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Brockman Syncline Proposal

Dust Assessment | Study

Final Report
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Brockman Syncline Proposal

Final Report

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Name	Position	File Reference
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Signature		

Executive Summary

Rio Tinto Iron Ore (RTIO) operate a series of mines within the Brockman region located approximately 45 kilometres north west of Tom Price in the Pilbara region of Western Australia (WA). RTIO is evaluating the potential development of additional iron ore deposits near the existing Brockman operations (the Brockman Syncline Proposal). An air quality assessment was conducted to estiamte potential impacts associated with the various mining and processing activities associated with the existing operations and the Brockman Syncline Proposal.

Overview of assessment

The potential air quality impacts associated with mining, haulage and processing activities at the existing Brockman operations and the Brockman Syncline Proposal were determined through a dispersion modelling study. Emission rates were estimated using recognised and accepted methods of emissions estimation, which included published emission factors from the NPI Emission Estimation Technique Manual for Mining (EA,
2012). Notably emissions were estimated for two separate mining years (Phase 1 2027 and Phase 2 2035) to account for the variability in the mine plan and the subsequent varying impact (both spatially and temporally). Background air quality was also estimated and concentrations were also included.

Modelling impacts of TSP, PM_{10}, and $PM_{2.5}$ emissions was undertaken using the CALMET/CAPUFF modelling suite. In the absence of onsite meteorological measurements, the Weather Research and Forecast (WRF) model was used to simulate the meteorology over the region for 2018 and then as input to the CALMET model to generate fine-resolution three-dimensional meteorological fields. Fine resolution terrain elevation (Shuttle Radar Topography Mission (SRTM)) data with 90 m resolution was used in conjunction with ESACCI-LU land-use data to characterise the geophysical environment.

Ground-level particulates (as TSP, PM_{10}, and $PM_{2.5}$ concentrations) predicted at sensitive receptors and the surrounding environment were compared with the relevant air quality assessment criteria. Sensitive receptors included homesteads, wild-life habitat (bat caves/roosts), rock pools, RTIO camps and the RTIO airport. For the purpose of the assessment, the selection of assessment criteria intended to protect human health values, is assumed to also be protective of the environmental values of the rockpools and wild-life habitat. Therefore, a modelling result that is higher than the assessment criteria should not be interpreted as a predicted impact or loss of environmental value but is an indication that results may need further consideration for the sensitive receptor at the specific location.

Predicted Brockman Syncline Proposal contributions were presented in isolation of non-proposal related emission sources, and with the inclusion of background concentrations assessed to represent existing conditions, and therefore the potential cumulative impact.

Key findings

The key findings of the assessment are that the modelling findings are variable depending on the operating year selected:

- For Phase 1 (2027) TSP (i.e. the potential impact on amenity and ecological values);
    - Modelled concentrations higher than the assessment criteria (Kwinana EPP 90 µg/m^3) are predicted to occur over the mining and processing areas.

  - Maximum predicted concentrations are lower than the 24-hour assessment criteria (Kwinana EPP 90 µg/m^3) at the homesteads and stockyards,
  - The modelled concentrations are higher than the assessment criteria at some of the RTIO camp receptors, with the Jerriwah Village predicted to experience 78 days during the year higher than the assessment criteria.
- For Phase 2 (2035) TSP
  - Predicted concentrations are significantly lower than for Phase 1.
  - Modelled concentrations higher than the assessment criteria (Kwinana EPP 90 µg/m^3) are limited to the mines and processing facilities.
  - Maximum predicted concentrations are lower than the 24-hour assessment criteria (Kwinana EPP 90 µg/m^3) at the homestead and stockyard receptors.
  - The modelled concentrations are higher than the assessment criteria at some of the RTIO camp receptors, with the Jerriwah Village predicted to experience 32 days during the year above the criteria.
- There is a high variability in the predicted ground level concentrations of TSP at the various bat cave receptor locations (i.e. roosting habitat) in both modelled years depending on their proximity to the various mining operations. It should be noted that the predicted concentrations do not represent the concentrations within the caves which may be significantly lower.

- For Phase 1 (2027) PM_{10}
  - Modelled concentrations higher than the annual average assessment criteria (NEPM 25 µg/m^3) is predicted to occur over the mines and processing facilities.
  - The maximum 24-hour PM_{10} concentration is predicted to be higher than the assessment criteria (Taskforce 70 µg/m^3) over areas immediately surrounding the operations.
  - The modelled concentrations are below the assessment criteria at the homesteads and the stockyards receptors.
  - Predictions at the Jerriwah Village and Brockman 2 Village are higher than the annual (NEPM 25 µg/m^3) and 24-hour (Taskforce 70 µg/m^3) assessment criterion.
  - The modelling results show a significant reduction in the predicted ground level concentrations below the 2nd highest concentration – indicating that the maximum concentrations are isolated events that would probably not occur. It may be more appropriate to utilise the 6th highest predicted concentrations as being indicative of the ground level concentrations expected to occur.
- For Phase 2 (2035) PM_{10}
  - The annual average modelled concentrations are higher than the annual average and the maximum cumulative 24-hour PM_{10} assessment criteria over the mines and processing facilities.
  - The modelled concentrations are below the annual and maximum cumulative 24-hour PM_{10} the assessment criteria at all identified receptors, with the exception of the Plunge Pool receptor which is predicted to experience 9 occasions in the year higher than the criteria. This constitutes a significant reduction (122 days per annum) from Phase 1 predictions.

- For Phase 1 (2027) $PM_{2.5}$
  - Modelled concentrations higher than the annual average assessment criteria (NEPM 8 µg/m^3) and the maximum 24-hour $PM_{2.5}$ criteria (NEPM 25 µg/m^3) are limited to areas over the mines and processing facilities.
  - Predictions at the RTIO camp receptors show that the assessment criteria for $PM_{2.5}$ is achieved, with the exception of the Jerriwah Village.

- For Phase 2 $PM_{2.5}$
  - The $PM_{2.5}$ modelled concentrations higher than the annual average and the maximum 24-hour assessment criteria are limited to areas over the mines and immediately adjacent land.
  - The annual average modelled concentrations are below the adopted assessment criteria (NEPM 8 µg/m^3) at all sensitive receptor locations.
  - The 24-hour modelled concentrations are below the adopted assessment criteria (NEPM 25 µg/m^3) at all sensitive receptor locations, with the exception of the Plunge Pool receptor.

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1 Introduction

1.1 Background

Rio Tinto Iron Ore (RTIO) operate a series of mines within the Brockman region located approximately 45 kilometres (km) north west of Tom Price in the Pilbara region of Western Australia (WA) (Figure 1-1). The existing operations comprise mining at the following:

- Brockman Syncline 2
- Brockman Syncline 4
- Nammuldi-Silvergrass (East)

RTIO propose to expand these operations to include the following key deposits (collectively known as the Brockman Syncline Proposal):

- Brockman Syncline 1
- Brockman Syncline 2 new deposits, including Pits 1-7, Sandleford, Monkey, Diesel and Lens G
- Brockman Syncline 3
- Brockman Syncline 4 new deposits, including Marra Mamba pits and Endeavour

These mining operations are supported by processing hubs within the region that prepare the ore for transport by rail to the RTIO port export facilities at Dampier and Cape Lambert.

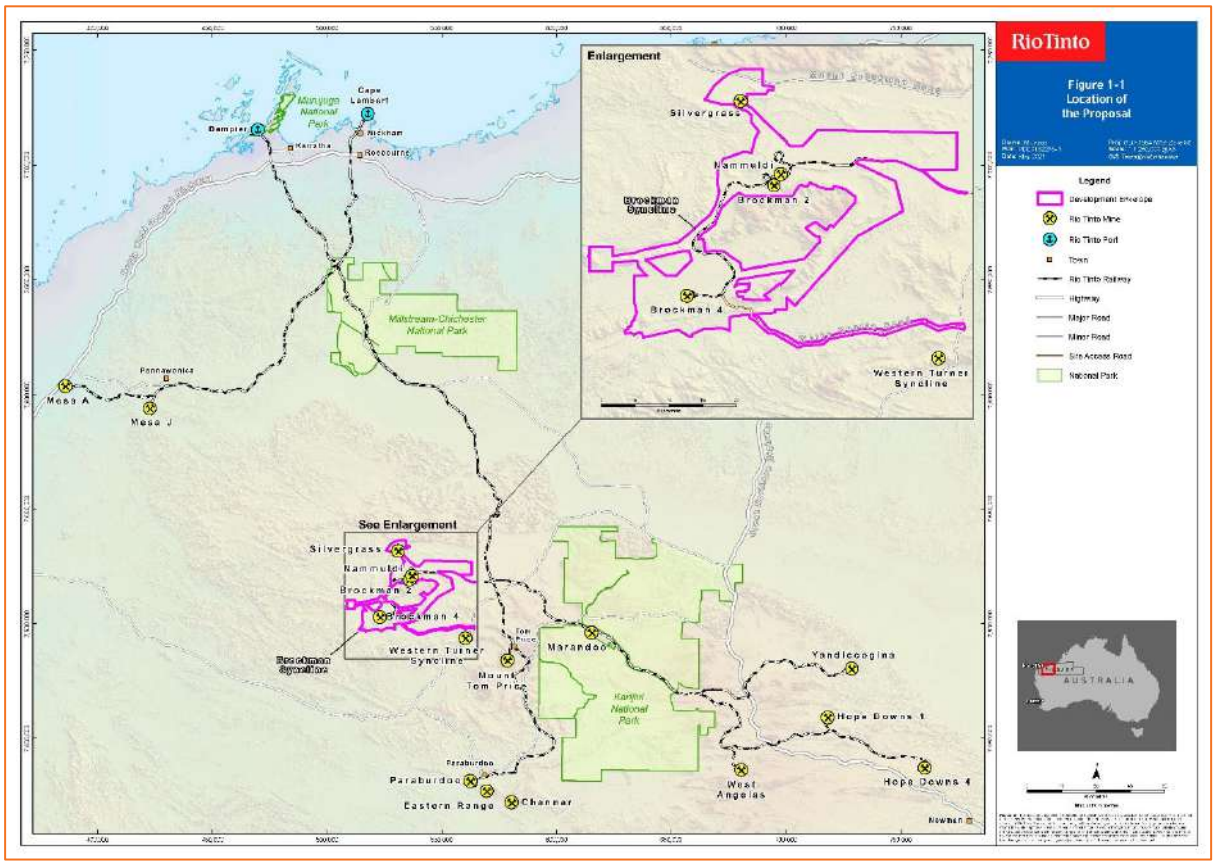

Figure 1-1: Brockman Syncline Proposal location and setting

1.2 Scope of work

The aim of this air quality study was to assess the potential impact on nearby receptors from the various mining and processing operations associated with the Brockman Syncline Proposal. For the purposes of this desktop assessment the following existing and proposed mining/processing operations were considered:

- Brockman 1, 3 & 4
- Silvergrass (East)
- Diesel
- Lens G
- Nammuldi

For each mining operation emissions were determined for:

- Mining
- Haulage
- Processing
- Wind erosion

The ambient air quality and potential impacts are assessed in terms of the following particulate sizes:

- Total Suspended Particulates (TSP)
- PM_{10} (particulate matter with an aerodynamic diameter of 10 µm or less)
- $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5 µm or less)

This report describes the methods and findings of an assessment of the potential impacts to the air environment arising from the Brockman Syncline Proposal. The assessment includes:

- The study approach and methodology in Section 2.
- Existing environment, including background air quality in Section 3.
- Outline of the modelling assessment in Section 5.
- Project emission estimation and inventory in Section 6.
- Atmospheric dispersion modelling of the emissions using CALPUFF (Section 7).
- Conclusions of the assessment are presented in Section 8.

The appendices contain supporting information.

2 Assessment methodology

This section outlines the air quality study and assessment approach. It includes the methodology applied to define the meteorological characteristics of the Brockman Syncline Proposal area relevant to the assessment, the emission estimation, the dispersion, and the ambient assessment criteria selected for the purposes of determining the significance of the dispersion model results, and therefore the potential impact.

The study structure is shown in Figure 2-1, and involved the following:

- **Determining the meteorological characteristics**. The methodology used to define the meteorological characteristics of the Brockman Syncline Proposal area is provided in Section 3 as part of the discussion describing the existing environment.
- **Ambient assessment criteria**. The ambient assessment criteria selected for the purposes of determining the significance of the dispersion model results, and therefore the potential impact is provided in Section 4.
- **Emission estimation.** The methodology used to determine emission estimations is provided in Section 6.
- **Dispersion**. The dispersion modelling methodology and approach is provided in Section 7, with results interpreted in comparison to the assessment criteria at key sensitive receptor locations. Comparison of the modelled results to the assessment criteria is intended to provide an objective evaluation of the potential impact of the operations at the nearest sensitive receptors. Results are also shown as contours of ground level concentration across the model domain.

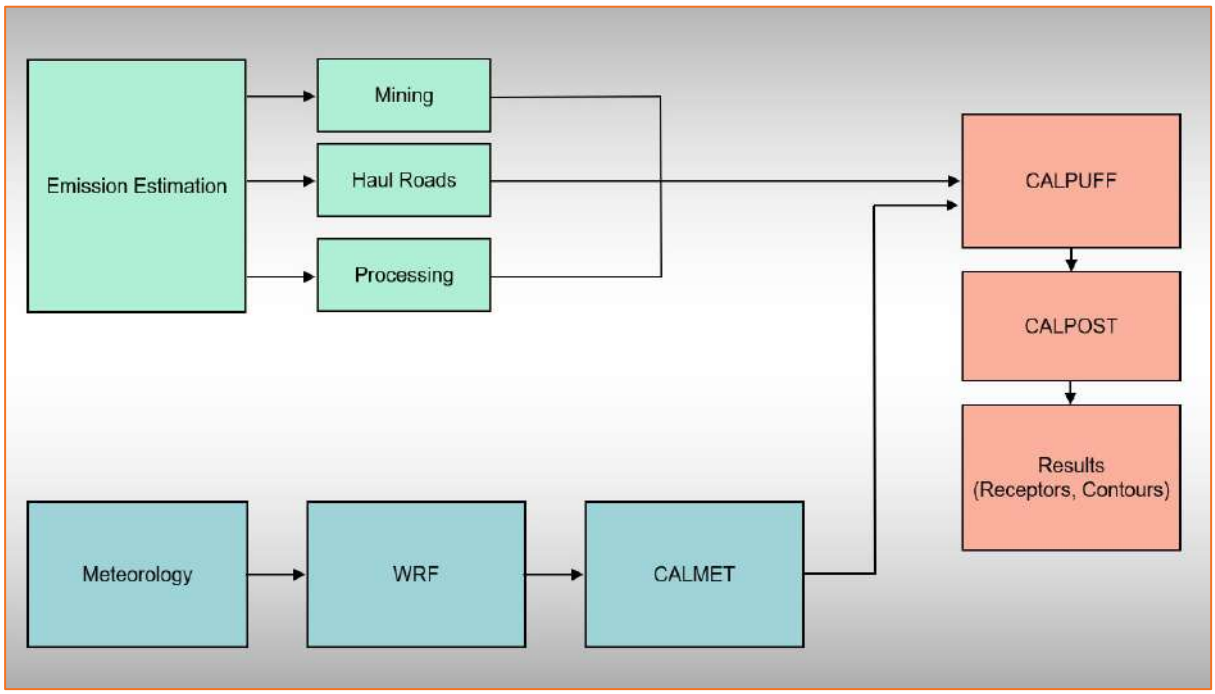

Figure 2-1: Air quality assessment – study approach

3 Existing environment

The climate and meteorological characteristics of the region control the dispersion, transformation and removal (or deposition) of pollutants from the atmosphere. This section outlines the key climate and meteorological characteristics of the region important for the dispersion, transformation and removal (or deposition) of pollutants from the atmosphere, and therefore ambient air quality.

3.1 Local climate

The Pilbara region of Western Australia is characterised, according to the Koppen-Geiger classification, has a hot desert climate (BWh) with two primary seasons – wet and dry. The wet season, from October to April, is dominated by high temperatures and evaporation rates with isolated intense rainfall and cyclonic activity. The dry season, from May to September, is relatively dry with mild temperatures.

The nearest meteorological station to the Brockman complex is the Bureau of Meteorology (BoM) automatic Weather Station (AWS) at Tom Price, located approximately 45 km to the southeast. The long-term temperature statistics from this station are presented in Figure 3-1. From this figure it is apparent that the wet season (summer) period has very warm to hot days and warm nights. During December and January, temperatures higher than 40°C are common. Winters are warm, with days averaging 23°C although nights are cool, occasionally dropping as low as -1°C.

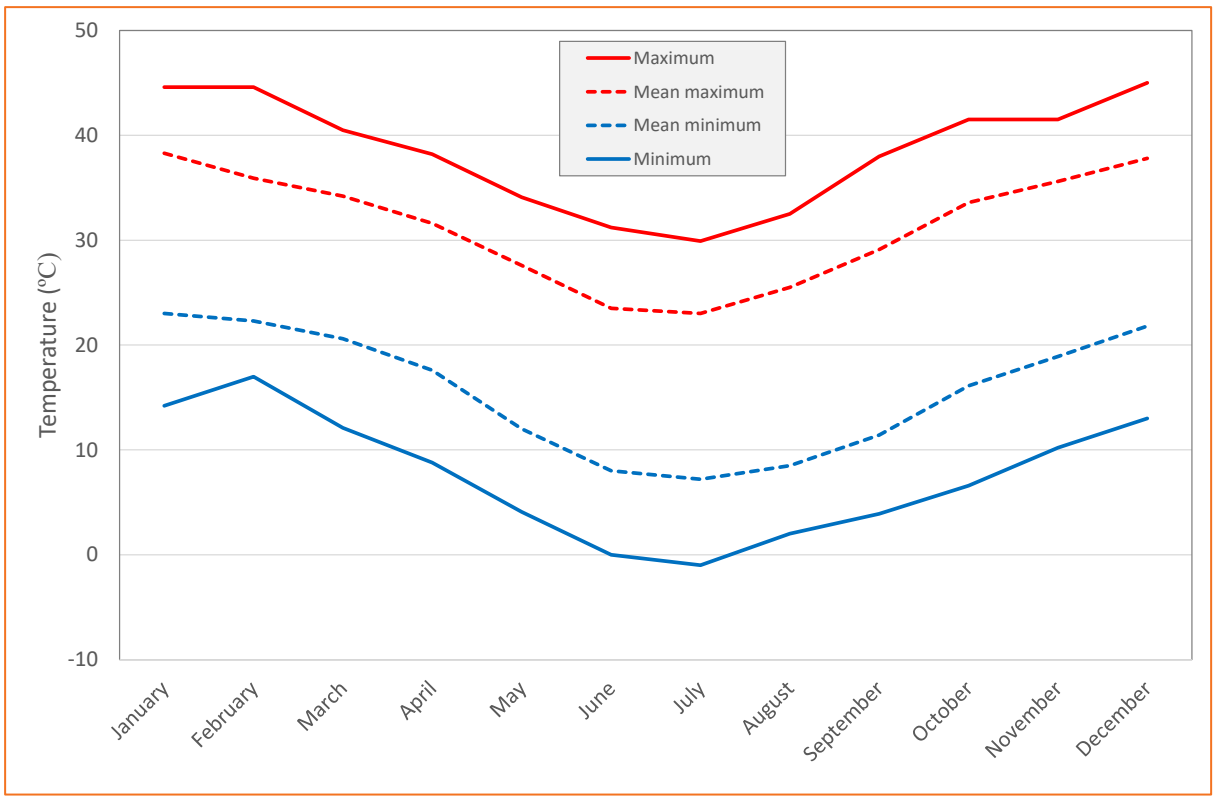

Figure 3-1: Long term temperature statistics (BoM Tom Price AWS, 2020)

Rainfall is sparse and highly variable, and falls largely between December and March, with occasional rain events during autumn (Figure 3-2). While rainfall is mainly in the form of occasional afternoon thunderstorms, the impact of monsoonal rainfall or cyclonic rainfall is also evident in Figure 3-2 where the maximum monthly rainfall is significantly greater than the average rainfall, particularly during the monsoon/cyclone period from December to March.

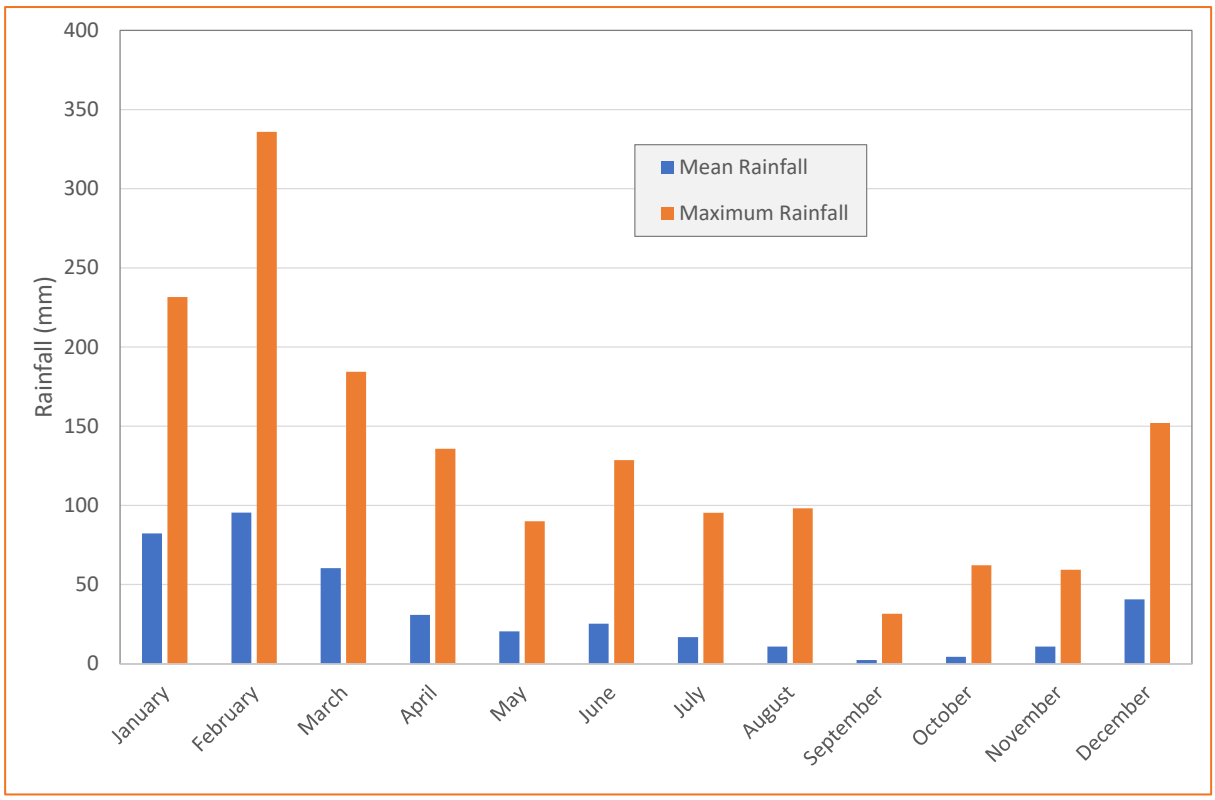

Figure 3-2: Long term rainfall statistics (BoM Tom Price AWS, 2020)

3.2 Local air quality

The Pilbara region is a naturally dusty environment with wind-blown dust being a significant contributor to the particulate loading. Within the aggregated emission inventory for the Pilbara, undertaken by SKM in 2000 for the 1999/2000 financial year, it was calculated that approximately 170,000 tonnes of particulate material was emitted as a result of wind erosion. Wildfires also account for a significant amount of the emissions with approximately 195,000 tonnes of particulates emitted. Note that these are calculated values (i.e. not monitored data) and will vary on an annual basis depending on a range of factors including the extent of erodible areas, area burnt, rainfall and wind speed.

3.3 Background concentrations

To account for background dust in the region, an analysis was undertaken on particulates in the size range of 10 microns in aerodynamic diameter (PM_{10}). The PM_{10} monitoring data was obtained from RTIO. It should be noted that the instruments utilised by RTIO for this monitoring is the MetOne E-Sampler. These units are a light

scattering (nepholometer) device which are not a regulatory monitoring device and the results should be considered as 'indicative' only.

Monitoring for PM_{10} was undertaken at each of following sites for the nominated time period:

- Brockman 4: 2013
- Silvergrass: August 2014 – May 2017
- Brockman 2: 2018 - 2019

The following sections contain a brief analysis of the hourly PM_{10} monitoring data from each of these sites.

3.3.1 Brockman 4

A trend analysis of the monitoring data from 2013 at the Brockman 4 monitor is presented in Figure 3-3. The primary points are:

- The mean hourly PM_{10} concentrations peak at 6am and gradually reduce throughout the day before rising again in the evening.
- The mean hourly PM_{10} concentrations were highest during the spring/summer period and lowest during the winter period.

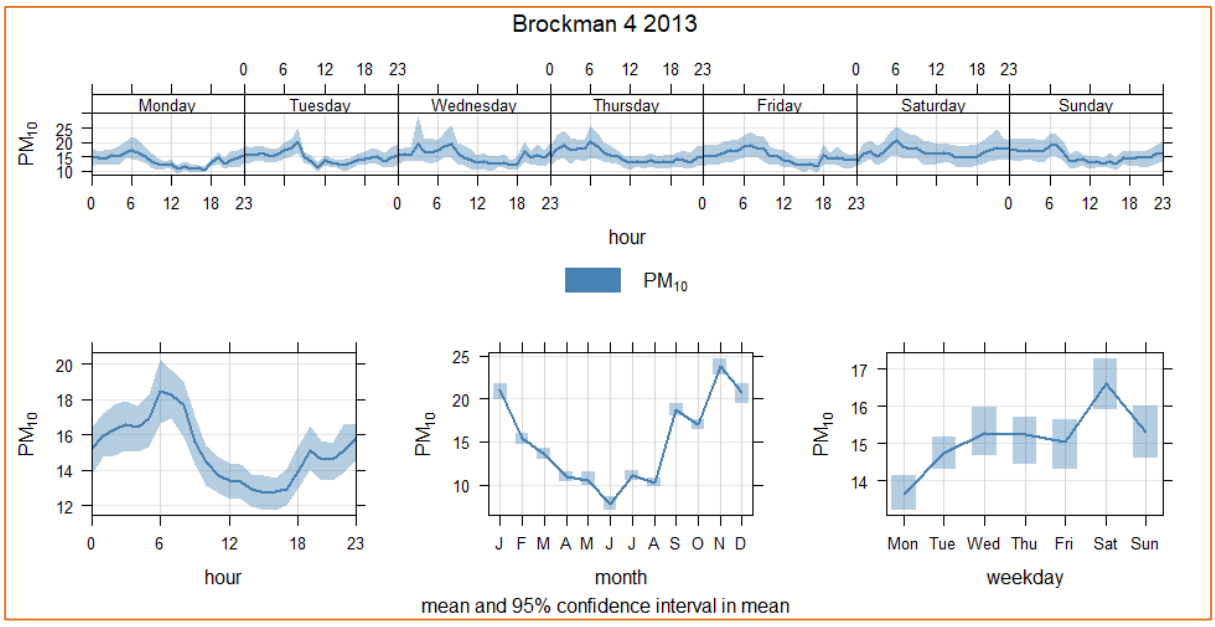

Figure 3-3: Analysis of PM_{10} monitoring trends at Brockman 4 (2013)

A bivariate polar plot of the monitoring data is presented in Figure 3-4 and this data shows that:

- The peak mean monitoring data occurred from the south west during high wind speeds – which is conducive of wind erosion derived sources.
- There are elevated concentrations, nominally from the south west, during low to calm wind speeds – this is indicative of wind speed independent emission sources such as haul roads and conveyors.

