E-02	2.49E-02	
6181.000	1.73E-02	1.84E-02	1.96E-02	2.10E-02	2.21E-02	2.34E-02	
6180.750	1.68E-02	1.78E-02	1.90E-02	1.99E-02	2.09E-02	2.19E-02	

6180.500	1.63E-02	1.73E-02	1.81E-02	1.90E-02	1.98E-02	2.03E-02
6180.250	1.59E-02	1.65E-02	1.73E-02	1.81E-02	1.86E-02	1.87E-02
6180.000	1.52E-02	1.60E-02	1.65E-02	1.71E-02	1.72E-02	1.72E-02

X (km) : 304.000 304.250 304.500 304.750 305.000 305.250

Y (km)						
6188.000	3.12E-02	3.42E-02	3.74E-02	4.09E-02	4.39E-02	4.43E-02
6187.750	3.09E-02	3.44E-02	3.82E-02	4.20E-02	4.52E-02	4.61E-02
6187.500	3.06E-02	3.44E-02	3.85E-02	4.24E-02	4.55E-02	4.69E-02
6187.250	3.00E-02	3.41E-02	3.83E-02	4.22E-02	4.56E-02	4.76E-02
6187.000	2.90E-02	3.31E-02	3.75E-02	4.17E-02	4.55E-02	4.81E-02
6186.750	2.75E-02	3.16E-02	3.61E-02	4.07E-02	4.51E-02	4.85E-02
6186.500	2.61E-02	2.98E-02	3.40E-02	3.90E-02	4.43E-02	4.88E-02
6186.250	2.46E-02	2.77E-02	3.16E-02	3.66E-02	4.29E-02	4.87E-02
6186.000	2.27E-02	2.56E-02	2.91E-02	3.41E-02	4.08E-02	4.78E-02
6185.750	2.07E-02	2.33E-02	2.65E-02	3.09E-02	3.72E-02	4.53E-02
6185.500	1.88E-02	2.09E-02	2.37E-02	2.74E-02	3.26E-02	4.02E-02
6185.250	1.70E-02	1.87E-02	2.10E-02	2.40E-02	2.74E-02	3.29E-02
6185.000	1.59E-02	1.69E-02	1.86E-02	2.07E-02	2.26E-02	2.55E-02
6184.750	1.74E-02	1.68E-02	1.73E-02	1.80E-02	1.86E-02	1.96E-02
6184.500	2.11E-02	2.04E-02	2.09E-02	2.08E-02	2.01E-02	1.82E-02
6184.250	2.76E-02	2.70E-02	2.70E-02	2.71E-02	2.78E-02	2.94E-02
6184.000	3.46E-02	3.49E-02	3.43E-02	3.52E-02	3.68E-02	4.31E-02
6183.750	4.04E-02	4.03E-02	4.05E-02	4.10E-02	4.08E-02	4.38E-02
6183.500	4.29E-02	4.25E-02	4.21E-02	4.11E-02	4.31E-02	5.07E-02
6183.250	4.34E-02	4.40E-02	4.50E-02	4.58E-02	4.95E-02	5.90E-02
6183.000	4.24E-02	4.48E-02	4.73E-02	5.01E-02	5.50E-02	5.97E-02
6182.750	4.06E-02	4.41E-02	4.81E-02	5.23E-02	5.46E-02	5.83E-02
6182.500	3.83E-02	4.24E-02	4.64E-02	5.05E-02	5.19E-02	5.14E-02
6182.250	3.64E-02	3.93E-02	4.24E-02	4.47E-02	4.59E-02	4.38E-02
6182.000	3.35E-02	3.59E-02	3.74E-02	3.88E-02	3.79E-02	3.62E-02
6181.750	3.09E-02	3.22E-02	3.35E-02	3.29E-02	3.26E-02	3.05E-02
6181.500	2.84E-02	2.95E-02	2.97E-02	2.92E-02	2.80E-02	2.55E-02
6181.250	2.61E-02	2.70E-02	2.67E-02	2.57E-02	2.41E-02	2.16E-02
6181.000	2.43E-02	2.43E-02	2.40E-02	2.26E-02	2.11E-02	1.86E-02
6180.750	2.21E-02	2.20E-02	2.15E-02	2.02E-02	1.83E-02	1.59E-02
6180.500	2.01E-02	2.02E-02	1.92E-02	1.80E-02	1.59E-02	1.39E-02
6180.250	1.85E-02	1.80E-02	1.72E-02	1.58E-02	1.40E-02	1.22E-02
6180.000	1.72E-02	1.63E-02	1.53E-02	1.39E-02	1.23E-02	1.08E-02

X (km) : 305.500 305.750 306.000 306.250 306.500 306.750

Y (km)						
6188.000	4.41E-02	4.29E-02	4.08E-02	3.99E-02	4.09E-02	4.01E-02
6187.750	4.57E-02	4.55E-02	4.46E-02	4.40E-02	4.43E-02	4.48E-02
6187.500	4.67E-02	4.82E-02	4.65E-02	4.62E-02	4.77E-02	4.69E-02
6187.250	4.81E-02	5.01E-02	5.01E-02	4.90E-02	5.10E-02	5.09E-02
6187.000	4.93E-02	5.15E-02	5.33E-02	5.33E-02	5.43E-02	5.39E-02
6186.750	5.06E-02	5.26E-02	5.60E-02	5.63E-02	5.78E-02	5.72E-02
6186.500	5.19E-02	5.34E-02	5.96E-02	5.94E-02	6.31E-02	6.19E-02
6186.250	5.31E-02	5.51E-02	6.15E-02	6.19E-02	6.63E-02	6.49E-02
6186.000	5.37E-02	5.67E-02	6.31E-02	6.54E-02	6.95E-02	6.89E-02
6185.750	5.30E-02	5.70E-02	5.88E-02	6.73E-02	7.55E-02	7.79E-02
6185.500	4.90E-02	5.44E-02	5.54E-02	7.18E-02	7.66E-02	8.72E-02
6185.250	4.10E-02	4.97E-02	5.44E-02	8.28E-02	8.28E-02	9.98E-02
6185.000	3.11E-02	4.13E-02	5.02E-02	8.47E-02	1.01E-01	1.18E-01
6184.750	2.19E-02	2.84E-02	4.49E-02	6.76E-02	1.70E-01	1.57E-01
6184.500	1.68E-02	1.75E-02	2.48E-02	6.79E-02	4.56E-01	2.91E-01
6184.250	3.23E-02	4.22E-02	5.33E-02	3.37E-02	1.88E+00	7.88E-01
6184.000	5.48E-02	8.23E-02	1.45E-01	5.91E-01	3.26E-01	3.04E-01
6183.750	5.30E-02	8.16E-02	1.66E-01	2.42E-01	4.89E-02	1.78E-01
6183.500	6.57E-02	8.79E-02	1.19E-01	8.06E-02	1.35E-02	8.48E-02
6183.250	6.95E-02	8.21E-02	7.94E-02	4.28E-02	1.10E-02	4.29E-02
6183.000	6.65E-02	6.89E-02	5.33E-02	2.83E-02	1.07E-02	2.78E-02
6182.750	5.86E-02	5.36E-02	3.86E-02	2.06E-02	1.04E-02	2.08E-02
6182.500	4.91E-02	4.08E-02	2.94E-02	1.61E-02	9.71E-03	1.61E-02
6182.250	3.99E-02	3.13E-02	2.23E-02	1.25E-02	8.41E-03	1.22E-02
6182.000	3.21E-02	2.45E-02	1.76E-02	1.02E-02	7.21E-03	9.38E-03
6181.750	2.60E-02	2.01E-02	1.43E-02	8.69E-03	6.28E-03	7.53E-03
6181.500	2.14E-02	1.68E-02	1.19E-02	7.48E-03	5.56E-03	6.23E-03
6181.250	1.80E-02	1.45E-02	1.00E-02	6.59E-03	4.98E-03	5.31E-03
6181.000	1.54E-02	1.23E-02	8.73E-03	5.89E-03	4.51E-03	4.62E-03
6180.750	1.33E-02	1.06E-02	7.66E-03	5.32E-03	4.12E-03	4.10E-03
6180.500	1.17E-02	9.12E-03	6.89E-03	4.85E-03	3.78E-03	3.68E-03
6180.250	1.03E-02	8.11E-03	6.09E-03	4.45E-03	3.47E-03	3.33E-03
6180.000	9.09E-03	7.05E-03	5.49E-03	4.09E-03	3.18E-03	3.05E-03

X (km) : 307.000 307.250 307.500 307.750 308.000 308.250

Y (km)

6188.000	4.06E-02	4.32E-02	4.41E-02	4.65E-02	4.91E-02	5.06E-02
6187.750	4.50E-02	4.54E-02	4.74E-02	5.04E-02	5.23E-02	5.43E-02
6187.500	4.69E-02	4.85E-02	5.12E-02	5.39E-02	5.69E-02	5.88E-02
6187.250	5.06E-02	5.19E-02	5.58E-02	5.88E-02	6.09E-02	6.40E-02
6187.000	5.47E-02	5.68E-02	6.06E-02	6.35E-02	6.63E-02	6.98E-02
6186.750	5.97E-02	6.19E-02	6.59E-02	6.91E-02	7.30E-02	7.70E-02
6186.500	6.57E-02	6.74E-02	7.20E-02	7.58E-02	8.09E-02	8.50E-02
6186.250	6.84E-02	7.37E-02	7.93E-02	8.40E-02	9.05E-02	9.61E-02
6186.000	7.62E-02	8.27E-02	8.75E-02	9.49E-02	1.02E-01	1.08E-01
6185.750	8.53E-02	9.05E-02	9.95E-02	1.08E-01	1.17E-01	1.21E-01
6185.500	9.51E-02	1.02E-01	1.16E-01	1.28E-01	1.32E-01	1.31E-01
6185.250	1.14E-01	1.22E-01	1.40E-01	1.48E-01	1.47E-01	1.41E-01
6185.000	1.29E-01	1.56E-01	1.69E-01	1.66E-01	1.58E-01	1.43E-01
6184.750	1.83E-01	2.02E-01	1.95E-01	1.76E-01	1.55E-01	1.39E-01
6184.500	2.95E-01	2.40E-01	2.01E-01	1.75E-01	1.53E-01	1.35E-01
6184.250	4.31E-01	2.60E-01	1.94E-01	1.58E-01	1.36E-01	1.19E-01
6184.000	1.83E-01	1.36E-01	1.21E-01	1.09E-01	1.02E-01	9.29E-02
6183.750	1.62E-01	1.26E-01	1.02E-01	8.93E-02	8.32E-02	7.64E-02
6183.500	1.12E-01	1.07E-01	1.01E-01	9.25E-02	8.15E-02	7.43E-02
6183.250	7.49E-02	8.78E-02	8.67E-02	8.59E-02	8.14E-02	7.69E-02
6183.000	5.48E-02	6.93E-02	7.46E-02	7.39E-02	7.60E-02	7.52E-02
6182.750	4.15E-02	5.57E-02	6.34E-02	6.80E-02	7.12E-02	6.79E-02
6182.500	3.10E-02	4.42E-02	5.21E-02	5.69E-02	6.05E-02	5.92E-02
6182.250	2.29E-02	3.44E-02	4.15E-02	4.61E-02	4.90E-02	5.08E-02
6182.000	1.71E-02	2.57E-02	3.24E-02	3.69E-02	4.05E-02	4.31E-02
6181.750	1.28E-02	1.90E-02	2.51E-02	2.95E-02	3.40E-02	3.84E-02
6181.500	9.75E-03	1.44E-02	1.93E-02	2.38E-02	2.80E-02	3.38E-02
6181.250	7.79E-03	1.12E-02	1.54E-02	1.91E-02	2.28E-02	2.78E-02
6181.000	6.30E-03	9.06E-03	1.23E-02	1.57E-02	1.89E-02	2.22E-02
6180.750	5.34E-03	7.55E-03	1.02E-02	1.33E-02	1.64E-02	1.89E-02
6180.500	4.54E-03	6.44E-03	8.66E-03	1.14E-02	1.42E-02	1.66E-02
6180.250	4.03E-03	5.55E-03	7.46E-03	9.84E-03	1.22E-02	1.45E-02
6180.000	3.63E-03	4.89E-03	6.56E-03	8.49E-03	1.07E-02	1.28E-02

X (km) : 308.500 308.750 309.000

Y (km)

6188.000	5.27E-02	5.43E-02	5.62E-02
6187.750	5.65E-02	5.87E-02	6.09E-02
6187.500	6.13E-02	6.37E-02	6.60E-02
6187.250	6.66E-02	6.93E-02	7.18E-02
6187.000	7.29E-02	7.61E-02	7.87E-02
6186.750	8.08E-02	8.40E-02	8.63E-02
6186.500	9.00E-02	9.27E-02	9.36E-02
6186.250	1.00E-01	1.01E-01	1.00E-01
6186.000	1.10E-01	1.09E-01	1.06E-01
6185.750	1.19E-01	1.16E-01	1.11E-01
6185.500	1.27E-01	1.22E-01	1.13E-01
6185.250	1.32E-01	1.21E-01	1.12E-01
6185.000	1.31E-01	1.18E-01	1.07E-01
6184.750	1.24E-01	1.13E-01	1.04E-01
6184.500	1.19E-01	1.08E-01	9.74E-02
6184.250	1.06E-01	9.57E-02	8.77E-02
6184.000	8.53E-02	8.00E-02	7.46E-02
6183.750	7.18E-02	6.75E-02	6.40E-02
6183.500	6.79E-02	6.32E-02	5.93E-02
6183.250	7.11E-02	6.39E-02	5.88E-02
6183.000	7.16E-02	6.54E-02	5.92E-02
6182.750	6.48E-02	6.23E-02	5.90E-02
6182.500	5.79E-02	5.80E-02	5.65E-02
6182.250	5.08E-02	5.26E-02	5.27E-02
6182.000	4.54E-02	4.82E-02	4.98E-02
6181.750	4.47E-02	5.09E-02	4.85E-02
6181.500	4.38E-02	5.20E-02	5.12E-02
6181.250	3.77E-02	4.55E-02	4.77E-02
6181.000	2.83E-02	3.33E-02	3.57E-02
6180.750	2.14E-02	2.34E-02	2.54E-02
6180.500	1.89E-02	2.09E-02	2.27E-02
6180.250	1.65E-02	1.84E-02	2.03E-02
6180.000	1.45E-02	1.63E-02	1.80E-02

Concentrations at the discrete receptors (No. : Value):

1:4.42E-02 2:3.48E-02 3:4.75E-02 4:5.55E-02

AVERAGE OVER ALL HOURS FOR SOURCE GROUP No. 2
in micrograms/m3

X (km)	301.000	301.250	301.500	301.750	302.000	302.250
Y (km)						
6188.000	3.69E-02	3.85E-02	4.13E-02	4.47E-02	4.84E-02	5.19E-02
6187.750	3.61E-02	3.77E-02	3.96E-02	4.25E-02	4.62E-02	4.99E-02
6187.500	3.53E-02	3.70E-02	3.90E-02	4.16E-02	4.48E-02	4.82E-02
6187.250	3.49E-02	3.63E-02	3.82E-02	4.08E-02	4.38E-02	4.70E-02
6187.000	3.55E-02	3.59E-02	3.74E-02	3.98E-02	4.28E-02	4.60E-02
6186.750	3.57E-02	3.58E-02	3.66E-02	3.88E-02	4.16E-02	4.50E-02
6186.500	3.48E-02	3.53E-02	3.60E-02	3.80E-02	4.09E-02	4.41E-02
6186.250	3.39E-02	3.52E-02	3.67E-02	3.87E-02	4.09E-02	4.34E-02
6186.000	3.36E-02	3.50E-02	3.65E-02	3.81E-02	3.99E-02	4.22E-02
6185.750	3.39E-02	3.51E-02	3.63E-02	3.74E-02	3.87E-02	4.09E-02
6185.500	3.46E-02	3.56E-02	3.65E-02	3.71E-02	3.82E-02	4.03E-02
6185.250	3.53E-02	3.60E-02	3.67E-02	3.73E-02	3.88E-02	4.10E-02
6185.000	3.54E-02	3.62E-02	3.71E-02	3.83E-02	4.05E-02	4.30E-02
6184.750	3.55E-02	3.69E-02	3.86E-02	4.06E-02	4.36E-02	4.66E-02
6184.500	3.71E-02	3.89E-02	4.13E-02	4.43E-02	4.81E-02	5.16E-02
6184.250	3.88E-02	4.11E-02	4.43E-02	4.83E-02	5.32E-02	5.79E-02
6184.000	4.02E-02	4.30E-02	4.68E-02	5.20E-02	5.84E-02	6.51E-02
6183.750	4.11E-02	4.44E-02	4.86E-02	5.45E-02	6.21E-02	7.10E-02
6183.500	4.14E-02	4.48E-02	4.92E-02	5.51E-02	6.25E-02	7.09E-02
6183.250	4.12E-02	4.46E-02	4.88E-02	5.41E-02	6.05E-02	6.76E-02
6183.000	4.06E-02	4.38E-02	4.76E-02	5.21E-02	5.74E-02	6.30E-02
6182.750	3.99E-02	4.27E-02	4.60E-02	4.97E-02	5.38E-02	5.81E-02
6182.500	3.90E-02	4.16E-02	4.44E-02	4.73E-02	5.05E-02	5.41E-02
6182.250	3.83E-02	4.06E-02	4.30E-02	4.55E-02	4.82E-02	5.15E-02
6182.000	3.75E-02	3.97E-02	4.20E-02	4.43E-02	4.70E-02	5.00E-02
6181.750	3.69E-02	3.90E-02	4.12E-02	4.36E-02	4.62E-02	4.91E-02
6181.500	3.65E-02	3.84E-02	4.07E-02	4.30E-02	4.56E-02	4.85E-02
6181.250	3.60E-02	3.80E-02	4.01E-02	4.24E-02	4.50E-02	4.80E-02
6181.000	3.58E-02	3.77E-02	3.97E-02	4.20E-02	4.45E-02	4.73E-02
6180.750	3.54E-02	3.73E-02	3.94E-02	4.16E-02	4.40E-02	4.67E-02
6180.500	3.51E-02	3.69E-02	3.89E-02	4.11E-02	4.35E-02	4.60E-02
6180.250	3.48E-02	3.65E-02	3.85E-02	4.05E-02	4.28E-02	4.52E-02
6180.000	3.45E-02	3.62E-02	3.80E-02	3.99E-02	4.20E-02	4.42E-02

X (km)	302.500	302.750	303.000	303.250	303.500	303.750
Y (km)						
6188.000	5.57E-02	6.01E-02	6.54E-02	7.15E-02	7.79E-02	8.45E-02
6187.750	5.36E-02	5.82E-02	6.38E-02	7.02E-02	7.72E-02	8.42E-02
6187.500	5.18E-02	5.62E-02	6.19E-02	6.84E-02	7.57E-02	8.36E-02
6187.250	5.05E-02	5.49E-02	6.03E-02	6.67E-02	7.41E-02	8.26E-02
6187.000	4.97E-02	5.42E-02	5.92E-02	6.52E-02	7.26E-02	8.12E-02
6186.750	4.87E-02	5.31E-02	5.81E-02	6.39E-02	7.11E-02	7.96E-02
6186.500	4.76E-02	5.17E-02	5.66E-02	6.24E-02	6.94E-02	7.76E-02
6186.250	4.65E-02	5.02E-02	5.48E-02	6.05E-02	6.71E-02	7.54E-02
6186.000	4.50E-02	4.84E-02	5.28E-02	5.82E-02	6.46E-02	7.24E-02
6185.750	4.37E-02	4.67E-02	5.09E-02	5.58E-02	6.18E-02	6.91E-02
6185.500	4.29E-02	4.58E-02	4.96E-02	5.40E-02	5.92E-02	6.59E-02
6185.250	4.34E-02	4.62E-02	4.96E-02	5.36E-02	5.80E-02	6.32E-02
6185.000	4.55E-02	4.82E-02	5.15E-02	5.55E-02	5.93E-02	6.30E-02
6184.750	4.91E-02	5.19E-02	5.58E-02	6.01E-02	6.42E-02	6.70E-02
6184.500	5.40E-02	5.69E-02	6.20E-02	6.78E-02	7.30E-02	7.63E-02
6184.250	6.03E-02	6.26E-02	6.97E-02	7.80E-02	8.51E-02	8.97E-02
6184.000	6.84E-02	6.99E-02	7.87E-02	8.94E-02	9.86E-02	1.04E-01
6183.750	7.73E-02	7.94E-02	8.71E-02	9.92E-02	1.10E-01	1.17E-01
6183.500	7.76E-02	8.20E-02	9.04E-02	1.04E-01	1.16E-01	1.25E-01
6183.250	7.38E-02	7.88E-02	8.68E-02	1.01E-01	1.16E-01	1.26E-01
6183.000	6.79E-02	7.20E-02	7.77E-02	8.99E-02	1.07E-01	1.18E-01
6182.750	6.19E-02	6.45E-02	6.68E-02	7.60E-02	9.29E-02	1.07E-01
6182.500	5.74E-02	5.96E-02	6.16E-02	6.92E-02	8.37E-02	9.77E-02
6182.250	5.47E-02	5.74E-02	6.08E-02	6.77E-02	7.92E-02	9.18E-02
6182.000	5.32E-02	5.64E-02	6.06E-02	6.70E-02	7.63E-02	8.69E-02
6181.750	5.23E-02	5.58E-02	6.02E-02	6.62E-02	7.38E-02	8.21E-02
6181.500	5.17E-02	5.53E-02	5.97E-02	6.50E-02	7.13E-02	7.80E-02
6181.250	5.12E-02	5.47E-02	5.89E-02	6.36E-02	6.89E-02	7.41E-02
6181.000	5.06E-02	5.39E-02	5.78E-02	6.20E-02	6.63E-02	7.03E-02
6180.750	4.98E-02	5.30E-02	5.65E-02	6.00E-02	6.35E-02	6.66E-02

6180.500	4.89E-02	5.18E-02	5.48E-02	5.79E-02	6.06E-02	6.28E-02
6180.250	4.78E-02	5.04E-02	5.30E-02	5.55E-02	5.76E-02	5.91E-02
6180.000	4.65E-02	4.88E-02	5.10E-02	5.30E-02	5.44E-02	5.53E-02