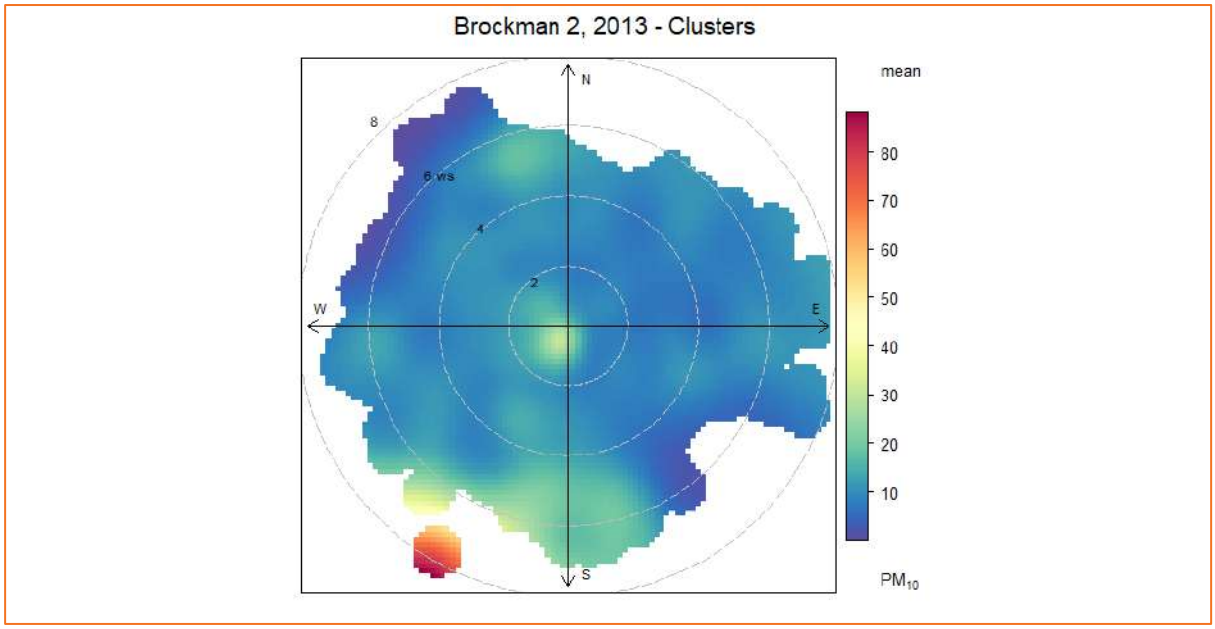

Figure 3-4: Bivariate polar plot of PM_{10} monitoring data at Brockman 4 (2013)

3.3.2 Silvergrass

A time series graph of the 1-hour PM_{10} data (August 2014 – May 2017) from the Silvergrass monitor is presented in Figure 3-5. This figure shows that the monitored concentrations are generally very low with the exception of a peak in September 2015. This peak was a single elevated hourly impact indicating a nearby source.

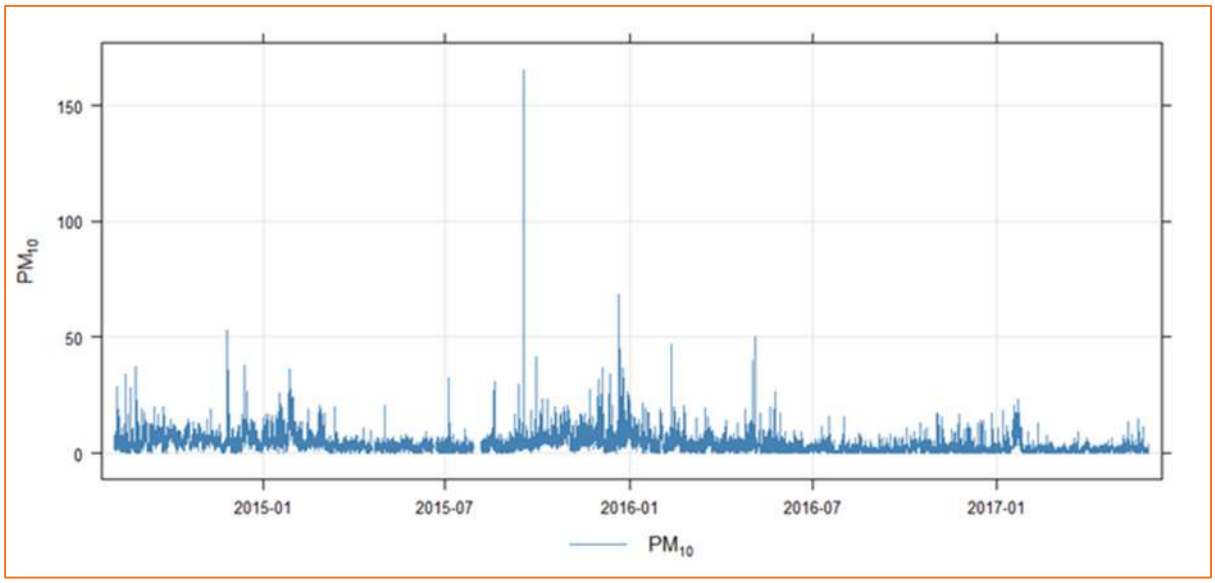

Figure 3-5: Time series graph of hourly Silvergrass PM_{10} monitoring data

A trend analysis of the monitoring data from the Silvergrass monitor (for the period 2014-2017) is presented in Figure 3-6. The primary points are:

- The mean hourly PM_{10} concentrations peak at around 8am and gradually reduce throughout the day before rising again in the evening.
- The mean hourly PM_{10} concentrations were highest during the spring/summer period and lowest during the winter period.

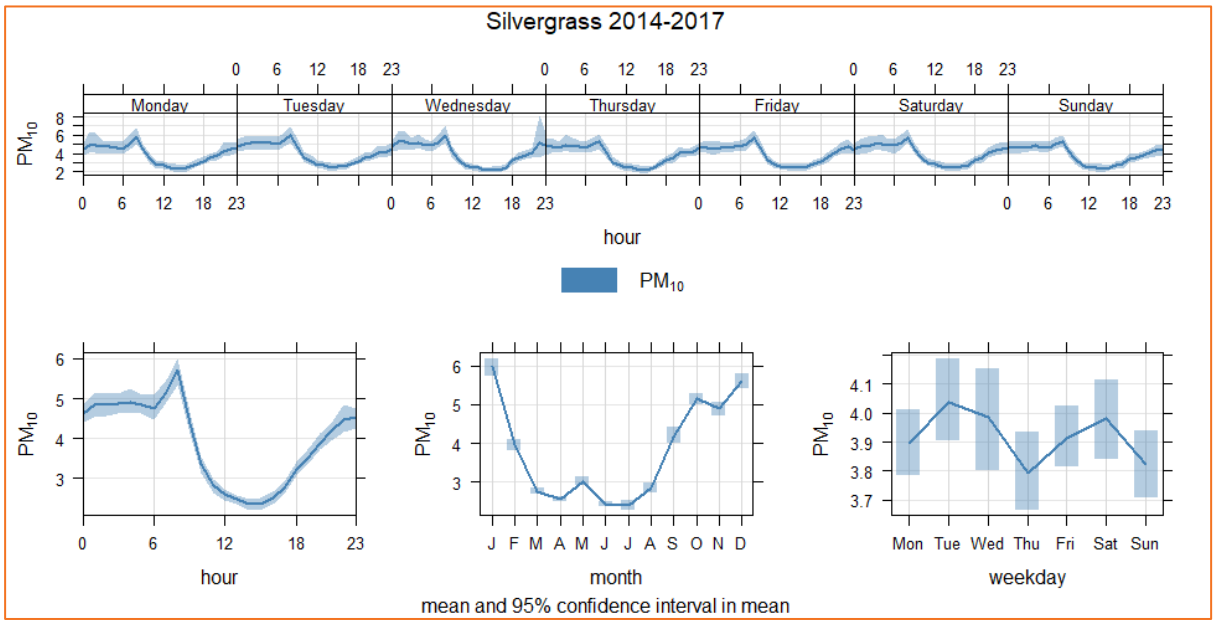

Figure 3-6: Analysis of PM_{10} monitoring trends at Silvergrass

3.3.3 Brockman 2

A trend analysis of the monitoring data from the Brockman 2 monitor is presented in Figure 3-7. The primary points are:

- The mean hourly PM_{10} concentrations, for both years, peak at around 7am and gradually reduce throughout the day before rising again in the evening.
- The mean hourly PM_{10} concentrations, by month, were variable with:
    - 2018 having low concentrations at the start of the year with the mean concentrations generally increasing throughout the year.
    - 2019 started off with relatively high mean PM_{10} concentrations and varied throughout the year.

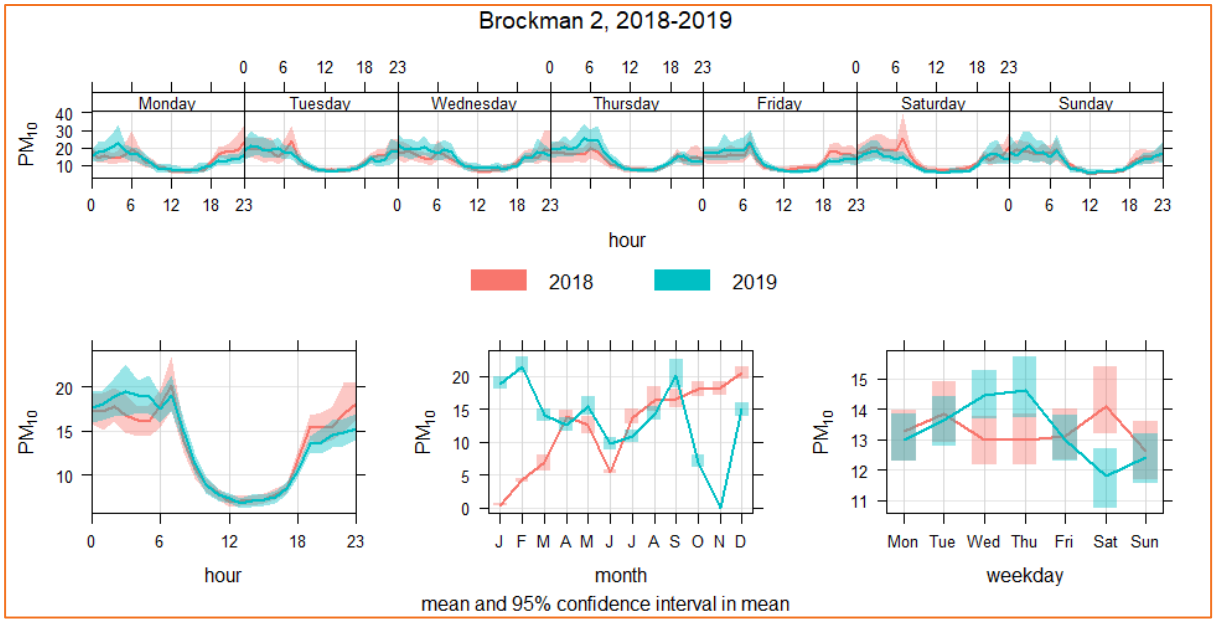

Figure 3-7: Analysis of PM_{10} monitoring trends at Brockman 2

A bivariate polar plot of the monitoring data for 2018 and 2019 is presented in Figure 3-4 and this data shows that:

- The peak mean monitoring data (for both years) occurred from the south west during high wind speeds – which is conducive of wind erosion derived sources.
- There are elevated concentrations, nominally from the south west through to the north east, during low to calm wind speeds – this is indicative of wind speed independent emission sources such as haul roads and conveyors.

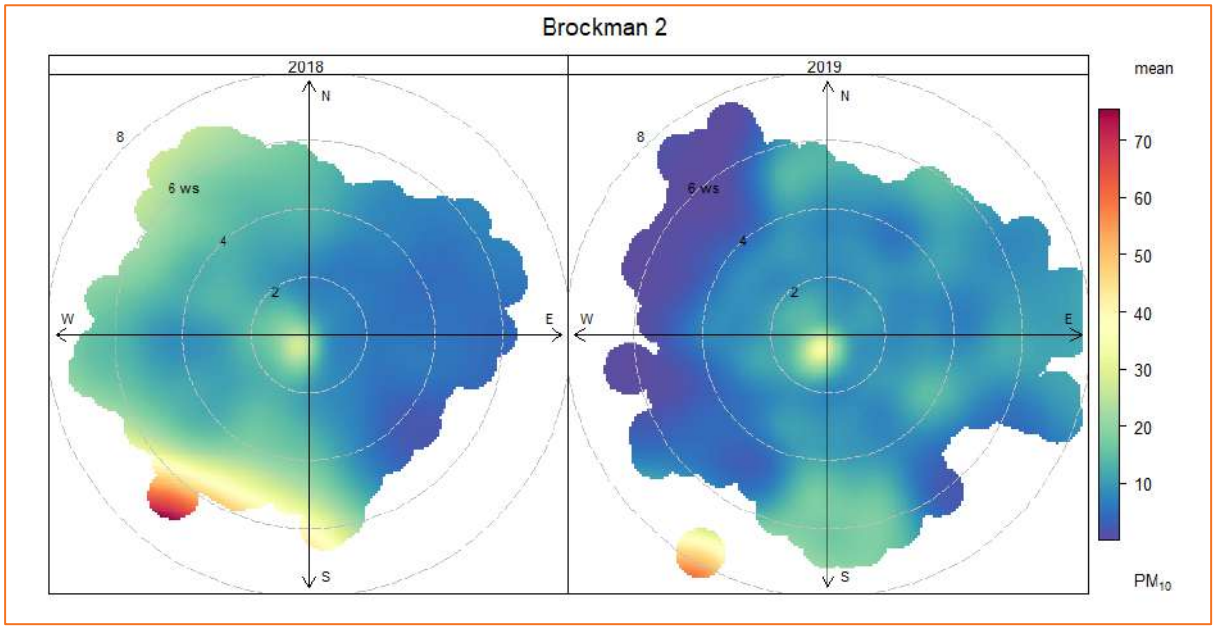

Figure 3-8: Bivariate polar plot of PM_{10} monitoring data at Brockman 2 (2018-2019)

3.3.4 24-hour statistics

The hourly PM_{10} monitoring data from each of the monitoring sites was converted into a 24-hour average and these are presented in Table 3.1. From the data presented in this table it is apparent that the Silvergrass monitoring data is significantly lower than the other two sites and, as such, this data will not be used to determine a potential background concentration.

For this assessment the background PM_{10} concentration will be taken as the average of the 70th percentile monitoring data from both Brockman 2 and Brockman 4, which is 18.1 µg/m^3. The background TSP concentration will be designated as twice that of the PM_{10} concentration, which is 36.2 µg/m^3. The $PM_{2.5}$ background concentration will be 28% of the PM_{10} concentration (5.1 µg/m^3) which is the ratio of PM_{10}:$PM_{2.5}$ used in the modelling (Section 5).

Table 3.1: 24-hour averaged PM_{10} monitoring data (µg/m^3)

Statistic	Brockman 2		Brockman 4	Silvergrass	
	2018	2019	2013	2015	2016
Maximum	51.4	42.5	61.8	21.9	11.6
99th Percentile	36.9	37.3	45.4	17.1	9.2
95th Percentile	31.7	28.8	30.8	11.0	6.7
90th Percentile	27.0	26.2	25.8	8.9	5.4
70th Percentile	17.1	19.7	17.5	5.9	3.4
Average	13.9	15.7	15.1	5.1	3.0

4 Air quality assessment criteria

Ambient air quality assessment criteria have been adopted based on the protection of human health and amenity impacts, consistent with the guideline for air quality published by the Environmental Protection Authority (EPA, 2016).

In the absence of any documented criteria for assessing air quality impact on the important ecological values (i.e. rockpools and Ghost bats directly or indirectly (ie. roosting habitat)), the ambient air quality assessment criteria intended to protect human amenity and health values, are assumed to be conservatively protective of these environmental values. A modelling result that is higher than the assessment criteria should not be interpreted as a predicted impact or loss of environmental value but is an indication that results may need further consideration for the sensitive receptor.

4.1 Human health assessment and amenity criteria - Particulates | Dust

Modelled ground level concentrations for particles (TSP, PM_{10} and $PM_{2.5}$) have been compared to ambient air quality assessment criteria to estimate the potential impact on nearest sensitive receptors. This assessment has considered the potential impact attributable to the Brockman Syncline Proposal, as well as the cumulative impact (i.e. in conjunction with the existing emission sources in the area). The assessment has been made across the model domain, as well as at key sensitive receptor locations identified as being representative or important for assessment.

The National Environmental Protection Measure (NEPM) for Ambient Air Quality (NEPC, 1998; NEPC, 2003; NEPC, 2015) specifies ambient standards for the key pollutants based on the protection of human health. The 1-hour and 24-hour average criteria are used to assess the potential short-term health impact, and the annual average used to assess potential longer-term impacts. A limited number of exceedances of the 1-hour and 24-hour average criteria are allowable under the NEPM, with allowable exceedances of the PM_{10} criteria based on an 'exceptional event' rule[1]. The annual average PM_{10} and $PM_{2.5}$ criteria are used to assess the potential health impact on the community receptors within the Proposal area model domain.

For Port Hedland the Port Hedland Dust Management Taskforce (Taskforce), in their final report to government (DSD, 2017), recommended that there be an interim guideline of 70 µg/m^3 for PM_{10} (24-hour average) with 10 exceedances per year. This value is used to assess the potential health impacts of PM_{10} (24-hour) on the community receptors within the project model domain.

In Western Australia, the main criterion used to assess TSP comes from the *Environmental Protection (Kwinana) (Atmospheric Wastes) Policy* and associated regulations (Kwinana EPP). The Kwinana EPP specifies three different zones; Area A, B and C. These areas represent industrial zoning (A), buffer zoning (B), and the zone outside Area A and B (C) (EPA, 1999). The Area C criteria for TSP will therefore be referenced in this assessment.

The ambient air quality assessment criteria adopted in this study are shown in Table 4.1.

[1] An 'exceptional event' is defined as "a fire or dust occurrence that adversely affects air quality at a particular location, and causes an exceedance of 1-day average standards in excess of normal historical fluctuations and background levels, and is directly related to: bushfire; jurisdiction authorised hazard reduction burning; or continental scale windblown dust" (NEPC, 2015).

4.2 Ecological impact assessment criteria - Particulates | Dust

To date there is limited published research available as to the ecological impact of dust on the Ghost Bat, and the dust (particulate) concentrations at which the bats may experience a noticeable or negative impact.

The *Conservation Advice* (May 2016) of the Threatened Species Scientific Committee for the Ghost Bat references the impact of mining on the Ghost Bat but does not reference any specific impact associated with bat exposure to dust (TSSC, 2016). Wildcare Australia Inc (2014), report that microbats exposed to smoke and / or dust inhalation will exhibit shallow or difficulty in breathing and will have wings outstretched. Again the guidance does not extend to advise on the concentrations or exposure levels that may be of concern.

Reference to the presence of dust within bat roost (cave) locations was made by Biologic (2018) in the comparison of the 2015 and 2017 monitoring results for the West Angelas Iron Ore mine, stating that "*…dust was prominent at all caves visited, as well as generally across the mining area*." Mining activity was occurring at distances between 70 m and 535 m from the monitored caves. The report stated that "*…cave monitoring results do not appear to show any obvious impact of mining at the current time*."

Blast management plans will be developed specific to each deposit within the Brockman Syncline Proposal, as required. The management plans will be amended to include the revised proposal to minimise impact to Ghost Bat habitat.

In the absence of any documented criteria for assessing air quality impact on the Ghost Bat directly or indirectly (ie. roosting habitat), the ambient air quality assessment criteria intended to protect human amenity and health values, are assumed to be conservatively protective of the environmental values of wild-life habitat (ecological). A modelling result that is higher than the assessment criteria should not be interpreted as a predicted impact or loss of environmental value but is an indication that results may need further consideration for the sensitive receptor.

Similarly, there is no established criteria to represent the ecological impact of dust on the rockpools, and the dust (particulate) concentrations at which the rockpools may experience a noticeable or negative impact. In the absence of any documented criteria for assessing air quality impact on the rockpools, the ambient air quality assessment criteria intended to protect human amenity and health values, are assumed to be conservatively protective of this environmental value. A modelling result that is higher than the assessment criteria should not be interpreted as a predicted impact or loss of environmental value but is an indication that results may need further consideration for the sensitive receptor.

The assessment criteria adopted for this comparative purpose are shown in Table 4-1.

Table 4.1: Summary of Adopted Assessment Criteria

Parameter	Air quality assessment criteria	Reference
PM_{10}	50 µg/m^3 (24-hour average)	NEPM (NEPC, 2016)
	70 µg/m^3 (24-hour average)	Taskforce (DSD, 2017)
	25 µg/m^3 (annual average)	NEPM (NEPC, 2016)
$PM_{2.5}$	25 µg/m^3 (24-hour average)	NEPM (NEPC, 2015)
	8 µg/m^3 (annual average)	NEPM (NEPC, 2015)
TSP	90 µg/m^3 (24-hour average)	Kwinana EPP (EPA, 1999)

5 Model assessment

For this assessment, air dispersion modelling has been conducted using CALPUFF. The model has been used to predict ground level concentrations across the model domain and at identified sensitive receptor locations. The potential air quality impacts associated with the Brockman Syncline Proposal have been considered in isolation of other emission sources. The model was configured to predict the ground-level concentrations on a rectangular grid. The model domain was defined with the south west corner of the grid cell at 477.649 km Easting and 7455.748 km Northing (UTM Zone 50 S). Specifics for the modelling configuration are described further in this section.

5.1 Meteorological model (WRF and CALMET)

The meteorology component of a dispersion model is a key element for the effectiveness or representativeness of the dispersion model outputs. Both upper air and surface information are needed for modelling.

5.1.1 WRF model

In the absence of adequate onsite meteorological data, the Weather Research and Forecast (WRF V3.7) model (http://wrf-model.org/index.php) was used to generate hourly 3-dimensional data for the region. WRF is the next-generation mesoscale numerical weather prediction system. The model was primarily designed to serve both operational forecasting and atmospheric research. WRF features multiple dynamical cores, a 3-dimensional variational data assimilation system and a software architecture allowing for computational parallelism and system extensibility. Further details on WRF are provided in Appendix A.

5.1.2 CALMET

The 3-Dimensional meteorological data generated by WRF was input to CALMET for further processing to the finer resolution used in the dispersion modelling. This procedure will be referred to as the 'WRF-CALMET methodology'. The output from the CALMET meteorological model is then used to drive the pollution dispersion in the CALPUFF model.

CALMET is a three-dimensional meteorological pre-processor that includes a wind field generator containing objective analysis and parameterised treatments of slope flows, terrain effects and terrain blocking effects. The pre-processor produces fields of wind components, air temperature, relative humidity, mixing height and other micro-meteorological variables to produce the three-dimensional, spatially and temporally varying meteorological fields that are utilised in the CALPUFF dispersion model.

CALMET requires several datasets to resolve the surface and upper air meteorology occurring for each hour of the year:

- surface observations and upper air observations or gridded prognostic meteorological model data.
- land use and topographical data.

CALMET was run for a 137 x 132 grid domain at a spatial resolution of 700 m. Vertically, the model consisted of 11 levels extending to 3,000 m. The southwest corner coordinates of the domain were 747.649 km Easting and 7455.748 km Northing (UTM Zone 50 S).

Shuttle Radar Topography Mission (SRTM) data with 90 m resolution was input into the CALMET model to indicate terrain heights within the model domain (Figure 5-1). CALMET also requires geophysical data including gridded fields of land use categories. The default US Geological Survey (USGS) land use classification system (14

category system) was substituted with a more up to date, finer resolution data obtained from the European Space Agency Climate Change Initiative Land cover (ESACCI-LC) dataset.

The CALMET results are provided in Appendix A.

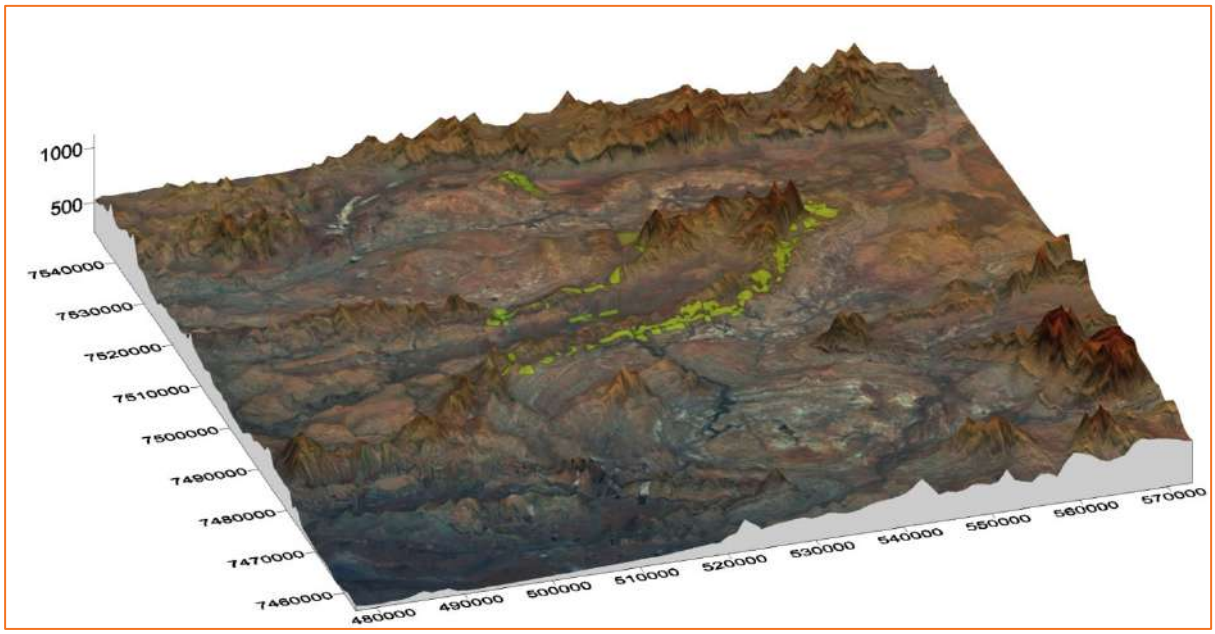

Figure 5-1: Image of SRTM terrain elevation used in CALMET (vertical height is exaggerated)

5.2 CALPUFF

CALPUFF is the dispersion module of the CALMET/CALPUFF suite of models. It is a multi-layer, multi species, non-steady-state puff dispersion model that can simulate the effects of time-varying and space-varying meteorological conditions on pollutant transport, transformation and removal. The model contains algorithms for near-source effects such as building downwash, partial plume penetration, sub-grid scale interactions as well as longer range effects such as pollutant removal, chemical transformation, vertical wind shear and coastal interaction effects. The model employs dispersion equations based on a Gaussian distribution of pollutants across released puffs and considers the complex arrangement of emissions from point, area, volume and line sources (Scire et al., 2000).