X (km) : 304.000 304.250 304.500 304.750 305.000 305.250

Y (km)						
6188.000	9.24E-02	1.02E-01	1.12E-01	1.22E-01	1.33E-01	1.36E-01
6187.750	9.26E-02	1.03E-01	1.14E-01	1.26E-01	1.37E-01	1.42E-01
6187.500	9.28E-02	1.04E-01	1.16E-01	1.29E-01	1.39E-01	1.46E-01
6187.250	9.26E-02	1.04E-01	1.17E-01	1.30E-01	1.42E-01	1.50E-01
6187.000	9.15E-02	1.04E-01	1.17E-01	1.31E-01	1.44E-01	1.54E-01
6186.750	8.94E-02	1.02E-01	1.16E-01	1.31E-01	1.46E-01	1.59E-01
6186.500	8.72E-02	9.91E-02	1.13E-01	1.29E-01	1.47E-01	1.64E-01
6186.250	8.51E-02	9.59E-02	1.09E-01	1.26E-01	1.47E-01	1.69E-01
6186.000	8.18E-02	9.24E-02	1.06E-01	1.23E-01	1.46E-01	1.72E-01
6185.750	7.80E-02	8.84E-02	1.01E-01	1.18E-01	1.41E-01	1.71E-01
6185.500	7.41E-02	8.39E-02	9.62E-02	1.12E-01	1.34E-01	1.64E-01
6185.250	7.03E-02	7.91E-02	9.09E-02	1.06E-01	1.24E-01	1.51E-01
6185.000	6.78E-02	7.51E-02	8.56E-02	9.92E-02	1.15E-01	1.37E-01
6184.750	6.95E-02	7.36E-02	8.13E-02	9.14E-02	1.04E-01	1.22E-01
6184.500	7.77E-02	7.91E-02	8.37E-02	9.01E-02	9.92E-02	1.12E-01
6184.250	9.12E-02	9.16E-02	9.33E-02	9.67E-02	1.03E-01	1.13E-01
6184.000	1.06E-01	1.05E-01	1.03E-01	1.02E-01	1.03E-01	1.08E-01
6183.750	1.18E-01	1.14E-01	1.10E-01	1.03E-01	9.86E-02	9.79E-02
6183.500	1.25E-01	1.21E-01	1.14E-01	1.05E-01	9.94E-02	1.02E-01
6183.250	1.27E-01	1.24E-01	1.20E-01	1.14E-01	1.13E-01	1.19E-01
6183.000	1.23E-01	1.24E-01	1.25E-01	1.27E-01	1.29E-01	1.36E-01
6182.750	1.16E-01	1.22E-01	1.28E-01	1.36E-01	1.40E-01	1.44E-01
6182.500	1.08E-01	1.17E-01	1.28E-01	1.38E-01	1.41E-01	1.41E-01
6182.250	1.02E-01	1.11E-01	1.19E-01	1.27E-01	1.29E-01	1.27E-01
6182.000	9.57E-02	1.02E-01	1.07E-01	1.10E-01	1.13E-01	1.11E-01
6181.750	8.93E-02	9.44E-02	9.72E-02	9.77E-02	9.86E-02	9.60E-02
6181.500	8.38E-02	8.76E-02	8.94E-02	8.94E-02	8.81E-02	8.39E-02
6181.250	7.85E-02	8.15E-02	8.23E-02	8.15E-02	7.89E-02	7.40E-02
6181.000	7.35E-02	7.55E-02	7.55E-02	7.40E-02	7.07E-02	6.54E-02
6180.750	6.88E-02	6.97E-02	6.92E-02	6.69E-02	6.29E-02	5.77E-02
6180.500	6.40E-02	6.43E-02	6.30E-02	6.03E-02	5.62E-02	5.11E-02
6180.250	5.97E-02	5.91E-02	5.74E-02	5.44E-02	5.01E-02	4.53E-02
6180.000	5.53E-02	5.43E-02	5.22E-02	4.90E-02	4.48E-02	4.02E-02

X (km) : 305.500 305.750 306.000 306.250 306.500 306.750

Y (km)						
6188.000	1.33E-01	1.29E-01	1.23E-01	1.18E-01	1.17E-01	1.16E-01
6187.750	1.40E-01	1.37E-01	1.31E-01	1.27E-01	1.25E-01	1.25E-01
6187.500	1.47E-01	1.44E-01	1.40E-01	1.36E-01	1.34E-01	1.33E-01
6187.250	1.53E-01	1.52E-01	1.49E-01	1.45E-01	1.42E-01	1.39E-01
6187.000	1.60E-01	1.61E-01	1.58E-01	1.54E-01	1.50E-01	1.46E-01
6186.750	1.68E-01	1.70E-01	1.68E-01	1.63E-01	1.58E-01	1.52E-01
6186.500	1.76E-01	1.81E-01	1.78E-01	1.72E-01	1.66E-01	1.59E-01
6186.250	1.86E-01	1.94E-01	1.91E-01	1.81E-01	1.71E-01	1.64E-01
6186.000	1.96E-01	2.08E-01	2.04E-01	1.90E-01	1.76E-01	1.67E-01
6185.750	2.03E-01	2.23E-01	2.21E-01	2.01E-01	1.80E-01	1.69E-01
6185.500	2.01E-01	2.33E-01	2.40E-01	2.14E-01	1.80E-01	1.66E-01
6185.250	1.89E-01	2.37E-01	2.69E-01	2.40E-01	1.79E-01	1.57E-01
6185.000	1.72E-01	2.29E-01	2.98E-01	2.84E-01	1.66E-01	1.31E-01
6184.750	1.53E-01	2.06E-01	2.97E-01	3.65E-01	1.31E-01	7.77E-02
6184.500	1.34E-01	1.72E-01	2.26E-01	3.82E-01	1.49E-01	3.30E-02
6184.250	1.28E-01	1.48E-01	1.61E-01	1.67E-01	6.43E-02	2.87E-03
6184.000	1.16E-01	1.16E-01	1.02E-01	5.36E-02	6.68E-08	3.40E-02
6183.750	9.57E-02	8.35E-02	6.35E-02	5.83E-02	1.99E-02	7.41E-02
6183.500	1.08E-01	1.16E-01	1.18E-01	1.02E-01	3.75E-02	3.98E-02
6183.250	1.31E-01	1.46E-01	1.52E-01	1.21E-01	4.83E-02	3.60E-02
6183.000	1.46E-01	1.55E-01	1.49E-01	1.13E-01	5.33E-02	3.73E-02
6182.750	1.48E-01	1.46E-01	1.29E-01	9.47E-02	5.16E-02	3.77E-02
6182.500	1.37E-01	1.27E-01	1.05E-01	7.67E-02	4.74E-02	3.66E-02
6182.250	1.20E-01	1.05E-01	8.26E-02	5.96E-02	3.93E-02	3.20E-02
6182.000	1.03E-01	8.80E-02	6.79E-02	4.82E-02	3.24E-02	2.68E-02
6181.750	8.80E-02	7.44E-02	5.76E-02	4.06E-02	2.74E-02	2.26E-02
6181.500	7.58E-02	6.36E-02	4.91E-02	3.47E-02	2.38E-02	1.94E-02
6181.250	6.60E-02	5.50E-02	4.24E-02	3.02E-02	2.10E-02	1.70E-02
6181.000	5.77E-02	4.79E-02	3.70E-02	2.66E-02	1.87E-02	1.52E-02
6180.750	5.06E-02	4.21E-02	3.26E-02	2.37E-02	1.70E-02	1.37E-02
6180.500	4.46E-02	3.72E-02	2.92E-02	2.14E-02	1.54E-02	1.25E-02
6180.250	3.95E-02	3.30E-02	2.62E-02	1.95E-02	1.40E-02	1.14E-02
6180.000	3.49E-02	2.92E-02	2.35E-02	1.78E-02	1.28E-02	1.06E-02

X (km) : 307.000 307.250 307.500 307.750 308.000 308.250

Y (km)

6188.000	1.14E-01	1.12E-01	1.12E-01	1.12E-01	1.11E-01	1.10E-01
6187.750	1.23E-01	1.18E-01	1.17E-01	1.17E-01	1.16E-01	1.14E-01
6187.500	1.29E-01	1.24E-01	1.23E-01	1.22E-01	1.20E-01	1.19E-01
6187.250	1.35E-01	1.30E-01	1.29E-01	1.27E-01	1.25E-01	1.23E-01
6187.000	1.41E-01	1.36E-01	1.34E-01	1.32E-01	1.29E-01	1.27E-01
6186.750	1.47E-01	1.42E-01	1.39E-01	1.36E-01	1.33E-01	1.31E-01
6186.500	1.52E-01	1.47E-01	1.43E-01	1.39E-01	1.36E-01	1.35E-01
6186.250	1.57E-01	1.51E-01	1.46E-01	1.41E-01	1.39E-01	1.38E-01
6186.000	1.60E-01	1.54E-01	1.47E-01	1.42E-01	1.40E-01	1.40E-01
6185.750	1.61E-01	1.52E-01	1.44E-01	1.40E-01	1.39E-01	1.42E-01
6185.500	1.57E-01	1.45E-01	1.37E-01	1.35E-01	1.39E-01	1.43E-01
6185.250	1.54E-01	1.30E-01	1.25E-01	1.29E-01	1.37E-01	1.45E-01
6185.000	1.20E-01	1.09E-01	1.12E-01	1.24E-01	1.38E-01	1.50E-01
6184.750	7.16E-02	8.20E-02	1.04E-01	1.26E-01	1.46E-01	1.59E-01
6184.500	3.34E-02	6.46E-02	1.10E-01	1.43E-01	1.66E-01	1.78E-01
6184.250	2.72E-02	7.83E-02	1.53E-01	1.88E-01	2.01E-01	2.04E-01
6184.000	1.30E-01	1.63E-01	2.05E-01	2.16E-01	2.15E-01	2.11E-01
6183.750	1.04E-01	1.22E-01	1.56E-01	1.79E-01	1.89E-01	1.90E-01
6183.500	1.29E-01	1.49E-01	1.67E-01	1.73E-01	1.75E-01	1.76E-01
6183.250	1.13E-01	1.54E-01	1.64E-01	1.76E-01	1.80E-01	1.81E-01
6183.000	9.56E-02	1.43E-01	1.60E-01	1.65E-01	1.78E-01	1.83E-01
6182.750	7.93E-02	1.26E-01	1.50E-01	1.64E-01	1.77E-01	1.70E-01
6182.500	6.51E-02	1.04E-01	1.30E-01	1.44E-01	1.53E-01	1.52E-01
6182.250	5.16E-02	8.24E-02	1.06E-01	1.20E-01	1.29E-01	1.32E-01
6182.000	3.87E-02	6.13E-02	8.20E-02	9.67E-02	1.07E-01	1.15E-01
6181.750	2.95E-02	4.53E-02	6.23E-02	7.72E-02	9.03E-02	1.05E-01
6181.500	2.34E-02	3.44E-02	4.79E-02	6.12E-02	7.49E-02	9.36E-02
6181.250	1.93E-02	2.71E-02	3.76E-02	4.87E-02	6.04E-02	7.67E-02
6181.000	1.65E-02	2.21E-02	3.04E-02	4.00E-02	4.99E-02	6.07E-02
6180.750	1.44E-02	1.86E-02	2.55E-02	3.41E-02	4.30E-02	5.13E-02
6180.500	1.28E-02	1.62E-02	2.20E-02	2.93E-02	3.71E-02	4.47E-02
6180.250	1.17E-02	1.44E-02	1.92E-02	2.53E-02	3.21E-02	3.89E-02
6180.000	1.08E-02	1.30E-02	1.69E-02	2.21E-02	2.80E-02	3.40E-02

X (km) : 308.500 308.750 309.000

Y (km)

6188.000	1.09E-01	1.08E-01	1.08E-01
6187.750	1.13E-01	1.13E-01	1.12E-01
6187.500	1.18E-01	1.17E-01	1.17E-01
6187.250	1.22E-01	1.22E-01	1.22E-01
6187.000	1.26E-01	1.26E-01	1.26E-01
6186.750	1.31E-01	1.31E-01	1.31E-01
6186.500	1.35E-01	1.35E-01	1.36E-01
6186.250	1.38E-01	1.39E-01	1.40E-01
6186.000	1.41E-01	1.43E-01	1.44E-01
6185.750	1.44E-01	1.47E-01	1.48E-01
6185.500	1.47E-01	1.50E-01	1.51E-01
6185.250	1.51E-01	1.54E-01	1.56E-01
6185.000	1.57E-01	1.60E-01	1.61E-01
6184.750	1.67E-01	1.70E-01	1.70E-01
6184.500	1.84E-01	1.84E-01	1.80E-01
6184.250	2.01E-01	1.96E-01	1.88E-01
6184.000	2.04E-01	1.95E-01	1.87E-01
6183.750	1.87E-01	1.82E-01	1.75E-01
6183.500	1.73E-01	1.67E-01	1.62E-01
6183.250	1.76E-01	1.64E-01	1.56E-01
6183.000	1.80E-01	1.67E-01	1.55E-01
6182.750	1.64E-01	1.61E-01	1.55E-01
6182.500	1.50E-01	1.52E-01	1.50E-01
6182.250	1.34E-01	1.39E-01	1.41E-01
6182.000	1.20E-01	1.30E-01	1.35E-01
6181.750	1.24E-01	1.43E-01	1.34E-01
6181.500	1.26E-01	1.52E-01	1.46E-01
6181.250	1.09E-01	1.34E-01	1.38E-01
6181.000	7.94E-02	9.48E-02	1.01E-01
6180.750	5.85E-02	6.48E-02	7.05E-02
6180.500	5.16E-02	5.78E-02	6.33E-02
6180.250	4.53E-02	5.11E-02	5.63E-02
6180.000	3.99E-02	4.53E-02	5.02E-02

Concentrations at the discrete receptors (No. : Value):

1:1.24E-01 2:1.05E-01 3:1.51E-01 4:2.40E-01

AVERAGE OVER ALL HOURS FOR SOURCE GROUP No. 3
in micrograms/m3

X (km)	301.000	301.250	301.500	301.750	302.000	302.250
Y (km)						
6188.000	4.94E-02	5.14E-02	5.52E-02	5.98E-02	6.48E-02	6.95E-02
6187.750	4.81E-02	5.01E-02	5.26E-02	5.64E-02	6.14E-02	6.63E-02
6187.500	4.69E-02	4.91E-02	5.16E-02	5.50E-02	5.93E-02	6.38E-02
6187.250	4.63E-02	4.79E-02	5.04E-02	5.37E-02	5.77E-02	6.19E-02
6187.000	4.70E-02	4.73E-02	4.91E-02	5.22E-02	5.61E-02	6.03E-02
6186.750	4.73E-02	4.71E-02	4.79E-02	5.06E-02	5.43E-02	5.86E-02
6186.500	4.58E-02	4.62E-02	4.69E-02	4.95E-02	5.32E-02	5.73E-02
6186.250	4.44E-02	4.60E-02	4.79E-02	5.03E-02	5.30E-02	5.62E-02
6186.000	4.39E-02	4.56E-02	4.75E-02	4.94E-02	5.16E-02	5.44E-02
6185.750	4.42E-02	4.56E-02	4.70E-02	4.82E-02	4.96E-02	5.23E-02
6185.500	4.51E-02	4.62E-02	4.72E-02	4.77E-02	4.89E-02	5.14E-02
6185.250	4.61E-02	4.68E-02	4.76E-02	4.81E-02	4.97E-02	5.24E-02
6185.000	4.61E-02	4.71E-02	4.80E-02	4.94E-02	5.20E-02	5.53E-02
6184.750	4.62E-02	4.79E-02	5.00E-02	5.26E-02	5.64E-02	6.03E-02
6184.500	4.85E-02	5.06E-02	5.38E-02	5.77E-02	6.27E-02	6.72E-02
6184.250	5.08E-02	5.38E-02	5.79E-02	6.33E-02	6.98E-02	7.59E-02
6184.000	5.28E-02	5.66E-02	6.16E-02	6.85E-02	7.70E-02	8.59E-02
6183.750	5.40E-02	5.85E-02	6.42E-02	7.20E-02	8.22E-02	9.39E-02
6183.500	5.46E-02	5.90E-02	6.51E-02	7.30E-02	8.28E-02	9.40E-02
6183.250	5.45E-02	5.90E-02	6.48E-02	7.19E-02	8.05E-02	9.01E-02
6183.000	5.40E-02	5.82E-02	6.30E-02	6.93E-02	7.63E-02	8.37E-02
6182.750	5.29E-02	5.66E-02	6.11E-02	6.61E-02	7.15E-02	7.74E-02
6182.500	5.18E-02	5.52E-02	5.90E-02	6.30E-02	6.74E-02	7.22E-02
6182.250	5.09E-02	5.40E-02	5.72E-02	6.07E-02	6.44E-02	6.90E-02
6182.000	4.99E-02	5.28E-02	5.60E-02	5.93E-02	6.28E-02	6.70E-02
6181.750	4.92E-02	5.20E-02	5.51E-02	5.83E-02	6.19E-02	6.59E-02
6181.500	4.86E-02	5.13E-02	5.44E-02	5.76E-02	6.11E-02	6.51E-02
6181.250	4.81E-02	5.08E-02	5.37E-02	5.69E-02	6.03E-02	6.44E-02
6181.000	4.77E-02	5.04E-02	5.32E-02	5.63E-02	5.96E-02	6.35E-02
6180.750	4.74E-02	4.99E-02	5.26E-02	5.56E-02	5.91E-02	6.25E-02
6180.500	4.69E-02	4.93E-02	5.21E-02	5.51E-02	5.82E-02	6.14E-02
6180.250	4.65E-02	4.89E-02	5.15E-02	5.41E-02	5.71E-02	6.02E-02
6180.000	4.62E-02	4.83E-02	5.06E-02	5.32E-02	5.59E-02	5.88E-02

X (km)	302.500	302.750	303.000	303.250	303.500	303.750
Y (km)						
6188.000	7.45E-02	8.03E-02	8.75E-02	9.58E-02	1.04E-01	1.13E-01
6187.750	7.13E-02	7.74E-02	8.49E-02	9.36E-02	1.03E-01	1.12E-01
6187.500	6.84E-02	7.43E-02	8.19E-02	9.07E-02	1.01E-01	1.11E-01
6187.250	6.64E-02	7.22E-02	7.93E-02	8.79E-02	9.78E-02	1.09E-01
6187.000	6.50E-02	7.09E-02	7.75E-02	8.55E-02	9.52E-02	1.07E-01
6186.750	6.35E-02	6.92E-02	7.57E-02	8.33E-02	9.27E-02	1.04E-01
6186.500	6.18E-02	6.71E-02	7.34E-02	8.09E-02	9.00E-02	1.01E-01
6186.250	6.00E-02	6.48E-02	7.07E-02	7.79E-02	8.63E-02	9.72E-02
6186.000	5.78E-02	6.21E-02	6.76E-02	7.44E-02	8.26E-02	9.25E-02
6185.750	5.58E-02	5.95E-02	6.47E-02	7.08E-02	7.83E-02	8.75E-02
6185.500	5.46E-02	5.81E-02	6.28E-02	6.81E-02	7.46E-02	8.28E-02
6185.250	5.53E-02	5.85E-02	6.26E-02	6.75E-02	7.26E-02	7.88E-02
6185.000	5.85E-02	6.16E-02	6.57E-02	7.02E-02	7.45E-02	7.85E-02
6184.750	6.34E-02	6.68E-02	7.17E-02	7.70E-02	8.20E-02	8.48E-02
6184.500	7.02E-02	7.38E-02	8.04E-02	8.76E-02	9.42E-02	9.76E-02
6184.250	7.89E-02	8.18E-02	9.13E-02	1.02E-01	1.12E-01	1.17E-01
6184.000	9.05E-02	9.22E-02	1.04E-01	1.18E-01	1.31E-01	1.38E-01
6183.750	1.02E-01	1.05E-01	1.15E-01	1.32E-01	1.47E-01	1.56E-01
6183.500	1.03E-01	1.09E-01	1.20E-01	1.38E-01	1.55E-01	1.67E-01
6183.250	9.82E-02	1.05E-01	1.15E-01	1.34E-01	1.54E-01	1.67E-01
6183.000	9.04E-02	9.60E-02	1.04E-01	1.20E-01	1.43E-01	1.58E-01
6182.750	8.26E-02	8.62E-02	8.96E-02	1.02E-01	1.25E-01	1.44E-01
6182.500	7.67E-02	8.00E-02	8.29E-02	9.35E-02	1.13E-01	1.32E-01
6182.250	7.33E-02	7.73E-02	8.20E-02	9.15E-02	1.07E-01	1.24E-01
6182.000	7.15E-02	7.60E-02	8.18E-02	9.06E-02	1.03E-01	1.17E-01
6181.750	7.03E-02	7.51E-02	8.12E-02	8.94E-02	9.98E-02	1.11E-01
6181.500	6.95E-02	7.44E-02	8.07E-02	8.75E-02	9.58E-02	1.05E-01
6181.250	6.88E-02	7.36E-02	7.92E-02	8.52E-02	9.24E-02	9.90E-02
6181.000	6.79E-02	7.23E-02	7.75E-02	8.30E-02	8.84E-02	9.37E-02
6180.750	6.66E-02	7.08E-02	7.55E-02	7.99E-02	8.44E-02	8.84E-02

6180.500	6.52E-02	6.91E-02	7.29E-02	7.69E-02	8.04E-02	8.31E-02
6180.250	6.37E-02	6.69E-02	7.03E-02	7.35E-02	7.61E-02	7.77E-02
6180.000	6.18E-02	6.48E-02	6.75E-02	7.01E-02	7.16E-02	7.24E-02

X (km) : 304.000 304.250 304.500 304.750 305.000 305.250

Y (km)						
6188.000	1.24E-01	1.36E-01	1.49E-01	1.63E-01	1.77E-01	1.80E-01
6187.750	1.23E-01	1.37E-01	1.53E-01	1.68E-01	1.82E-01	1.88E-01
6187.500	1.23E-01	1.38E-01	1.55E-01	1.71E-01	1.85E-01	1.93E-01
6187.250	1.23E-01	1.38E-01	1.56E-01	1.73E-01	1.87E-01	1.98E-01
6187.000	1.21E-01	1.37E-01	1.55E-01	1.73E-01	1.90E-01	2.03E-01
6186.750	1.17E-01	1.33E-01	1.52E-01	1.72E-01	1.91E-01	2.08E-01
6186.500	1.13E-01	1.29E-01	1.47E-01	1.68E-01	1.92E-01	2.13E-01
6186.250	1.10E-01	1.24E-01	1.41E-01	1.63E-01	1.90E-01	2.18E-01
6186.000	1.05E-01	1.18E-01	1.35E-01	1.57E-01	1.87E-01	2.20E-01
6185.750	9.87E-02	1.12E-01	1.28E-01	1.49E-01	1.78E-01	2.16E-01
6185.500	9.29E-02	1.05E-01	1.20E-01	1.40E-01	1.66E-01	2.04E-01
6185.250	8.73E-02	9.78E-02	1.12E-01	1.30E-01	1.52E-01	1.84E-01
6185.000	8.37E-02	9.20E-02	1.04E-01	1.20E-01	1.37E-01	1.62E-01
6184.750	8.69E-02	9.04E-02	9.86E-02	1.09E-01	1.23E-01	1.42E-01
6184.500	9.88E-02	9.95E-02	1.05E-01	1.11E-01	1.19E-01	1.30E-01
6184.250	1.19E-01	1.19E-01	1.20E-01	1.24E-01	1.31E-01	1.42E-01
6184.000	1.40E-01	1.39E-01	1.37E-01	1.37E-01	1.40E-01	1.52E-01
6183.750	1.58E-01	1.55E-01	1.50E-01	1.44E-01	1.39E-01	1.42E-01
6183.500	1.68E-01	1.63E-01	1.56E-01	1.47E-01	1.42E-01	1.53E-01
6183.250	1.71E-01	1.68E-01	1.65E-01	1.60E-01	1.63E-01	1.78E-01
6183.000	1.65E-01	1.69E-01	1.72E-01	1.77E-01	1.84E-01	1.96E-01
6182.750	1.56E-01	1.66E-01	1.77E-01	1.88E-01	1.94E-01	2.03E-01
6182.500	1.47E-01	1.60E-01	1.74E-01	1.89E-01	1.93E-01	1.92E-01
6182.250	1.39E-01	1.50E-01	1.62E-01	1.72E-01	1.75E-01	1.71E-01
6182.000	1.29E-01	1.38E-01	1.45E-01	1.49E-01	1.51E-01	1.47E-01
6181.750	1.20E-01	1.27E-01	1.31E-01	1.31E-01	1.31E-01	1.27E-01
6181.500	1.12E-01	1.17E-01	1.19E-01	1.19E-01	1.16E-01	1.09E-01
6181.250	1.05E-01	1.08E-01	1.09E-01	1.07E-01	1.03E-01	9.55E-02
6181.000	9.78E-02	9.98E-02	9.95E-02	9.66E-02	9.18E-02	8.40E-02
6180.750	9.09E-02	9.18E-02	9.07E-02	8.71E-02	8.13E-02	7.35E-02
6180.500	8.42E-02	8.45E-02	8.22E-02	7.84E-02	7.22E-02	6.51E-02
6180.250	7.82E-02	7.71E-02	7.46E-02	7.02E-02	6.41E-02	5.75E-02
6180.000	7.25E-02	7.06E-02	6.75E-02	6.29E-02	5.71E-02	5.10E-02

X (km) : 305.500 305.750 306.000 306.250 306.500 306.750

Y (km)						
6188.000	1.77E-01	1.72E-01	1.64E-01	1.58E-01	1.58E-01	1.56E-01
6187.750	1.86E-01	1.82E-01	1.76E-01	1.71E-01	1.70E-01	1.70E-01
6187.500	1.94E-01	1.92E-01	1.87E-01	1.82E-01	1.81E-01	1.80E-01
6187.250	2.01E-01	2.03E-01	1.99E-01	1.94E-01	1.93E-01	1.90E-01
6187.000	2.09E-01	2.13E-01	2.11E-01	2.08E-01	2.04E-01	2.00E-01
6186.750	2.18E-01	2.23E-01	2.24E-01	2.20E-01	2.16E-01	2.10E-01
6186.500	2.28E-01	2.35E-01	2.38E-01	2.31E-01	2.29E-01	2.21E-01
6186.250	2.39E-01	2.49E-01	2.52E-01	2.43E-01	2.38E-01	2.29E-01
6186.000	2.50E-01	2.65E-01	2.68E-01	2.56E-01	2.46E-01	2.36E-01
6185.750	2.56E-01	2.80E-01	2.80E-01	2.68E-01	2.56E-01	2.47E-01
6185.500	2.50E-01	2.88E-01	2.96E-01	2.86E-01	2.57E-01	2.53E-01
6185.250	2.30E-01	2.86E-01	3.24E-01	3.23E-01	2.62E-01	2.56E-01
6185.000	2.03E-01	2.70E-01	3.48E-01	3.68E-01	2.67E-01	2.49E-01
6184.750	1.75E-01	2.34E-01	3.42E-01	4.33E-01	3.01E-01	2.35E-01
6184.500	1.51E-01	1.89E-01	2.51E-01	4.50E-01	6.04E-01	3.24E-01
6184.250	1.60E-01	1.90E-01	2.14E-01	2.01E-01	1.95E+00	7.90E-01
6184.000	1.71E-01	1.98E-01	2.47E-01	6.45E-01	3.26E-01	3.38E-01
6183.750	1.49E-01	1.65E-01	2.30E-01	3.00E-01	6.88E-02	2.52E-01
6183.500	1.74E-01	2.04E-01	2.37E-01	1.82E-01	5.10E-02	1.25E-01
6183.250	2.00E-01	2.28E-01	2.32E-01	1.63E-01	5.94E-02	7.89E-02
6183.000	2.13E-01	2.24E-01	2.02E-01	1.41E-01	6.40E-02	6.51E-02
6182.750	2.07E-01	2.00E-01	1.68E-01	1.15E-01	6.20E-02	5.85E-02
6182.500	1.86E-01	1.67E-01	1.34E-01	9.27E-02	5.71E-02	5.27E-02
6182.250	1.60E-01	1.37E-01	1.05E-01	7.20E-02	4.77E-02	4.43E-02
6182.000	1.35E-01	1.12E-01	8.56E-02	5.83E-02	3.96E-02	3.62E-02
6181.750	1.14E-01	9.45E-02	7.19E-02	4.93E-02	3.37E-02	3.01E-02
6181.500	9.72E-02	8.04E-02	6.10E-02	4.22E-02	2.93E-02	2.56E-02
6181.250	8.40E-02	6.95E-02	5.24E-02	3.67E-02	2.59E-02	2.23E-02
6181.000	7.31E-02	6.01E-02	4.58E-02	3.25E-02	2.32E-02	1.98E-02
6180.750	6.39E-02	5.27E-02	4.03E-02	2.90E-02	2.11E-02	1.78E-02
6180.500	5.64E-02	4.63E-02	3.60E-02	2.63E-02	1.92E-02	1.62E-02
6180.250	4.97E-02	4.11E-02	3.23E-02	2.39E-02	1.75E-02	1.48E-02
6180.000	4.40E-02	3.62E-02	2.90E-02	2.18E-02	1.60E-02	1.36E-02

X (km) : 307.000 307.250 307.500 307.750 308.000 308.250

Y (km)

6188.000	1.55E-01	1.56E-01	1.56E-01	1.58E-01	1.60E-01	1.61E-01
6187.750	1.68E-01	1.63E-01	1.65E-01	1.67E-01	1.68E-01	1.69E-01
6187.500	1.76E-01	1.72E-01	1.74E-01	1.76E-01	1.77E-01	1.78E-01
6187.250	1.85E-01	1.82E-01	1.84E-01	1.86E-01	1.86E-01	1.87E-01
6187.000	1.95E-01	1.93E-01	1.95E-01	1.95E-01	1.96E-01	1.97E-01
6186.750	2.06E-01	2.04E-01	2.05E-01	2.05E-01	2.06E-01	2.08E-01
6186.500	2.18E-01	2.15E-01	2.15E-01	2.15E-01	2.17E-01	2.20E-01
6186.250	2.26E-01	2.25E-01	2.25E-01	2.25E-01	2.29E-01	2.34E-01
6186.000	2.36E-01	2.36E-01	2.34E-01	2.37E-01	2.41E-01	2.48E-01
6185.750	2.46E-01	2.42E-01	2.43E-01	2.48E-01	2.57E-01	2.62E-01
6185.500	2.52E-01	2.47E-01	2.53E-01	2.64E-01	2.71E-01	2.74E-01
6185.250	2.68E-01	2.52E-01	2.66E-01	2.77E-01	2.84E-01	2.86E-01
6185.000	2.49E-01	2.65E-01	2.81E-01	2.91E-01	2.96E-01	2.93E-01
6184.750	2.55E-01	2.84E-01	2.99E-01	3.02E-01	3.01E-01	2.98E-01
6184.500	3.29E-01	3.05E-01	3.12E-01	3.18E-01	3.19E-01	3.13E-01
6184.250	4.58E-01	3.38E-01	3.47E-01	3.46E-01	3.37E-01	3.22E-01
6184.000	3.13E-01	2.99E-01	3.26E-01	3.25E-01	3.17E-01	3.04E-01
6183.750	2.67E-01	2.48E-01	2.58E-01	2.68E-01	2.72E-01	2.67E-01
6183.500	2.41E-01	2.56E-01	2.68E-01	2.66E-01	2.57E-01	2.50E-01
6183.250	1.88E-01	2.42E-01	2.51E-01	2.62E-01	2.61E-01	2.58E-01
6183.000	1.50E-01	2.12E-01	2.34E-01	2.39E-01	2.54E-01	2.58E-01
6182.750	1.21E-01	1.81E-01	2.13E-01	2.32E-01	2.48E-01	2.38E-01
6182.500	9.60E-02	1.49E-01	1.82E-01	2.01E-01	2.14E-01	2.11E-01
6182.250	7.44E-02	1.17E-01	1.47E-01	1.66E-01	1.78E-01	1.83E-01
6182.000	5.57E-02	8.71E-02	1.14E-01	1.34E-01	1.48E-01	1.59E-01
6181.750	4.23E-02	6.43E-02	8.75E-02	1.07E-01	1.24E-01	1.43E-01
6181.500	3.32E-02	4.88E-02	6.72E-02	8.51E-02	1.03E-01	1.27E-01
6181.250	2.71E-02	3.82E-02	5.30E-02	6.79E-02	8.32E-02	1.05E-01
6181.000	2.28E-02	3.12E-02	4.27E-02	5.57E-02	6.88E-02	8.29E-02
6180.750	1.97E-02	2.62E-02	3.57E-02	4.74E-02	5.94E-02	7.02E-02
6180.500	1.73E-02	2.26E-02	3.06E-02	4.07E-02	5.13E-02	6.13E-02
6180.250	1.57E-02	2.00E-02	2.67E-02	3.52E-02	4.43E-02	5.34E-02
6180.000	1.44E-02	1.79E-02	2.34E-02	3.06E-02	3.86E-02	4.68E-02

X (km) : 308.500 308.750 309.000

Y (km)

6188.000	1.62E-01	1.63E-01	1.64E-01
6187.750	1.70E-01	1.71E-01	1.73E-01
6187.500	1.79E-01	1.81E-01	1.83E-01
6187.250	1.89E-01	1.91E-01	1.93E-01
6187.000	1.99E-01	2.02E-01	2.05E-01
6186.750	2.11E-01	2.15E-01	2.17E-01
6186.500	2.25E-01	2.28E-01	2.29E-01
6186.250	2.38E-01	2.41E-01	2.40E-01
6186.000	2.52E-01	2.53E-01	2.50E-01
6185.750	2.64E-01	2.62E-01	2.59E-01
6185.500	2.74E-01	2.72E-01	2.64E-01
6185.250	2.83E-01	2.75E-01	2.67E-01
6185.000	2.87E-01	2.78E-01	2.69E-01
6184.750	2.91E-01	2.83E-01	2.74E-01
6184.500	3.03E-01	2.91E-01	2.78E-01
6184.250	3.07E-01	2.91E-01	2.76E-01
6184.000	2.89E-01	2.75E-01	2.61E-01
6183.750	2.59E-01	2.49E-01	2.39E-01
6183.500	2.41E-01	2.30E-01	2.21E-01
6183.250	2.47E-01	2.28E-01	2.14E-01
6183.000	2.52E-01	2.32E-01	2.14E-01
6182.750	2.29E-01	2.23E-01	2.14E-01
6182.500	2.08E-01	2.10E-01	2.06E-01
6182.250	1.85E-01	1.92E-01	1.93E-01
6182.000	1.66E-01	1.78E-01	1.85E-01
6181.750	1.68E-01	1.93E-01	1.83E-01
6181.500	1.69E-01	2.04E-01	1.98E-01
6181.250	1.46E-01	1.80E-01	1.86E-01
6181.000	1.08E-01	1.28E-01	1.37E-01
6180.750	8.00E-02	8.82E-02	9.59E-02
6180.500	7.06E-02	7.87E-02	8.60E-02
6180.250	6.19E-02	6.96E-02	7.66E-02
6180.000	5.44E-02	6.16E-02	6.82E-02

Concentrations at the discrete receptors (No. : Value):

1:1.68E-01 2:1.40E-01 3:1.99E-01 4:2.96E-01

1 Peak values for the 100 worst cases (in micrograms/m3)
 Averaging time = 24 hours; Source group No. 1

Rank	Value	Time Recorded hour,date	Coordinates (* denotes polar)
1	8.91E+00	24,05/05/03	(306500, 6184250, 0.0)
2	8.32E+00	24,25/05/03	(306500, 6184250, 0.0)
3	8.20E+00	24,24/11/03	(306500, 6184250, 0.0)
4	7.94E+00	24,02/07/03	(306500, 6184250, 0.0)
5	7.55E+00	24,26/05/03	(306500, 6184250, 0.0)
6	7.25E+00	24,17/04/03	(306500, 6184250, 0.0)
7	7.05E+00	24,25/11/03	(306500, 6184250, 0.0)
8	6.88E+00	24,16/05/03	(306500, 6184250, 0.0)
9	6.86E+00	24,11/10/03	(306500, 6184250, 0.0)
10	6.79E+00	24,04/04/03	(306500, 6184250, 0.0)
11	6.76E+00	24,31/07/03	(306500, 6184250, 0.0)
12	6.76E+00	24,15/06/03	(306750, 6184250, 0.0)
13	6.60E+00	24,03/10/03	(306500, 6184250, 0.0)
14	6.49E+00	24,01/03/03	(306500, 6184250, 0.0)
15	6.47E+00	24,16/06/03	(306750, 6184250, 0.0)
16	6.32E+00	24,26/07/03	(306750, 6184250, 0.0)
17	6.31E+00	24,01/07/03	(306500, 6184250, 0.0)
18	6.27E+00	24,09/04/03	(306500, 6184250, 0.0)
19	6.18E+00	24,16/04/03	(306500, 6184250, 0.0)
20	6.13E+00	24,22/05/03	(306750, 6184250, 0.0)
21	6.09E+00	24,01/08/03	(306500, 6184250, 0.0)
22	5.96E+00	24,03/07/03	(306500, 6184250, 0.0)
23	5.95E+00	24,05/04/03	(306500, 6184250, 0.0)
24	5.92E+00	24,06/08/03	(306750, 6184250, 0.0)
25	5.81E+00	24,17/05/03	(306500, 6184250, 0.0)
26	5.72E+00	24,01/11/03	(306750, 6184250, 0.0)
27	5.40E+00	24,07/06/03	(306750, 6184250, 0.0)
28	5.35E+00	24,20/08/03	(306500, 6184250, 0.0)
29	5.29E+00	24,10/08/03	(306500, 6184250, 0.0)
30	5.24E+00	24,18/04/03	(306500, 6184250, 0.0)
31	5.20E+00	24,04/07/03	(306500, 6184250, 0.0)
32	5.15E+00	24,22/06/03	(306750, 6184250, 0.0)
33	5.09E+00	24,04/05/03	(306500, 6184250, 0.0)
34	4.97E+00	24,19/04/03	(306500, 6184250, 0.0)
35	4.93E+00	24,13/09/03	(306750, 6184250, 0.0)
36	4.92E+00	24,04/02/03	(306250, 6184000, 0.0)
37	4.90E+00	24,30/07/03	(306750, 6184250, 0.0)
38	4.81E+00	24,02/03/03	(306500, 6184250, 0.0)
39	4.79E+00	24,19/05/03	(306750, 6184000, 0.0)
40	4.74E+00	24,25/04/03	(306500, 6184250, 0.0)
41	4.67E+00	24,25/06/03	(306500, 6184250, 0.0)
42	4.67E+00	24,26/11/03	(306500, 6184250, 0.0)
43	4.63E+00	24,06/01/03	(306250, 6184000, 0.0)
44	4.60E+00	24,23/05/03	(306500, 6184250, 0.0)
45	4.57E+00	24,07/02/03	(306500, 6184000, 0.0)
46	4.53E+00	24,03/04/03	(306500, 6184250, 0.0)
47	4.53E+00	24,14/06/03	(306750, 6184250, 0.0)
48	4.51E+00	24,08/09/03	(306500, 6184250, 0.0)
49	4.51E+00	24,10/04/03	(306500, 6184250, 0.0)
50	4.49E+00	24,05/02/03	(306500, 6184000, 0.0)
51	4.46E+00	24,15/04/03	(306750, 6184250, 0.0)
52	4.46E+00	24,10/01/03	(306500, 6184250, 0.0)
53	4.46E+00	24,14/08/03	(306500, 6184250, 0.0)
54	4.45E+00	24,14/01/03	(306250, 6184000, 0.0)
55	4.45E+00	24,23/11/03	(306500, 6184250, 0.0)
56	4.43E+00	24,09/01/03	(306500, 6184250, 0.0)
57	4.42E+00	24,27/05/03	(306500, 6184250, 0.0)
58	4.31E+00	24,26/08/03	(306750, 6184250, 0.0)
59	4.25E+00	24,17/07/03	(306500, 6184250, 0.0)
60	4.15E+00	24,08/12/03	(306500, 6184250, 0.0)
61	4.07E+00	24,03/09/03	(306750, 6184250, 0.0)
62	4.00E+00	24,19/07/03	(306500, 6184250, 0.0)
63	3.92E+00	24,24/03/03	(306500, 6184250, 0.0)
64	3.91E+00	24,08/06/03	(306500, 6184250, 0.0)
65	3.91E+00	24,15/01/03	(306250, 6184000, 0.0)
66	3.87E+00	24,29/07/03	(306750, 6184250, 0.0)
67	3.83E+00	24,09/08/03	(306500, 6184250, 0.0)
68	3.82E+00	24,29/01/03	(306250, 6184000, 0.0)
69	3.81E+00	24,30/01/03	(306250, 6184000, 0.0)

70	3.81E+00	24,27/04/03	(306250, 6184000,	0.0)
71	3.79E+00	24,11/04/03	(306500, 6184250,	0.0)
72	3.79E+00	24,23/06/03	(306500, 6184250,	0.0)
73	3.78E+00	24,02/10/03	(306500, 6184250,	0.0)
74	3.78E+00	24,11/01/03	(306500, 6184250,	0.0)
75	3.77E+00	24,09/02/03	(306250, 6184000,	0.0)
76	3.75E+00	24,15/08/03	(306500, 6184250,	0.0)
77	3.73E+00	24,20/01/03	(306250, 6184000,	0.0)
78	3.72E+00	24,02/11/03	(306500, 6184250,	0.0)
79	3.71E+00	24,01/09/03	(306500, 6184250,	0.0)
80	3.67E+00	24,17/12/03	(306500, 6184000,	0.0)
81	3.64E+00	24,10/05/03	(306500, 6184250,	0.0)
82	3.62E+00	24,27/08/03	(306750, 6184250,	0.0)
83	3.60E+00	24,29/11/03	(306250, 6184000,	0.0)
84	3.57E+00	24,27/11/03	(306500, 6184250,	0.0)
85	3.55E+00	24,06/07/03	(306750, 6184250,	0.0)
86	3.53E+00	24,06/02/03	(306250, 6184000,	0.0)
87	3.50E+00	24,06/05/03	(306500, 6184250,	0.0)
88	3.50E+00	24,15/05/03	(306500, 6184250,	0.0)
89	3.44E+00	24,22/12/03	(306750, 6184250,	0.0)
90	3.41E+00	24,07/08/03	(306750, 6184250,	0.0)
91	3.41E+00	24,30/10/03	(306750, 6184250,	0.0)
92	3.40E+00	24,19/03/03	(306500, 6184000,	0.0)
93	3.40E+00	24,04/11/03	(306250, 6184000,	0.0)
94	3.39E+00	24,02/09/03	(306750, 6184250,	0.0)
95	3.39E+00	24,21/02/03	(306250, 6184000,	0.0)
96	3.39E+00	24,29/10/03	(306500, 6184250,	0.0)
97	3.22E+00	24,19/02/03	(306500, 6184250,	0.0)
98	3.22E+00	24,11/08/03	(306500, 6184000,	0.0)
99	3.19E+00	24,25/01/03	(306250, 6184000,	0.0)
100	3.19E+00	24,06/04/03	(306500, 6184250,	0.0)

1 Peak values for the 100 worst cases (in micrograms/m3)
Averaging time = 24 hours; Source group No. 2

Rank	Value	Time Recorded hour,date	Coordinates (* denotes polar)
1	6.80E+00	24,12/01/03	(306250, 6184500, 0.0)
2	5.30E+00	24,17/11/03	(306250, 6184750, 0.0)
3	5.23E+00	24,25/09/03	(307000, 6184000, 0.0)
4	4.73E+00	24,06/12/03	(306250, 6184500, 0.0)
5	4.72E+00	24,05/03/03	(306250, 6184500, 0.0)
6	4.12E+00	24,05/06/03	(307000, 6184000, 0.0)
7	4.07E+00	24,14/09/03	(307000, 6184000, 0.0)
8	3.92E+00	24,02/02/03	(306000, 6184250, 0.0)
9	3.25E+00	24,19/01/03	(306250, 6184500, 0.0)
10	3.07E+00	24,28/01/03	(306250, 6184500, 0.0)
11	3.03E+00	24,05/01/03	(305750, 6184250, 0.0)
12	2.91E+00	24,11/01/03	(306250, 6184500, 0.0)
13	2.82E+00	24,18/11/03	(306250, 6184750, 0.0)
14	2.73E+00	24,22/01/03	(306250, 6184500, 0.0)
15	2.70E+00	24,26/12/03	(306000, 6184500, 0.0)
16	2.69E+00	24,07/12/03	(306250, 6184500, 0.0)
17	2.41E+00	24,19/05/03	(307250, 6183750, 0.0)
18	2.40E+00	24,30/08/03	(307000, 6183750, 0.0)
19	2.29E+00	24,23/12/03	(306000, 6184500, 0.0)
20	2.28E+00	24,18/02/03	(306000, 6184500, 0.0)
21	2.27E+00	24,16/10/03	(306250, 6184500, 0.0)
22	2.24E+00	24,23/02/03	(306000, 6184000, 0.0)
23	2.21E+00	24,24/03/03	(306250, 6184500, 0.0)
24	2.19E+00	24,31/10/03	(307000, 6184000, 0.0)
25	2.18E+00	24,06/04/03	(306250, 6184500, 0.0)
26	2.16E+00	24,14/12/03	(303750, 6184000, 0.0)
27	2.13E+00	24,24/09/03	(307250, 6184000, 0.0)
28	2.07E+00	24,30/03/03	(306250, 6184500, 0.0)
29	2.07E+00	24,08/12/03	(306250, 6184500, 0.0)
30	2.04E+00	24,05/12/03	(306250, 6184750, 0.0)
31	2.04E+00	24,14/02/03	(306250, 6184750, 0.0)
32	2.02E+00	24,22/10/03	(306250, 6184750, 0.0)
33	2.02E+00	24,13/12/03	(306000, 6184500, 0.0)
34	2.02E+00	24,05/08/03	(306750, 6183750, 0.0)
35	2.01E+00	24,12/12/03	(307000, 6183750, 0.0)
36	2.01E+00	24,01/11/03	(307750, 6184250, 0.0)
37	1.99E+00	24,22/12/03	(307500, 6184000, 0.0)
38	1.90E+00	24,08/02/03	(306250, 6184750, 0.0)
39	1.90E+00	24,19/02/03	(306250, 6184250, 0.0)
40	1.88E+00	24,03/03/03	(306250, 6184500, 0.0)