The CALPUFF model was set to calculate concentrations both on a set grid (gridded receptors) and at 120 specified locations (discrete receptors). The model domain was defined as 96 km in the east–west direction and 96 km in the north-south direction at a spacing of 700 m.

5.2.1 Emission sources

Each emission source was characterised as either area sources or volume sources in the dispersion model. Area sources were assigned to open areas while volume sources were assigned to mining activities in the pits and haul roads following the USEPA recommendations (USEPA, 2012). The locations of sources are presented in Figure 5-2 with the coordinates and source parameters contained in Appendix B.

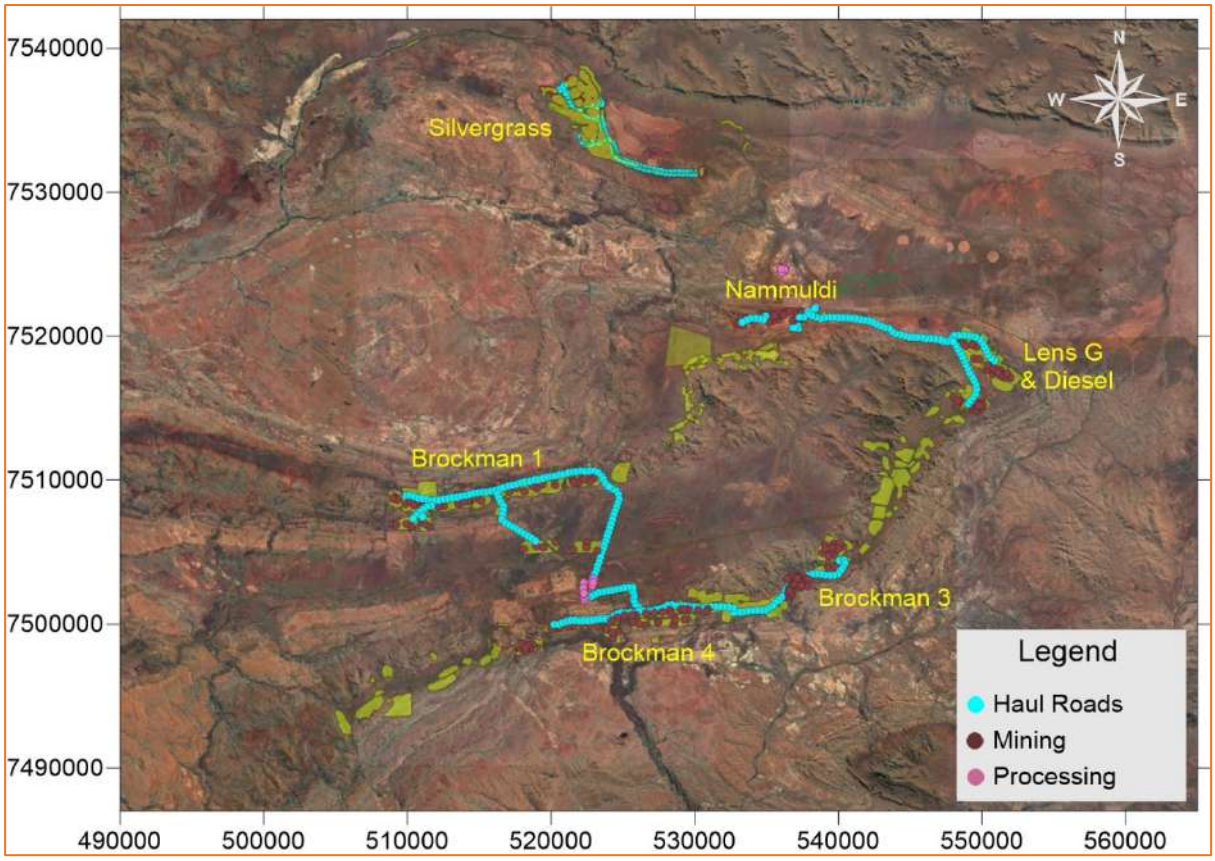

Figure 5-2: Emission sources in the model

5.2.2 Particle size distribution

Since dust is subject to gravitation settling, assumptions need to be made regarding particle sizes.

A particle size distribution for modelling dust dispersion was therefore estimated using composite data from USEPA (1999) for dust emissions from "aggregate handling and storage piles", "industrial wind erosion" and "unpaved roads". These categories are considered the most appropriate for mining sources. The resulting distributions are shown in Table 5.1.

Table 5.1: Airborne particle size distributions

Aerodynamic particle diameter range (µm)	Assumed particle diameter (µm)	Fraction of TSP	Fraction of PM_{10}
<2.5	1.3	0.08	0.28
2.5 – 5	3.8	0.11	0.28
5 – 10	7.5	0.16	0.44
10 – 15	12	0.15	-
15 – 30	55	0.26	-
30 - 50	70	0.24	-

5.3 Sensitive receptors

This modelling assessment considers the potential air quality impacts on a range of sensitive receptors, including:

- Homesteads, including stockyards, in the model domain
- Bat caves (inclusive of those either used, or with the potential to be used, for roosting)
- Rockpools
- RTIO camps
- RTIO airport

It is noted that the current Department of Water and Environment Regulation (DWER) guidelines excludes the consideration of on-site Brockman Syncline Proposal related receptors as sensitive receptors, however the inclusion of RTIO camps has been included for information purposes.

The location of all the sensitive receptors in the region are presented in Figure 5-3 and are detailed in Appendix C. For each of the bat cave receptors the type (night/day roost etc) is noted however these are still subject to ecological assessment therefore the classifications may change.

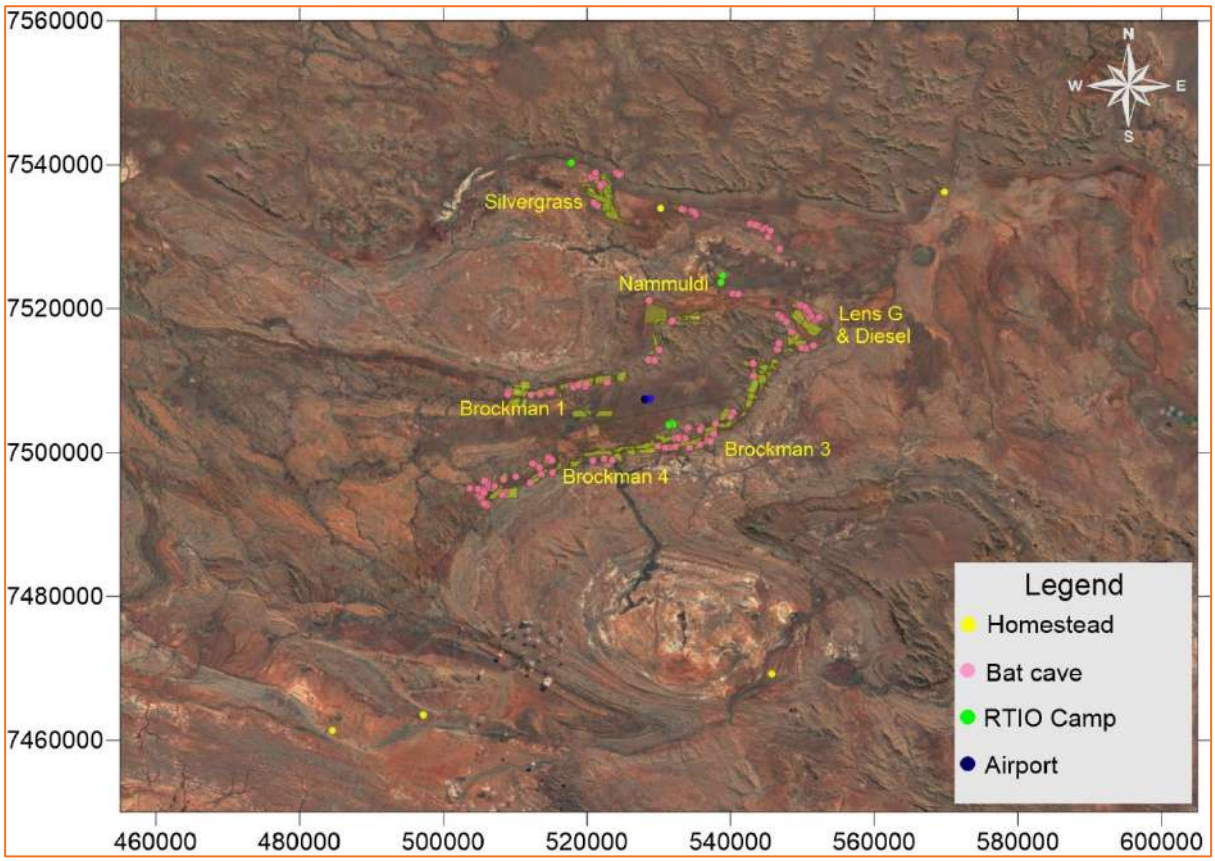

Figure 5-3: Discrete sensitive receptor locations

6 Emissions to air estimation

When determining the potential impact of a facility, either existing or proposed, one of the critical inputs is the source emission file. The following sections outline the process whereby potential sources are identified, and quantified, based on the forecast throughput tonnage of the facility.

6.1 Emission sources inventory

The key emission sources for the operating phase of the Brockman Syncline Proposal are associated with:

- drilling and blasting
- material handling from loading and unloading activities involving
  - loading trucks
  - unloading trucks
  - bulldozing
  - crushing
- material transfer
  - by conveyors
  - transfer stations
- wheel generated dust from roads and haul roads
- wind erosion from stockpiles and open areas.

A summary of the estimated annual mining tonnages for the life of the mines within the Brockman Syncline Proposal were obtained. Analysis of these tonnages determined that although the maximum mining tonnage is forecast to occur in 2027 the tonnages throughout the Brockman Syncline Proposal were highly variable as various deposits are mined within different years. As such a separate mining year (2035) was also chosen to highlight the variability in emissions, and subsequent ground level concentrations, of particulates which occur as mining progresses.

The tonnages used in the Phase 1 (2027) emission scenario are presented, by deposit, in Table 6.1 and the tonnages used in the Phase 2 (2035) emission scenario are presented, by deposit, in Table 6.2. Both of these tables also present the parameters used in the emission estimation process.

Table 6.1: Emission parameters used for Phase 1 (2027)

Mine	Total Tonnes	Ore	Waste	Drilling	Blast Area	Blast areas	Loading	Unloading Waste	Unloading Ore
	(tonnes/yr)	(tonnes/yr)	(tonnes/yr)	(holes/hour)	(m^2)	(number)	(kg/hr)	(kg/hr)	(kg/hr)
Silvergrass	27,124,000	4,040,000	23,084,000	6	16,514	3	3,716	3,162	461
Lens G	31,190,000	1,575,000	29,616,000	6	18,989	3	4,273	4,057	216
Diesel	22,728,000	3,857,000	18,870,000	6	20,756	2	3,113	2,585	528
Brockman 3 ext	29,794,000	7,069,000	22,725,000	6	18,139	3	4,081	3,113	968
Nammuldi	54,377,000	18,731,000	35,646,000	6	16,553	6	7,449	4,883	2,566
Brockman 4 M	-	-	-	-	-	-	-	-	-
BS1	30,773,000	16,108,000	14,664,000	6	7,026	8	4,215	2,008	2,207
Brockman 4 QR	-	-	-	-	-	-	-	-	-
Brockman 4 O	-	-	-	-	-	-	-	-	-

Table 6.2: Emission parameters used for Phase 2 (2035)

Mine	Total Tonnes	Ore	Waste	Drilling	Blast Area	Blast areas	Loading	Unloading Waste	Unloading Ore
	(tonnes/yr)	(tonnes/yr)	(tonnes/yr)	(holes/hour)	(m^2)	(number)	(kg/hr)	(kg/hr)	(kg/hr)
Silvergrass	11,279,000	5,345,000	5,934,000	5	5,150	4	1,545	813	732
Lens G	-	-	-	-	-	-	-	-	-
Diesel	-	-	-	-	-	-	-	-	-
Brockman 3 ext	8,593,000	1,021,000	7,572,000	4	5,232	3	1,177	1,037	140
Nammuldi	32,137,000	9,686,000	22,451,000	6	9,783	6	4,402	3,076	1,327
Brockman 4 M	14,294,000	840,000	13,454,000	6	6,527	4	1,958	1,843	115
BS1	24,488,000	8,219,000	16,270,000	6	2,291	8	3,355	2,229	1,126
Brockman 4 QR	5,382,000	2,635,000	2,747,000	6	2,457	4	737	376	361
Brockman 4 O	18,596,000	6,070,000	12,526,000	6	8,491	4	2,547	1,716	831

6.2 Emission estimates

This section outlines the emission estimation process for the Brockman Syncline Proposal. Emission estimates are sourced from this inventory for inclusion in the dispersion model. It includes the emissions from mine operations, facilities and associated infrastructure including the road network. Emissions from all key sources have been identified according to accepted methods. The emphasis of the emission estimation and modelling is on the potential impact from the operating phase of the various operations within the Brockman Syncline Proposal. Emission estimation of construction activities is excluded from the assessment due to their intermittent nature over the life of the Brockman Syncline Proposal.

6.2.1 Drilling

Emissions for drilling have been calculated using the default emissions contained within the Emissions Estimation Technique (EET) Manual for Mining (EA, 2012a). The default values are:

- TSP: 0.59 kg/hole
- PM_{10}: 0.31 kg/hole
- $PM_{2.5}$: 28% of PM_{10} emissions

The number of holes (per hour) used in the emission estimation process for each mine and scenario are presented in Table 6.1 and Table 6.2. The statistics of the annual emissions from drilling for PM_{10} are contained in Appendix D.

6.2.2 Blasting

Emissions for drilling have been calculated using Equation 19 outlined in Appendix A of the EET for Mining (EA, 2012). This is represented by Equation 1:

Equation 1: $$EF_{TSP\ (kg/blast)} = 0.00022 \times A^{1.5}$$

Where A = blast area (m^2)

The blast area and number of areas per mine used in the emission estimation process for each mine and scenario are presented in Table 6.1 and Table 6.2.

The emission factor for PM_{10} is taken as 52% of the TSP emission and the $PM_{2.5}$ emissions are taken as 28% of the PM_{10} emissions. The statistics of the annual emissions for blasting for PM_{10} are contained in Appendix D.

6.2.3 Loading ore/waste

Emissions for loading ore and waste have been calculated using the default value for excavators and front-end loaders on overburden of:

- TSP: 0.025 kg/tonne
- PM_{10}: 0.012 kg/tonne

The tonnes of material loaded, per mine, for each mine and scenario are presented in Table 6.1 and Table 6.2.

The emission factor for $PM_{2.5}$ emissions is taken as 28% of the PM_{10} emissions. The statistics of the annual emissions for loading for PM_{10} are contained in Appendix D.

6.2.4 Unloading ore/waste

Emissions for unloading ore and waste have been calculated using the default values of:

- TSP: 0.012 kg/tonne
- PM_{10}: 0.0043 kg/tonne

The tonnes of material unloaded, per mine, for each mine and scenario are presented in Table 6.1 and Table 6.2.

The emission factor for $PM_{2.5}$ emissions is taken as 28% of the PM_{10} emissions. The statistics of the annual emissions for loading for PM_{10} are contained in Appendix D.

6.2.5 Bulldozing

Emissions for the operation of bulldozers on both ore and waste have been determined using Equation 16 and 17 outlined in Appendix A of the EET for Mining (EA, 2012). The silt and moisture contents used were the defaults listed in the manual (10% moisture, 2% silt).

The emission factor for $PM_{2.5}$ emissions is taken as 28% of the PM_{10} emissions. The statistics of the annual emissions for loading for PM_{10} are contained in Appendix D.

6.2.6 Front-end loaders

Emissions for the operation of front-end loaders, at the Run of Mine (ROM) pad, used the default emission factor listed in Appendix A of the EET for Mining (EA, 2012) for overburden. These factors are:

- TSP: 0.025 kg/tonne
- PM_{10}: 0.012 kg/tonne

The emission factor for $PM_{2.5}$ emissions is taken as 28% of the PM_{10} emissions. The statistics of the annual emissions for loading for PM_{10} are contained in Appendix D.

6.2.7 Primary crusher

The emissions for the primary crusher were determined using the default emission factors for high moisture content ores from Table 3 of the EET for Mining.

The emission factor for $PM_{2.5}$ emissions is taken as 28% of the PM_{10} emissions. The statistics of the annual emissions for loading for PM_{10} are contained in Appendix D.

6.2.8 Handling and transferring

Emissions within this activity include transfer stations, stacking, reclaiming and rail load out and were determined using the default emission factors for high moisture content ores from Table 3 of the EET for Mining.

The emission factor for $PM_{2.5}$ emissions is taken as 28% of the PM_{10} emissions. The statistics of the annual emissions for loading for PM_{10} are contained in Appendix D.

6.2.9 Haul roads

To determine emissions from wheel generated dust along the haul roads the default equation for ‘unpaved roads from wheels’ from the EET for Mining was utilised (Equation 2). The weight of the haul trucks was taken

as 368 tonnes – being the average of an empty and fully laden CAT930 haul truck and the default silt content of 10% was utilised.

Equation 2: $$EF_{(kg/VKT)} = \frac{0.4536}{1.6093} \times k \times \left(\frac{s_{(\%)}}{12}\right)^{a} \times \left(\frac{W_{(t)}}{3}\right)^{b}$$

Where: k = constant (TSP = 4.9, PM_{10} = 1.5)
$s_{(\%)}$ = silt content (%)
$W_{(t)}$ = vehicle mass (t)
a = constant (TSP = 0.7, PM_{10} = 0.9)
b = constant (0.45)

6.2.10 Wind erosion

The default emission factor for wind erosion in the EET for Mining is a constant emission of 0.2 kg/ha/hr which, while potentially suitable for the calculation of annual emissions, is not suitable for inclusion in atmospheric modelling. This assessment used the modified Shao equation outlined in SKM (2005) which is represented as Equation 3:

Equation 3: $$\boldsymbol{PM_{10_{(g/m^2/s)}}} = \boldsymbol{k} \times \left\{\boldsymbol{WS^3} \times \left(\mathbf{1} - \left(\boldsymbol{WS_0}^2/\boldsymbol{WS}^2\right)\right)\right\} \quad \text{WS} > \text{WS}_O$$

$$\boldsymbol{PM_{10_{(g/m^2/s)}}} = 0 \quad \text{WS} < \text{WS}_O$$

Where: WS = wind speed (m/s)
WS_0 = threshold for particulate matter lift off (m/s)
k is a constant

Due to the large model domain, three meteorological files were extracted from the WRF model run for the region. The wind speed from each of these model runs were used to calculate the wind erosion for the following areas:

- Northern: Silvergrass
- Eastern: Nammuldi, Brockman 2, Lens G and Diesel
- South western: Brockman 1, Brockman 3 and Brockman 4

For this assessment the wind speed threshold (WS_0) was set at 6 m/s and the following factors were used for the k constant:

- Northern: 3.1×10^{-7}
- Eastern: 3.75×10^{-7}
- South western: 5.5×10^{-7}

The resulting overall emission rate was determined as 0.3 kg/ha/hr for PM_{10} from open areas, which is higher than the emission rate of 0.2 kg/ha/hr specified in the EET for Mining.

The emission factor for TSP is taken as twice that of the PM_{10} emissions while $PM_{2.5}$ emissions are taken as 28% of the PM_{10} emissions.

6.3 Emission controls

Emissions controls (for dust abatement) were included in the emissions estimation and these controls are summarised in Table 6.3, along with the percentage reduction applied to each source type.

Table 6.3: Brockman Syncline Proposal dust abatement in place (included in model)

	Equipment	Dust abatement description	Emission reduction
Mining	Bulldozing	None	0%
	Loading ore and waste	In pit reduction	5% (PM_{10}) 50% (TSP)
	Unloading waste	None	0%
	Unloading ore at ROM pad	None	0%
	Drilling	In pit reduction	5% (PM_{10}) 50% (TSP)
	Blasting	In pit reduction	5% (PM_{10}) 50% (TSP)
	Wind erosion (OSA and ROM pad)	Watering	50%
Haul road	Hauling	Level 2 watering	75%
Processing Facility	Unloading ore into primary crusher by front end loader	Watering	50%
	Primary crushing of ore	Water sprays	50%
	Secondary crusher	Hooding with extraction	63%
	Screening	Enclosed with extraction	99%
	Transfer stations	Enclosure	70%
	Stackers	Luffing and water sprays	63%
	Reclaiming	Water sprays	50%

6.4 Emission Summary

A summary of the estimated annual emissions from the Brockman Syncline Proposal is shown in Table 6.4.

Table 6.4: Estimate of TSP, PM_{10} and $PM_{2.5}$ annual particulate emissions from the Brockman Syncline Proposal (kg/yr)

Mine	Phase 1			Phase 2		
	TSP	PM_{10}	$PM_{2.5}$	TSP	PM_{10}	$PM_{2.5}$
Silvergrass	2,150,000	1,088,000	326,000	1,781,000	823,000	247,000
Lens G & Diesel	4,346,000	1,876,000	525,000	-	-	-
BS3 ext	2,445,000	1,014,000	284,000	695,000	303,000	85,000
Nammuldi	4,775,000	1,886,000	528,000	2,951,000	1,170,000	328,000
Brockman 1	6,835,000	2,366,000	662,000	5,226,000	1,839,000	515,000
Brockman 4	1,438,000	465,000	130,000	4,508,000	1,822,000	510,000

Note: Emissions have been rounded to the nearest 1,000kg.

7 Predicted air quality impact

Comparison of the modelled results to the assessment criteria is intended to provide an objective evaluation of the potential impact of the operations at the nearest sensitive receptors. Modelled ground-level concentrations for key air pollutants have been compared to relevant ambient air quality assessment criteria to estimate the potential impacts.

As outlined in Section 6.1 the modelling was undertaken for two separate years to highlight the variability in emissions, and associated impact, as mining progresses: The modelled years are:

- Phase 1: 2027
- Phase 2: 2035

The model results for each of these years was presented for particulates as TSP, PM_{10} and $PM_{2.5}$ in both graphical and tabular format. The model results were also compared to the assessment criteria adopted for this Proposal (Table 4.1) at each of the receptors, noting that the sensitive receptors for this assessment included:

- Bat caves (habitat/roosting)
- Rock pools
- Homesteads (including stockyards)
- RTIO camps and
- RTIO airport

7.1 Phase 1 (2027)

7.1.1 Particles as TSP

The predicted ground level concentrations of particulates (as TSP) for the Phase 1 modelling are presented as concentration contour plots in Figure 7-1 (without background) and Figure 7-2 (with background) for the modelled maximum 24-hour average ground level concentrations. The concentration contours show:

- Without background concentrations the model is predicting concentrations above the assessment criteria (Kwinana EPP 90 µg/m^3) within the areas surrounding the operations (including haul roads).
- When background concentrations are included the model is predicting that the extent of the area above the assessment criteria expands, although it remains within the area surrounding the operations (including haul roads).

The Phase 1 modelled results for TSP, at selected receptors, are presented statistically in Table 7.1 with the remaining statistics for all nominated sensitive receptor locations presented within Appendix E.1. The results at the selected receptors indicate that:

- The assessment criteria is achieved at the two homestead receptors (Receptor 107 Rocklea Homestead and Receptor 108 Hamersley Homestead) for the maximum cumulative 24-hour TSP concentration.
- The assessment criteria is achieved at both the cattle yard receptors (Receptor 109 Cheela Outcamp and Receptor 106 Mount Brockman). It is important to note that these are cattle yards and not residential receptors.
- The assessment criteria is only achieved at one of the rock pool receptors (Receptor 116 Palm Springs Pool). It is important to note that the pools are not residential receptors.

- The modelled concentrations are higher than the assessment criteria at some of the RTIO camp receptors[2], with Jerriwah Village (Receptor 113) predicted to experience 78 days during the year higher than the assessment criteria.
- Statistics at all other receptors are provided in Appendix E.
- There is a high variability in the predicted ground level concentrations at the various bat cave receptor locations depending on their proximity to the various mining operations. It should be noted that the predicted concentrations do not represent the concentrations within the caves which may be significantly lower.

Table 7.1: Statistics of 24-hour TSP concentration at sensitive receptors – including background (µg/m³)

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
106[a] – Mount Brockman	88	76	70	66	61	57	49	0
107[a] – Rocklea Homestead	45	42	40	40	39	38	37	0
108[a] – Hamersley Homestead	46	44	43	42	41	40	37	0
109[a] – Cheela Outcamp	43	41	40	39	38	37	36	0
110[b] – RTIO West Pilbara Village	93	92	81	76	71	63	54	2
111[b] – RTIO Brockman 4 Village	89	88	78	74	68	60	53	0
112[b] – RTIO Nammuldi Village	90	88	78	74	67	61	53	0
113[b] – RTIO Jerriwah Village	204	199	164	148	133	115	79	78
114[b] – RTIO Brockman 2 Village	148	144	124	118	108	96	71	47
115[b] – RTIO Homestead Camp	71	71	65	63	56	51	43	0
116 – Palm Springs Pool	56	47	44	44	43	42	40	0
117 – Plunge Pool	540	528	453	409	349	300	204	232
120[b] – RTIO Airport	126	124	120	104	88	78	58	18

Note:

a. Homesteads
b. RTIO camps

[2] RTIO camp receptors have been included for information, and are not assessed by DWER as a Proposal sensitive receptor.