41	1.86E+00	24,22/03/03	(306250, 6184750,	0.0)
42	1.86E+00	24,01/02/03	(305750, 6184500,	0.0)
43	1.84E+00	24,21/12/03	(306250, 6184500,	0.0)
44	1.80E+00	24,22/07/03	(307000, 6183500,	0.0)
45	1.79E+00	24,12/11/03	(306000, 6184500,	0.0)
46	1.77E+00	24,27/01/03	(306250, 6185000,	0.0)
47	1.74E+00	24,21/09/03	(307000, 6183750,	0.0)
48	1.73E+00	24,07/09/03	(306250, 6184500,	0.0)
49	1.71E+00	24,13/02/03	(306250, 6184500,	0.0)
50	1.69E+00	24,21/01/03	(307000, 6183500,	0.0)
51	1.69E+00	24,30/04/03	(306250, 6184500,	0.0)
52	1.68E+00	24,29/07/03	(307500, 6184000,	0.0)
53	1.68E+00	24,21/02/03	(306250, 6183000,	0.0)
54	1.68E+00	24,16/02/03	(307000, 6183750,	0.0)
55	1.65E+00	24,09/01/03	(306250, 6184750,	0.0)
56	1.65E+00	24,07/01/03	(306250, 6183000,	0.0)
57	1.64E+00	24,11/11/03	(306250, 6184500,	0.0)
58	1.64E+00	24,07/07/03	(308000, 6182750,	0.0)
59	1.63E+00	24,25/07/03	(307750, 6183750,	0.0)
60	1.54E+00	24,02/04/03	(307500, 6182750,	0.0)
61	1.52E+00	24,12/02/03	(307000, 6183500,	0.0)
62	1.52E+00	24,04/01/03	(305750, 6184250,	0.0)
63	1.51E+00	24,31/08/03	(307500, 6184000,	0.0)
64	1.49E+00	24,05/02/03	(307000, 6183000,	0.0)
65	1.48E+00	24,25/01/03	(307000, 6183500,	0.0)
66	1.47E+00	24,29/01/03	(306000, 6183000,	0.0)
67	1.46E+00	24,19/10/03	(306750, 6183750,	0.0)
68	1.42E+00	24,07/02/03	(307000, 6183000,	0.0)
69	1.39E+00	24,06/08/03	(308000, 6184250,	0.0)
70	1.39E+00	24,18/01/03	(306000, 6184250,	0.0)
71	1.38E+00	24,11/05/03	(306250, 6184500,	0.0)
72	1.37E+00	24,13/06/03	(307500, 6184000,	0.0)
73	1.35E+00	24,22/02/03	(306000, 6184500,	0.0)
74	1.33E+00	24,27/11/03	(306250, 6184750,	0.0)
75	1.29E+00	24,24/07/03	(307500, 6183750,	0.0)
76	1.29E+00	24,15/06/03	(308250, 6184500,	0.0)
77	1.29E+00	24,31/05/03	(308500, 6183000,	0.0)
78	1.28E+00	24,15/02/03	(306000, 6184250,	0.0)
79	1.27E+00	24,30/10/03	(307500, 6184000,	0.0)
80	1.27E+00	24,26/09/03	(307500, 6184000,	0.0)
81	1.27E+00	24,22/05/03	(308000, 6184250,	0.0)
82	1.27E+00	24,03/02/03	(306000, 6184000,	0.0)
83	1.26E+00	24,17/02/03	(306500, 6185500,	0.0)
84	1.26E+00	24,27/10/03	(305750, 6184500,	0.0)
85	1.25E+00	24,03/11/03	(303750, 6183500,	0.0)
86	1.25E+00	24,19/03/03	(307000, 6183000,	0.0)
87	1.25E+00	24,02/01/03	(306250, 6184500,	0.0)
88	1.23E+00	24,15/04/03	(307750, 6184000,	0.0)
89	1.22E+00	24,07/06/03	(307750, 6184250,	0.0)
90	1.22E+00	24,19/12/03	(306250, 6185000,	0.0)
91	1.22E+00	24,04/02/03	(305750, 6183500,	0.0)
92	1.21E+00	24,13/01/03	(306250, 6184250,	0.0)
93	1.20E+00	24,03/04/03	(306750, 6185500,	0.0)
94	1.18E+00	24,26/07/03	(308000, 6184500,	0.0)
95	1.18E+00	24,22/11/03	(306500, 6186000,	0.0)
96	1.18E+00	24,26/11/03	(306500, 6184500,	0.0)
97	1.16E+00	24,18/04/03	(306750, 6185500,	0.0)
98	1.15E+00	24,16/06/03	(308500, 6184500,	0.0)
99	1.15E+00	24,06/01/03	(305750, 6183250,	0.0)
100	1.15E+00	24,30/05/03	(308500, 6183000,	0.0)

1 Peak values for the 100 worst cases (in micrograms/m3)
Averaging time = 24 hours; Source group No. 3

Rank	Value	Time Recorded hour,date	Coordinates (* denotes polar)
1	8.91E+00	24,05/05/03	(306500, 6184250, 0.0)
2	8.32E+00	24,25/05/03	(306500, 6184250, 0.0)
3	8.20E+00	24,24/11/03	(306500, 6184250, 0.0)
4	7.94E+00	24,02/07/03	(306500, 6184250, 0.0)
5	7.55E+00	24,26/05/03	(306500, 6184250, 0.0)
6	7.26E+00	24,12/01/03	(306250, 6184500, 0.0)
7	7.25E+00	24,17/04/03	(306500, 6184250, 0.0)
8	7.11E+00	24,11/10/03	(306500, 6184250, 0.0)
9	7.05E+00	24,25/11/03	(306500, 6184250, 0.0)
10	6.88E+00	24,16/05/03	(306500, 6184250, 0.0)
11	6.79E+00	24,04/04/03	(306500, 6184250, 0.0)

12	6.76E+00	24,31/07/03	(306500,	6184250,	0.0)
13	6.76E+00	24,15/06/03	(306750,	6184250,	0.0)
14	6.75E+00	24,17/11/03	(306250,	6184500,	0.0)
15	6.65E+00	24,01/03/03	(306500,	6184250,	0.0)
16	6.60E+00	24,03/10/03	(306500,	6184250,	0.0)
17	6.52E+00	24,25/09/03	(307000,	6184000,	0.0)
18	6.47E+00	24,16/06/03	(306750,	6184250,	0.0)
19	6.34E+00	24,26/07/03	(306750,	6184250,	0.0)
20	6.31E+00	24,01/07/03	(306500,	6184250,	0.0)
21	6.29E+00	24,09/04/03	(306500,	6184250,	0.0)
22	6.25E+00	24,05/04/03	(306500,	6184250,	0.0)
23	6.20E+00	24,01/08/03	(306500,	6184250,	0.0)
24	6.18E+00	24,16/04/03	(306500,	6184250,	0.0)
25	6.13E+00	24,22/05/03	(306750,	6184250,	0.0)
26	6.10E+00	24,05/03/03	(306250,	6184500,	0.0)
27	5.96E+00	24,03/07/03	(306500,	6184250,	0.0)
28	5.92E+00	24,06/08/03	(306750,	6184250,	0.0)
29	5.81E+00	24,17/05/03	(306500,	6184250,	0.0)
30	5.72E+00	24,01/11/03	(306750,	6184250,	0.0)
31	5.40E+00	24,07/06/03	(306750,	6184250,	0.0)
32	5.39E+00	24,10/08/03	(306500,	6184250,	0.0)
33	5.36E+00	24,20/08/03	(306500,	6184250,	0.0)
34	5.34E+00	24,06/12/03	(306250,	6184500,	0.0)
35	5.24E+00	24,18/04/03	(306500,	6184250,	0.0)
36	5.24E+00	24,26/11/03	(306500,	6184250,	0.0)
37	5.20E+00	24,04/07/03	(306500,	6184250,	0.0)
38	5.18E+00	24,19/05/03	(306750,	6184000,	0.0)
39	5.15E+00	24,22/06/03	(306750,	6184250,	0.0)
40	5.09E+00	24,04/05/03	(306500,	6184250,	0.0)
41	5.08E+00	24,14/09/03	(307000,	6184000,	0.0)
42	5.07E+00	24,04/02/03	(306250,	6184000,	0.0)
43	5.02E+00	24,10/01/03	(306500,	6184250,	0.0)
44	4.98E+00	24,05/06/03	(307000,	6184000,	0.0)
45	4.97E+00	24,19/04/03	(306500,	6184250,	0.0)
46	4.95E+00	24,02/02/03	(306000,	6184250,	0.0)
47	4.93E+00	24,13/09/03	(306750,	6184250,	0.0)
48	4.92E+00	24,09/01/03	(306500,	6184250,	0.0)
49	4.90E+00	24,30/07/03	(306750,	6184250,	0.0)
50	4.90E+00	24,02/03/03	(306500,	6184250,	0.0)
51	4.74E+00	24,25/04/03	(306500,	6184250,	0.0)
52	4.73E+00	24,06/01/03	(306250,	6184000,	0.0)
53	4.70E+00	24,10/04/03	(306500,	6184250,	0.0)
54	4.69E+00	24,08/09/03	(306500,	6184250,	0.0)
55	4.67E+00	24,25/06/03	(306500,	6184250,	0.0)
56	4.65E+00	24,11/01/03	(306500,	6184250,	0.0)
57	4.61E+00	24,23/05/03	(306500,	6184250,	0.0)
58	4.57E+00	24,07/02/03	(306500,	6184000,	0.0)
59	4.56E+00	24,03/04/03	(306500,	6184500,	0.0)
60	4.53E+00	24,14/06/03	(306750,	6184250,	0.0)
61	4.50E+00	24,14/08/03	(306500,	6184250,	0.0)
62	4.49E+00	24,05/02/03	(306500,	6184000,	0.0)
63	4.47E+00	24,23/11/03	(306500,	6184250,	0.0)
64	4.47E+00	24,14/01/03	(306250,	6184000,	0.0)
65	4.46E+00	24,15/04/03	(306750,	6184250,	0.0)
66	4.44E+00	24,27/05/03	(306500,	6184250,	0.0)
67	4.42E+00	24,17/07/03	(306500,	6184250,	0.0)
68	4.35E+00	24,08/12/03	(306500,	6184250,	0.0)
69	4.31E+00	24,26/08/03	(306750,	6184250,	0.0)
70	4.20E+00	24,27/04/03	(306250,	6184000,	0.0)
71	4.16E+00	24,19/01/03	(306250,	6184500,	0.0)
72	4.14E+00	24,05/01/03	(305750,	6184250,	0.0)
73	4.07E+00	24,03/09/03	(306750,	6184250,	0.0)
74	4.07E+00	24,29/01/03	(306250,	6184000,	0.0)
75	4.05E+00	24,24/03/03	(306500,	6184250,	0.0)
76	4.00E+00	24,19/07/03	(306500,	6184250,	0.0)
77	4.00E+00	24,15/01/03	(306250,	6184000,	0.0)
78	4.00E+00	24,09/08/03	(306500,	6184250,	0.0)
79	3.98E+00	24,10/05/03	(306500,	6184250,	0.0)
80	3.98E+00	24,27/11/03	(306500,	6184250,	0.0)
81	3.92E+00	24,23/02/03	(306000,	6184000,	0.0)
82	3.91E+00	24,08/06/03	(306500,	6184250,	0.0)
83	3.87E+00	24,29/07/03	(306750,	6184250,	0.0)
84	3.86E+00	24,09/02/03	(306250,	6184000,	0.0)
85	3.85E+00	24,02/10/03	(306500,	6184250,	0.0)
86	3.84E+00	24,30/01/03	(306250,	6184000,	0.0)
87	3.79E+00	24,11/04/03	(306500,	6184250,	0.0)
88	3.79E+00	24,23/06/03	(306500,	6184250,	0.0)
89	3.78E+00	24,01/09/03	(306500,	6184250,	0.0)
90	3.77E+00	24,27/01/03	(306500,	6184500,	0.0)
91	3.76E+00	24,15/08/03	(306500,	6184250,	0.0)
92	3.74E+00	24,20/01/03	(306250,	6184000,	0.0)

93	3.74E+00	24,06/02/03	(306250, 6184000,	0.0)
94	3.72E+00	24,02/11/03	(306500, 6184250,	0.0)
95	3.71E+00	24,06/05/03	(306500, 6184250,	0.0)
96	3.69E+00	24,21/02/03	(306250, 6183750,	0.0)
97	3.67E+00	24,17/12/03	(306500, 6184000,	0.0)
98	3.63E+00	24,23/03/03	(306500, 6184500,	0.0)
99	3.63E+00	24,27/08/03	(306750, 6184250,	0.0)
100	3.61E+00	24,29/11/03	(306250, 6184000,	0.0)

Appendix D: Top 30 predicted 24-hour average concentrations with and without existing background – Sinter Cooler bed and RDD stack

Table D1: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 1 – existing operations Sinter Cooler Bed

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	0.3	3/11/2003	13.6	13.9	297.0	20/03/2003	297.0	0.0
2	0.3	25/12/2003	80.7	81.0	98.5	30/01/2003	98.3	0.2
3	0.3	3/08/2003	24.1	24.4	92.2	26/01/2003	92.0	0.2
4	0.3	9/12/2003	10.1	10.4	81.0	25/12/2003	80.7	0.3
5	0.3	4/02/2003	20.0	20.2	75.8	19/12/2003	75.6	0.2
6	0.2	31/12/2003	69.8	70.0	70.0	31/12/2003	69.8	0.2
7	0.2	30/01/2003	98.3	98.5	68.2	21/01/2003	68.1	0.1
8	0.2	28/11/2003	13.5	13.7	64.4	23/07/2003	64.4	0.0
9	0.2	24/02/2003	13.2	13.4	63.5	8/01/2003	63.4	0.1
10	0.2	19/12/2003	75.6	75.8	61.1	20/11/2003	61.0	0.1
11	0.2	6/01/2003	53.8	54.0	60.5	29/01/2003	60.4	0.1
12	0.2	26/03/2003	15.4	15.6	59.9	7/01/2003	59.9	0.0
13	0.2	23/02/2003	16.7	16.8	59.5	28/02/2003	59.4	0.1
14	0.2	24/10/2003	35.5	35.7	57.7	18/01/2003	57.6	0.1
15	0.2	14/12/2003	15.4	15.5	55.0	23/08/2003	55.0	0.0
16	0.2	3/02/2003	16.4	16.5	54.8	18/12/2003	54.6	0.2
17	0.2	13/02/2003	25.6	25.7	54.7	19/03/2003	54.6	0.1
18	0.2	18/12/2003	54.6	54.8	54.0	6/01/2003	53.8	0.2
19	0.1	5/11/2003	33.6	33.7	53.9	17/01/2003	53.8	0.1
20	0.1	6/06/2003	31.4	31.5	53.0	17/12/2003	53.0	0.0
21	0.1	1/02/2003	24.3	24.5	51.1	25/01/2003	51.1	0.0
22	0.1	13/01/2003	15.6	15.7	50.9	5/08/2003	50.8	0.1
23	0.1	28/08/2003	14.5	14.7	49.7	15/02/2003	49.7	0.0
24	0.1	1/10/2003	27.3	27.5	47.8	26/12/2003	47.8	0.0
25	0.1	21/10/2003	32.5	32.7	47.5	11/12/2003	47.4	0.1
26	0.1	23/10/2003	19.3	19.5	46.8	5/06/2003	46.8	0.0
27	0.1	26/01/2003	92.0	92.2	46.8	6/11/2003	46.8	0.0
28	0.1	20/07/2003	7.2	7.4	46.3	22/09/2003	46.2	0.1
29	0.1	15/12/2003	21.4	21.5	46.1	24/01/2003	46.1	0.0
30	0.1	20/11/2003	61.0	61.1	44.3	4/11/2003	44.2	0.1

Table D2: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 2 – existing operations Sinter Cooler Bed

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	0.3	3/08/2003	24.1	24.3	297.0	20/03/2003	297.0	0.0
2	0.3	3/11/2003	13.6	13.9	98.4	30/01/2003	98.3	0.1
3	0.2	9/12/2003	10.1	10.3	92.1	26/01/2003	92.0	0.1
4	0.2	25/12/2003	80.7	80.9	80.9	25/12/2003	80.7	0.2
5	0.2	4/02/2003	20.0	20.2	75.7	19/12/2003	75.6	0.1
6	0.2	31/12/2003	69.8	69.9	69.9	31/12/2003	69.8	0.1
7	0.2	14/12/2003	15.4	15.5	68.1	21/01/2003	68.1	0.0
8	0.1	24/02/2003	13.2	13.3	64.4	23/07/2003	64.4	0.0
9	0.1	19/12/2003	75.6	75.7	63.4	8/01/2003	63.4	0.0
10	0.1	23/02/2003	16.7	16.8	61.1	20/11/2003	61.0	0.1
11	0.1	24/10/2003	15.3	15.5	60.4	29/01/2003	60.4	0.0
12	0.1	30/01/2003	98.3	98.4	59.9	7/01/2003	59.9	0.0
13	0.1	26/03/2003	15.4	15.5	59.4	28/02/2003	59.4	0.0
14	0.1	1/02/2003	24.3	24.4	57.7	18/01/2003	57.6	0.1
15	0.1	20/07/2003	7.2	7.3	55.0	23/08/2003	55.0	0.0
16	0.1	13/01/2003	15.6	15.7	54.7	18/12/2003	54.6	0.1
17	0.1	5/11/2003	33.6	33.7	54.7	19/03/2003	54.6	0.1
18	0.1	28/11/2003	13.5	13.6	53.9	6/01/2003	53.8	0.1
19	0.1	13/02/2003	25.6	25.7	53.8	17/01/2003	53.8	0.0
20	0.1	6/01/2003	53.8	53.9	53.0	17/12/2003	53.0	0.0
21	0.1	28/08/2003	14.5	14.6	51.1	25/01/2003	51.1	0.0
22	0.1	3/02/2003	16.4	16.5	50.9	5/08/2003	50.8	0.1
23	0.1	8/05/2003	21.2	21.3	49.7	15/02/2003	49.7	0.0
24	0.1	1/12/2003	43.5	43.6	47.8	26/12/2003	47.8	0.0
25	0.1	18/12/2003	54.6	54.7	47.5	11/12/2003	47.4	0.1
26	0.1	29/03/2003	14.9	15.0	46.8	5/06/2003	46.8	0.0
27	0.1	21/10/2003	32.5	32.6	46.8	6/11/2003	46.8	0.0
28	0.1	6/06/2003	31.4	31.5	46.2	22/09/2003	46.2	0.0
29	0.1	3/01/2003	19.0	19.1	46.1	24/01/2003	46.1	0.0
30	0.1	14/05/2003	15.5	15.6	44.3	4/11/2003	44.2	0.1

Table D3: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 3 – existing operations Sinter Cooler Bed

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	0.3	17/11/2003	19.4	297.0	20/03/2003	297.0	0.0	0.3
2	0.3	6/12/2003	13.6	98.3	30/01/2003	98.3	0.0	0.3
3	0.2	5/03/2003	21.4	92.1	26/01/2003	92.0	0.1	0.2
4	0.2	18/11/2003	16.3	80.7	25/12/2003	80.7	0.0	0.2
5	0.2	7/12/2003	12.6	75.8	19/12/2003	75.6	0.2	0.2
6	0.2	19/12/2003	75.6	69.8	31/12/2003	69.8	0.0	0.2
7	0.2	16/10/2003	17.1	68.2	21/01/2003	68.1	0.1	0.2
8	0.2	20/11/2003	61.0	64.4	23/07/2003	64.4	0.0	0.2
9	0.2	31/05/2003	12.6	63.4	8/01/2003	63.4	0.0	0.2
10	0.2	12/05/2003	8.3	61.2	20/11/2003	61.0	0.2	0.2
11	0.2	20/12/2003	19.0	60.5	29/01/2003	60.4	0.1	0.2
12	0.2	22/01/2003	31.2	59.9	7/01/2003	59.9	0.0	0.2
13	0.2	12/11/2003	21.3	59.6	28/02/2003	59.4	0.2	0.2
14	0.2	27/11/2003	11.6	57.6	18/01/2003	57.6	0.0	0.2
15	0.2	5/12/2003	22.4	55.0	23/08/2003	55.0	0.0	0.2
16	0.2	11/01/2003	11.0	54.7	18/12/2003	54.6	0.1	0.2
17	0.2	26/10/2003	8.7	54.6	19/03/2003	54.6	0.0	0.2
18	0.2	8/02/2003	26.8	53.8	17/01/2003	53.8	0.0	0.2
19	0.2	22/10/2003	13.7	53.8	6/01/2003	53.8	0.0	0.2
20	0.2	28/02/2003	59.4	53.0	17/12/2003	53.0	0.0	0.2
21	0.2	2/12/2003	10.8	51.1	25/01/2003	51.1	0.0	0.2
22	0.1	11/11/2003	17.3	50.8	5/08/2003	50.8	0.0	0.1
23	0.1	19/01/2003	20.0	49.8	15/02/2003	49.7	0.1	0.1
24	0.1	2/01/2003	19.0	47.9	26/12/2003	47.8	0.1	0.1
25	0.1	24/03/2003	12.1	47.5	11/12/2003	47.4	0.1	0.1
26	0.1	28/01/2003	16.6	46.8	6/11/2003	46.8	0.0	0.1
27	0.1	4/12/2003	20.3	46.8	5/06/2003	46.8	0.0	0.1
28	0.1	9/06/2003	11.0	46.2	22/09/2003	46.2	0.0	0.1
29	0.1	22/03/2003	19.9	46.1	24/01/2003	46.1	0.0	0.1
30	0.1	14/02/2003	25.8	44.2	4/11/2003	44.2	0.0	0.1