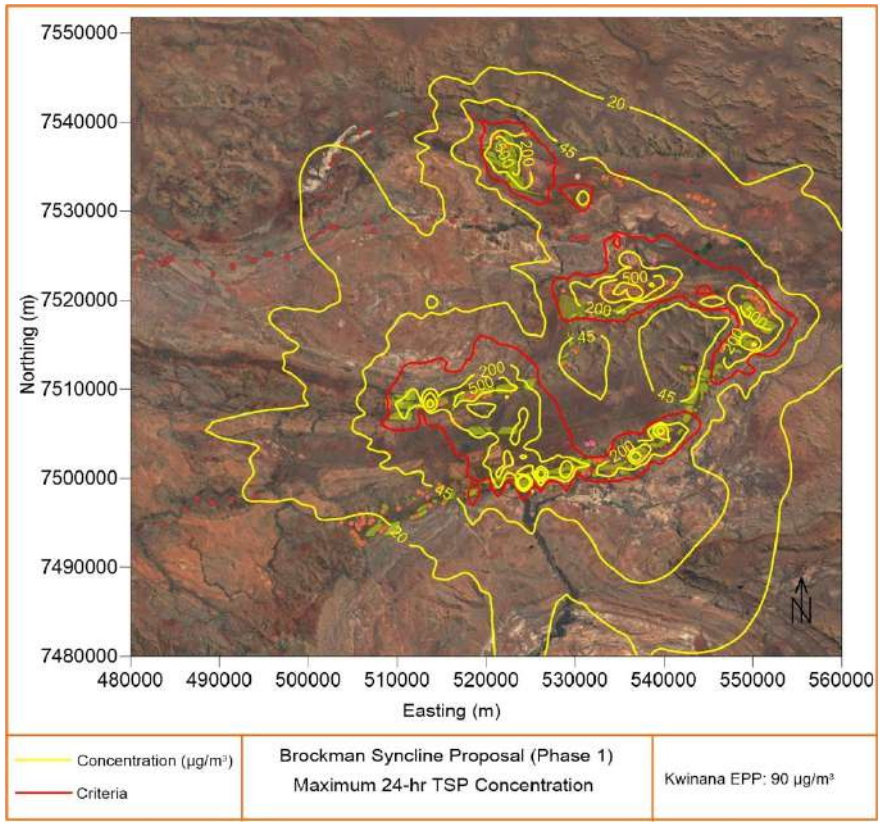

Figure 7-1: Phase 1: predicted maximum 24-hour TSP concentrations (excluding background) (µg/m³)

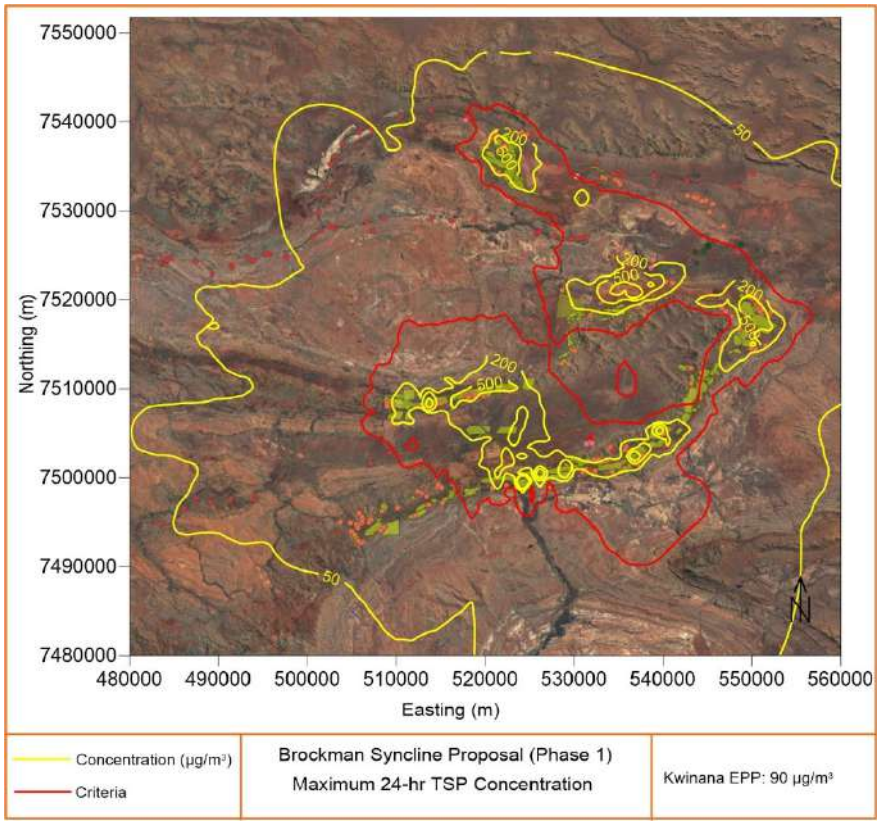

Figure 7-2: Phase 1: predicted maximum 24-hour TSP concentrations (including background) (µg/m³)

7.1.2 Particles as PM_{10}

The predicted ground level concentrations of particulates, as PM_{10}, are presented as concentration contour plots and at the identified discrete receptor locations. Figures demonstrating the predicted ground level concentrations (contours) for the modelled annual average and maximum 24-hour average ground level concentrations of PM_{10} are presented in Figure 7-3 to Figure 7-6. The concentration contours show:

- The PM_{10} modelled annual average concentrations are higher than the adopted assessment criteria (NEPM 25 µg/m^3) over the mines and adjacent land for both the mines operating in isolation and with the background concentration included (Figure 7-3 and Figure 7-4).
- The maximum 24-hour PM_{10} concentrations are higher than the adopted assessment criteria (Taskforce 70 µg/m^3) over areas immediately surrounding the operations (Figure 7-5 and Figure 7-6).

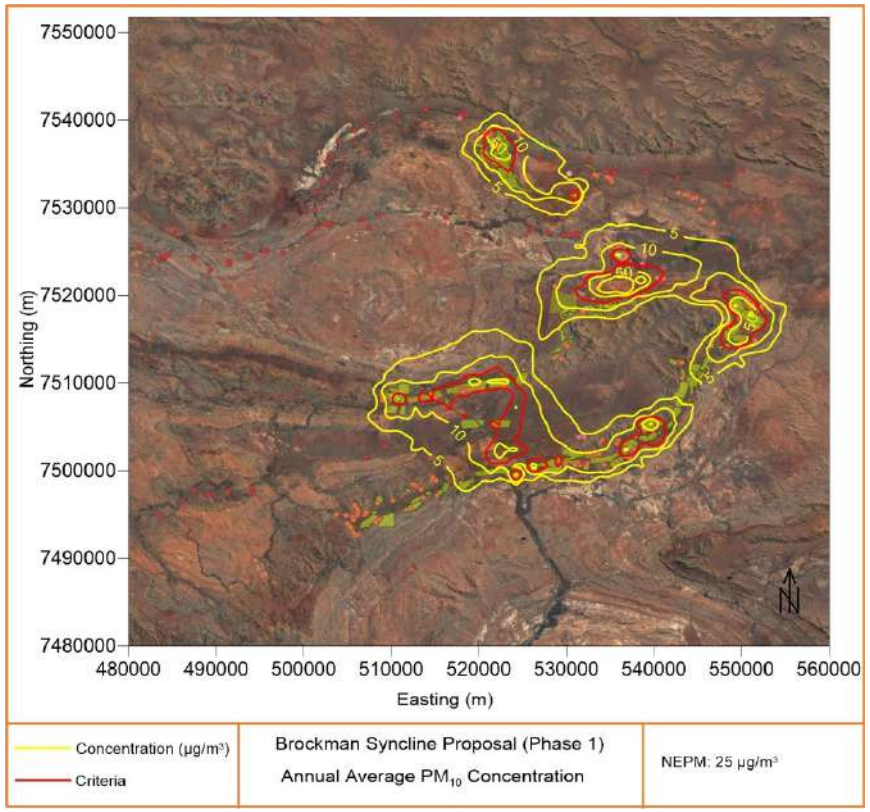

Figure 7-3: Phase 1: predicted annual average PM_{10} concentrations (excluding background) (µg/m³)

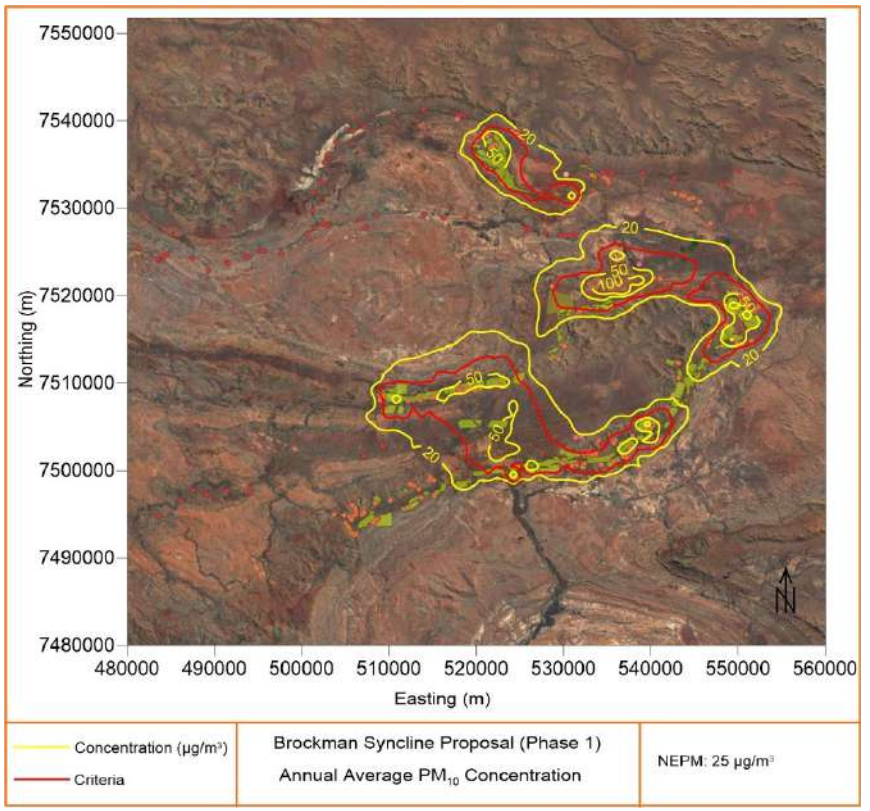

Figure 7-4: Phase 1: predicted annual average PM_{10} concentrations (including background) (µg/m³)

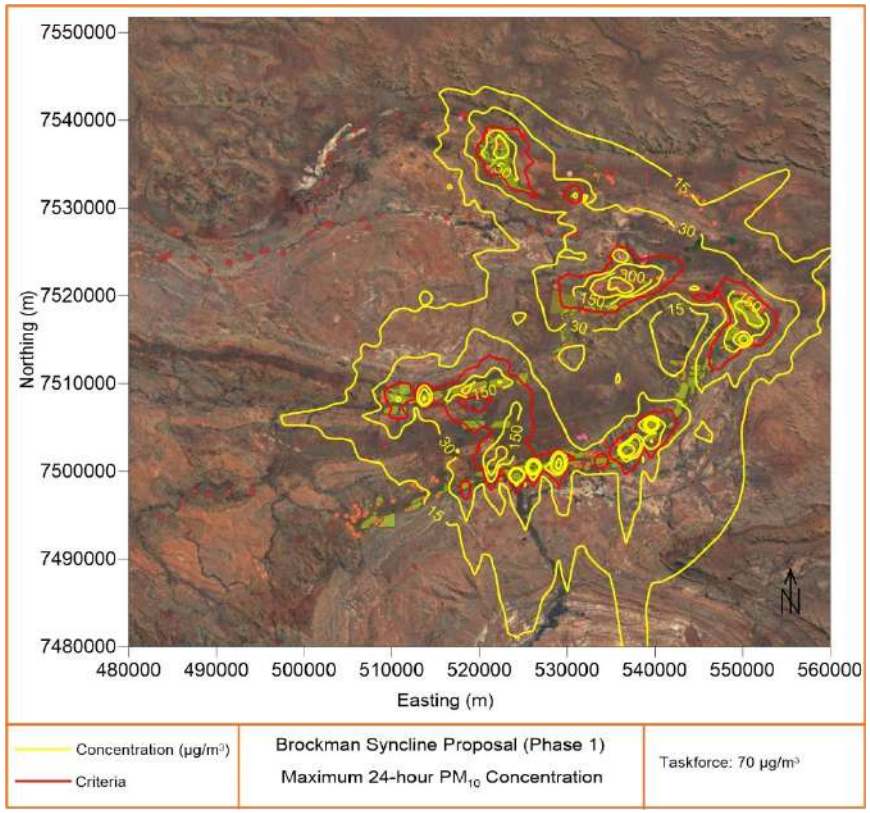

Figure 7-5: Phase 1: predicted maximum PM_{10} concentrations (excluding background) (µg/m³)

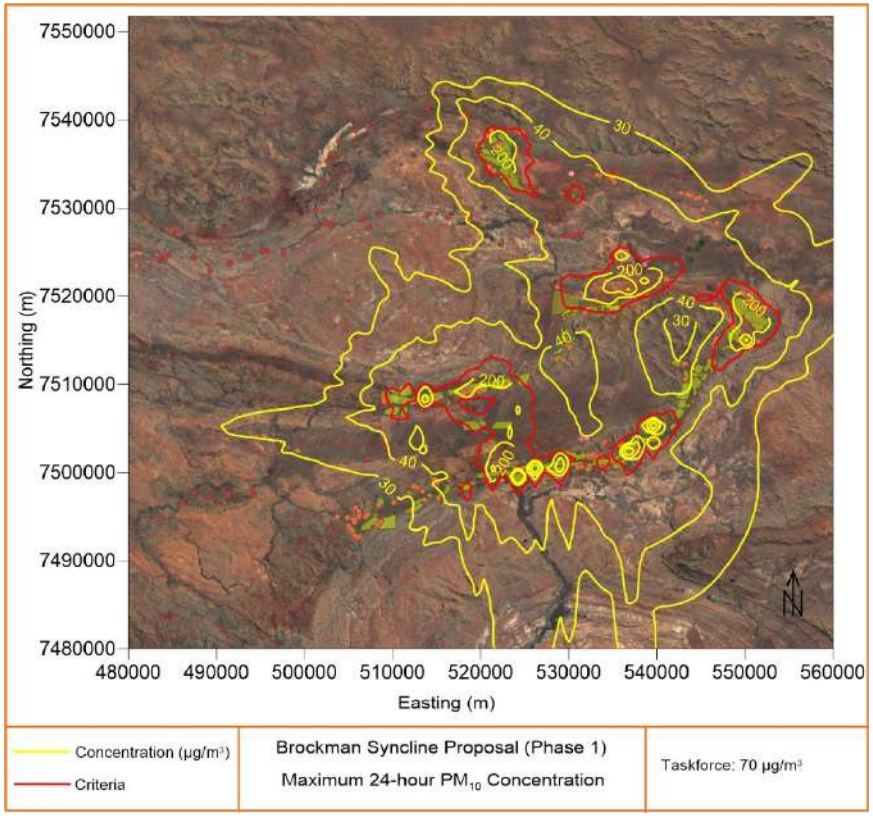

Figure 7-6: Phase 1: predicted maximum PM_{10} concentrations (including background) (µg/m³)

The Phase 1 modelled results for PM_{10}, at selected receptors, are presented statistically in Table 7.2 with the statistics for all nominated receptor locations presented within Appendix E.1. The modelled results at the selected receptors indicate that:

- Predictions at the homestead receptors (Receptor 107 Rocklea Homestead and Receptor 108 Hamersley Homestead) are lower than the annual (NEPM 25 µg/m^3) and maximum 24-hour (Taskforce 70 µg/m^3) PM_{10} assessment criterion (Table 7.2)
- Both the annual and 24-hour assessment criteria is achieved at both of the cattle yard receptors (Receptor 109 Cheela Outcamp and Receptor 106 Mount Brockman). It is important to note that these are cattle yards and not residential receptors.
- Predictions at the Jerriwah Village (Receptor 113) and Brockman 2 Village (Receptor 114) are higher than the annual (NEPM 25 µg/m^3) and 24-hour (Taskforce 70 µg/m^3) assessment criterion.
- The modelling results show a significant reduction in the predicted ground level concentrations below the 2nd highest concentration – indicating that the maximum concentrations are isolated events that would probably not occur. It may be more appropriate to utilise the 6th highest predicted concentrations as being indicative of the ground level concentrations expected to occur.
- There is a high variability in the predicted ground level concentrations at the various bat cave receptor locations depending on their proximity to the various mining operations. It should be noted that the predicted concentrations do not represent the concentrations within the caves which may be significantly lower.

Table 7.2: Statistics of 24-hour PM_{10} concentration at sensitive receptors – including background (µg/m^3)

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			percentile				
106[a] – Mount Brockman	43	37	35	32	30	28	25	22.7	0
107[a] – Rocklea Homestead	22	21	20	20	19	19	18	18.4	0
108[a] – Hamersley Homestead	23	22	21	21	20	20	19	18.6	0
109[a] – Cheela Outcamp	22	20	20	19	19	19	18	18.3	0
110[b] – RTIO West Pilbara Village	41	39	35	33	31	28	25	23.6	0
111[b] – RTIO Brockman 4 Village	40	37	34	32	30	27	24	23.2	0
112[b] – RTIO Nammuldi Village	41	37	34	33	30	27	24	23.3	0
113[b] – RTIO Jerriwah Village	109	102	84	77	69	58	41	34.9	17
114[b] – RTIO Brockman 2 Village	76	74	66	61	54	47	35	30.4	3
115[b] – RTIO Homestead Camp	36	36	32	31	28	25	21	20.7	0
116 – Palm Springs Pool	25	23	22	21	21	20	20	19.1	0
117 – Plunge Pool	188	172	145	134	120	102	73	56.4	122
120[b] – RTIO Airport	49	48	46	42	36	32	26	24.5	0

7.1.3 Particles as $PM_{2.5}$

The predicted ground level concentrations of particulates, as $PM_{2.5}$, are presented as concentration contour plots and at the identified discrete receptor locations. Figures demonstrating the ground level concentrations

(contours) for the modelled annual average and maximum 24-hour average ground level concentrations of $PM_{2.5}$ are presented. The model results are shown in Figure 7-7 to Figure 7-10.

The concentration contours show:

- The $PM_{2.5}$ modelled concentrations to be higher than the annual average assessment criteria (NEPM 8 µg/m^3) in the area immediately over the mines and processing facilities (Figure 7-7 and Figure 7-8).
- The maximum 24-hour $PM_{2.5}$ concentration is predicted to be higher than the adopted assessment criteria (NEPM 25 µg/m^3) over the mines and processing facilities for both the in isolation, and with background concentration included (Figure 7-9 and Figure 7-10).

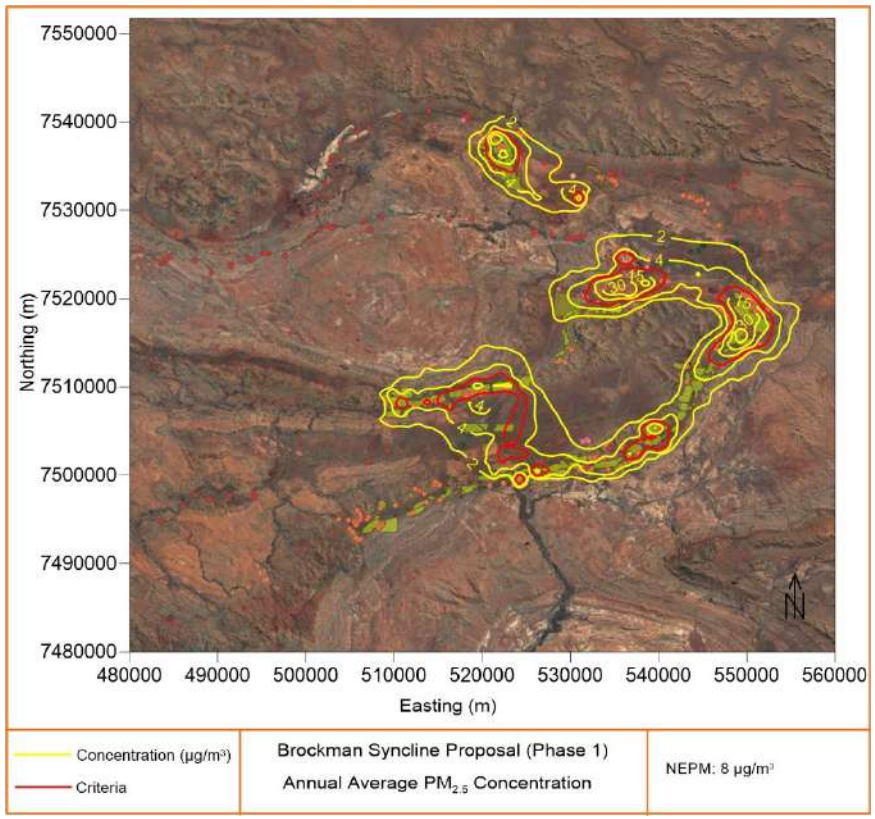

Figure 7-7: Phase 1: predicted annual average $PM_{2.5}$ concentrations (excluding background) (µg/m³)

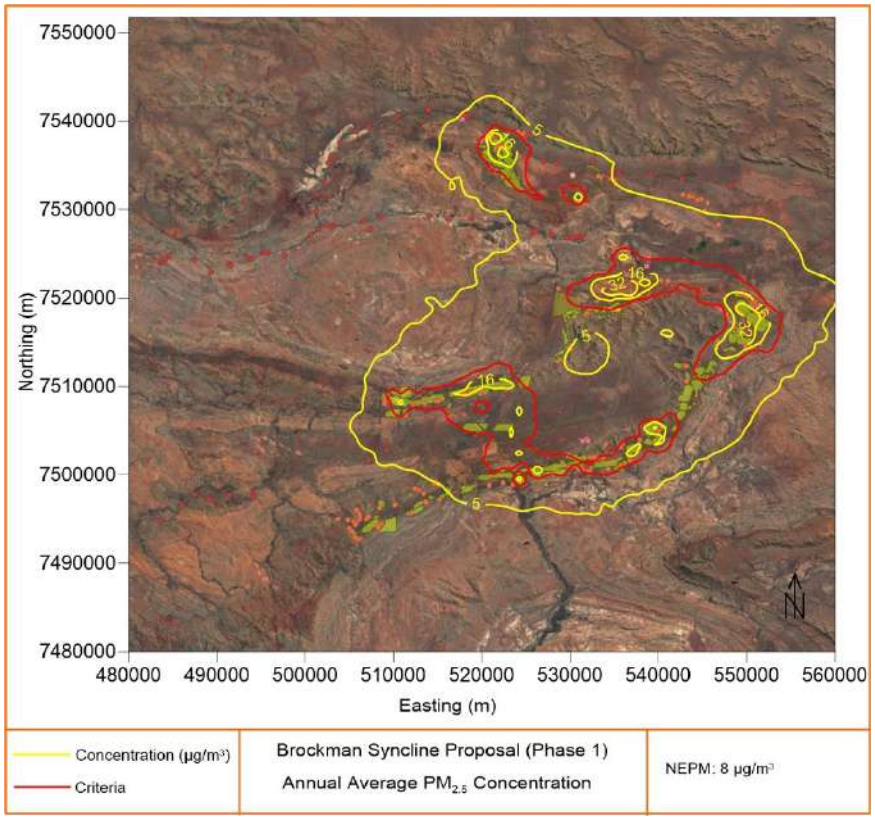

Figure 7-8: Phase 1: predicted annual average $PM_{2.5}$ concentrations (including background) (µg/m³)

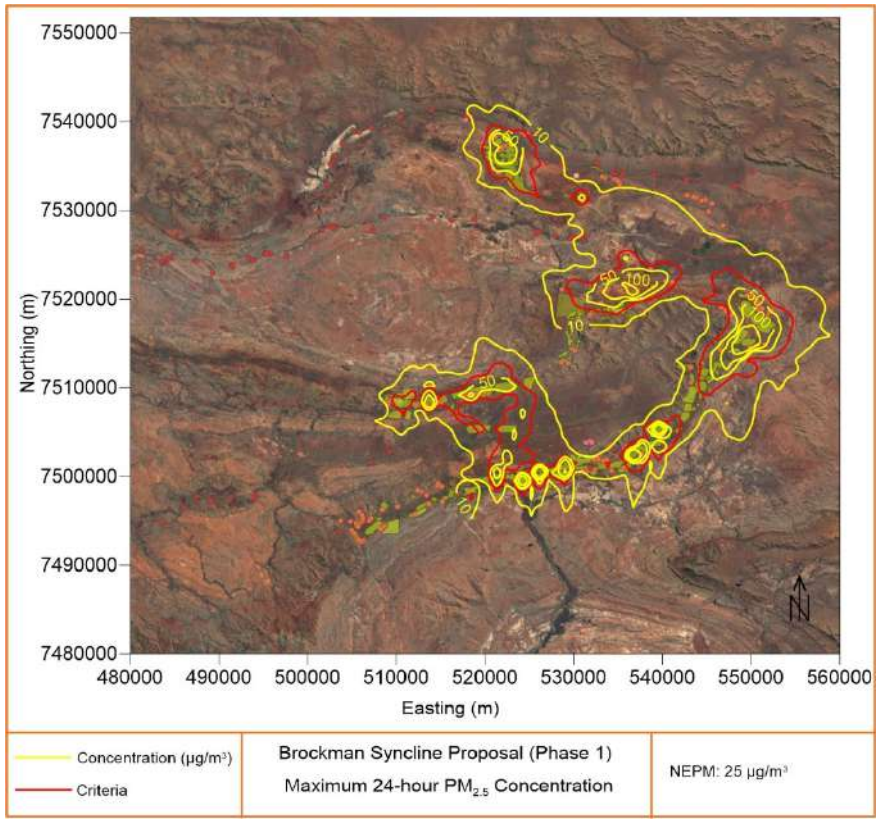

Figure 7-9: Phase 1: predicted maximum 24-hour $PM_{2.5}$ concentrations (excluding background) (µg/m³)

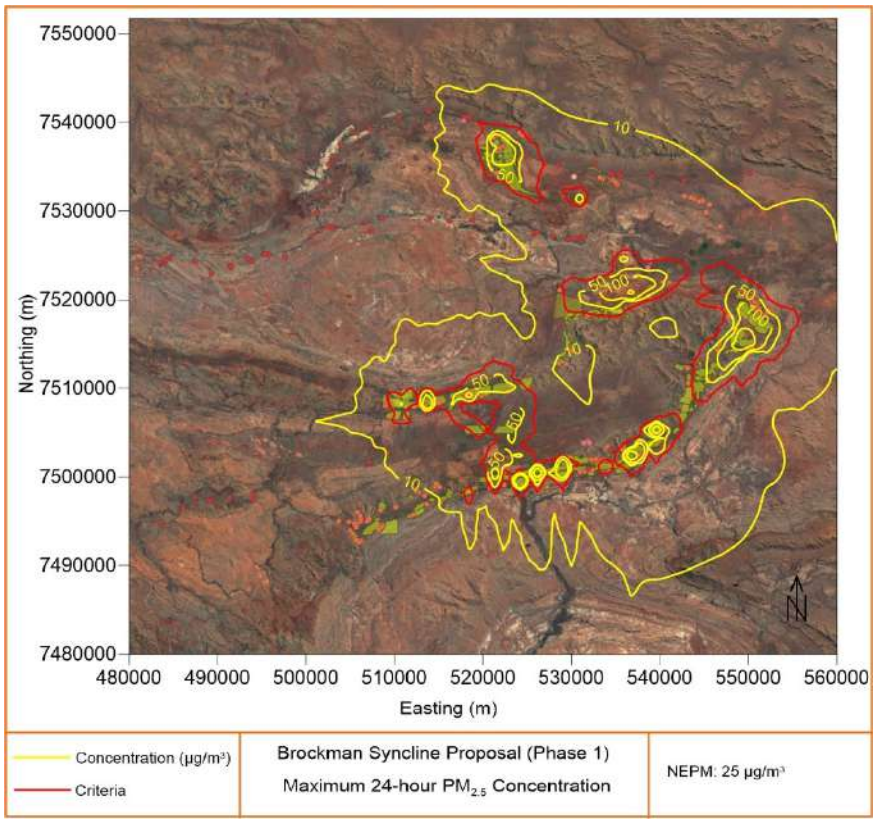

Figure 7-10: Phase 1: predicted maximum 24-hour $PM_{2.5}$ concentrations (including background) (µg/m³)

The Phase 1 modelled results for $PM_{2.5}$, at selected receptors, are presented statistically in Table 7.3 with the remaining statistics presented within Appendix E.1. The results at the selected receptors indicate that:

- Predictions at the homestead receptors (Receptor 107 Rocklea Homestead and Receptor 108 Hamersley Homestead) are lower than the annual (NEPM 8 µg/m^3) and maximum 24-hour (NEPM 25 µg/m^3) $PM_{2.5}$ assessment criterion (Table 7.3)
- Both the annual and 24-hour assessment criteria are predicted to be achieved at both of the cattle yard receptors (Receptor 106 Mount Brockman and Receptor 109 Cheela Outcamp).
- The assessment criteria is achieved at the Palm Springs Pool (Receptor 116) though not at the Plunge Pool (Receptor 117). It is important to note that the pools are not residential receptors.
- Predictions at the RTIO camp receptors show that the assessment criteria for $PM_{2.5}$ is achieved, with the exception of Jerriwah Village (Receptor 113).
- There is a high variability in the predicted ground level concentrations at the various bat cave receptors depending on their proximity to the various mining operations. It should be noted that the predicted concentrations do not represent the concentrations within the caves which may be significantly lower.

Table 7.3: Statistics of 24-hour $PM_{2.5}$ concentration at sensitive receptors – including background (µg/m^3)

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
106[a] – Mount Brockman	14	12	11	10	9	8	7	6.7	0
107[a] – Rocklea Homestead	6	6	6	6	6	5	5	5.2	0
108[a] – Hamersley Homestead	7	7	6	6	6	6	5	5.3	0
109[a] – Cheela Outcamp	6	6	6	6	5	5	5	5.2	0
110[b] – RTIO West Pilbara Village	11	11	10	10	9	8	7	6.8	0
111[b] – RTIO Brockman 4 Village	11	10	10	9	9	8	7	6.7	0
112[b] – RTIO Nammuldi Village	12	10	10	9	9	8	7	6.7	0
113[b] – RTIO Jerriwah Village	31	30	25	22	19	17	12	10.1	5
114[b] – RTIO Brockman 2 Village	23	22	18	17	15	14	10	8.8	0
115[b] – RTIO Homestead Camp	13	12	11	10	9	8	6	6.1	0
116 – Palm Springs Pool	7	7	6	6	6	6	6	5.4	0
117 – Plunge Pool	52	49	45	40	35	29	22	16.5	72
120[b] – RTIO Airport	14	13	12	12	10	9	7	7.0	0

Note:

a. Homesteads
b. RTIO camps

7.2 Phase 2 (2035)

7.2.1 Particles as TSP

The predicted ground level of particulates (as TSP) for the Phase 2 modelling are presented as concentration contour plots and at the identified discrete receptor locations. Figures demonstrating the ground level

concentrations (contours) for the modelled maximum 24-hour average ground level concentrations of TSP are presented in Figure 7-11 and Figure 7-12. The concentration contours show:

- The predicted concentrations are significantly lower than those predicted for Phase 1.
- Modelled concentrations higher than the assessment criteria (Kwinana EPP 90 µg/m^3) are only predicted over, and immediately adjacent to, the mines and processing facilities.

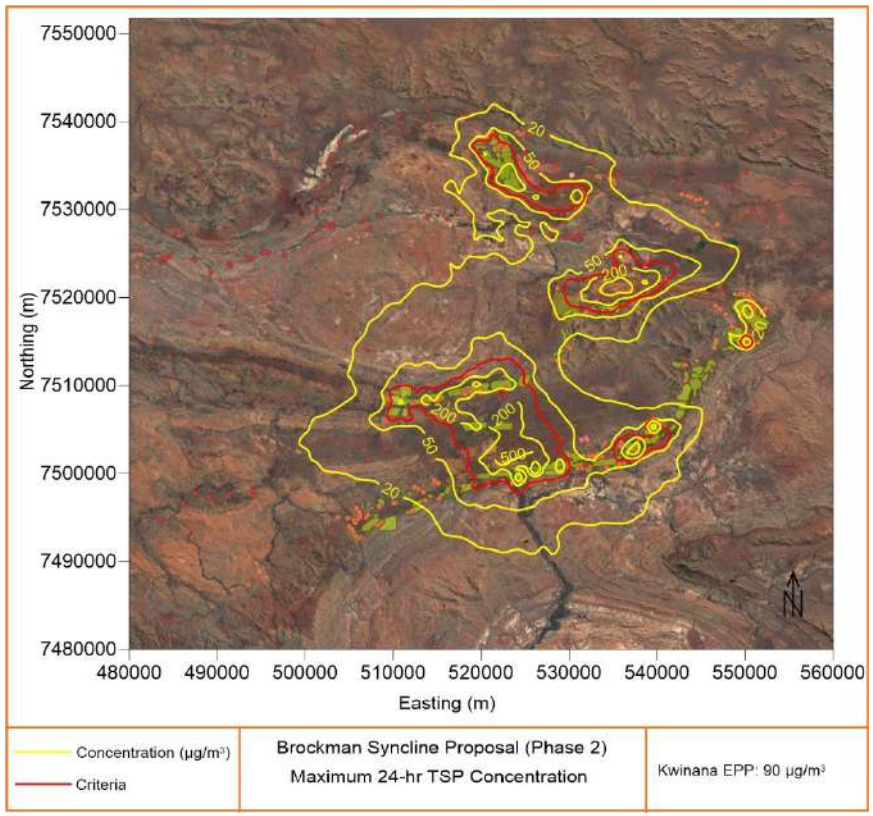

Figure 7-11: Phase 2: predicted maximum 24-hour TSP concentrations (excluding background) (µg/m³)

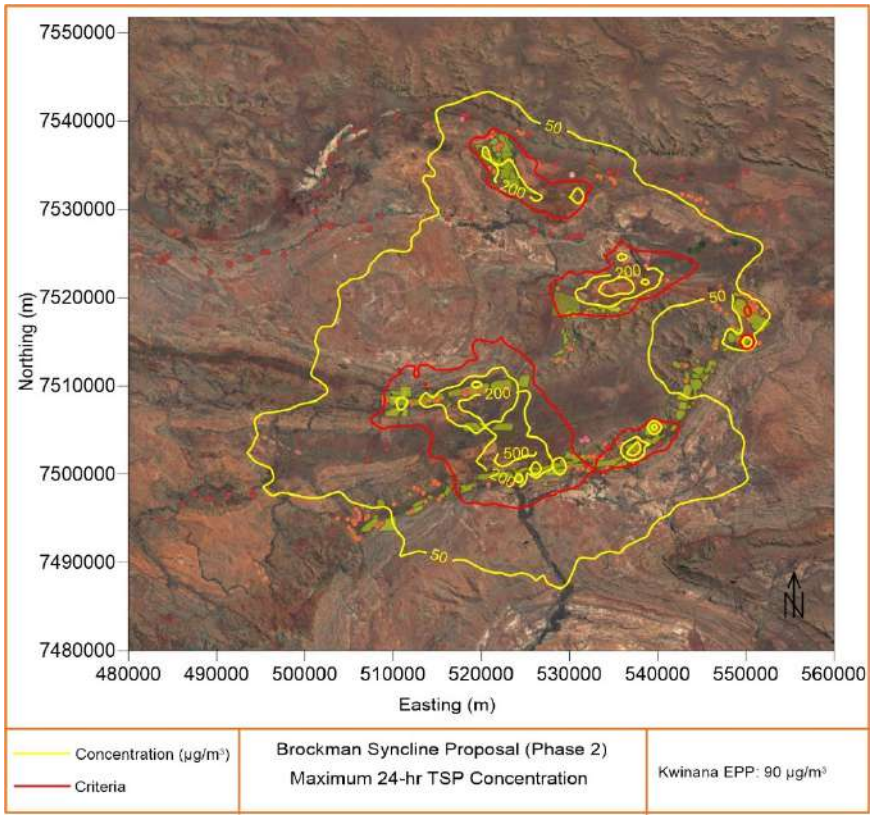

Figure 7-12: Phase 2: predicted maximum 24-hour TSP concentrations (including background) (µg/m³)

The Phase 2 modelled results for TSP, at selected receptors, are presented statistically in Table 7.4 with the remaining statistics presented within Appendix E.2. The results at the selected receptors indicate that:

- The assessment criteria (Kwinana EPP 90 µg/m^3) is achieved at the two homestead receptors (Receptor 107 Rocklea Homestead and Receptor 108 Hamersley Homestead) for the maximum cumulative 24-hour TSP concentration.
- The assessment criteria (Kwinana EPP 90 µg/m^3) is achieved at the two stock yard receptors (Receptor 106 Mount Brockman and Receptor 109 Cheela Outcamp) for the maximum cumulative 24-hour TSP concentration.
- The assessment criteria is only achieved at one of the rock pool receptors (Receptor 116 Palm Springs Pool). It is important to note that the pools are not residential receptors.
- For the RTIO village receptors the modelling is predicting concentrations higher than the adopted assessment criteria (Kwinana EPP 90 µg/m^3) at West Pilbara receptor (though only a single occurrence), the Brockman 2 Village and the Jerriwah Village
- Statistics at all other receptors are provided in Appendix E.

There is a high variability in the predicted ground level concentrations at the various bat cave receptors depending on their proximity to the various mining operations. It should be noted that the predicted concentrations do not represent the concentrations within the caves which may be significantly lower.

Table 7.4: Statistics of 24-hour TSP concentration at sensitive receptors – including background (µg/m^3)

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
106[a] – Mount Brockman	78	76	73	71	67	63	53	0
107[a] – Rocklea Homestead	42	40	39	39	38	38	37	0
108[a] – Hamersley Homestead	44	41	39	39	38	38	37	0
109[a] – Cheela Outcamp	42	40	39	38	38	37	36	0
110[b] – RTIO West Pilbara Village	92	83	73	66	61	57	47	1
111[b] – RTIO Brockman 4 Village	87	80	70	65	58	55	46	0
112[b] – RTIO Nammuldi Village	85	78	69	64	58	54	46	0
113[b] – RTIO Jerriwah Village	157	145	126	112	106	87	65	32
114[b] – RTIO Brockman 2 Village	113	108	98	91	83	73	58	12
115[b] – RTIO Homestead Camp	72	60	57	54	51	47	41	0
116 – Palm Springs Pool	50	43	42	42	41	40	39	0
117 – Plunge Pool	207	188	168	159	140	124	89	108
120[b] – RTIO Airport	103	102	92	86	75	67	52	7

Note:

a. Homesteads
b. RTIO camps

7.2.2 Particles as PM_{10}

The predicted ground level concentrations of particulates, as PM_{10}, are presented as concentration contour plots and at the identified discrete receptor locations. Figures demonstrating the ground level concentrations (contours) for the modelled annual average, maximum and 6th highest 24-hour average ground level concentrations of PM_{10} are presented in Figure 7-13 to Figure 7-16. The concentration contours show:

- The PM_{10} modelled annual average concentrations are higher than the adopted assessment criteria (NEPM 25 µg/m^3) over the mines and processing facilities.
- The maximum 24-hour PM_{10} concentration is higher than the adopted assessment criteria (Taskforce 70 µg/m^3) over each operating mine and the processing facilities.

The Phase 2 modelled results for PM_{10}, at selected receptors, are presented statistically in Table 7.5 with the remaining statistics presented within Appendix E.2. The results at the selected receptors indicate that:

- The modelled concentrations are below the annual and maximum cumulative 24-hour PM_{10} the assessment criteria at all identified receptors, with the exception of the one (Receptor 117 Plunge Pool) which is predicted to experience 9 occasions in the year higher than the criteria. This constitutes a significant reduction (122 days per annum) from Phase 1 predictions.
- There is a high variability in the predicted ground level concentrations at the various bat cave receptor locations depending on their proximity to the various mining operations. It should be noted that the predicted concentrations do not represent the concentrations within the caves which may be significantly lower.

Table 7.5: Statistics of 24-hour PM_{10} concentration at sensitive receptors – including background (µg/m^3)

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
106[a] – Mount Brockman	34	34	32	31	30	27	24	22.0	0
107[a] – Rocklea Homestead	20	20	19	19	19	19	18	18.3	0
108[a] – Hamersley Homestead	22	20	19	19	19	19	18	18.3	0
109[a] – Cheela Outcamp	21	20	19	19	19	18	18	18.2	0
110[b] – RTIO West Pilbara Village	36	35	31	29	28	26	23	21.7	0
111[b] – RTIO Brockman 4 Village	35	34	31	28	26	25	22	21.4	0
112[b] – RTIO Nammuldi Village	34	34	31	29	26	25	22	21.5	0
113[b] – RTIO Jerriwah Village	67	62	54	49	46	39	30	26.2	0
114[b] – RTIO Brockman 2 Village	49	47	43	40	37	33	27	24.1	0
115[b] – RTIO Homestead Camp	32	27	26	25	24	22	20	19.6	0
116 – Palm Springs Pool	23	21	20	20	20	20	19	18.7	0
117 – Plunge Pool	86	83	74	68	61	53	38	32.6	9
120[b] – RTIO Airport	41	40	37	36	31	29	24	22.3	0

Note:

a. Homesteads
b. RTIO camps

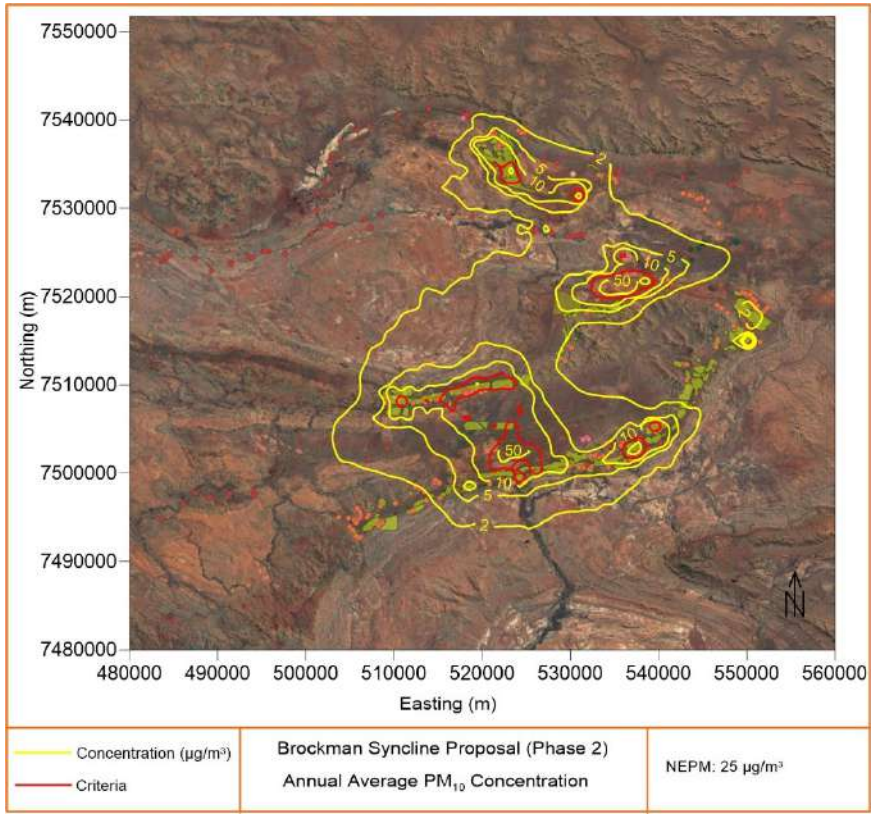

Figure 7-13: Phase 2: predicted annual average PM_{10} concentrations (excluding background) (µg/m³)

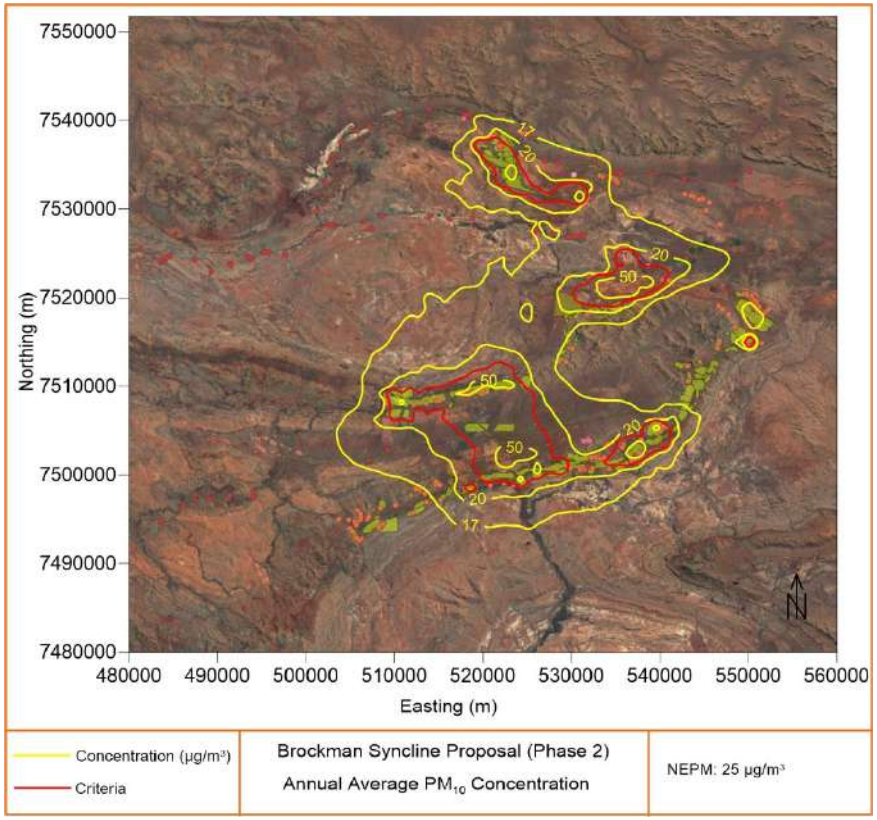

Figure 7-14: Phase 2: predicted annual average PM_{10} concentrations (including background) (µg/m³)

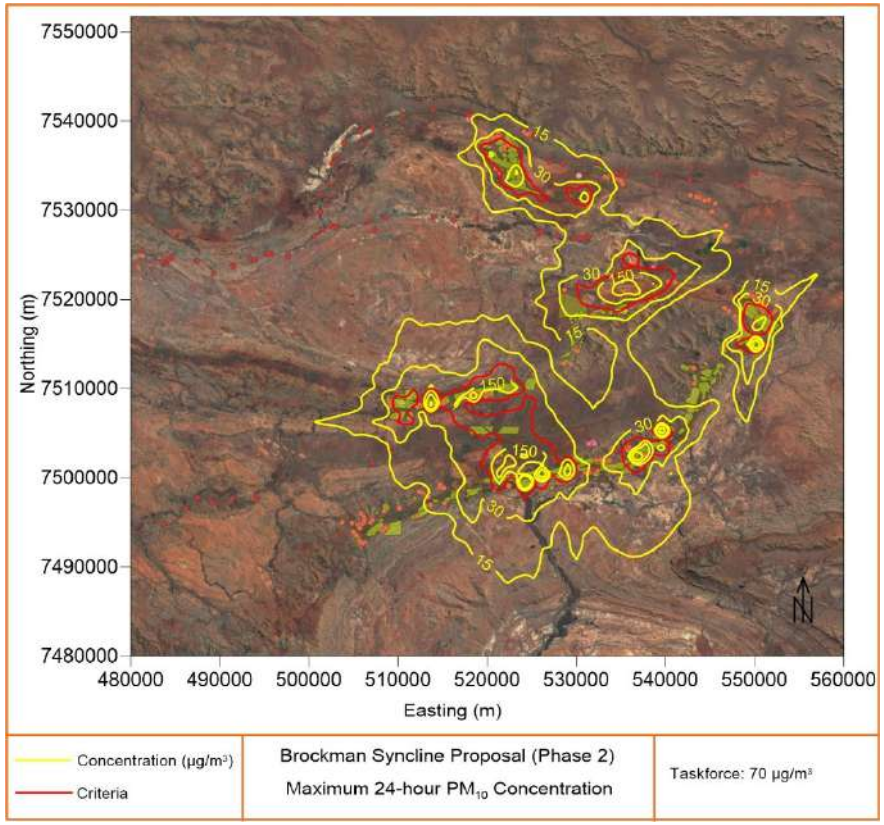

Figure 7-15: Phase 2: predicted maximum PM_{10} concentrations (excluding background) (µg/m³)

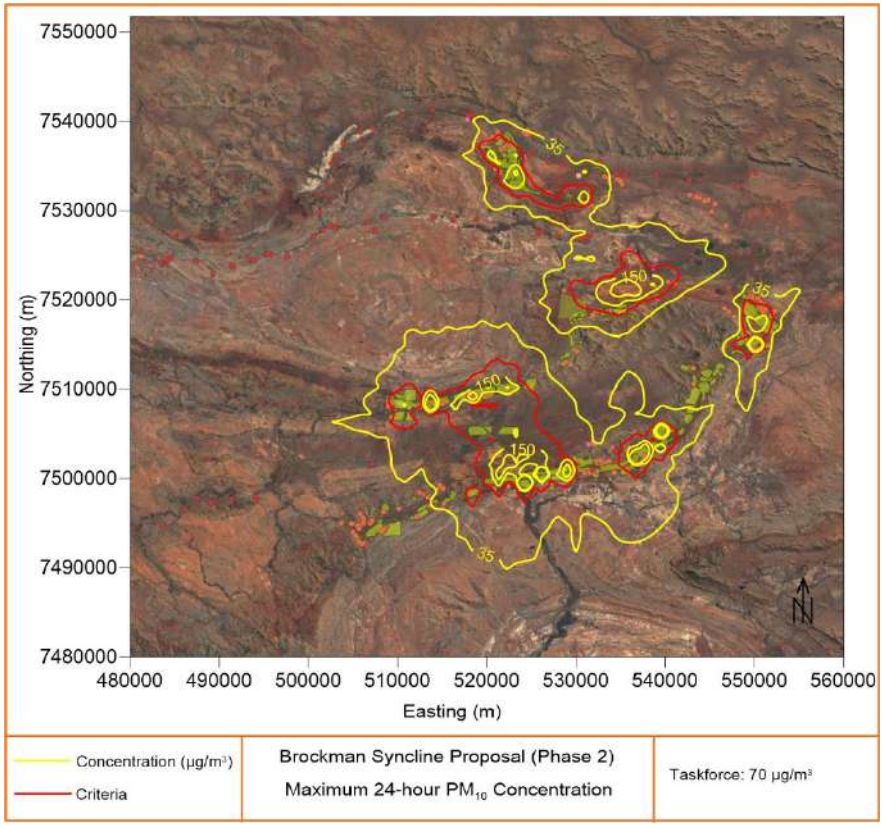

Figure 7-16: Phase 2: predicted maximum PM_{10} concentrations (including background) (µg/m³)

7.2.3 Particles as $PM_{2.5}$

The predicted ground level concentrations of particles, as $PM_{2.5}$, are presented as concentration contour plots and at the identified discrete receptor locations. Figures demonstrating the ground level concentrations (contours) for the modelled annual average and maximum 24-hour average ground level concentrations of $PM_{2.5}$ are presented. The model results are shown in Figure 7-17 to Figure 7-20. The concentration contours show:

- The $PM_{2.5}$ modelled concentrations to be higher than the annual average assessment criteria (NEPM 8 µg/m^3) in an area largely confined to over the mines and processing facilities.
- The maximum 24-hour $PM_{2.5}$ concentration is predicted to be higher than the adopted assessment criteria (NEPM 25 µg/m^3) the over the mines and processing facilities.

The Phase 2 modelled results for $PM_{2.5}$, at selected receptors, are presented statistically in Table 7.6 with the remaining statistics presented within Appendix E.2. The results at the selected receptors indicate that:

- The modelled concentrations are lower than the annual assessment criteria (NEPM 8 µg/m^3) at all sensitive receptors identified, with the exception of the Plunge Pool (Receptor 117).
- Similarly, the modelled concentrations are also lower than 24-hour assessment criteria (NEPM 25 µg/m^3) at all sensitive receptors with the exception of the Plunge Pool (Receptor 117).
- Statistics at all other receptors are provided in Appendix E.
- There is a high variability in the predicted ground level concentrations at the various bat cave receptor locations depending on their proximity to the various mining operations. It should be noted that the predicted concentrations do not represent the concentrations within the caves which may be significantly lower.