Table D4: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 4 – existing operations Sinter Cooler Bed

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	0.5	17/11/2003	19.4	20.0	297.0	20/03/2003	297.0	0.0
2	0.4	6/12/2003	13.6	14.0	98.4	30/01/2003	98.3	0.1
3	0.4	22/01/2003	31.2	31.6	92.1	26/01/2003	92.0	0.1
4	0.3	5/12/2003	22.4	22.8	80.7	25/12/2003	80.7	0.0
5	0.3	5/03/2003	21.4	21.7	76.0	19/12/2003	75.6	0.4
6	0.3	8/02/2003	26.8	27.1	69.8	31/12/2003	69.8	0.0
7	0.3	7/12/2003	12.6	12.9	68.3	21/01/2003	68.1	0.2
8	0.3	11/01/2003	11.0	11.3	64.5	23/07/2003	64.4	0.1
9	0.3	27/01/2003	36.8	37.1	63.5	8/01/2003	63.4	0.1
10	0.3	22/10/2003	13.7	14.0	61.1	20/11/2003	61.0	0.1
11	0.3	19/12/2003	75.6	75.9	60.6	29/01/2003	60.4	0.2
12	0.3	16/10/2003	17.1	17.3	59.9	7/01/2003	59.9	0.0
13	0.3	18/11/2003	16.3	16.5	59.6	28/02/2003	59.4	0.2
14	0.3	22/03/2003	19.9	20.2	57.7	18/01/2003	57.6	0.1
15	0.3	19/01/2003	20.0	20.3	55.0	23/08/2003	55.0	0.0
16	0.2	14/02/2003	25.8	26.1	54.8	18/12/2003	54.6	0.2
17	0.2	20/12/2003	19.0	19.2	54.6	19/03/2003	54.6	0.0
18	0.2	28/01/2003	16.6	16.8	53.8	17/01/2003	53.8	0.0
19	0.2	9/01/2003	24.8	25.0	53.8	6/01/2003	53.8	0.0
20	0.2	27/11/2003	11.6	11.8	53.0	17/12/2003	53.0	0.0
21	0.2	26/11/2003	12.2	12.5	51.1	25/01/2003	51.1	0.0
22	0.2	30/03/2003	10.7	10.9	50.8	5/08/2003	50.8	0.0
23	0.2	12/11/2003	21.3	21.5	49.8	15/02/2003	49.7	0.1
24	0.2	10/01/2003	19.6	19.8	48.0	26/12/2003	47.8	0.2
25	0.2	6/10/2003	13.0	13.2	47.7	11/12/2003	47.4	0.3
26	0.2	6/05/2003	20.9	21.1	46.8	6/11/2003	46.8	0.0
27	0.2	26/10/2003	8.7	8.9	46.8	5/06/2003	46.8	0.0
28	0.2	17/02/2003	26.0	26.2	46.2	22/09/2003	46.2	0.0
29	0.2	12/05/2003	8.3	8.4	46.1	24/01/2003	46.1	0.0
30	0.2	7/11/2003	22.7	22.9	44.3	4/11/2003	44.2	0.1

Table D5: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 1 – proposed operations Sinter Cooler Bed

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	0.4	3/11/2003	13.6	14.0	297.0	20/03/2003	297.0	0.0
2	0.3	25/12/2003	80.7	81.0	98.5	30/01/2003	98.3	0.2
3	0.3	3/08/2003	24.1	24.4	92.2	26/01/2003	92.0	0.2
4	0.3	4/02/2003	20.0	20.3	81.0	25/12/2003	80.7	0.3
5	0.3	9/12/2003	10.1	10.4	75.8	19/12/2003	75.6	0.2
6	0.2	28/11/2003	13.5	13.8	70.0	31/12/2003	69.8	0.2
7	0.2	6/01/2003	53.8	54.0	68.2	21/01/2003	68.1	0.1
8	0.2	30/01/2003	98.3	98.5	64.4	23/07/2003	64.4	0.0
9	0.2	24/02/2003	13.2	13.4	63.5	8/01/2003	63.4	0.1
10	0.2	23/02/2003	16.7	16.9	61.1	20/11/2003	61.0	0.1
11	0.2	31/12/2003	69.8	70.0	60.5	29/01/2003	60.4	0.1
12	0.2	19/12/2003	75.6	75.8	59.9	7/01/2003	59.9	0.0
13	0.2	26/03/2003	15.4	15.6	59.5	28/02/2003	59.4	0.1
14	0.2	3/02/2003	16.4	16.6	57.7	18/01/2003	57.6	0.1
15	0.2	24/10/2003	35.5	35.7	55.0	23/08/2003	55.0	0.0
16	0.2	14/12/2003	15.4	15.6	54.8	18/12/2003	54.6	0.2
17	0.2	18/12/2003	54.6	54.8	54.7	19/03/2003	54.6	0.1
18	0.2	13/02/2003	25.6	25.8	54.0	6/01/2003	53.8	0.2
19	0.2	6/06/2003	31.4	31.6	53.9	17/01/2003	53.8	0.1
20	0.2	1/02/2003	24.3	24.5	53.0	17/12/2003	53.0	0.0
21	0.2	13/01/2003	15.6	15.7	51.2	25/01/2003	51.1	0.1
22	0.2	28/08/2003	14.5	14.7	50.9	5/08/2003	50.8	0.1
23	0.2	5/11/2003	33.6	33.7	49.7	15/02/2003	49.7	0.0
24	0.2	1/10/2003	27.3	27.5	47.8	26/12/2003	47.8	0.0
25	0.2	22/02/2003	19.8	19.9	47.5	11/12/2003	47.4	0.1
26	0.2	20/07/2003	7.2	7.4	46.8	5/06/2003	46.8	0.0
27	0.2	14/02/2003	25.8	26.0	46.8	6/11/2003	46.8	0.0
28	0.2	23/10/2003	19.3	19.5	46.3	22/09/2003	46.2	0.1
29	0.1	26/01/2003	92.0	92.2	46.1	24/01/2003	46.1	0.0
30	0.1	15/12/2003	21.4	21.5	44.3	4/11/2003	44.2	0.1

Table D6: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 2 – proposed operations Sinter Cooler Bed

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	0.3	3/11/2003	13.6	14.0	297.0	20/03/2003	297.0	0.3
2	0.3	3/08/2003	24.1	24.4	98.5	30/01/2003	98.3	0.3
3	0.3	9/12/2003	10.1	10.4	92.1	26/01/2003	92.0	0.3
4	0.2	25/12/2003	80.7	80.9	80.9	25/12/2003	80.7	0.2
5	0.2	4/02/2003	20.0	20.2	75.8	19/12/2003	75.6	0.2
6	0.2	14/12/2003	15.4	15.6	69.9	31/12/2003	69.8	0.2
7	0.2	23/02/2003	16.7	16.9	68.1	21/01/2003	68.1	0.2
8	0.2	24/02/2003	13.2	13.4	64.4	23/07/2003	64.4	0.2
9	0.2	31/12/2003	69.8	69.9	63.4	8/01/2003	63.4	0.2
10	0.2	24/10/2003	35.5	35.7	61.1	20/11/2003	61.0	0.2
11	0.2	19/12/2003	75.6	75.8	60.5	29/01/2003	60.4	0.2
12	0.2	1/02/2003	24.3	24.5	59.9	7/01/2003	59.9	0.2
13	0.2	30/01/2003	98.3	98.5	59.4	28/02/2003	59.4	0.2
14	0.2	13/01/2003	15.6	15.7	57.7	18/01/2003	57.6	0.2
15	0.2	20/07/2003	7.2	7.4	55.0	23/08/2003	55.0	0.2
16	0.2	26/03/2003	15.4	15.5	54.8	18/12/2003	54.6	0.2
17	0.1	28/11/2003	13.5	13.7	54.7	19/03/2003	54.6	0.1
18	0.1	3/02/2003	16.4	16.5	53.9	6/01/2003	53.8	0.1
19	0.1	6/01/2003	53.8	53.9	53.9	17/01/2003	53.8	0.1
20	0.1	13/02/2003	25.6	25.7	53.0	17/12/2003	53.0	0.1
21	0.1	18/12/2003	54.6	54.8	51.1	25/01/2003	51.1	0.1
22	0.1	5/11/2003	33.6	33.7	50.9	5/08/2003	50.8	0.1
23	0.1	28/08/2003	14.5	14.6	49.7	15/02/2003	49.7	0.1
24	0.1	6/06/2003	31.4	31.5	47.8	26/12/2003	47.8	0.1
25	0.1	8/05/2003	21.2	21.3	47.5	11/12/2003	47.4	0.1
26	0.1	28/03/2003	11.1	11.2	46.8	5/06/2003	46.8	0.1
27	0.1	3/01/2003	19.0	19.1	46.8	6/11/2003	46.8	0.1
28	0.1	29/03/2003	14.9	15.0	46.2	22/09/2003	46.2	0.1
29	0.1	14/02/2003	25.8	25.9	46.1	24/01/2003	46.1	0.1
30	0.1	21/10/2003	32.5	32.7	44.3	4/11/2003	44.2	0.1

Table D7: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 3 – proposed operations Sinter Cooler Bed

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	0.4	17/11/2003	19.4	19.8	297.00	20/03/2003	297.0	0.0
2	0.3	6/12/2003	13.6	14.0	98.30	30/01/2003	98.3	0.0
3	0.3	5/03/2003	21.4	21.7	92.10	26/01/2003	92.0	0.1
4	0.3	18/11/2003	16.3	16.5	80.70	25/12/2003	80.7	0.0
5	0.3	7/12/2003	12.6	12.9	75.80	19/12/2003	75.6	0.2
6	0.3	19/12/2003	75.6	75.8	69.80	31/12/2003	69.8	0.0
7	0.2	16/10/2003	17.1	17.3	68.20	21/01/2003	68.1	0.1
8	0.2	22/01/2003	31.2	31.4	64.40	23/07/2003	64.4	0.0
9	0.2	20/11/2003	61.0	61.2	63.50	8/01/2003	63.4	0.1
10	0.2	12/05/2003	8.3	8.5	61.20	20/11/2003	61.0	0.2
11	0.2	20/12/2003	19.0	19.2	60.50	29/01/2003	60.4	0.1
12	0.2	5/12/2003	22.4	22.6	59.90	7/01/2003	59.9	0.0
13	0.2	27/11/2003	11.6	11.8	59.60	28/02/2003	59.4	0.2
14	0.2	11/01/2003	11.0	11.2	57.60	18/01/2003	57.6	0.0
15	0.2	12/11/2003	21.3	21.5	55.00	23/08/2003	55.0	0.0
16	0.2	31/05/2003	12.6	12.8	54.70	18/12/2003	54.6	0.1
17	0.2	22/10/2003	13.7	13.9	54.60	19/03/2003	54.6	0.0
18	0.2	8/02/2003	26.8	27.0	53.80	17/01/2003	53.8	0.0
19	0.2	26/10/2003	8.7	8.9	53.80	6/01/2003	53.8	0.0
20	0.2	19/01/2003	20.0	20.2	53.00	17/12/2003	53.0	0.0
21	0.2	28/02/2003	59.4	59.6	51.10	25/01/2003	51.1	0.0
22	0.2	28/01/2003	16.6	16.7	50.80	5/08/2003	50.8	0.0
23	0.2	11/11/2003	17.3	17.4	49.80	15/02/2003	49.7	0.1
24	0.2	22/03/2003	19.9	20.1	47.90	26/12/2003	47.8	0.1
25	0.2	2/01/2003	19.0	19.1	47.50	11/12/2003	47.4	0.1
26	0.2	14/02/2003	25.8	26.0	46.80	6/11/2003	46.8	0.0
27	0.2	9/06/2003	11.0	11.1	46.80	5/06/2003	46.8	0.0
28	0.2	24/03/2003	12.1	12.2	46.20	22/09/2003	46.2	0.0
29	0.1	29/04/2003	11.9	12.0	46.10	24/01/2003	46.1	0.0
30	0.1	30/03/2003	10.7	10.9	44.20	4/11/2003	44.2	0.0

Table D8: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 4 – proposed operations Sinter Cooler Bed

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	0.5	17/11/2003	19.4	19.9	297.0	20/03/2003	297.0	0.0
2	0.3	6/12/2003	13.6	14.0	98.4	30/01/2003	98.3	0.1
3	0.3	22/01/2003	31.2	31.6	92.1	26/01/2003	92.0	0.1
4	0.3	5/12/2003	22.4	22.8	80.7	25/12/2003	80.7	0.0
5	0.3	27/01/2003	36.8	37.1	75.8	19/12/2003	75.6	0.2
6	0.3	5/03/2003	21.4	21.7	69.8	31/12/2003	69.8	0.0
7	0.3	11/01/2003	11.0	11.3	68.3	21/01/2003	68.1	0.2
8	0.3	8/02/2003	26.8	27.1	64.5	23/07/2003	64.4	0.1
9	0.3	7/12/2003	12.6	12.9	63.5	8/01/2003	63.4	0.1
10	0.3	22/10/2003	13.7	14.0	61.0	20/11/2003	61.0	0.0
11	0.3	19/01/2003	20.0	20.3	60.5	29/01/2003	60.4	0.1
12	0.3	22/03/2003	19.9	20.1	59.9	7/01/2003	59.9	0.0
13	0.3	19/12/2003	75.6	75.8	59.5	28/02/2003	59.4	0.1
14	0.2	9/01/2003	24.8	25.0	57.7	18/01/2003	57.6	0.1
15	0.2	14/02/2003	25.8	26.1	55.0	23/08/2003	55.0	0.0
16	0.2	16/10/2003	17.1	17.3	54.7	18/12/2003	54.6	0.1
17	0.2	28/01/2003	16.6	16.8	54.6	19/03/2003	54.6	0.0
18	0.2	18/11/2003	16.3	16.5	53.8	17/01/2003	53.8	0.0
19	0.2	27/11/2003	11.6	11.8	53.8	6/01/2003	53.8	0.0
20	0.2	26/11/2003	12.2	12.5	53.0	17/12/2003	53.0	0.0
21	0.2	10/01/2003	19.6	19.8	51.1	25/01/2003	51.1	0.0
22	0.2	17/02/2003	26.0	26.2	50.8	5/08/2003	50.8	0.0
23	0.2	20/12/2003	19.0	19.2	49.8	15/02/2003	49.7	0.1
24	0.2	30/03/2003	10.7	10.9	47.9	26/12/2003	47.8	0.1
25	0.2	6/05/2003	20.9	21.1	47.6	11/12/2003	47.4	0.2
26	0.2	6/10/2003	13.0	13.2	46.8	6/11/2003	46.8	0.0
27	0.2	26/10/2003	8.7	8.9	46.8	5/06/2003	46.8	0.0
28	0.2	22/11/2003	4.3	4.4	46.2	22/09/2003	46.2	0.0
29	0.2	1/12/2003	43.5	43.7	46.1	24/01/2003	46.1	0.0
30	0.2	7/11/2003	22.7	22.9	44.3	4/11/2003	44.2	0.1

Table D9: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 1 – existing operations Room De-Dusting Stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	0.9	4/02/2003	20.0	20.9	297.0	20/03/2003	297.0	0.0
2	0.9	23/02/2003	16.7	17.5	98.9	30/01/2003	98.3	0.6
3	0.8	3/11/2003	13.6	14.4	92.4	26/01/2003	92.0	0.4
4	0.7	9/12/2003	10.1	10.8	81.3	25/12/2003	80.7	0.6
5	0.7	1/02/2003	24.3	25.0	76.1	19/12/2003	75.6	0.5
6	0.7	14/12/2003	15.4	16.1	70.2	31/12/2003	69.8	0.4
7	0.6	13/01/2003	15.6	16.2	68.2	21/01/2003	68.1	0.1
8	0.6	3/02/2003	16.4	17.0	64.4	23/07/2003	64.4	0.0
9	0.6	24/02/2003	13.2	13.8	63.5	8/01/2003	63.4	0.1
10	0.6	24/10/2003	35.5	36.1	61.2	20/11/2003	61.0	0.2
11	0.6	25/12/2003	80.7	81.3	60.6	29/01/2003	60.4	0.2
12	0.6	6/01/2003	53.8	54.3	59.9	7/01/2003	59.9	0.0
13	0.6	30/01/2003	98.3	98.9	59.5	28/02/2003	59.4	0.1
14	0.5	19/12/2003	75.6	76.1	58.0	18/01/2003	57.6	0.4
15	0.5	14/02/2003	25.8	26.3	55.0	23/08/2003	55.0	0.0
16	0.4	3/08/2003	24.1	24.5	54.9	19/03/2003	54.6	0.3
17	0.4	3/01/2003	19.0	19.4	54.9	18/12/2003	54.6	0.3
18	0.4	13/02/2003	25.6	26.0	54.3	6/01/2003	53.8	0.5
19	0.4	28/11/2003	13.5	13.9	54.0	17/01/2003	53.8	0.2
20	0.4	26/03/2003	15.4	15.8	53.0	17/12/2003	53.0	0.0
21	0.4	18/01/2003	57.6	58.0	51.2	25/01/2003	51.1	0.1
22	0.4	31/12/2003	69.8	70.2	50.9	5/08/2003	50.8	0.1
23	0.4	28/08/2003	14.5	14.9	49.8	15/02/2003	49.7	0.1
24	0.4	15/12/2003	21.4	21.8	47.8	26/12/2003	47.8	0.0
25	0.4	26/01/2003	92.0	92.4	47.6	11/12/2003	47.4	0.2
26	0.4	22/02/2003	19.8	20.1	46.8	6/11/2003	46.8	0.0
27	0.3	5/11/2003	33.6	33.9	46.8	5/06/2003	46.8	0.0
28	0.3	2/02/2003	22.2	22.5	46.4	22/09/2003	46.2	0.2
29	0.3	4/10/2003	13.6	13.9	46.2	24/01/2003	46.1	0.1
30	0.3	29/03/2003	14.9	15.2	44.4	4/11/2003	44.2	0.2

Table D10: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 2 – existing operations Room De-Dusting Stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	0.8	3/11/2003	13.6	14.5	297.0	20/03/2003	297.0	0.0
2	0.8	14/12/2003	15.4	16.1	98.7	30/01/2003	98.3	0.4
3	0.8	23/02/2003	16.7	17.4	92.3	26/01/2003	92.0	0.3
4	0.7	9/12/2003	10.1	10.8	81.1	25/12/2003	80.7	0.4
5	0.7	4/02/2003	20.0	20.7	76.0	19/12/2003	75.6	0.4
6	0.7	1/02/2003	24.3	25.0	70.1	31/12/2003	69.8	0.3
7	0.6	13/01/2003	15.6	16.2	68.2	21/01/2003	68.1	0.1
8	0.6	24/10/2003	15.3	15.9	64.4	23/07/2003	64.4	0.0
9	0.5	24/02/2003	13.2	13.7	63.5	8/01/2003	63.4	0.1
10	0.5	3/08/2003	24.1	24.6	61.2	20/11/2003	61.0	0.2
11	0.5	25/12/2003	80.7	81.1	60.6	29/01/2003	60.4	0.2
12	0.5	3/02/2003	16.4	16.8	59.9	7/01/2003	59.9	0.0
13	0.4	19/12/2003	75.6	76.0	59.5	28/02/2003	59.4	0.1
14	0.4	30/01/2003	98.3	98.7	58.0	18/01/2003	57.6	0.4
15	0.4	28/03/2003	11.1	11.5	55.0	23/08/2003	55.0	0.0
16	0.4	6/01/2003	53.8	54.2	54.8	18/12/2003	54.6	0.2
17	0.4	18/01/2003	57.6	58.0	54.8	19/03/2003	54.6	0.2
18	0.4	31/12/2003	69.8	70.1	54.2	6/01/2003	53.8	0.4
19	0.4	14/02/2003	25.8	26.2	54.0	17/01/2003	53.8	0.2
20	0.4	3/01/2003	19.0	19.4	53.0	17/12/2003	53.0	0.0
21	0.4	28/08/2003	14.5	14.9	51.1	25/01/2003	51.1	0.0
22	0.3	26/03/2003	15.4	15.7	50.9	5/08/2003	50.8	0.1
23	0.3	28/04/2003	16.0	16.3	49.8	15/02/2003	49.7	0.1
24	0.3	8/05/2003	21.2	21.5	47.8	26/12/2003	47.8	0.0
25	0.3	13/02/2003	25.6	25.9	47.6	11/12/2003	47.4	0.2
26	0.3	4/10/2003	13.6	13.9	46.8	6/11/2003	46.8	0.0
27	0.3	28/11/2003	13.5	13.9	46.8	5/06/2003	46.8	0.0
28	0.3	23/04/2003	9.2	9.6	46.3	22/09/2003	46.2	0.1
29	0.3	29/03/2003	14.9	15.2	46.2	24/01/2003	46.1	0.1
30	0.3	5/11/2003	33.6	33.9	44.4	4/11/2003	44.2	0.2

Table D11: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 3 – existing operations Room De-Dusting Stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	1.2	17/11/2003	19.4	20.6	297.0	20/03/2003	297.0	0.0
2	1.0	6/12/2003	13.6	14.6	98.4	30/01/2003	98.3	0.1
3	0.9	5/03/2003	21.4	22.3	92.2	26/01/2003	92.0	0.2
4	0.8	7/12/2003	12.6	13.5	80.8	25/12/2003	80.7	0.1
5	0.8	18/11/2003	16.3	17.1	76.2	19/12/2003	75.6	0.6
6	0.7	16/10/2003	17.1	17.8	69.9	31/12/2003	69.8	0.1
7	0.7	22/01/2003	31.2	31.9	68.3	21/01/2003	68.1	0.2
8	0.7	5/12/2003	22.4	23.1	64.5	23/07/2003	64.4	0.1
9	0.6	12/11/2003	21.3	22.0	63.5	8/01/2003	63.4	0.1
10	0.6	19/12/2003	75.6	76.2	61.4	20/11/2003	61.0	0.4
11	0.6	20/12/2003	19.0	19.5	60.6	29/01/2003	60.4	0.2
12	0.6	8/02/2003	26.8	27.4	59.9	7/01/2003	59.9	0.0
13	0.6	11/01/2003	11.0	11.6	59.9	28/02/2003	59.4	0.5
14	0.5	28/01/2003	16.6	17.1	57.8	18/01/2003	57.6	0.2
15	0.5	11/11/2003	17.3	17.8	55.0	23/08/2003	55.0	0.0
16	0.5	22/10/2003	13.7	14.2	54.8	18/12/2003	54.6	0.2
17	0.5	19/01/2003	20.0	20.6	54.6	19/03/2003	54.6	0.0
18	0.5	12/01/2003	16.5	17.0	53.9	17/01/2003	53.8	0.1
19	0.5	27/01/2003	36.8	37.3	53.8	6/01/2003	53.8	0.0
20	0.5	27/11/2003	11.6	12.1	53.0	17/12/2003	53.0	0.0
21	0.5	2/12/2003	10.8	11.3	51.1	25/01/2003	51.1	0.0
22	0.5	22/03/2003	19.9	20.4	50.8	5/08/2003	50.8	0.0
23	0.5	28/02/2003	59.4	59.9	49.8	15/02/2003	49.7	0.1
24	0.5	14/02/2003	25.8	26.3	48.1	26/12/2003	47.8	0.3
25	0.5	2/01/2003	19.0	19.4	47.7	11/12/2003	47.4	0.3
26	0.4	8/12/2003	11.8	12.2	46.9	6/11/2003	46.8	0.1
27	0.4	24/03/2003	12.1	12.5	46.8	5/06/2003	46.8	0.0
28	0.4	30/03/2003	11.2	11.6	46.2	22/09/2003	46.2	0.0
29	0.4	20/11/2003	61.0	61.4	46.1	24/01/2003	46.1	0.0
30	0.4	17/02/2003	26.0	26.4	44.3	4/11/2003	44.2	0.1