Table 7.6: Statistics of 24-hour $PM_{2.5}$ concentration at sensitive receptors – including background (µg/m^3)

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
106[a] – Mount Brockman	10	10	9	9	8	8	7	6.2	0
107[a] – Rocklea Homestead	6	6	6	5	5	5	5	5.2	0
108[a] – Hamersley Homestead	6	6	5	5	5	5	5	5.2	0
109[a] – Cheela Outcamp	6	6	5	5	5	5	5	5.1	0
110[b] – RTIO West Pilbara Village	14	13	11	10	9	9	7	6.8	0
111[b] – RTIO Brockman 4 Village	14	14	11	11	9	8	7	6.7	0
112[b] – RTIO Nammuldi Village	15	14	12	11	10	9	7	6.7	0
113[b] – RTIO Jerriwah Village	19	18	16	14	13	11	8	7.4	0
114[b] – RTIO Brockman 2 Village	14	14	12	11	10	9	8	6.8	0
115[b] – RTIO Homestead Camp	9	8	8	7	7	6	6	5.5	0
116 – Palm Springs Pool	7	6	6	6	6	6	5	5.3	0
117 – Plunge Pool	60	58	52	46	39	32	20	16.1	84
120[b] – RTIO Airport	12	12	11	10	9	8	7	6.5	0

Note:

a. Homesteads
b. RTIO camps

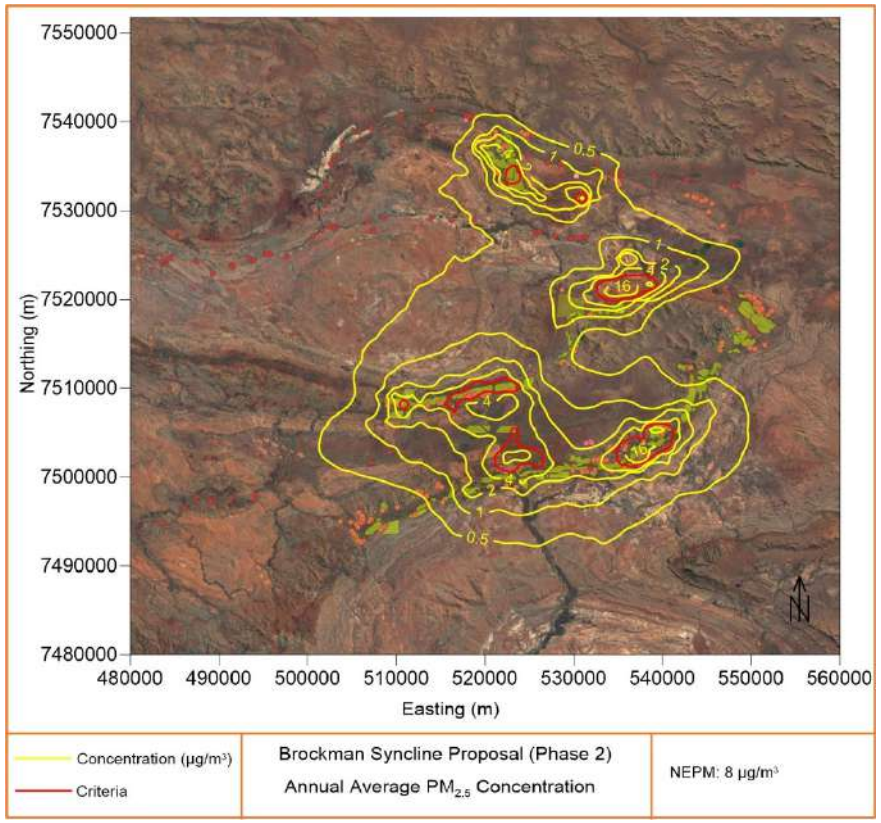

Figure 7-17: Phase 2: predicted annual average $PM_{2.5}$ concentrations (excluding background) (µg/m³)

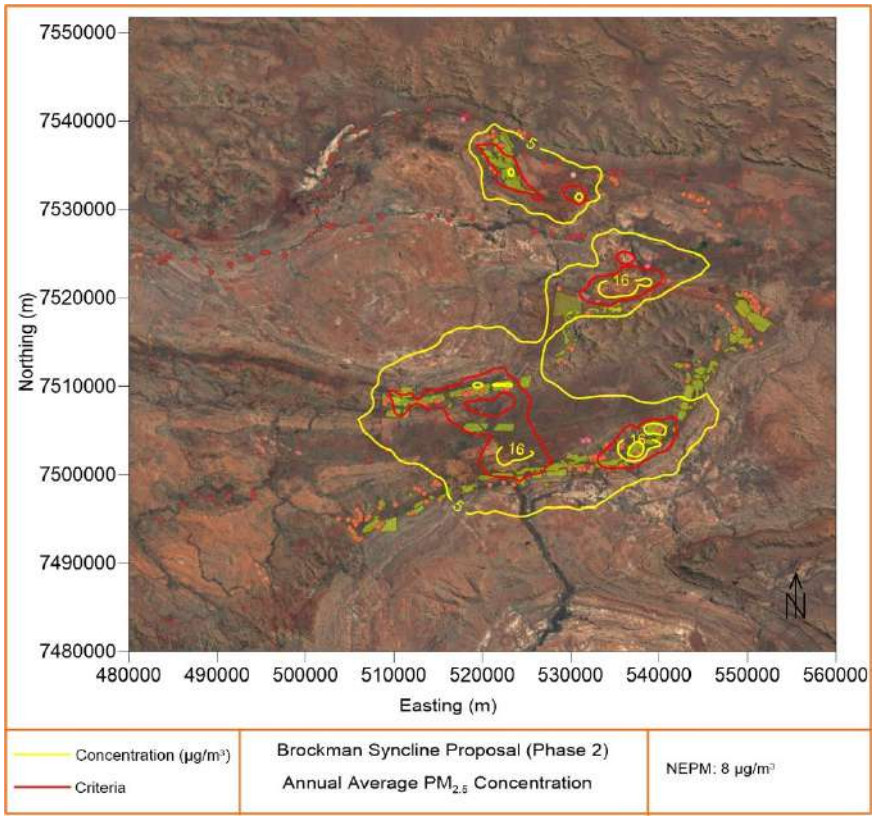

Figure 7-18: Phase 2: predicted annual average $PM_{2.5}$ concentrations (including background) (µg/m³)

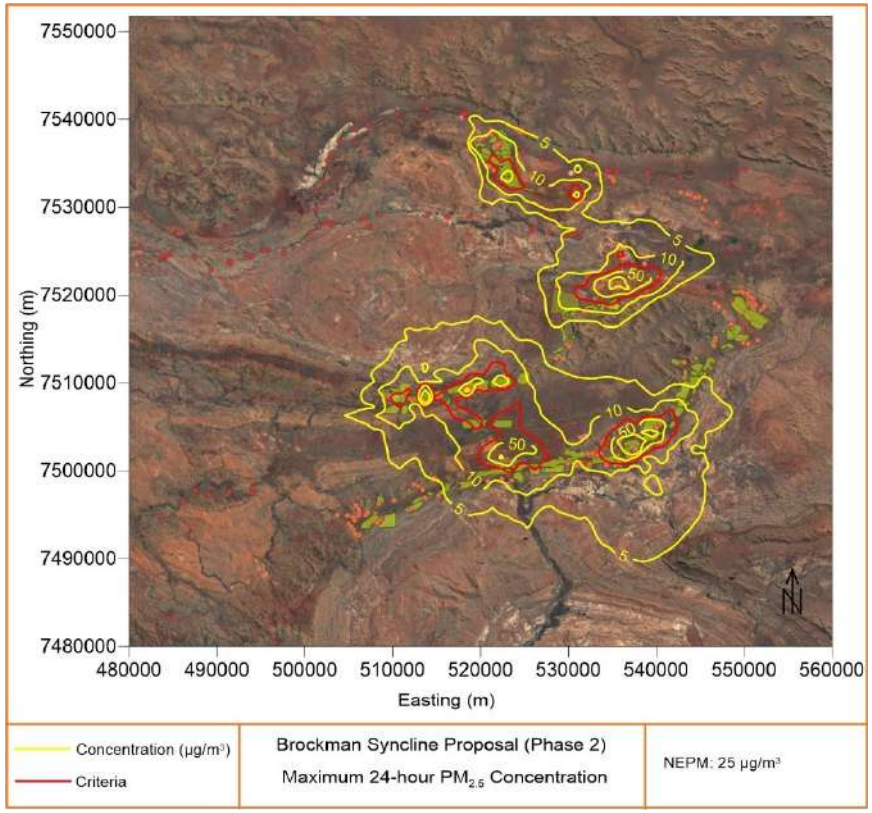

Figure 7-19: Phase 2: predicted maximum 24-hour $PM_{2.5}$ concentrations (excluding background) (µg/m³)

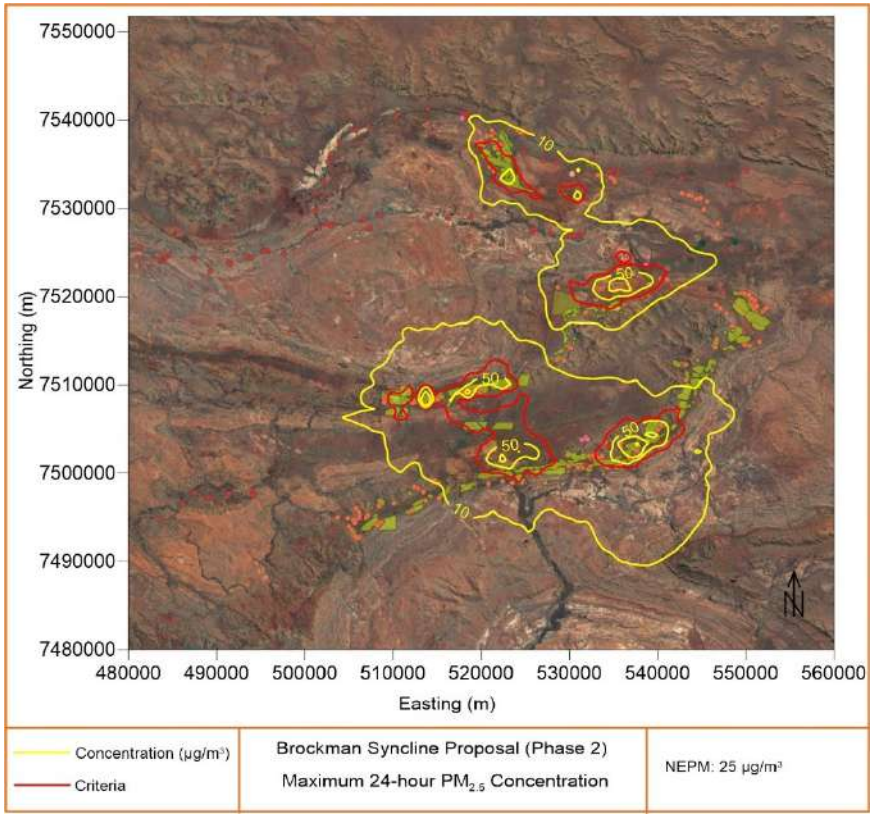

Figure 7-20: Phase 2: predicted maximum 24-hour $PM_{2.5}$ concentrations (including background) (µg/m³)

8 Conclusions

This modelling study has assessed the potential air quality impacts associated with mining, haulage and processing activities at the existing and proposed mining operations associated with the Brockman Syncline Proposal. Modelled ground level concentrations for the key pollutants (particles as TSP, $PM_{10,}$ and $PM_{2.5}$) have been compared to relevant ambient air quality assessment criteria to destimate the potential impact on key sensitive receptors and over the general area.

Modelling impacts of TSP, $PM_{10,}$ and $PM_{2.5}$ emissions was undertaken using the CALMET/CAPUFF modelling suite. In the absence of onsite meteorological measurements, the WRF model was used to simulate the meteorology over the region for 2018 and then as input to the CALMET model to generate fine-resolution three-dimensional meteorological fields. Fine resolution terrain elevation (SRTM) data with 90 m resolution was used in conjunction with ESACCI-LU land-use data to characterise the geophysical environment.

Emissions were estimated for two separate mining years (Phase 1 2027 and Phase 2 2035) using methodologies outlined in the NPI EET for Mining manual and input into the CALPUFF dispersion model as volume sources to simulate mining, haulage and processing, and area sources to simulate wind-blown dust. Background air quality was also estimated and included.

The key findings of the assessment are that the modelling findings are variable depending on the operating year selected:

- For Phase 1 (2027) TSP
    - Modelled concentrations higher than the assessment criteria (Kwinana EPP 90 µg/m^3) are predicted to occur over the mining and processing areas.
    - Maximum predicted concentrations are lower than the 24-hour assessment criteria (Kwinana EPP 90 µg/m^3) at the homesteads (Receptor 107 Rocklea Homestead and Receptor 108 Hamersley Homestead) and stockyards (Receptor 106 Mount Brockman and Receptor 109 Cheela Outcamp).
    - The modelled concentrations are higher than the assessment criteria at some of the RTIO camp receptors, with the Jerriwah Village (Receptor 113) predicted to experience 78 days during the year higher than the assessment criteria.
- For Phase 2 (2035) TSP
    - Predicted concentrations are significantly lower than for Phase 1.
    - Modelled concentrations higher than the assessment criteria (Kwinana EPP 90 µg/m^3) are limited to the mines and processing facilities.
    - Maximum predicted concentrations are lower than the 24-hour assessment criteria (Kwinana EPP 90 µg/m^3) at the homestead and stockyard receptors.
    - The modelled concentrations are higher than the assessment criteria at some of the RTIO camp receptors, with the Jerriwah Village predicted to experience 32 days during the year above the criteria.
- For Phase 1 (2027) PM_{10}
    - Modelled concentrations higher than the annual average assessment criteria (NEPM 25 µg/m^3) is predicted to occur over the mines and processing facilities.
    - The maximum 24-hour PM_{10} concentration is predicted to be higher than the assessment criteria (Taskforce 70 µg/m^3) over areas immediately surrounding the operations.
    - The modelled concentrations are below the assessment criteria at the homesteads and the stockyards receptors.

- Predictions at the Jerriwah Village and Brockman 2 Village (Receptor 114) are higher than the annual (NEPM 25 µg/m^3) and 24-hour (Taskforce 70 µg/m^3) assessment criterion.
- The modelling results show a significant reduction in the predicted ground level concentrations below the 2nd highest concentration – indicating that the maximum concentrations are isolated events that would probably not occur. It may be more appropriate to utilise the 6th highest predicted concentrations as being indicative of the ground level concentrations expected to occur.

- For Phase 2 (2035) PM_{10}
  - The annual average modelled concentrations are higher than the annual average and the maximum cumulative 24-hour PM_{10} assessment criteria over the mines and processing facilities.
  - The modelled concentrations are below the annual and maximum cumulative 24-hour PM_{10} the assessment criteria at all identified receptors, with the exception of the Plunge Pool (Receptor 117) which is predicted to experience 9 occasions in the year higher than the criteria. This constitutes a significant reduction (122 days per annum) from Phase 1 predictions.

- For Phase 1 (2027) $PM_{2.5}$
  - Modelled concentrations higher than the annual average assessment criteria (NEPM 8 µg/m^3) and the maximum 24-hour $PM_{2.5}$ criteria (NEPM 25 µg/m^3) are limited to areas over the mines and processing plants.
  - Predictions at the RTIO camp receptors show that the assessment criteria for $PM_{2.5}$ is achieved, with the exception of the Jerriwah Village.
- For Phase 2 $PM_{2.5}$
  - The $PM_{2.5}$ modelled concentrations to be higher than the annual average and the maximum 24-hour assessment criteria are limited to areas over the mines and immediately adjacent land.
  - The annual average modelled concentrations are below the adopted assessment criteria (NEPM 8 µg/m^3) at all sensitive receptors.
  - The 24-hour modelled concentrations are below the adopted assessment criteria (NEPM 25 µg/m^3) at all sensitive receptors, with the exception of the Plunge Pool (Receptor 117).

There is a high variability in the predicted ground level concentrations at the various bat cave receptor locations in both modelled years depending on their proximity to the various mining operations. It should be noted that the predicted concentrations do not represent the concentrations within the caves which may be significantly lower.

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10 Acronyms and Glossary

Acronym	Description
BoM	Bureau of Meteorology
C	Degrees Celsius (temperature)
CV	Conveyor
DWER	Department of Water and Environmental Regulation
EA	Environment Australia
EE	Emissions estimation
EET	Emissions Estimation Technique
EF	Emission factor
EPAV	Environmental Protection Authority Victoria, Australia
EPP	Environmental Protection Policy
ESACCI-LC	European Space Agency Climate Change Initiative Land Cover
ETA	Environmental Technologies& Analytics Pty Ltd
GLC	Ground Level Concentration
g/m^2/month	Grams per square metre per month
g/s	Grams per second
h/yr	Hours per year
kg	Kilogram
kg/hr	Kilograms per hour
kg/t	Kilogram per tonne
kg/yr	Kilograms per year
kPa	KiloPascals
km	Kilometre
m	Metre
m^2	Metres squared
m/s	Metres per second
mm	Millimetre
Mt	Million tonnes
Mtpa	Million tonnes per annum

Acronym	Description
NEPC	National Environment Protection Council
NEPM	National Environmental Protection Measure
No.	Number
NPI	National Pollutant Inventory
NSW	New South Wales
PM	Particulate matter, small particles and liquid droplets that can remain suspended in air.
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of 2.5 µm or less.
PM_{10}	Particulate matter with an aerodynamic diameter of 10 µm or less.
ROM	Run of mine
RTIO	Rio Tinto Iron Ore
SRTM	Shuttle Radar Topography Mission
t	Tonnes
t/h	Tonnes per hour
t/y	Tonnes per year
tpa	Tonnes per annum
tph	Tonnes per hour
TS	Transfer station
TSP	Total suspended particulates
µg/m^3	Micro grams (one millionth of a gram) per cubic metre
µm	Micrometre
USEPA	United States Environment Protection Agency
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
WA	Western Australia
yr	Year

Appendices

Appendix A – Meteorology

A.1: WRF

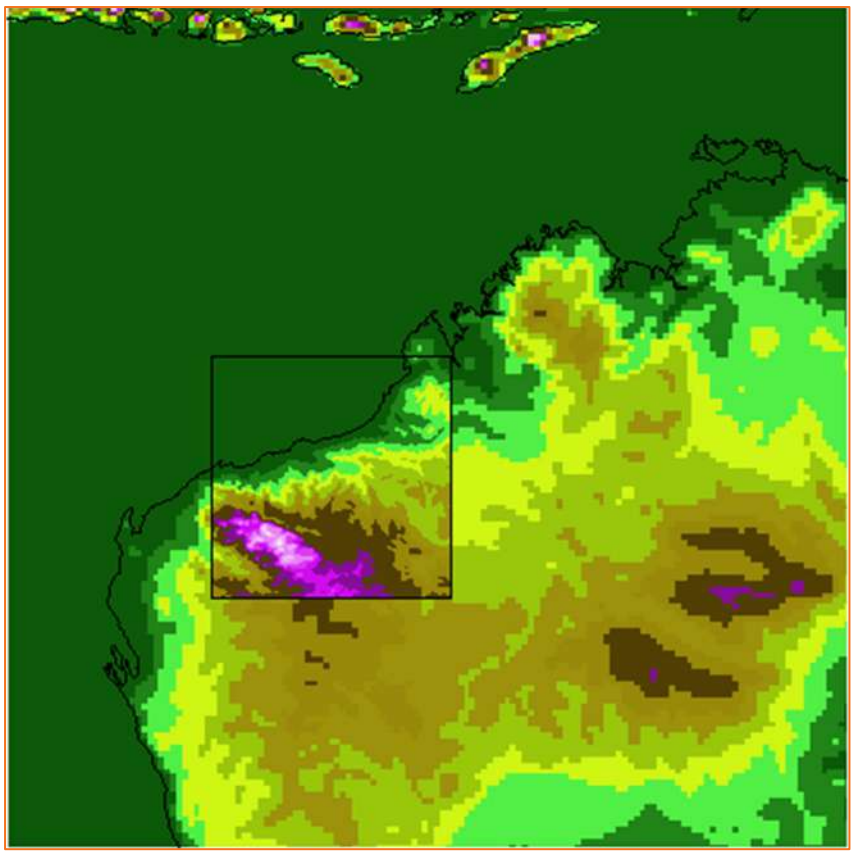
WRF was developed (and continues to be developed) in the United States by a collaborative partnership including the National Center for Atmospheric Research (NCAR), the National Oceanic and Atmospheric Administration (the National Center for Environmental Prediction (NCEP), the Forecast Systems Laboratory (FSL), the Air Force Weather Agency (AFWA), the Naval Research Laboratory, the University of Oklahoma, the Federal Aviation Administration (FAA) and others. (WRF, 2012).

WRF is a fully compressible, Eulerian, non-hydrostatic meso-scale numerical model developed by the National Center for Atmospheric Research (NCAR) and the National Oceanic and Atmospheric Administration (NOAA) in the United States. WRF is suitable for a broad spectrum of applications across scales ranging from metres to thousands of kilometres. The model utilises global reanalysis[1] data to produce fine-scale 3-dimensional meteorological fields that considers local terrain and land-use effects.

WRF was run with a two-nest structure (80 km and 6 km horizontal grid space resolution) centred on 23.055°S and 119.25°E. This is shown in Appendix Figure 1. The model vertical resolution consists of 34 eta levels[2].

[1] Global modelling using observed climate data for temperature, wind speed, and pressure. The observations are analysed; interpolated onto a system of grids and the model initialised with this data.

[2] Eta levels are terrain-following vertical coordinates



Appendix Figure 1: WRF model domains showing terrain elevation

Physics options in WRF are to represent atmospheric radiation, surface and boundary layer as well as cloud and precipitation processes. The physics options selected for the modelling are summarised in Appendix Table 1.

Appendix Table 1: WRF Physics Options Selected for Model

	Domain 1	Domain 2	Explanatory Notes
mp_physics	3	3	WRF single moment 3-class scheme
ra_lw_physics	1	1	Rapid radiative transfer model scheme
ra_sw_physics	1	1	Dudhia scheme for cloud and clear sky absorption and scattering
Radt	30	15	Time step for radiation schemes
sf_sfclay_physics	1	1	MM5 based on MOST
sf_surface_physics	2	2	Noah land surface model with 6 soil layers
bl_pbl_physics	1	1	Non-local K-scheme with entrainment layer
bldt	0	0	Boundary layer time step (0=every time step)
cu_physics	1	1	Kain-Fritch scheme using mass flux approach for domain 1 only.
cudt	5	5	Cumulus physics time step (minutes)

Six-hourly global final analysis synoptic data (from http://nomads.ncdc.noaa.gov/data/gfsanl/) was used to initialise the model and provide boundary conditions.

Land-use and terrain data was sourced from the United State Geological Services (USGS) database. Inspection of the land-use indicates an acceptable resolution and category for the model area with shrub land being the dominant vegetation type. A review of the Vegparm.tbl[3] reveals that these are based on North American parameterisations, with marked seasonal differences to allow for winter snow cover. These are clearly inappropriate for the Pilbara region. A non-seasonally varying roughness length value of 0.4 m was assigned to the shrub land category based on a study by Peel *et al*. (2005) for Spinifex vegetation in the Pilbara. Albedo was also set to 0.2 based on values cited in Peel *et al*. (2005). Other parameters such as Bowen ratio were adjusted to allow for the drier climate of the Pilbara.

The selection of an appropriate Land Surface Model (LSM) is critically important to provide the boundary conditions at the land-atmosphere interface because:

- The Planetary Boundary Layer (PBL) schemes are sensitive to surface fluxes.
- The cloud/cumulus schemes are sensitive to the PBL structures.
- There is a need to capture mesoscale circulations forced by surface variability in albedo, soil moisture/temperature and land use.

The Noah Land-Surface Model was selected in this case to account for the sub-grid-scale fluxes. This sophisticated scheme provides 4 quantities to the parent atmospheric model (WRF), namely:

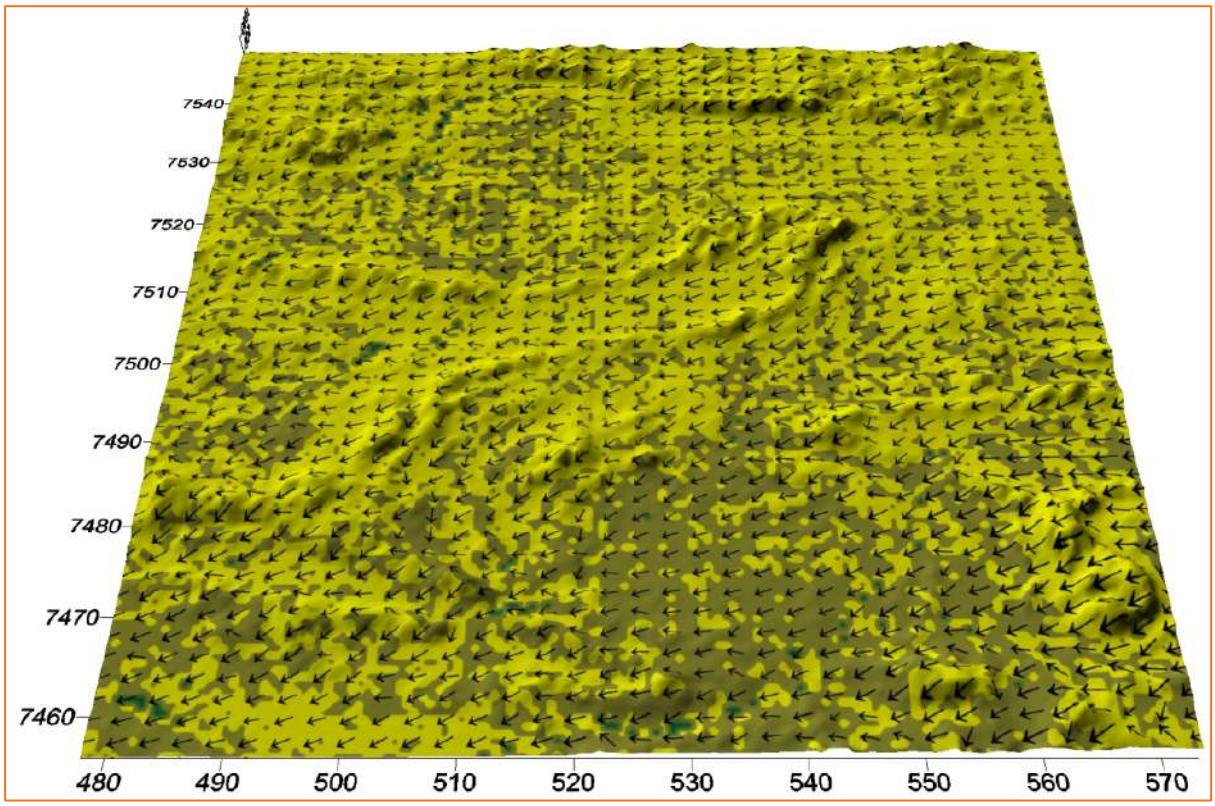
- surface sensible heat flux
- surface latent heat flux
- upward longwave radiation
- upward (reflected) shortwave radiation.

[3] A table consisting of land-use specific surface roughness, albedo and Bowen ratio.

A.2: CALMET

CALMET Results

An example of early morning surface wind fields generated by CALMET for the model domain is shown Appendix Figure 2. The existence of non-steady state meteorology as depicted by the flow along valleys and deflection around terrain is clearly demonstrated in Appendix Figure 2. In this figure the colours depict dominant land cover (yellow = grassland, olive = shrubland, green = trees).



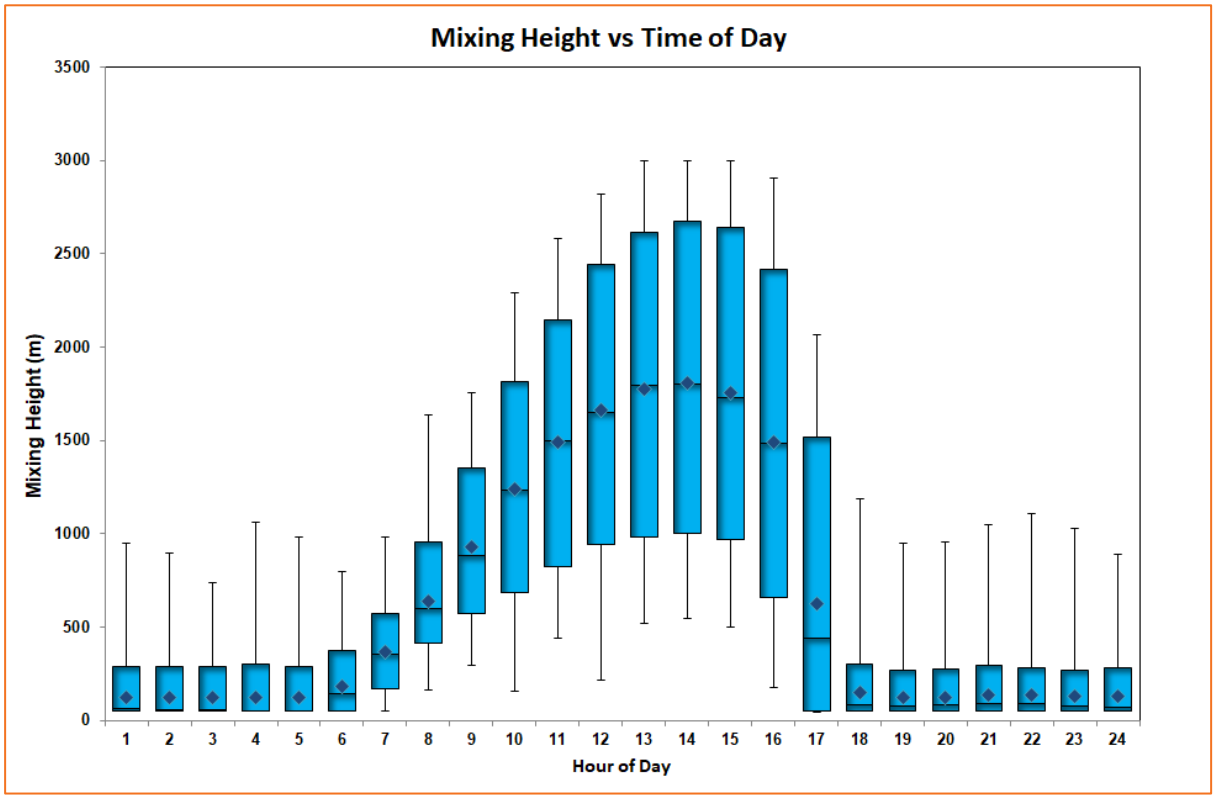
Appendix Figure 2: Simulated annual statistics of hourly stability

Mixing Height

Mixing height is the depth of the atmospheric surface layer beneath an elevated temperature inversion. It is an important parameter within air pollution meteorology. Vertical diffusion or mixing of a plume is limited by the mixing height, as the air above this layer tends to be stable, with restricted vertical motion.

A series of internal algorithms within CALMET is used to calculate mixing heights for the subject site where it is assumed that mixing height is formed through mechanical means (wind speed) at night and through a mixture of mechanical and convective means (wind speed and solar radiation) during the day (Scire et al. 2008). During the night and early morning when the convective mixed layer is absent or small, the full depth of the planetary boundary layer (PBL) may be controlled by mechanical turbulence. During the day, the height of the PBL during convective conditions is then taken as the maximum of the estimated (or measured if available) convective boundary layer height and the estimated (or measured if available) mechanical mixing height. It is calculated from the early morning potential temperature sounding (prior to sunrise), and the time varying surface heat flux to calculate the time evolution of the convective boundary layer.

The hourly variation of mixing height at Brockman is summarised in Appendix Figure 3 with the diurnal cycle clearly evident. At night, mixing height is normally low and after sunrise it typically increases to between 1,000 m and 3,000 m in response to convective mixing generated by solar heating of the Earth's surface. A rapid reduction in mixing height commences around sunset, when convective mixing ceases and a mechanical mixing regime is re-established. The diurnal mixing height profile is clearly defined owing to the inland, sheltered location of the mines.



Appendix Figure 3: Simulated annual statistics[4] of hourly mixing heights, Brockman Syncline

Stability

An important aspect of pollutant dispersion is the level of turbulence in the lowest 1 km or so of the atmosphere, known as the planetary boundary layer (PBL). Turbulence controls how effectively a plume is diffused into the surrounding air and hence diluted. It acts by increasing the cross-sectional area of the plume due to random motions. With stronger turbulence, the rate of plume diffusion increases. Weak turbulence limits diffusion and contributes to high plume concentrations downwind of a source.

Turbulence is generated by both thermal and mechanical effects to varying degrees. Thermally driven turbulence occurs when the surface is being heated, in turn transferring heat to the air above by convection. Mechanical

[4] The bars in the figure depicts 10th and 90th percentile values while the tringles show the average conditions. The whiskers indicate minimum and maximum values.

turbulence is caused by the frictional effects of wind moving over the earth's surface and depends on the roughness of the surface as well as the flow characteristics.

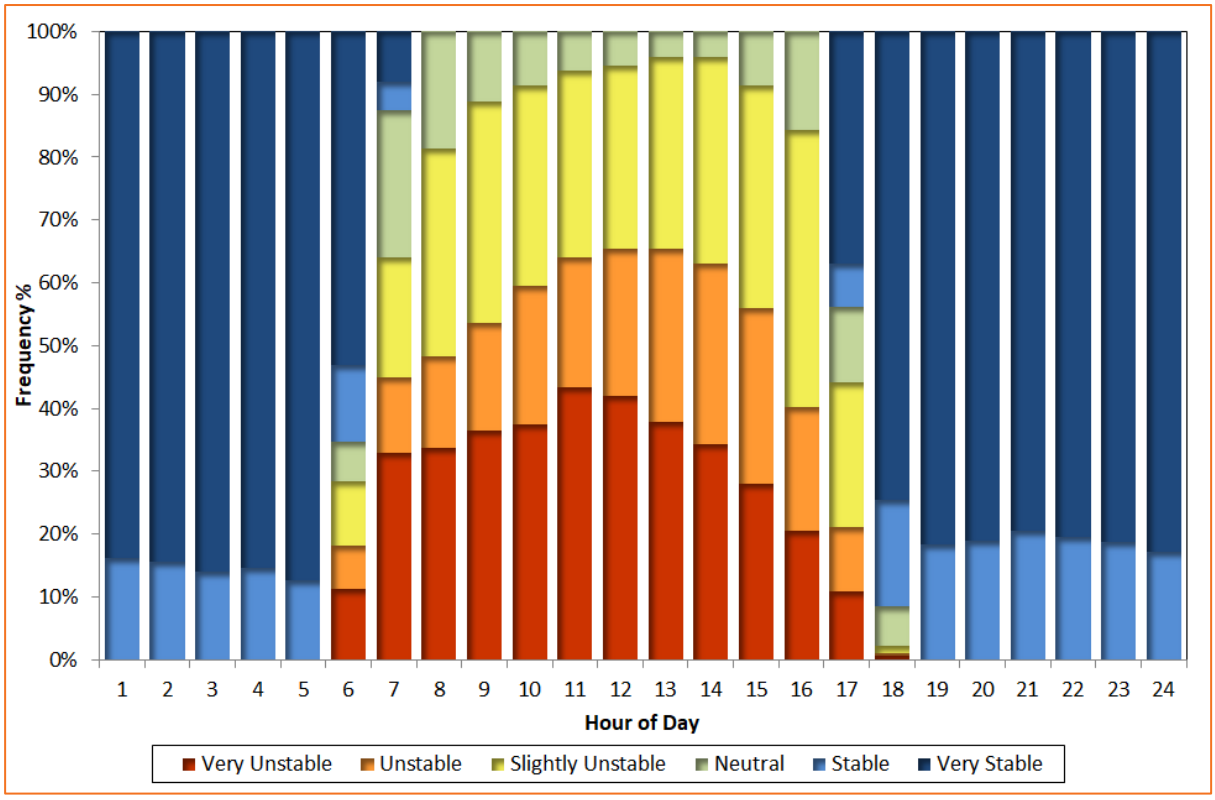
Turbulence in the boundary layer is influenced by the vertical temperature gradient, which is one of several indicators of stability. Plume models use indicators of atmospheric stability in conjunction with other meteorological data to estimate the dispersion conditions in the atmosphere.

Stability can be described across a spectrum ranging from highly unstable through neutral to highly stable. A highly unstable boundary layer is characterised by strong surface heating and relatively light winds, leading to intense convective turbulence and enhanced plume diffusion. At the other extreme, very stable conditions are often associated with strong temperature inversions and light winds, which commonly occur under clear skies at night and in the early morning. Under these conditions, plumes can remain relatively undiluted for considerable distances downwind. Neutral conditions are linked to windy and/or cloudy weather, and short periods around sunset and sunrise, when surface rates of heating or cooling are very low.

The stability of the atmosphere plays a significant role in determining the dispersion of a plume and it is important to have it correctly represented in the dispersion model. CALPUFF uses the Monin-Obukhov Similarity Theory (MOST) to characterise turbulence and other processes in the PBL. One of the measures of the PBL is the Monin-Obukhov length (L), which approximates the height at which turbulence is generated equally by thermal and mechanical effects (Seinfeld and Pandis 2006). It is a measure of the relative importance of mechanical and thermal forcing on atmospheric turbulence.

Because values of L diverge to + and - infinity as stability approaches neutral from the stable and unstable sides, respectively, it is often more convenient to use the inverse of L (i.e., 1/L) when describing stability.

The hourly averaged 1/L for Eastern Ridge computed from all data in the CALMET surface file is presented in Appendix Figure 4. This plot indicates that the PBL is stable overnight and reaches maximum instability midday unstable as radiation from the sun heats the surface layer of the atmosphere and drives convection.



Appendix Figure 4: Simulated annual statistics of hourly stability, Brockman Syncline

Appendix B – Emission Sources and Parameters

B.1: Volume sources

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
Silvergrass	Mining	S1-D1	521630	7537013	1.5	75.0	0.7
		S1-D2	522287	7536703	1.5	75.0	0.7
		S1-D3	522625	7536240	1.5	75.0	0.7
		S1-D4	522615	7537680	1.5	75.0	0.7
		S1-Bl1	521620	7536703	20.0	32.1	9.3
		S1-Bl2	522673	7536530	20.0	32.1	9.3
		S1-Bl3	522838	7537351	20.0	32.1	9.3
		S1-L1	521852	7536655	6.0	75.0	2.8
		S1-L2	522403	7536317	6.0	75.0	2.8
		S1-L3	522963	7536887	6.0	75.0	2.8
		S1-L4	522393	7537979	6.0	75.0	2.8
		S1-UW1	521340	7537873	2.0	75.0	0.9
		S1-UW2	521639	7537486	2.0	75.0	0.9
		S1-UW3	522016	7536298	2.0	75.0	0.9
		S1-UW4	523137	7536404	2.0	75.0	0.9
		S1-UW5	522055	7536104	2.0	75.0	0.9
		S2-D1	520528	7536317	1.5	75.0	0.7
		S2-D2	521369	7535486	1.5	75.0	0.7
		S2-D3	522712	7534809	1.5	75.0	0.7
		S2-D4	522983	7533930	1.5	75.0	0.7
		S2-D5	523611	7532857	1.5	75.0	0.7
		S2-Bl1	520702	7536133	20.0	34.1	9.3
		S2-Bl2	521978	7535254	20.0	34.1	9.3
		S2-Bl3	522818	7534345	20.0	34.1	9.3
		S2-Bl4	523205	7532973	20.0	34.1	9.3
		S2-L1	520479	7536017	6.0	75.0	2.8
		S2-L2	521736	7535341	6.0	75.0	2.8
		S2-L3	522896	7534655	6.0	75.0	2.8
		S2-L4	522577	7534084	6.0	75.0	2.8
		S2-L5	523766	7533118	6.0	75.0	2.8
		S2-UW1	519455	7537158	2.0	75.0	0.9
		S2-UW2	520257	7536984	2.0	75.0	0.9
		S2-UW3	522673	7535602	2.0	75.0	0.9
		S2-UW4	522345	7533746	2.0	75.0	0.9
		S2-UW5	523524	7533833	2.0	75.0	0.9
		S-UO1	530555	7531170	3.2	50.0	1.5
		S-UO2	530589	7531397	3.2	50.0	1.5
		S-UO3	530579	7531600	3.2	50.0	1.5

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
	Haul Road	S-H1	530386	7531310	8.5	16.7	7.9
		S-H2	530057	7531301	8.5	16.7	7.9
		S-H3	529767	7531310	8.5	16.7	7.9
		S-H4	529458	7531330	8.5	16.7	7.9
		S-H5	529168	7531320	8.5	16.7	7.9
		S-H6	528878	7531339	8.5	16.7	7.9
		S-H7	528559	7531330	8.5	16.7	7.9
		S-H8	528269	7531330	8.5	16.7	7.9
		S-H9	527979	7531339	8.5	16.7	7.9
		S-H10	527680	7531417	8.5	16.7	7.9
		S-H11	527371	7531455	8.5	16.7	7.9
		S-H12	527081	7531552	8.5	16.7	7.9
		S-H13	526800	7531591	8.5	16.7	7.9
		S-H14	526501	7531668	8.5	16.7	7.9
		S-H15	526162	7531765	8.5	16.7	7.9
		S-H16	525902	7531871	8.5	16.7	7.9
		S-H17	525612	7531968	8.5	16.7	7.9
		S-H18	525331	7532045	8.5	16.7	7.9
		S-H19	525051	7532171	8.5	16.7	7.9
		S-H20	524780	7532306	8.5	16.7	7.9
		S-H21	524558	7532528	8.5	16.7	7.9
		S-H22	524452	7532809	8.5	16.7	7.9
		S-H23	524355	7533108	8.5	16.7	7.9
		S-H24	524220	7533379	8.5	16.7	7.9
		S-H25	523998	7533601	8.5	16.7	7.9
		S-H26	523833	7533833	8.5	16.7	7.9
		S-H27	523727	7534104	8.5	16.7	7.9
		S-H28	523630	7534403	8.5	16.7	7.9
		S-H29	523592	7534684	8.5	16.7	7.9
		S-H30	523524	7535022	8.5	16.7	7.9
		S-H31	523224	7535128	8.5	16.7	7.9
		S-H32	522944	7535186	8.5	16.7	7.9
		S-H33	522654	7535292	8.5	16.7	7.9
		S-H34	522393	7535466	8.5	16.7	7.9
		S-H35	522335	7535756	8.5	16.7	7.9
		S-H36	522045	7535834	8.5	16.7	7.9
		S-H37	521736	7535901	8.5	16.7	7.9
		S-H38	521485	7536085	8.5	16.7	7.9
		S-H39	521330	7536365	8.5	16.7	7.9
		S-H40	521204	7536617	8.5	16.7	7.9
		S-H41	521069	7536877	8.5	16.7	7.9
		S-H42	520876	7537119	8.5	16.7	7.9
		S-H43	520595	7537100	8.5	16.7	7.9
		S-H44	520924	7537361	8.5	16.7	7.9

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
		S-H45	522664	7535834	8.5	16.7	7.9
		S-H46	522954	7535882	8.5	16.7	7.9
		S-H47	523234	7535959	8.5	16.7	7.9
		S-H48	523514	7536143	8.5	16.7	7.9
		S-H49	523331	7536385	8.5	16.7	7.9
		S-H50	523737	7533456	8.5	16.7	7.9
		S-H51	523427	7533417	8.5	16.7	7.9
		S-H52	523137	7533398	8.5	16.7	7.9
		S-H53	522818	7533388	8.5	16.7	7.9
		S-H54	522509	7533330	8.5	16.7	7.9
		S-H55	522258	7533504	8.5	16.7	7.9
		S-H56	522142	7533852	8.5	16.7	7.9
	Processing	S_PC	530508	7531726	4.0	3.8	1.9
		S_SC	530506	7531907	8.0	7.5	3.7
		S_Screen	530503	7531959	10.0	7.5	4.7
		S_Stack	530260	7532145	10.0	50.0	4.7
		S_Rec	530333	7532145	3.0	50.0	1.4
		S_TS1	530506	7532034	5.0	3.8	2.3
		S-TS2	530260	7532049	5.0	3.8	2.3
		S_TS3	530338	7532041	5.0	3.8	2.3
		S_FEL	530506	7531659	3.0	50.0	1.4
LG	Mining	LG-D1	550312	7517641	1.5	75.0	0.7
		LG-D2	551965	7517080	1.5	75.0	0.7
		LG-D3	551279	7517660	1.5	75.0	0.7
		LG-B1	550747	7517360	20.0	34.5	9.3
		LG-B2	551559	7517128	20.0	34.5	9.3
		LG-B3	550805	7518037	20.0	34.5	9.3
		LG-L1	550370	7517969	6.0	75.0	2.8
		LG-L2	550911	7517621	6.0	75.0	2.8
		LG-D3	551288	7517283	6.0	75.0	2.8
		LG-L4	551743	7517399	6.0	75.0	2.8
		LG-UW1	549452	7518414	2.0	75.0	0.9
		LG-UW2	548891	7519342	2.0	75.0	0.9
		LG-UW3	549645	7519235	2.0	75.0	0.9
		LG-UO1	537443	7521219	3.2	50.0	1.5
		LG-UO2	536861	7521062	3.2	50.0	1.5
		LG-UO3	537093	7521200	3.2	50.0	1.5
	Haul Road	LG-HR1	550892	7518281	8.5	16.7	7.9
		LG-HR2	550641	7518474	8.5	16.7	7.9
		LG-HR3	550438	7518677	8.5	16.7	7.9
		LG-HR4	550302	7518986	8.5	16.7	7.9
		LG-HR5	550186	7519247	8.5	16.7	7.9
		LG-HR6	550032	7519528	8.5	16.7	7.9
		LG-HR7	549868	7519760	8.5	16.7	7.9

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
		LG-HR8	549587	7519914	8.5	16.7	7.9
		LG-HR9	549268	7519972	8.5	16.7	7.9
		LG-HR10	548998	7520011	8.5	16.7	7.9
		LG-HR11	548708	7520030	8.5	16.7	7.9
		LG-HR12	548389	7520030	8.5	16.7	7.9
		LG-HR13	548060	7520021	8.5	16.7	7.9
		LG-HR14	547848	7519769	8.5	16.7	7.9
		LG-HR15	547596	7519615	8.5	16.7	7.9
		LG-HR16	547297	7519653	8.5	16.7	7.9
		LG-HR17	547065	7519750	8.5	16.7	7.9
		LG-HR18	546746	7519798	8.5	16.7	7.9
		LG-HR19	546407	7519827	8.5	16.7	7.9
		LG-HR20	546089	7519827	8.5	16.7	7.9
		LG-HR21	545799	7519885	8.5	16.7	7.9
		LG-HR22	545499	7519895	8.5	16.7	7.9
		LG-HR23	545190	7519905	8.5	16.7	7.9
		LG-HR24	544919	7519924	8.5	16.7	7.9
		LG-HR25	544610	7520011	8.5	16.7	7.9
		LG-HR26	544320	7520098	8.5	16.7	7.9
		LG-HR27	543991	7520146	8.5	16.7	7.9
		LG-HR28	543759	7520311	8.5	16.7	7.9
		LG-HR29	543537	7520533	8.5	16.7	7.9
		LG-HR30	543218	7520605	8.5	16.7	7.9
		LG-HR31	542938	7520707	8.5	16.7	7.9
		LG-HR32	542672	7520828	8.5	16.7	7.9
		LG-HR33	542392	7520968	8.5	16.7	7.9
		LG-HR34	542087	7521055	8.5	16.7	7.9
		LG-HR35	541788	7521103	8.5	16.7	7.9
		LG-HR36	541483	7521142	8.5	16.7	7.9
		LG-HR37	541184	7521200	8.5	16.7	7.9
		LG-HR38	540889	7521229	8.5	16.7	7.9
		LG-HR39	540575	7521248	8.5	16.7	7.9
		LG-HR40	540285	7521248	8.5	16.7	7.9
		LG-HR41	539971	7521267	8.5	16.7	7.9
		LG-HR42	539671	7521282	8.5	16.7	7.9
		LG-HR43	539362	7521292	8.5	16.7	7.9
		LG-HR44	539062	7521263	8.5	16.7	7.9
		LG-HR45	538763	7521214	8.5	16.7	7.9
		LG-HR46	538458	7521301	8.5	16.7	7.9
		LG-HR47	538192	7521388	8.5	16.7	7.9
		LG-HR48	537873	7521451	8.5	16.7	7.9
		LG-HR49	537593	7521292	8.5	16.7	7.9
		LG-HR50	537308	7521292	8.5	16.7	7.9
Diesel	Mining	D-D1	549309	7514931	1.5	75.0	0.7

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
		D-D2	549938	7514940	1.5	75.0	0.7
		D-D3	549764	7515346	1.5	75.0	0.7
		D-B1	550083	7515221	20.0	36.0	9.3
		D-B2	549290	7515153	20.0	36.0	9.3
		D-L1	549628	7514873	6.0	75.0	2.8
		D-L2	549706	7515095	6.0	75.0	2.8
		D-L3	549551	7515395	6.0	75.0	2.8
		D-UW1	548295	7515172	2.0	75.0	0.9
		D-UW2	548478	7515511	2.0	75.0	0.9
		D-UW3	548082	7515714	2.0	75.0	0.9
		D-UO1	536862	7521064	3.2	50.0	1.5
		D-UO2	537092	7521201	3.2	50.0	1.5
	Haul Road	D-HR1	549048	7515298	8.5	16.7	7.9
		D-HR2	549242	7515511	8.5	16.7	7.9
		D-HR3	549425	7515752	8.5	16.7	7.9
		D-HR4	549590	7516004	8.5	16.7	7.9
		D-HR5	549638	7516332	8.5	16.7	7.9
		D-HR6	549599	7516651	8.5	16.7	7.9
		D-HR7	549445	7516922	8.5	16.7	7.9
		D-HR8	549309	7517173	8.5	16.7	7.9
		D-HR9	549145	7517434	8.5	16.7	7.9
		D-HR10	549010	7517753	8.5	16.7	7.9
		D-HR11	548865	7518024	8.5	16.7	7.9
		D-HR12	548768	7518304	8.5	16.7	7.9
		D-HR13	548652	7518546	8.5	16.7	7.9
		D-HR14	548507	7518816	8.5	16.7	7.9
		D-HR15	548333	7519077	8.5	16.7	7.9
		D-HR16	548198	7519357	8.5	16.7	7.9
		D-HR17	548024	7519599	8.5	16.7	7.9
LG/Diesel	Processing	LG-FEL	536997	7520906	2.0	50.0	0.9
		LG-PC	537007	7520851	4.0	3.8	1.9
		LG-SCR	537032	7520748	8.0	7.5	3.7
		LG-TS1	537051	7520668	5.0	3.8	2.3
		LG-TS2	537075	7520594	5.0	3.8	2.3
		LG-STK1	536828	7520627	10.0	50.0	4.7
		LG-STK2	537252	7520576	10.0	50.0	4.7
		LG-REC1	536819	7520578	3.0	50.0	1.4
		LG-REC2	537228	7520528	3.0	50.0	1.4
Brockman 3 Extension	Mining	B3-D1	538891	7504937	1.5	75.0	0.7
		B3-D2	539722	7504763	1.5	75.0	0.7
		B3-D3	539712	7505604	1.5	75.0	0.7
		B3-B1	539094	7505479	20.0	33.7	9.3
		B3-B2	539461	7505005	20.0	33.7	9.3
		B3-B3	540340	7505372	20.0	33.7	9.3

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
		B3-L1	540118	7505633	6.0	75.0	2.8
		B3-L2	539161	7505218	6.0	75.0	2.8
		B3-L3	539992	7505237	6.0	75.0	2.8
		B3-L4	539325	7504744	6.0	75.0	2.8
		B3-UW1	540031	7504212	2.0	75.0	0.9
		B3-UW2	539316	7503884	2.0	75.0	0.9
		B3-UW3	539905	7503720	2.0	75.0	0.9
	Haul Road	B3-HR1	540099	7504415	8.5	16.7	7.9
		B3-HR2	540418	7504425	8.5	16.7	7.9
		B3-HR3	540466	7504203	8.5	16.7	7.9
		B3-HR4	540321	7503922	8.5	16.7	7.9
		B3-HR5	540176	7503710	8.5	16.7	7.9
		B3-HR6	539983	7503449	8.5	16.7	7.9
		B3-HR7	539693	7503362	8.5	16.7	7.9
		B3-HR8	539393	7503362	8.5	16.7	7.9
		B3-HR9	539084	7503381	8.5	16.7	7.9
		B3-HR10	538775	7503459	8.5	16.7	7.9
		B3-HR11	538465	7503468	8.5	16.7	7.9
		B3-HR12	538175	7503449	8.5	16.7	7.9
		BR-HR13	537885	7503343	8.5	16.7	7.9
		B3-HR14	537615	7503217	8.5	16.7	7.9
		B3-HR15	537344	7503082	8.5	16.7	7.9
		B3-HR16	537083	7503004	8.5	16.7	7.9
		B3-HR17	536755	7502937	8.5	16.7	7.9
		B3-HR18	536542	7502714	8.5	16.7	7.9
		B3-HR19	536407	7502424	8.5	16.7	7.9
		B2-HR20	536281	7502134	8.5	16.7	7.9
		B3-HR21	536078	7501893	8.5	16.7	7.9
		B3-HR22	535875	7501661	8.5	16.7	7.9
		B3-HR23	535633	7501497	8.5	16.7	7.9
		B3-HR24	535431	7501245	8.5	16.7	7.9
		B3-HR25	535170	7501081	8.5	16.7	7.9
		B3-HR26	534909	7500946	8.5	16.7	7.9
		B3-HR27	534590	7500946	8.5	16.7	7.9
		B3-HR28	534300	7500936	8.5	16.7	7.9
		B3-HR29	533971	7500917	8.5	16.7	7.9
		B3-HR30	533691	7500888	8.5	16.7	7.9
		B3-HR31	533362	7500830	8.5	16.7	7.9
		B3-HR32	533092	7500810	8.5	16.7	7.9
		B3-HR33	532753	7500801	8.5	16.7	7.9
		B3-HR34	532695	7501120	8.5	16.7	7.9
		B3-HR35	532386	7501187	8.5	16.7	7.9
		B3-HR36	532048	7501197	8.5	16.7	7.9
		B3-HR37	531739	7501207	8.5	16.7	7.9