Table D12: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 4 – existing operations Room De-Dusting Stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	2.1	17/11/2003	19.4	21.6	297.0	20/03/2003	297.0	0.0
2	1.6	6/12/2003	13.6	15.3	98.5	30/01/2003	98.3	0.2
3	1.4	5/03/2003	21.4	22.8	92.2	26/01/2003	92.0	0.2
4	1.3	22/01/2003	31.2	32.5	80.7	25/12/2003	80.7	0.0
5	1.3	5/12/2003	22.4	23.7	76.3	19/12/2003	75.6	0.7
6	1.2	18/11/2003	16.3	17.4	69.9	31/12/2003	69.8	0.1
7	1.1	11/01/2003	11.0	12.2	68.6	21/01/2003	68.1	0.5
8	1.1	7/12/2003	12.6	13.8	64.6	23/07/2003	64.4	0.2
9	1.1	8/02/2003	26.8	27.9	63.6	8/01/2003	63.4	0.2
10	1.1	27/01/2003	36.8	37.9	61.1	20/11/2003	61.0	0.1
11	1.0	16/10/2003	17.1	18.1	60.8	29/01/2003	60.4	0.4
12	1.0	19/01/2003	20.0	21.0	59.9	7/01/2003	59.9	0.0
13	1.0	28/01/2003	16.6	17.5	59.9	28/02/2003	59.4	0.5
14	0.9	14/02/2003	25.8	26.8	58.0	18/01/2003	57.6	0.4
15	0.9	22/03/2003	19.9	20.8	55.0	23/08/2003	55.0	0.0
16	0.9	22/10/2003	13.7	14.6	54.8	18/12/2003	54.6	0.2
17	0.8	30/03/2003	10.7	11.5	54.7	19/03/2003	54.6	0.1
18	0.8	11/11/2003	17.3	18.0	53.9	17/01/2003	53.8	0.1
19	0.7	9/01/2003	24.8	25.5	53.8	6/01/2003	53.8	0.0
20	0.7	19/12/2003	75.6	76.3	53.0	17/12/2003	53.0	0.0
21	0.7	17/02/2003	26.0	26.7	51.1	25/01/2003	51.1	0.0
22	0.7	12/11/2003	21.3	22.0	50.8	5/08/2003	50.8	0.0
23	0.7	12/01/2003	16.5	17.2	49.9	15/02/2003	49.7	0.2
24	0.7	26/11/2003	12.2	12.9	48.3	26/12/2003	47.8	0.5
25	0.7	27/11/2003	11.6	12.3	47.8	11/12/2003	47.4	0.4
26	0.6	8/12/2003	11.8	12.4	46.9	6/11/2003	46.8	0.1
27	0.6	10/01/2003	19.6	20.2	46.8	5/06/2003	46.8	0.0
28	0.6	7/11/2003	22.7	23.3	46.2	22/09/2003	46.2	0.0
29	0.6	20/12/2003	19.0	19.5	46.1	24/01/2003	46.1	0.0
30	0.6	1/05/2003	11.9	12.4	44.3	4/11/2003	44.2	0.1

Table D13: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 1 – proposed operations Room De-Dusting Stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	1.0	4/02/2003	20.0	21.0	297.0	20/03/2003	297.0	0.0
2	1.0	23/02/2003	16.7	17.6	98.9	30/01/2003	98.3	0.6
3	0.9	9/12/2003	10.1	11.0	92.5	26/01/2003	92.0	0.5
4	0.9	3/11/2003	13.6	14.5	81.4	25/12/2003	80.7	0.7
5	0.8	14/12/2003	15.4	16.2	76.2	19/12/2003	75.6	0.6
6	0.8	1/02/2003	24.3	25.1	70.3	31/12/2003	69.8	0.5
7	0.7	13/01/2003	15.6	16.3	68.2	21/01/2003	68.1	0.1
8	0.7	25/12/2003	80.7	81.4	64.4	23/07/2003	64.4	0.0
9	0.7	24/10/2003	35.5	36.2	63.5	8/01/2003	63.4	0.1
10	0.7	24/02/2003	13.2	13.9	61.3	20/11/2003	61.0	0.3
11	0.7	3/02/2003	16.4	17.0	60.6	29/01/2003	60.4	0.2
12	0.6	30/01/2003	98.3	98.9	59.9	7/01/2003	59.9	0.0
13	0.6	19/12/2003	75.6	76.2	59.5	28/02/2003	59.4	0.1
14	0.6	6/01/2003	53.8	54.4	58.1	18/01/2003	57.6	0.5
15	0.5	3/08/2003	24.1	24.6	55.0	23/08/2003	55.0	0.0
16	0.5	31/12/2003	69.8	70.3	54.9	19/03/2003	54.6	0.3
17	0.5	14/02/2003	25.8	26.3	54.9	18/12/2003	54.6	0.3
18	0.5	3/01/2003	19.0	19.5	54.4	6/01/2003	53.8	0.6
19	0.5	26/03/2003	15.4	15.9	54.0	17/01/2003	53.8	0.2
20	0.5	13/02/2003	25.6	26.1	53.0	17/12/2003	53.0	0.0
21	0.5	28/11/2003	13.5	14.0	51.2	25/01/2003	51.1	0.1
22	0.5	18/01/2003	57.6	58.1	50.9	5/08/2003	50.8	0.1
23	0.5	28/08/2003	14.5	15.0	49.8	15/02/2003	49.7	0.1
24	0.4	15/12/2003	21.4	21.8	47.8	26/12/2003	47.8	0.0
25	0.4	26/01/2003	92.0	92.5	47.6	11/12/2003	47.4	0.2
26	0.4	5/11/2003	33.6	34.0	46.8	6/11/2003	46.8	0.0
27	0.4	22/02/2003	19.8	20.2	46.8	5/06/2003	46.8	0.0
28	0.4	29/03/2003	14.9	15.3	46.4	22/09/2003	46.2	0.2
29	0.4	14/05/2003	15.5	15.9	46.2	24/01/2003	46.1	0.1
30	0.4	8/05/2003	21.2	21.6	44.4	4/11/2003	44.2	0.2

Table D14: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 2 – proposed operations Room De-Dusting Stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	0.9	3/11/2003	13.6	14.5	297.0	20/03/2003	297.0	0.0
2	0.9	9/12/2003	10.1	10.9	98.8	30/01/2003	98.3	0.5
3	0.8	14/12/2003	15.4	16.2	92.4	26/01/2003	92.0	0.4
4	0.8	23/02/2003	16.7	17.5	81.2	25/12/2003	80.7	0.5
5	0.8	4/02/2003	20.0	20.8	76.1	19/12/2003	75.6	0.5
6	0.7	1/02/2003	24.3	25.0	70.2	31/12/2003	69.8	0.4
7	0.6	13/01/2003	15.6	16.2	68.2	21/01/2003	68.1	0.1
8	0.6	24/10/2003	35.5	36.1	64.4	23/07/2003	64.4	0.0
9	0.6	3/08/2003	24.1	24.7	63.5	8/01/2003	63.4	0.1
10	0.6	24/02/2003	13.2	13.7	61.2	20/11/2003	61.0	0.2
11	0.5	25/12/2003	80.7	81.2	60.6	29/01/2003	60.4	0.2
12	0.5	19/12/2003	75.6	76.1	59.9	7/01/2003	59.9	0.0
13	0.5	3/02/2003	16.4	16.9	59.5	28/02/2003	59.4	0.1
14	0.5	30/01/2003	98.3	98.8	58.0	18/01/2003	57.6	0.4
15	0.5	31/12/2003	69.8	70.2	55.1	23/08/2003	55.0	0.1
16	0.4	28/03/2003	11.1	11.5	54.9	18/12/2003	54.6	0.3
17	0.4	18/01/2003	57.6	58.0	54.8	19/03/2003	54.6	0.2
18	0.4	6/01/2003	53.8	54.2	54.2	6/01/2003	53.8	0.4
19	0.4	3/01/2003	19.0	19.4	54.0	17/01/2003	53.8	0.2
20	0.4	28/08/2003	25.8	26.2	53.0	17/12/2003	53.0	0.0
21	0.4	14/02/2003	14.5	14.9	51.1	25/01/2003	51.1	0.0
22	0.4	26/03/2003	15.4	15.8	50.9	5/08/2003	50.8	0.1
23	0.4	8/05/2003	21.2	21.6	49.8	15/02/2003	49.7	0.1
24	0.4	28/04/2003	16.0	16.3	47.8	26/12/2003	47.8	0.0
25	0.4	4/10/2003	13.6	13.9	47.6	11/12/2003	47.4	0.2
26	0.4	23/04/2003	9.2	9.6	46.8	6/11/2003	46.8	0.0
27	0.4	29/03/2003	14.9	15.3	46.8	5/06/2003	46.8	0.0
28	0.4	5/11/2003	33.6	33.9	46.4	22/09/2003	46.2	0.2
29	0.4	14/05/2003	15.5	15.9	46.2	24/01/2003	46.1	0.1
30	0.4	1/12/2003	43.5	43.9	44.4	4/11/2003	44.2	0.2

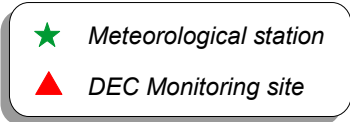
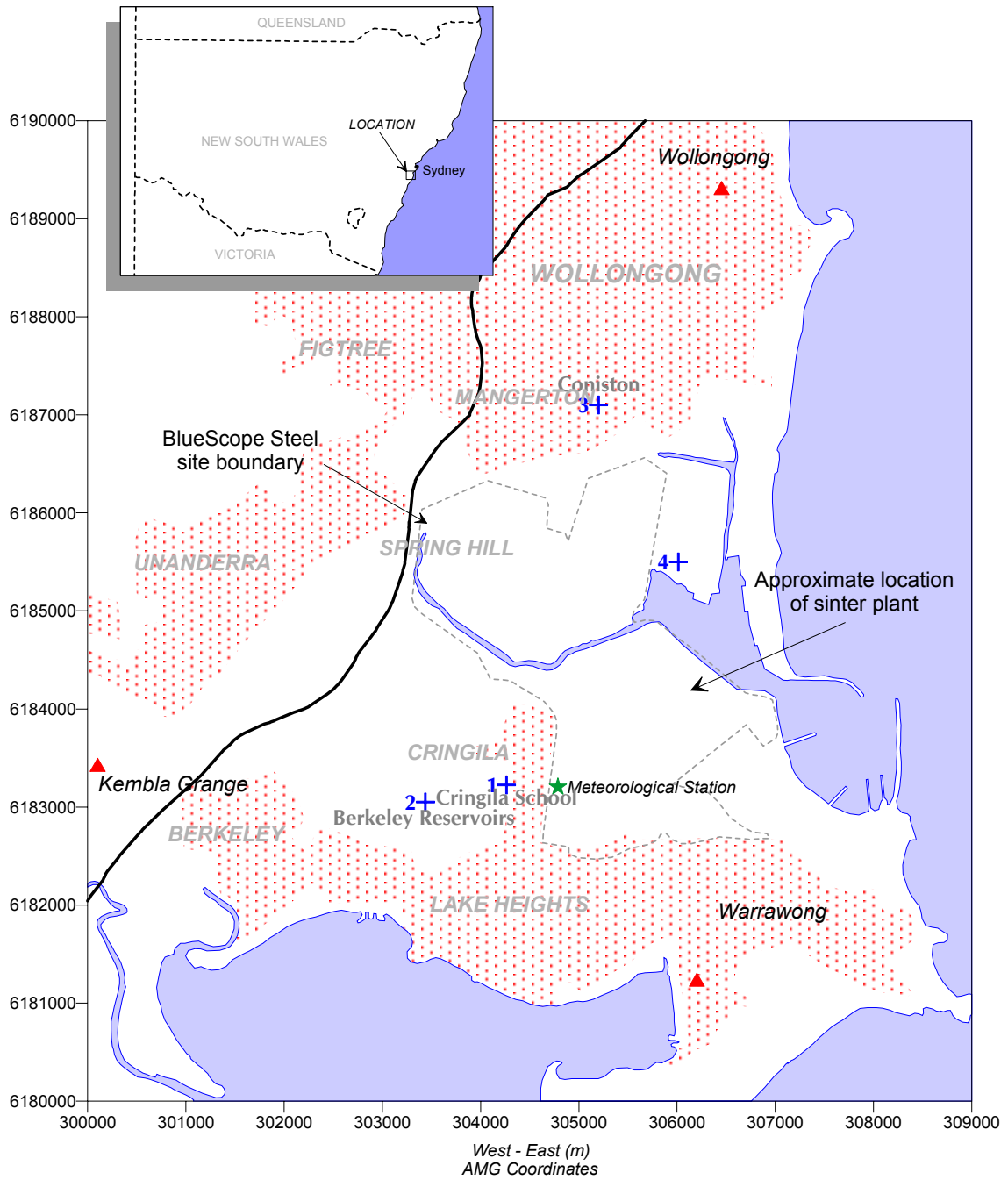
Table D15: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 3 – proposed operations Room De-Dusting Stack

Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	1.2	17/11/2003	19.4	20.7	297.0	20/03/2003	297.0	0.0
2	1.1	6/12/2003	13.6	14.7	98.4	30/01/2003	98.3	0.1
3	0.9	7/12/2003	12.6	13.6	92.2	26/01/2003	92.0	0.2
4	0.9	5/03/2003	21.4	22.3	80.8	25/12/2003	80.7	0.1
5	0.9	18/11/2003	16.3	17.1	76.3	19/12/2003	75.6	0.7
6	0.8	16/10/2003	17.1	17.9	69.9	31/12/2003	69.8	0.1
7	0.8	19/12/2003	75.6	76.3	68.3	21/01/2003	68.1	0.2
8	0.7	22/01/2003	31.2	32.0	64.5	23/07/2003	64.4	0.1
9	0.7	5/12/2003	22.4	23.1	63.5	8/01/2003	63.4	0.1
10	0.7	12/11/2003	21.3	22.1	61.5	20/11/2003	61.0	0.5
11	0.7	20/12/2003	19.0	19.6	60.6	29/01/2003	60.4	0.2
12	0.6	2/12/2003	10.8	11.4	59.9	28/02/2003	59.4	0.5
13	0.6	8/02/2003	26.8	27.4	59.9	7/01/2003	59.9	0.0
14	0.6	11/11/2003	17.3	17.8	57.8	18/01/2003	57.6	0.2
15	0.6	28/01/2003	16.6	17.1	55.0	23/08/2003	55.0	0.0
16	0.6	11/01/2003	11.0	11.6	54.8	18/12/2003	54.6	0.2
17	0.5	27/11/2003	11.6	12.2	54.6	19/03/2003	54.6	0.0
18	0.5	22/10/2003	13.7	14.2	53.9	17/01/2003	53.8	0.1
19	0.5	19/01/2003	20.0	20.6	53.8	6/01/2003	53.8	0.0
20	0.5	12/01/2003	16.5	17.0	53.0	17/12/2003	53.0	0.0
21	0.5	28/02/2003	59.4	59.9	51.1	25/01/2003	51.1	0.0
22	0.5	27/01/2003	36.8	37.3	50.8	5/08/2003	50.8	0.0
23	0.5	20/11/2003	61.0	61.5	49.8	15/02/2003	49.7	0.1
24	0.5	2/01/2003	19.0	19.5	48.1	26/12/2003	47.8	0.3
25	0.5	22/03/2003	19.9	20.4	47.7	11/12/2003	47.4	0.3
26	0.5	8/12/2003	11.8	12.3	47.0	6/11/2003	46.8	0.2
27	0.5	21/11/2003	15.6	16.1	46.8	5/06/2003	46.8	0.0
28	0.5	12/05/2003	8.3	8.8	46.3	22/09/2003	46.2	0.1
29	0.5	24/03/2003	12.1	12.5	46.1	24/01/2003	46.1	0.0
30	0.5	14/02/2003	25.8	26.3	44.3	4/11/2003	44.2	0.1

Table D16: Top 30 predicted 24-hour average concentrations with and without existing background at Receptor 4 – proposed operations Room De-Dusting Stack

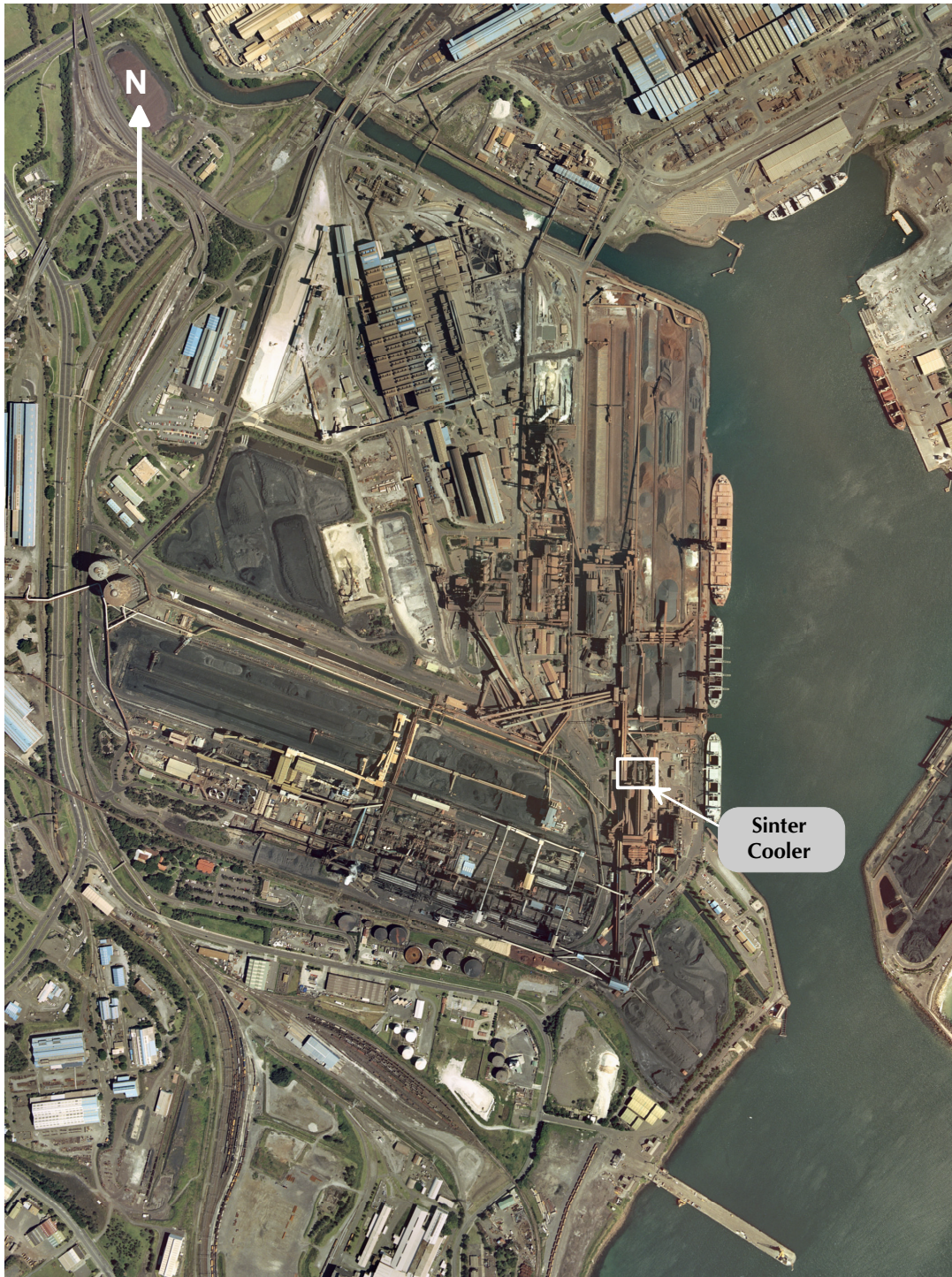
Rank	Sources alone				Sources plus background			
	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background concentration at time ($\mu\text{g}/\text{m}^3$)	Cumulative concentration ($\mu\text{g}/\text{m}^3$)	Predicted concentration at receptor ($\mu\text{g}/\text{m}^3$)	Date of occurrence	Background at time ($\mu\text{g}/\text{m}^3$)	Source contribution ($\mu\text{g}/\text{m}^3$)
1	2.4	17/11/2003	19.4	21.8	297.0	20/03/2003	297.0	0.0
2	1.9	6/12/2003	13.6	15.5	98.5	30/01/2003	98.3	0.2
3	1.6	5/03/2003	21.4	23.0	92.3	26/01/2003	92.0	0.3
4	1.5	5/12/2003	22.4	23.9	80.8	25/12/2003	80.7	0.1
5	1.4	22/01/2003	31.2	32.7	76.6	19/12/2003	75.6	1.0
6	1.4	7/12/2003	12.6	14.1	69.9	31/12/2003	69.8	0.1
7	1.4	18/11/2003	16.3	17.6	68.6	21/01/2003	68.1	0.5
8	1.3	8/02/2003	26.8	28.1	64.6	23/07/2003	64.4	0.2
9	1.2	16/10/2003	17.1	18.3	63.6	8/01/2003	63.4	0.2
10	1.2	11/01/2003	11.0	12.2	61.2	20/11/2003	61.0	0.2
11	1.2	27/01/2003	36.8	38.0	60.8	29/01/2003	60.4	0.4
12	1.1	19/01/2003	20.0	21.1	60.0	28/02/2003	59.4	0.6
13	1.1	28/01/2003	16.6	17.7	59.9	7/01/2003	59.9	0.0
14	1.1	14/02/2003	25.8	26.9	58.0	18/01/2003	57.6	0.4
15	1.1	22/03/2003	19.9	20.9	55.0	23/08/2003	55.0	0.0
16	1.0	22/10/2003	13.7	14.7	54.8	18/12/2003	54.6	0.2
17	1.0	19/12/2003	75.6	76.6	54.7	19/03/2003	54.6	0.1
18	1.0	30/03/2003	10.7	11.7	53.9	17/01/2003	53.8	0.1
19	1.0	12/11/2003	21.3	22.3	53.8	6/01/2003	53.8	0.0
20	0.9	11/11/2003	17.3	18.2	53.0	17/12/2003	53.0	0.0
21	0.9	17/02/2003	26.0	26.9	51.1	25/01/2003	51.1	0.0
22	0.8	8/12/2003	11.8	12.6	50.8	5/08/2003	50.8	0.0
23	0.8	27/11/2003	11.6	12.4	49.9	15/02/2003	49.7	0.2
24	0.8	9/01/2003	24.8	25.6	48.3	26/12/2003	47.8	0.5
25	0.8	20/12/2003	19.0	19.7	47.9	11/12/2003	47.4	0.5
26	0.8	12/01/2003	16.5	17.3	46.9	6/11/2003	46.8	0.1
27	0.7	26/11/2003	12.2	13.0	46.8	5/06/2003	46.8	0.0
28	0.7	7/11/2003	22.7	23.4	46.2	22/09/2003	46.2	0.0
29	0.7	7/09/2003	17.3	18.0	46.1	24/01/2003	46.1	0.0
30	0.7	10/01/2003	19.6	20.3	44.4	4/11/2003	44.2	0.2

FIGURES



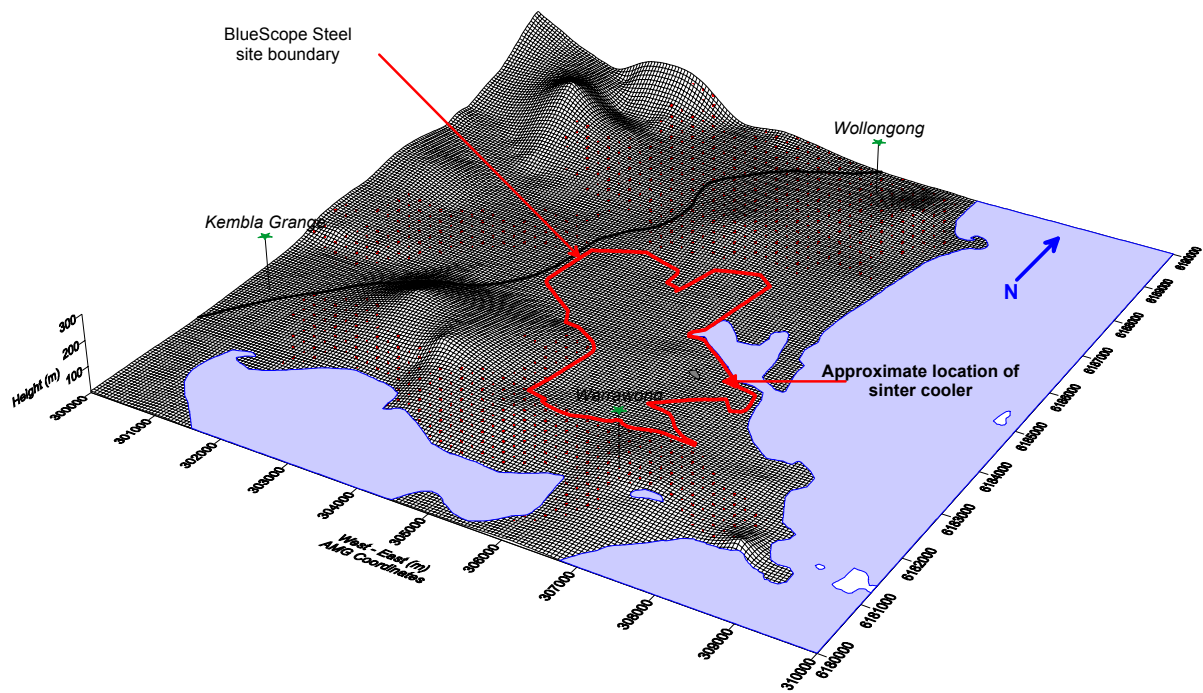
Location of study area, discrete receptors, meteorological and monitoring stations

Figure 1



Location of sinter cooler

Figure 2



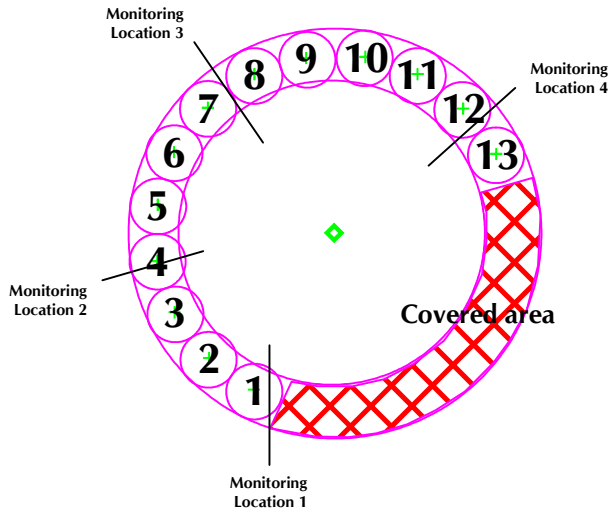
Pseudo 3-Dimensional Representation of Local Area

Figure 3

Annual and Seasonal Windroses for Port Kembla (2003)



Figure 4



Sinter Cooler – existing configuration and monitoring locations

Figure 5

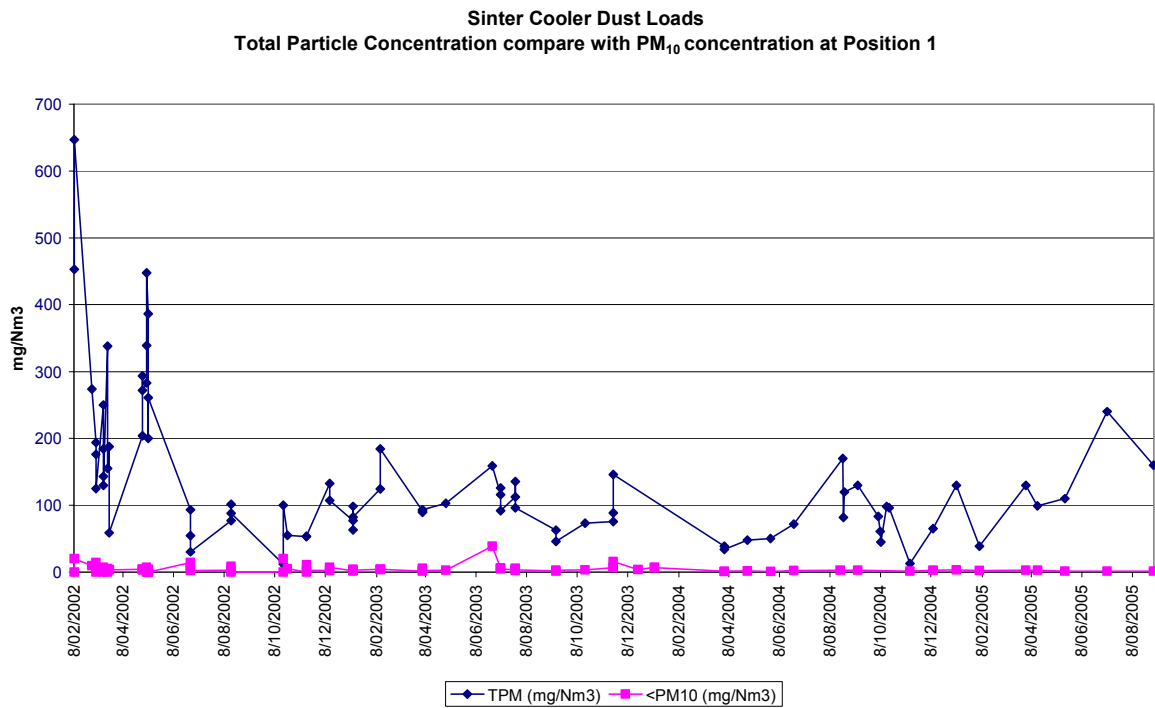
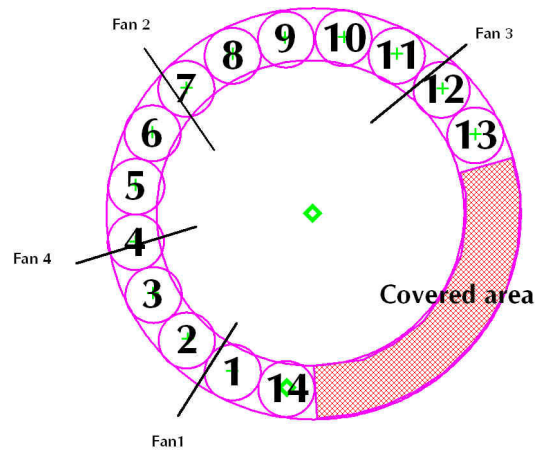
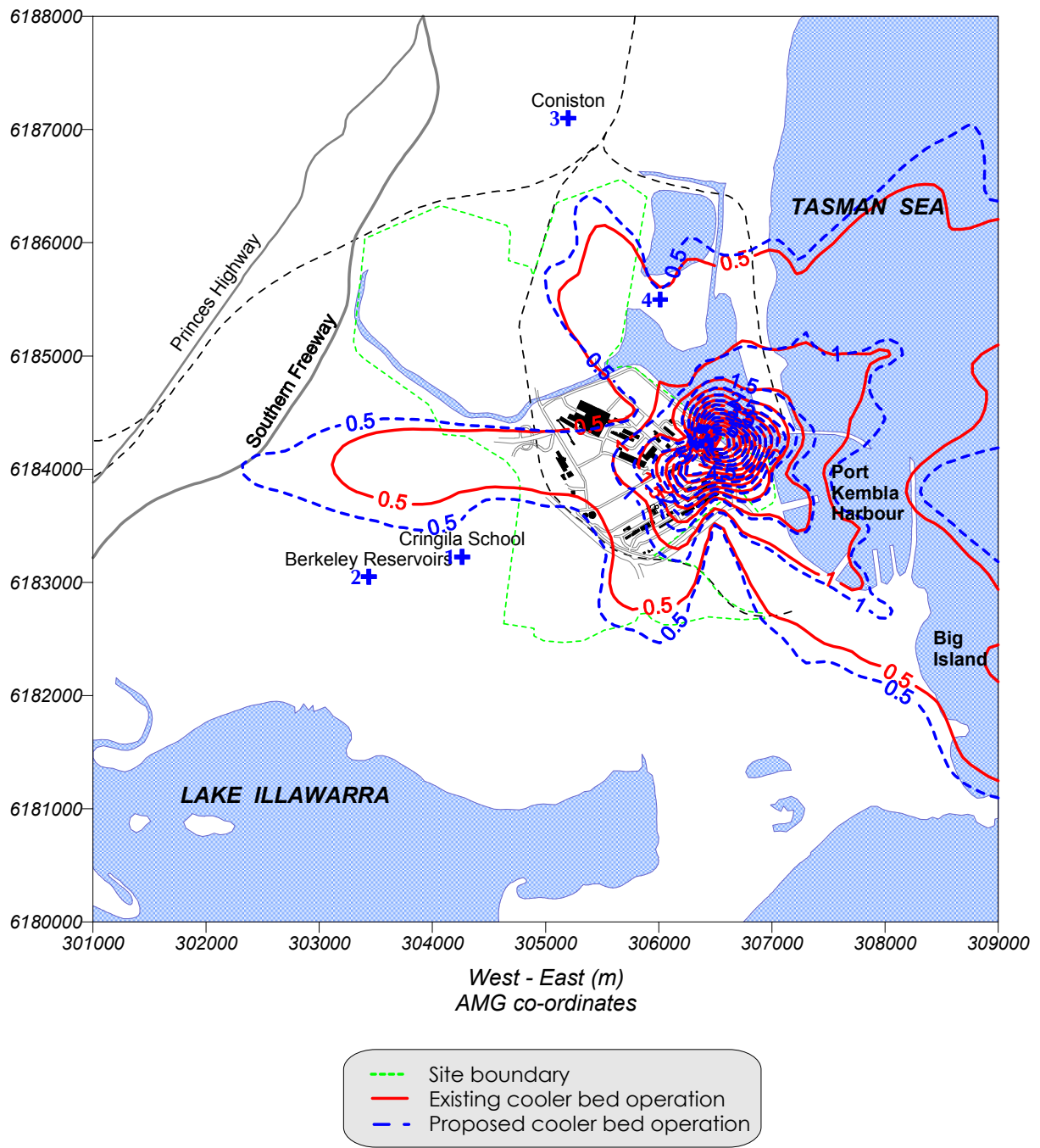


Figure 6



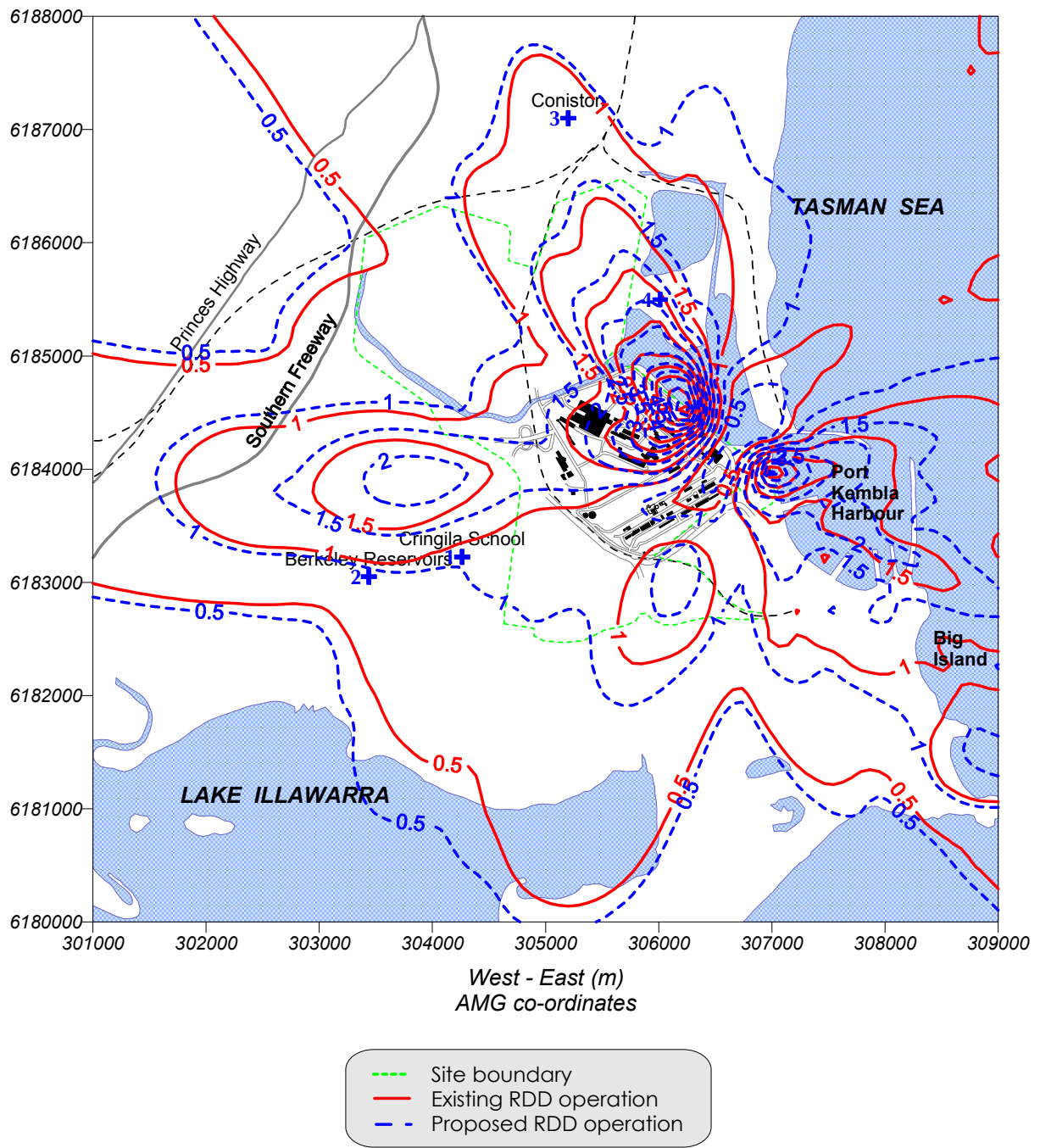
Sinter Cooler – proposed configuration and fan locations

Figure 7



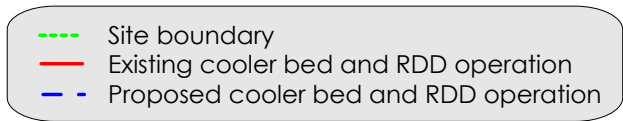
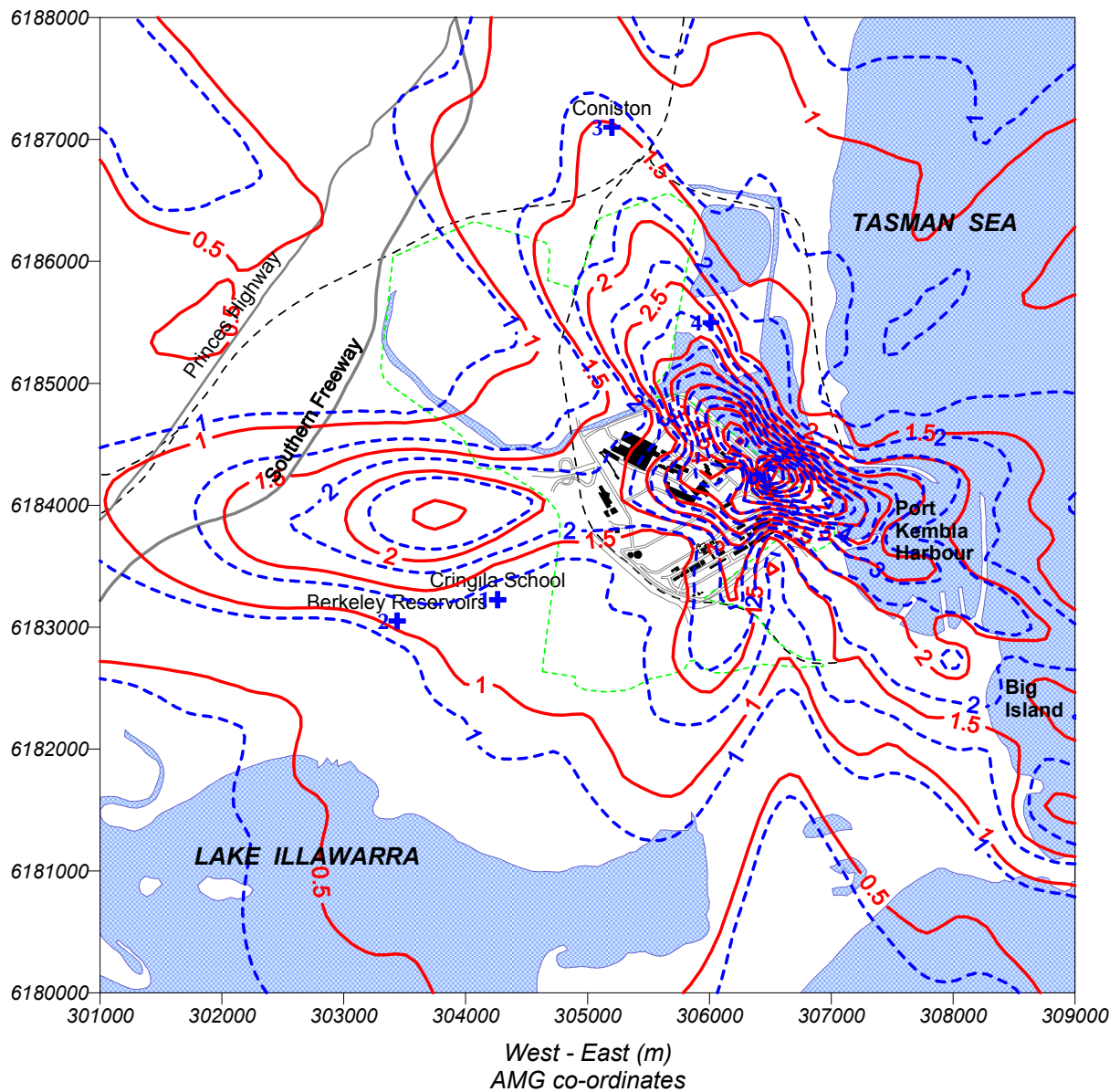
**Predicted maximum 24-hour average PM₁₀ concentrations
due to cooler bed emissions (µg/m³)**

Figure 8



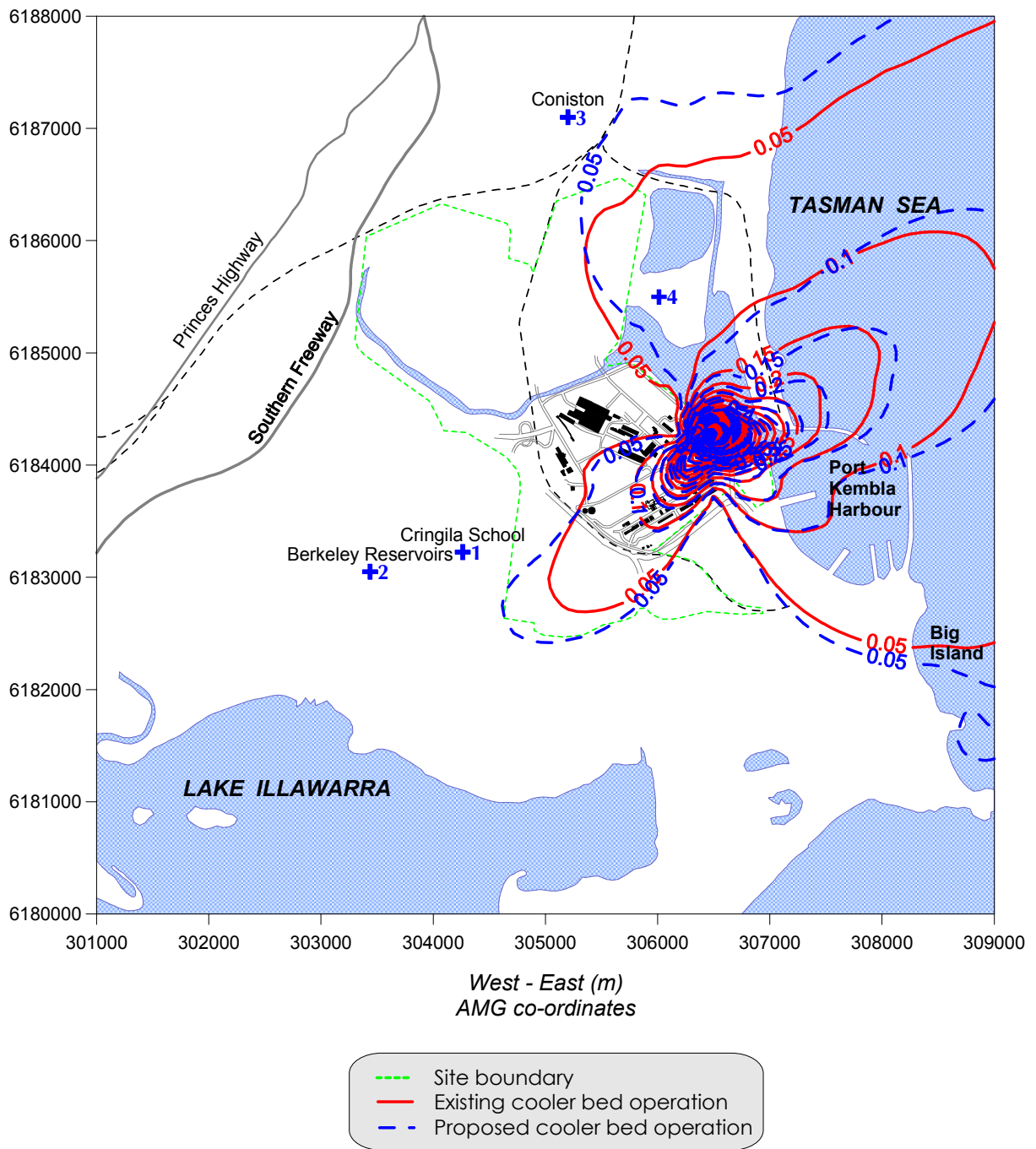
**Predicted maximum 24-hour average PM₁₀ concentrations
due to RDD stack emissions (µg/m³)**

Figure 9



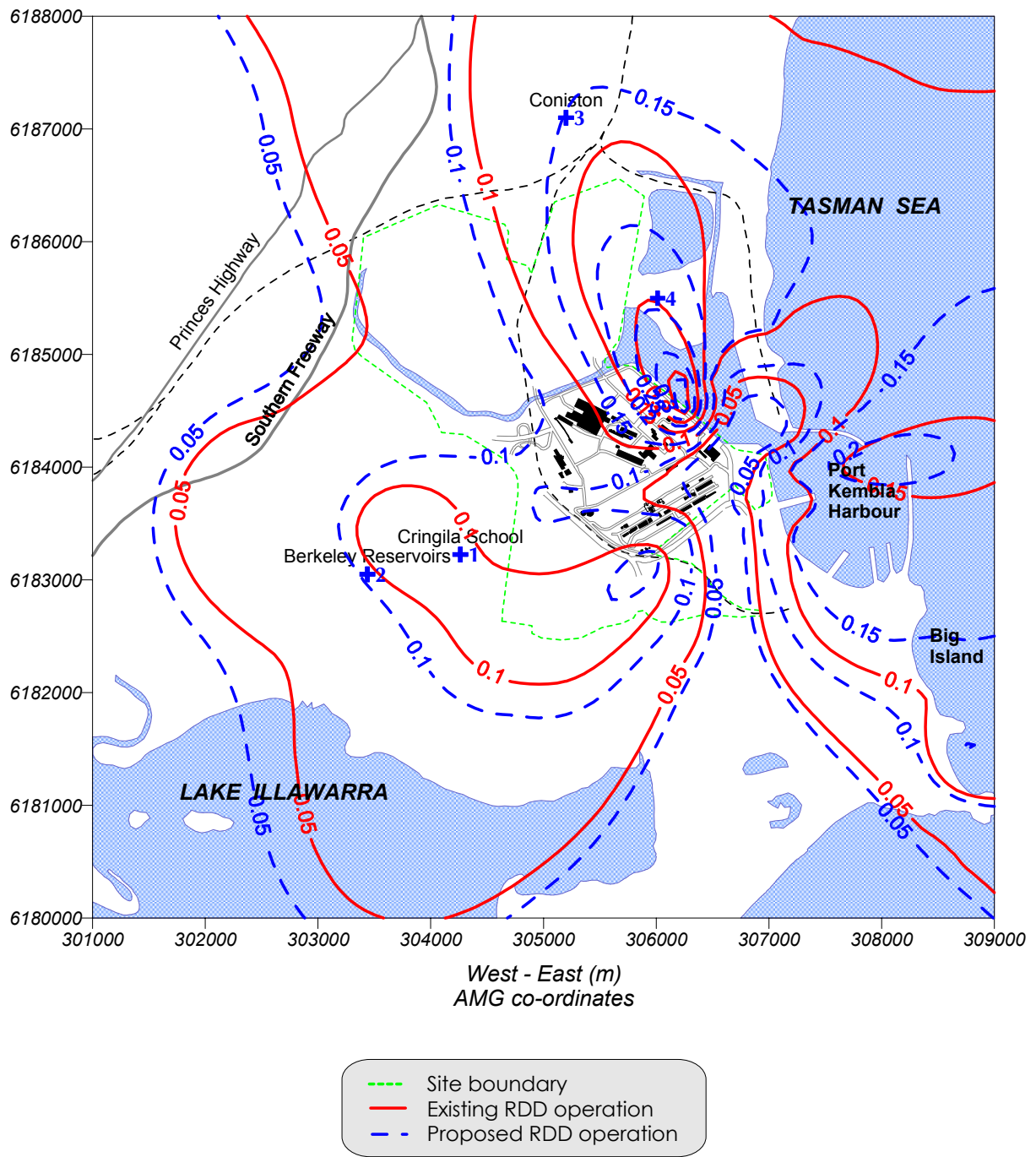
**Predicted maximum 24-hour average PM₁₀ concentrations
due to cooler bed and RDD stack emissions (µg/m³)**

Figure 10



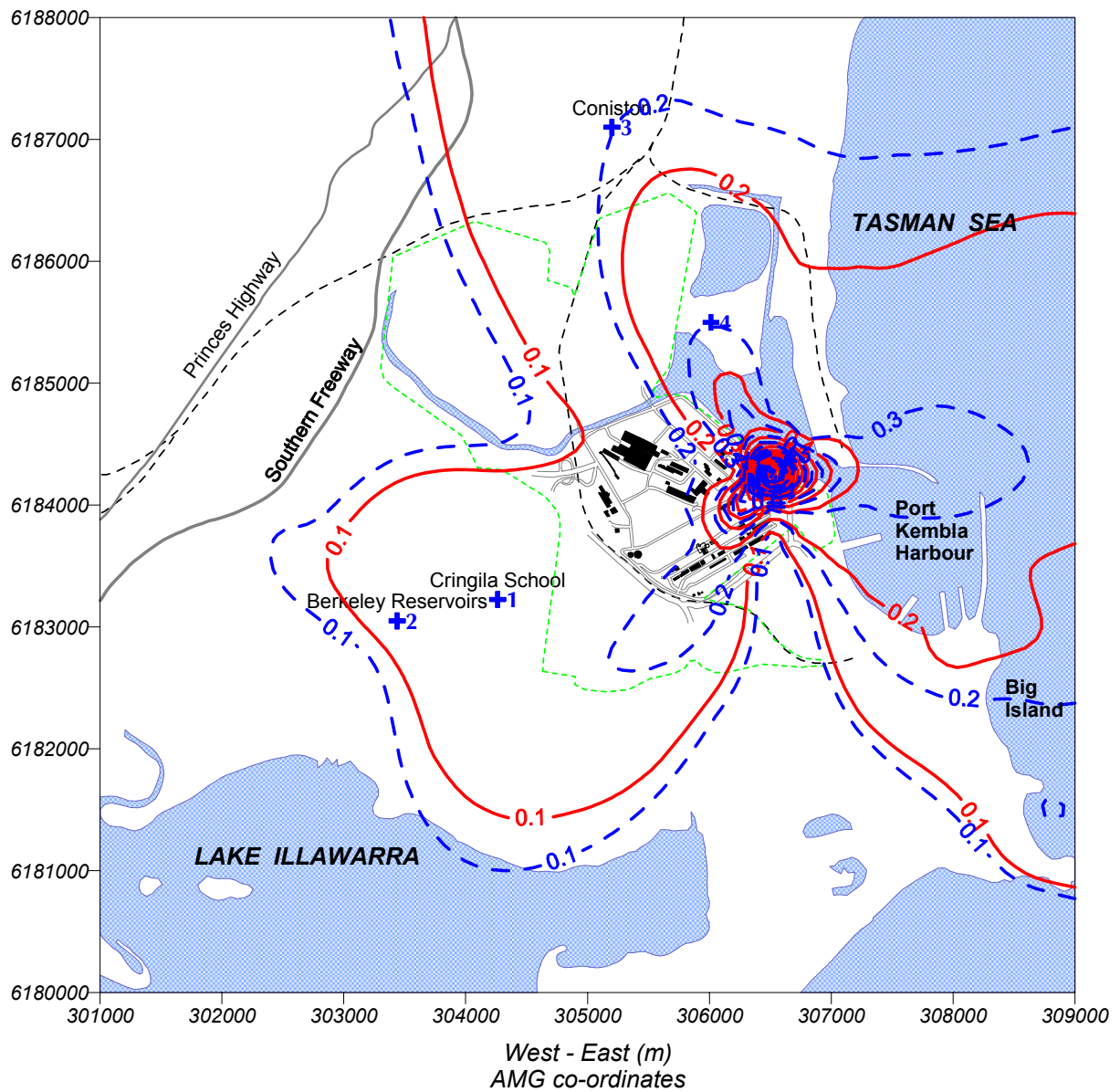
**Predicted annual average PM₁₀ concentrations
due to cooler bed emissions (μg/m³)**

Figure 11



**Predicted annual average PM₁₀ concentrations
due to emissions from the RDD stack (µg/m³)**

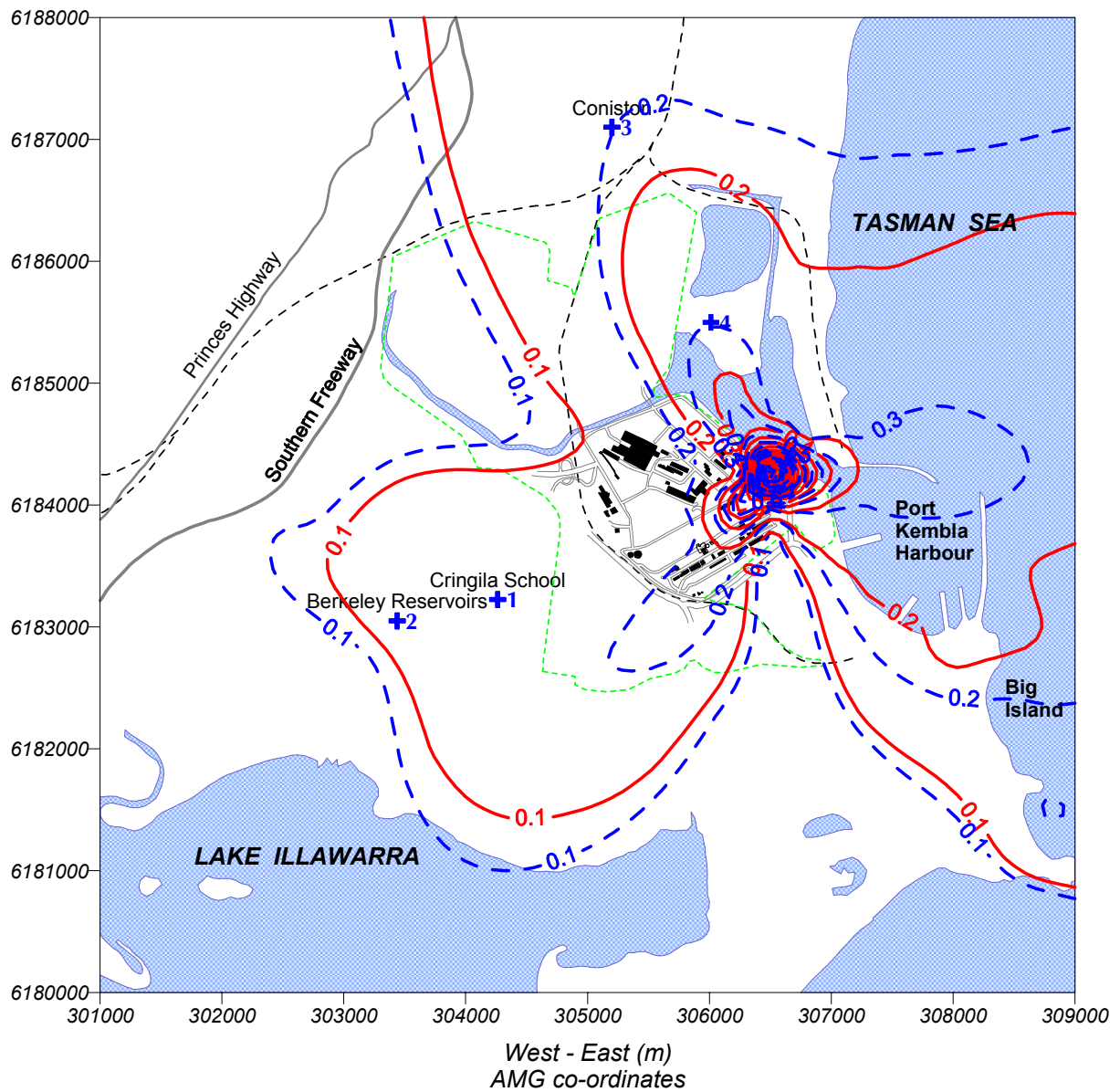
Figure 12



- Site boundary
- Existing cooler bed and RDD operation
- Proposed cooler bed and RDD operation

**Predicted annual average PM₁₀ concentrations
due to cooler bed and RDD stack emissions (µg/m³)**

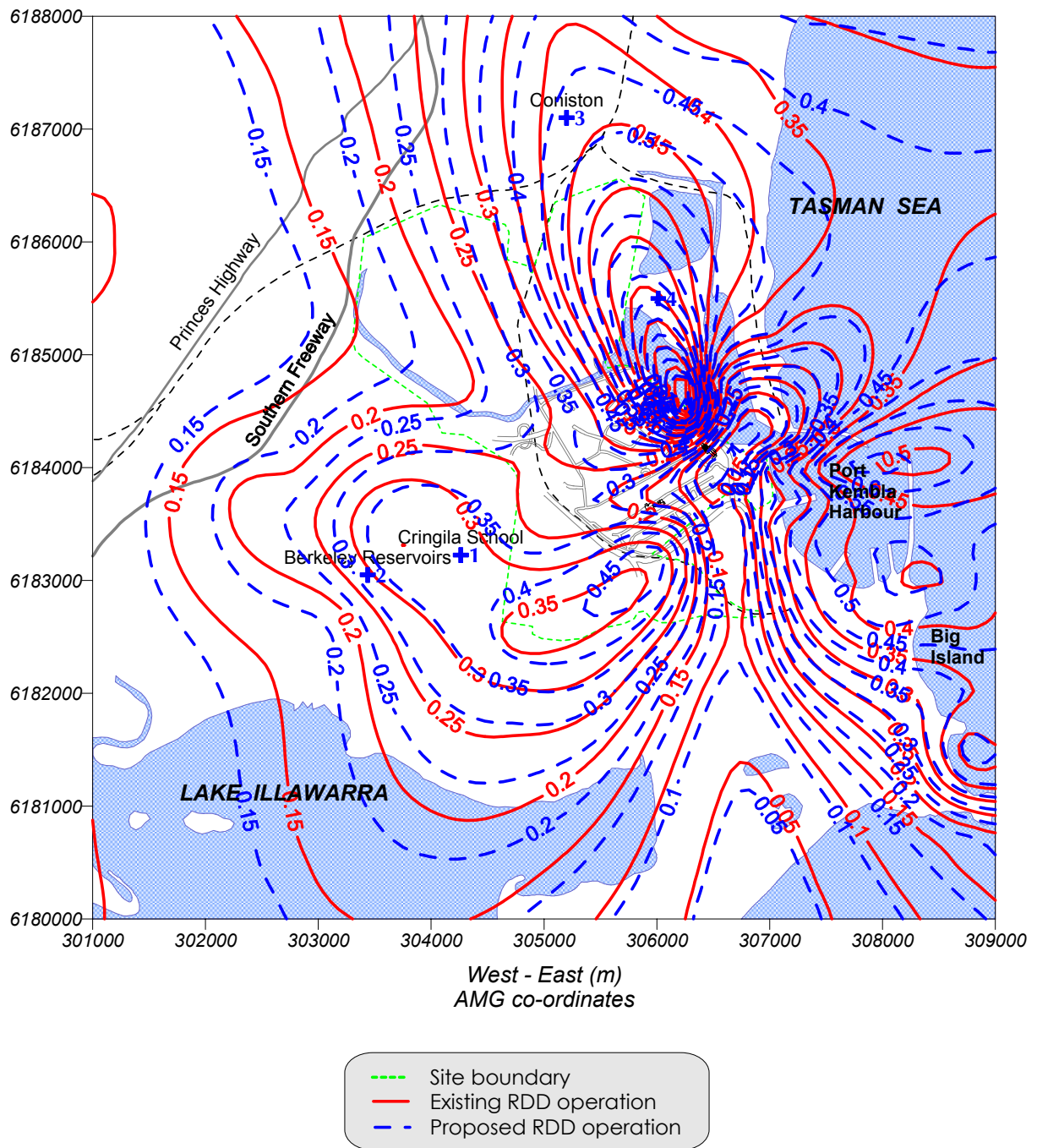
Figure 13



- Site boundary
- Existing cooler bed and RDD operation
- Proposed cooler bed and RDD operation

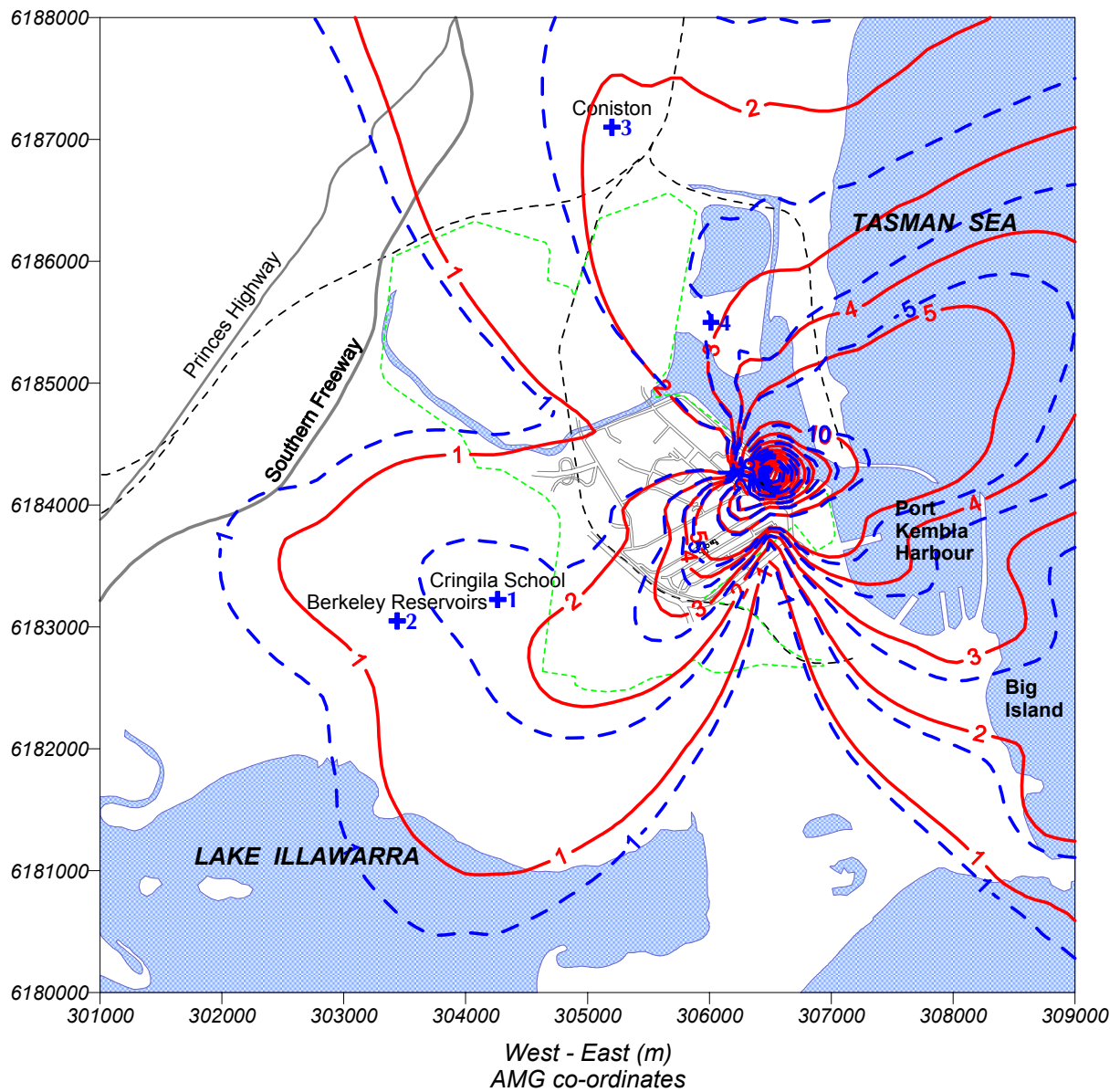
**Predicted annual average PM₁₀ concentrations
due to cooler bed and RDD stack emissions (µg/m³)**

Figure 13



**Predicted annual average TSP concentrations
due to RDD stack emissions ($\mu\text{g}/\text{m}^3$)**

Figure 15



- Site boundary
- Existing cooler bed and RDD operation
- Proposed cooler bed and RDD operation

**Predicted annual average TSP concentrations
due to cooler bed and RDD stack emissions ($\mu\text{g}/\text{m}^3$)**

Figure 16