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
		B3-HR38	531424	7501216	8.5	16.7	7.9
		B3-HR39	531120	7501216	8.5	16.7	7.9
		B3-HR40	530816	7501163	8.5	16.7	7.9
		B3-HR41	530530	7501105	8.5	16.7	7.9
		B3-HR42	530211	7501182	8.5	16.7	7.9
Nammuldi	Mining	N-D1	534750	7521557	1.5	75.0	0.7
		N-D2	535066	7521204	1.5	75.0	0.7
		N-D3	535439	7521544	1.5	75.0	0.7
		N-D4	535808	7521175	1.5	75.0	0.7
		N-D5	536100	7521594	1.5	75.0	0.7
		N-D6	537318	7521696	1.5	75.0	0.7
		N-B1	534857	7521421	20.0	32.2	9.3
		N-B2	535439	7521056	20.0	32.2	9.3
		N-B3	535320	7521565	20.0	32.2	9.3
		N-B4	535866	7521450	20.0	32.2	9.3
		N-B5	536374	7521672	20.0	32.2	9.3
		N-B6	537494	7521651	20.0	32.2	9.3
		N-L1	534681	7521450	6.0	75.0	2.8
		N-L2	535132	7521421	6.0	75.0	2.8
		N-L3	535189	7520978	6.0	75.0	2.8
		N-L4	535427	7521307	6.0	75.0	2.8
		N-L5	535763	7521598	6.0	75.0	2.8
		N-L6	536214	7521487	6.0	75.0	2.8
		N-L7	536924	7521700	6.0	75.0	2.8
		N-UW1	532880	7520827	2.0	75.0	0.9
		N-UW2	533385	7520745	2.0	75.0	0.9
		N-UW3	533266	7521261	2.0	75.0	0.9
		N-UW4	533836	7521106	2.0	75.0	0.9
		N-UO1	538444	7522006	2.0	75.0	0.9
		N-UO2	538433	7521980	2.0	75.0	0.9
		N-UO3	538416	7521950	2.0	75.0	0.9
	Haul Road	N-HR1	537914	7521702	8.5	16.7	7.9
		N-HR2	538214	7521702	8.5	16.7	7.9
		N-HR3	538394	7521928	8.5	16.7	7.9
		N-HR4	538189	7521395	8.5	16.7	7.9
		N-HR5	537873	7521452	8.5	16.7	7.9
		N-HR6	537590	7521292	8.5	16.7	7.9
		N-HR7	537303	7521296	8.5	16.7	7.9
		N-HR8	534962	7521370	8.5	16.7	7.9
		N-HR9	534806	7521149	8.5	16.7	7.9
		N-HR10	534494	7521194	8.5	16.7	7.9
		N-HR11	534199	7521222	8.5	16.7	7.9
		N-HR12	533895	7521202	8.5	16.7	7.9
		N-HR13	533616	7521083	8.5	16.7	7.9

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
		N-HR14	533325	7520952	8.5	16.7	7.9
	Processing	LG-FEL	536997	7520906	2.0	50.0	0.9
		LG-PC	537007	7520851	4.0	3.8	1.9
		LG-SCR	537032	7520748	8.0	7.5	3.7
		LG-TS1	537051	7520668	5.0	3.8	2.3
		LG-TS2	537075	7520594	5.0	3.8	2.3
		LG-STK1	536828	7520627	10.0	50.0	4.7
		LG-STK2	537252	7520576	10.0	50.0	4.7
		LG-REC1	536819	7520578	3.0	50.0	1.4
		LG-REC2	537228	7520528	3.0	50.0	1.4
		N-FEL	538427	7522013	2.0	50.0	0.9
		N-PC	538446	7522047	4.0	3.8	1.9
		Screen	536331	7524585	8.0	7.5	3.7
		N-SC	536241	7524589	4.0	3.8	1.9
		N-TS1	536118	7524594	5.0	3.8	2.3
		N-TS2	536032	7524585	5.0	3.8	2.3
		N-STK1	536126	7524790	10.0	50.0	4.7
		N-STK2	536003	7524745	10.0	50.0	4.7
		N-REC	536052	7524700	3.0	50.0	1.4
		N-TS3	536052	7524503	5.0	3.8	2.3
		N-Rail	536048	7524409	5.0	3.8	2.3
Brockman 4 - M	Mining	B4M-D1	536600	7501941	1.5	75.0	0.7
		B4M-D2	536711	7502453	1.5	75.0	0.7
		B4M-D3	536682	7503159	1.5	75.0	0.7
		B4M-D4	537431	7503343	1.5	75.0	0.7
		B4M-B1	536513	7502139	20.0	0.0	9.3
		B4M-B2	536614	7502521	20.0	0.0	9.3
		B4M-B3	536875	7503309	20.0	0.0	9.3
		B4M-B4	537774	7503154	20.0	0.0	9.3
		B4M-L1	536745	7502081	6.0	75.0	2.8
		B4M-L2	536759	7502598	6.0	75.0	2.8
		B4M-L3	536484	7503111	6.0	75.0	2.8
		B4M-L4	537190	7503227	6.0	75.0	2.8
		B4M-L5	537934	7503057	6.0	75.0	2.8
		B4M-UW1	536982	7502772	2.0	75.0	0.9
		B4M-UW2	537349	7502497	2.0	75.0	0.9
		B4M-UW3	537475	7502825	2.0	75.0	0.9
		B4M-UW4	537842	7502632	2.0	75.0	0.9
Brockman 1	Mining	B1-D1	509340	7508639	1.5	75.0	0.7
		B1-D2	510886	7508252	1.5	75.0	0.7
		B1-D3	512549	7508175	1.5	75.0	0.7
		B1-D4	514752	7508755	1.5	75.0	0.7
		B1-D5	517111	7509180	1.5	75.0	0.7
		B1-D6	519411	7509683	1.5	75.0	0.7

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
		B1-D7	521479	7510089	1.5	75.0	0.7
		B1-D8	523026	7510147	1.5	75.0	0.7
		B1-B1	509881	7508330	20.0	21.0	9.3
		B1-B2	510693	7508562	20.0	21.0	9.3
		B1-B3	512182	7508156	20.0	21.0	9.3
		B1-B4	514269	7508523	20.0	21.0	9.3
		B1-B5	517633	7509451	20.0	21.0	9.3
		B1-B6	520300	7509644	20.0	21.0	9.3
		B1-B7	521943	7509818	20.0	21.0	9.3
		B1-B8	522620	7510340	20.0	21.0	9.3
		B1-L1	509011	7508716	6.0	75.0	2.8
		B1-L2	511196	7508233	6.0	75.0	2.8
		B1-L3	510249	7508504	6.0	75.0	2.8
		B1-L5	513573	7508349	6.0	75.0	2.8
		B1-L6	515158	7508562	6.0	75.0	2.8
		B1-L7	518174	7509200	6.0	75.0	2.8
		B1-L8	519044	7509412	6.0	75.0	2.8
		B1-L9	520261	7510050	6.0	75.0	2.8
		B1-L10	521576	7509818	6.0	75.0	2.8
		B1-L11	522156	7510321	6.0	75.0	2.8
		B1-L12	522716	7509915	6.0	75.0	2.8
		B1-UW1	509263	7506899	2.0	75.0	0.9
		B1-UW2	510287	7506764	2.0	75.0	0.9
		B1-UW3	511505	7506783	2.0	75.0	0.9
		B1-UW4	518116	7505198	2.0	75.0	0.9
		B1-UW5	519488	7505314	2.0	75.0	0.9
		B1-UW6	521557	7505179	2.0	75.0	0.9
		B1-UW7	520339	7505681	2.0	75.0	0.9
		B1-UW8	522504	7505623	2.0	75.0	0.9
		B1-UW9	523238	7505082	2.0	75.0	0.9
	Haul Road	B1-H1	509931	7508924	8.5	16.7	7.9
		B1-H2	510211	7508924	8.5	16.7	7.9
		B1-H3	510511	7508837	8.5	16.7	7.9
		B1-H4	510801	7508740	8.5	16.7	7.9
		B1-H5	511100	7508702	8.5	16.7	7.9
		B1-H6	511419	7508634	8.5	16.7	7.9
		B1-H7	511699	7508528	8.5	16.7	7.9
		B1-H8	511999	7508595	8.5	16.7	7.9
		B1-H9	512270	7508615	8.5	16.7	7.9
		B1-H10	512589	7508673	8.5	16.7	7.9
		B1-H11	512879	7508731	8.5	16.7	7.9
		B1-H12	513188	7508779	8.5	16.7	7.9
		B1-H13	513507	7508808	8.5	16.7	7.9
		B1-H14	513797	7508866	8.5	16.7	7.9

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
		B1-H15	514096	7508914	8.5	16.7	7.9
		B1-H16	514386	7508992	8.5	16.7	7.9
		B1-H17	514686	7509069	8.5	16.7	7.9
		B1-H18	514986	7509108	8.5	16.7	7.9
		B1-H19	515285	7509146	8.5	16.7	7.9
		B1-H20	515556	7509156	8.5	16.7	7.9
		B1-H21	515855	7509233	8.5	16.7	7.9
		B1-H22	516155	7509291	8.5	16.7	7.9
		B1-H23	516455	7509388	8.5	16.7	7.9
		B1-H24	516745	7509494	8.5	16.7	7.9
		B1-H25	517064	7509591	8.5	16.7	7.9
		B1-H26	517353	7509639	8.5	16.7	7.9
		B1-H27	517672	7509717	8.5	16.7	7.9
		B1-H28	517982	7509804	8.5	16.7	7.9
		B1-H29	518262	7509881	8.5	16.7	7.9
		B1-H30	518571	7509920	8.5	16.7	7.9
		B1-H31	518900	7510016	8.5	16.7	7.9
		B1-H32	519170	7510036	8.5	16.7	7.9
		B1-H33	519470	7510132	8.5	16.7	7.9
		B1-H34	519779	7510210	8.5	16.7	7.9
		B1-H35	520040	7510238	8.5	16.7	7.9
		B1-H36	520330	7510277	8.5	16.7	7.9
		B1-H37	520640	7510364	8.5	16.7	7.9
		B1-H38	520920	7510393	8.5	16.7	7.9
		B1-H39	521219	7510490	8.5	16.7	7.9
		B1-H40	521529	7510548	8.5	16.7	7.9
		B1-H41	521809	7510577	8.5	16.7	7.9
		B1-H42	522128	7510625	8.5	16.7	7.9
		B1-H43	522428	7510586	8.5	16.7	7.9
		B1-H44	522747	7510625	8.5	16.7	7.9
		B1-H45	523036	7510625	8.5	16.7	7.9
		B1-H46	523317	7510499	8.5	16.7	7.9
		B1-H47	523539	7510267	8.5	16.7	7.9
		B1-H48	523684	7510036	8.5	16.7	7.9
		B1-H49	523819	7509755	8.5	16.7	7.9
		B1-H50	524032	7509543	8.5	16.7	7.9
		B1-H51	511680	7508209	8.5	16.7	7.9
		B1-H52	511371	7508151	8.5	16.7	7.9
		B1-H53	511100	7507977	8.5	16.7	7.9
		B1-H54	510888	7507764	8.5	16.7	7.9
		B1-H55	510665	7507552	8.5	16.7	7.9
		B1-H56	510443	7507329	8.5	16.7	7.9
		B1-H57	511081	7507455	8.5	16.7	7.9
		B1-H58	524275	7509390	8.5	16.7	7.9

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
		B1-H59	524562	7509242	8.5	16.7	7.9
		B1-H60	524718	7508980	8.5	16.7	7.9
		B1-H61	524742	7508652	8.5	16.7	7.9
		B1-H62	524652	7508373	8.5	16.7	7.9
		B1-H63	524562	7508094	8.5	16.7	7.9
		B1-H64	524455	7507807	8.5	16.7	7.9
		B1-H65	524357	7507528	8.5	16.7	7.9
		B1-H66	524283	7507225	8.5	16.7	7.9
		B1-H67	524185	7506938	8.5	16.7	7.9
		B1-H68	524111	7506642	8.5	16.7	7.9
		B1-H69	524004	7506322	8.5	16.7	7.9
		B1-H70	523906	7506043	8.5	16.7	7.9
		B1-H71	523824	7505740	8.5	16.7	7.9
		B1-H72	523733	7505469	8.5	16.7	7.9
		B1-H73	523660	7505190	8.5	16.7	7.9
		B1-HR74	523545	7504903	8.5	16.7	7.9
		B1-HR75	523463	7504625	8.5	16.7	7.9
		B1-HR76	523364	7504313	8.5	16.7	7.9
		B1-HR77	523258	7504034	8.5	16.7	7.9
		B1-HR78	523184	7503739	8.5	16.7	7.9
		B1-HR79	523053	7503476	8.5	16.7	7.9
		B1-HR80	522905	7503206	8.5	16.7	7.9
		B1-HR81	516278	7509013	8.5	16.7	7.9
		B1-HR82	516401	7508726	8.5	16.7	7.9
		B1-HR83	516548	7508438	8.5	16.7	7.9
		B1-HR84	516704	7508192	8.5	16.7	7.9
		B1-HR85	516688	7507873	8.5	16.7	7.9
		B1-HR86	516639	7507553	8.5	16.7	7.9
		B1-HR87	516614	7507257	8.5	16.7	7.9
		B1-HR88	516876	7507011	8.5	16.7	7.9
		B1-HR89	517123	7506872	8.5	16.7	7.9
		B1-HR90	517401	7506716	8.5	16.7	7.9
		B1-HR91	517664	7506568	8.5	16.7	7.9
		B1-HR92	517910	7506413	8.5	16.7	7.9
		B1-HR93	518164	7506257	8.5	16.7	7.9
		B1-HR94	518435	7506093	8.5	16.7	7.9
		B1-HR95	518689	7505937	8.5	16.7	7.9
		B1-HR96	518943	7505765	8.5	16.7	7.9
Brockman 4 - Q/R	Mining	B4QR-D1	517918	7498317	1.5	75.0	0.7
		B4QR-D2	518749	7498568	1.5	75.0	0.7
		B4QR-D3	520402	7499718	1.5	75.0	0.7
		B4QR-D4	522711	7499931	1.5	75.0	0.7
		B4QR-B1	520005	7499680	20.0	0.0	9.3
		B4QR-B2	522141	7499960	20.0	0.0	9.3

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
		B4QR-B3	518014	7498616	20.0	0.0	9.3
		B4QR-B4	518556	7498326	20.0	0.0	9.3
		B4QR-L1	518237	7498181	6.0	75.0	2.8
		B4QR-L2	518420	7498510	6.0	75.0	2.8
		B4QR-L3	520663	7499776	6.0	75.0	2.8
		B4QR-L4	521542	7499902	6.0	75.0	2.8
		B4QR-L5	523243	7499883	6.0	75.0	2.8
		B4QR-UW1	523900	7499631	2.0	75.0	0.9
		B4QR-UW2	524316	7499022	2.0	75.0	0.9
		B4QR-UW3	524644	7499448	2.0	75.0	0.9
		B4-UO1	522349	7501700	2.0	75.0	0.9
		B4-UO2	522330	7501869	2.0	75.0	0.9
		B4-UO3	522310	7502047	2.0	75.0	0.9
	Haul Road	B4QR-H1	520232	7499965	8.5	16.7	7.9
		B4QR-H2	520542	7499974	8.5	16.7	7.9
		B4QR-H3	520832	7500090	8.5	16.7	7.9
		B4QR-H4	521112	7500187	8.5	16.7	7.9
		B4QR-H5	521392	7500245	8.5	16.7	7.9
		B4QR-H6	521701	7500255	8.5	16.7	7.9
		B4QR-H7	522020	7500216	8.5	16.7	7.9
		B4QR-H8	522301	7500235	8.5	16.7	7.9
		B4QR-H9	522600	7500235	8.5	16.7	7.9
		B4QR-H10	522919	7500264	8.5	16.7	7.9
		B4QR-H11	523238	7500313	8.5	16.7	7.9
		B4QR-H12	523528	7500351	8.5	16.7	7.9
		B4QR-H13	523828	7500361	8.5	16.7	7.9
		B4QR-H14	524137	7500390	8.5	16.7	7.9
		B4QR-H15	524388	7500564	8.5	16.7	7.9
		B4QR-H16	524649	7500719	8.5	16.7	7.9
		B4QR-H17	524930	7500786	8.5	16.7	7.9
		B4QR-H18	525249	7500748	8.5	16.7	7.9
		B4QR-H19	525567	7500786	8.5	16.7	7.9
		B4QR-H20	525857	7500748	8.5	16.7	7.9
		B4QR-H21	526128	7500864	8.5	16.7	7.9
Brockman 4 - O	Mining	B4O-D1	524635	7500424	1.5	75.0	0.7
		B4O-D2	526655	7500743	1.5	75.0	0.7
		B4O-D3	528278	7500965	1.5	75.0	0.7
		B4O-D4	529574	7501033	1.5	75.0	0.7
		B4O-D5	530946	7501033	1.5	75.0	0.7
		B40-B1	525128	7500578	20.0	0.0	9.3
		B4O-B2	527215	7500752	20.0	0.0	9.3
		B4O-B3	528385	7500694	20.0	0.0	9.3
		B4O-B4	530240	7500975	20.0	0.0	9.3
		B4O-L1	524248	7500240	6.0	75.0	2.8

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
		B4O-L2	525940	7500617	6.0	75.0	2.8
		B4O-L3	527776	7500820	6.0	75.0	2.8
		B4O-L4	529042	7501013	6.0	75.0	2.8
		B4O-L5	530840	7500878	6.0	75.0	2.8
		B4O-UW1	525746	7500134	2.0	75.0	0.9
		B4O-UW2	526539	7499902	2.0	75.0	0.9
		B4O-UW3	527486	7500124	2.0	75.0	0.9
		B4O-UW4	528559	7499960	2.0	75.0	0.9
		B4O-UW5	529313	7500327	2.0	75.0	0.9
	Haul Road	B40-H1	529917	7501202	8.5	16.7	7.9
		B4O-H2	529598	7501231	8.5	16.7	7.9
		B4O-H3	529313	7501274	8.5	16.7	7.9
		B40-H4	529013	7501265	8.5	16.7	7.9
		B4O-H5	528704	7501284	8.5	16.7	7.9
		B4O-H6	528419	7501337	8.5	16.7	7.9
		B4O-H7	528119	7501303	8.5	16.7	7.9
		B4O-H8	527868	7501144	8.5	16.7	7.9
		B4O-H9	527587	7501042	8.5	16.7	7.9
		B4O-H10	527302	7500979	8.5	16.7	7.9
		B4O-H11	527027	7500902	8.5	16.7	7.9
		B4O-H12	526722	7500868	8.5	16.7	7.9
		B4O-H13	526413	7500922	8.5	16.7	7.9
Brockman 4	Haul Road	B4-HR1	526120	7501184	8.5	16.7	7.9
		B4-HR2	525891	7501389	8.5	16.7	7.9
		B4-HR3	525780	7501676	8.5	16.7	7.9
		B4-HR4	525796	7501979	8.5	16.7	7.9
		B4-HR5	525710	7502266	8.5	16.7	7.9
		B4-HR6	525690	7502549	8.5	16.7	7.9
		B4-HR7	525390	7502545	8.5	16.7	7.9
		B4-HR8	525087	7502500	8.5	16.7	7.9
		B4-HR9	524796	7502447	8.5	16.7	7.9
		B4-HR10	524492	7502385	8.5	16.7	7.9
		B4-HR11	524205	7502336	8.5	16.7	7.9
		B4-HR12	523914	7502283	8.5	16.7	7.9
		B4-HR13	523627	7502221	8.5	16.7	7.9
		B4-HR14	523319	7502168	8.5	16.7	7.9
		B4-HR15	523057	7502024	8.5	16.7	7.9
		B4-HR16	522778	7501910	8.5	16.7	7.9
		B4-HR17	522483	7501824	8.5	16.7	7.9
	Processing	B4-PC	522301	7502246	4.0	3.8	1.9
		B2-SCREEN	522301	7502487	8.0	7.5	3.7
		B4-SC	522306	7502690	4.0	3.8	1.9
		B4-TS1	522306	7502879	5.0	3.8	2.3
		B4-TS2	522257	7502497	5.0	3.8	2.3

Mine	Process	Source Id	Easting	Northing	Effective Height (m)	Sigma Y	Sigma Z
		B4-TS3	522755	7502869	5.0	3.8	2.3
		B4-STK1	522827	7502729	10.0	50.0	4.7
		B4-STK2	522876	7503067	10.0	50.0	4.7
		B4-REC1	522885	7502661	3.0	50.0	1.4
		B4-REC2	523001	7503125	3.0	50.0	1.4
		B4-UO1	522349	7501700	3.2	50.0	1.5
		B4-UO2	522335	7501869	3.2	50.0	1.5
		B4-UO3	522315	7502047	3.2	50.0	1.5
		B4-FEL	522301	7502125	2.0	50.0	0.9

Appendix C – Receptor Locations and Description

Number	East	North	Receptor ID	Comment
1	518259	7509305	CBRK-000	Bat Cave
2	521162	7538802	CBRK-001	Bat Cave
3	521432	7538473	CBRK-005	Bat Cave
4	515207	7497168	CBRK-006	Bat Cave
5	521416	7538440	CBRK-007	Bat Cave
6	513626	7496986	CBRK-008	Bat Cave
7	513655	7496933	CBRK-010	Bat Cave
8	521247	7538288	CBRK-011	Bat Cave
9	521926	7536835	CBRK-013	Bat Cave
10	506262	7494978	CBRK-014	Bat Cave
11	524129	7538799	CBRK-015	Bat Cave
12	506237	7495056	CBRK-016	Bat Cave
13	524729	7538611	CBRK-017	Bat Cave
14	506925	7494991	CBRK-018	Bat Cave
15	521468	7534246	CBRK-019	Bat Cave
16	522264	7537224	CBRK-021	Bat Cave
17	505270	7493604	CBRK-022	Bat Cave
18	522286	7537215	CBRK-023	Bat Cave
19	522356	7537232	CBRK-025	Bat Cave
20	520913	7534663	CBRK-027	Bat Cave
21	505572	7492867	CBRK-028	Bat Cave
22	524474	7538525	CBRK-031	Bat Cave
23	506018	7494863	CBRK-036	Bat Cave
24	506219	7492761	CBRK-038	Bat Cave
25	506222	7495029	CBRK-042	Bat Cave
26	520646	7538160	CBRK-043	Bat Cave
27	506266	7495291	CBRK-044	Bat Cave
28	506188	7495253	CBRK-046	Bat Cave
29	528581	7512828	CBRK-047	Bat Cave
30	529410	7512749	CBRK-049	Bat Cave
31	529924	7514311	CBRK-051	Bat Cave
32	506219	7492761	CBRK-052	Bat Cave
33	509227	7508469	CBRK-053	Bat Cave
34	551153	7519136	CBRK-055	Bat Cave
35	551159	7519083	CBRK-057	Bat Cave
36	547763	7518124	CBRK-059	Bat Cave
37	512414	7498443	CBRK-060	Bat Cave
38	551081	7518703	CBRK-061	Bat Cave
39	505685	7494350	CBRK-062	Bat Cave
40	551104	7518683	CBRK-063	Bat Cave
41	551093	7518650	CBRK-065	Bat Cave

Number	East	North	Receptor ID	Comment
42	510135	7496587	CBRK-066	Bat Cave
43	550989	7518515	CBRK-067	Bat Cave
44	508681	7494450	CBRK-068	Bat Cave
45	546432	7514312	CBRK-069	Bat Cave
46	546537	7514274	CBRK-071	Bat Cave
47	550696	7519074	CBRK-073	Bat Cave
48	540321	7522014	CBRK-074	Bat Cave
49	550933	7519416	CBRK-075	Bat Cave
50	550380	7520212	CBRK-076	Bat Cave
51	550668	7519863	CBRK-077	Bat Cave
52	533487	7533667	CBRK-078	Bat Cave
53	550020	7520104	CBRK-079	Bat Cave
54	533199	7533782	CBRK-080	Bat Cave
55	550201	7520188	CBRK-081	Bat Cave
56	534663	7533478	CBRK-082	Bat Cave
57	550168	7520184	CBRK-083	Bat Cave
58	531760	7518116	CBRK-084	Bat Cave
59	549860	7520229	CBRK-085	Bat Cave
60	531875	7518237	CBRK-086	Bat Cave
61	549828	7520378	CBRK-087	Bat Cave
62	530111	7514190	CBRK-088	Bat Cave
63	548658	7516637	CBRK-089	Bat Cave
64	541173	7521901	CBRK-090	Bat Cave
65	550490	7519565	CBRK-091	Bat Cave
66	541081	7521921	CBRK-092	Bat Cave
67	551843	7518220	CBRK-093	Bat Cave
68	543020	7512373	CBRK-094	Bat Cave
69	551995	7518400	CBRK-095	Bat Cave
70	552142	7518622	CBRK-097	Bat Cave
71	552167	7518540	CBRK-099	Bat Cave
72	548471	7516703	CBRK-100	Bat Cave
73	550940	7518661	CBRK-101	Bat Cave
74	546701	7515143	CBRK-102	Bat Cave
75	540311	7505501	CBRK-103	Bat Cave
76	540335	7505496	CBRK-104	Bat Cave
77	551240	7518923	CBRK-105	Bat Cave
78	534283	7500653	CBRK-106	Bat Cave
79	539965	7504829	CBRK-107	Bat Cave
80	540025	7504913	CBRK-108	Bat Cave
81	529931	7500787	CBRK-109	Bat Cave
82	532356	7500789	CBRK-110	Bat Cave
83	532485	7501938	CBRK-111	Bat Cave
84	546646	7519056	CBRK-113	Bat Cave
85	504843	7494911	CBRK-115	Bat Cave

Number	East	North	Receptor ID	Comment
86	518140	7509040	CBRK-116	Bat Cave
87	517923	7509302	CBRK-119	Bat Cave
88	543214	7510586	CBRK-120	Bat Cave
89	536769	7501683	CBRK-121	Bat Cave
90	535904	7503454	CBRK-125	Bat Cave
91	518045	7509019	CBRK-136	Bat Cave
92	518019	7509036	CBRK-137	Bat Cave
93	520829	7498822	CBRK-140	Bat Cave
94	551531	7514843	CBRK-141	Bat Cave
95	550427	7514439	CBRK-142	Bat Cave
96	518339	7509134	CBRK-143	Bat Cave
97	519828	7509141	CBRK-144	Bat Cave
98	519966	7509521	CBRK-145	Bat Cave
99	503703	7494992	CBRK-146	Bat Cave
100	523521	7498891	CBRK-147	Bat Cave
101	549637	7520450	CBRK-148	Bat Cave
102	547088	7518681	CBRK-149	Bat Cave
103	549496	7520405	CBRK-150	Bat Cave
104	522811	7509720	CBRK-151	Bat Cave
105	549863	7514542	CBRK-199	Bat Cave
106	514604	7498963	CBRK-002	Bat Cave
107	521234	7538675	CBRK-003	Bat Cave
108	514716	7499233	CBRK-004	Bat Cave
109	522142	7537292	CBRK-009	Bat Cave
110	508415	7496266	CBRK-012	Bat Cave
111	504983	7493949	CBRK-020	Bat Cave
112	505277	7493613	CBRK-024	Bat Cave
113	506001	7492612	CBRK-026	Bat Cave
114	520947	7534665	CBRK-029	Bat Cave
115	505734	7492873	CBRK-030	Bat Cave
116	505741	7492869	CBRK-032	Bat Cave
117	522156	7537316	CBRK-033	Bat Cave
118	505748	7492813	CBRK-034	Bat Cave
119	522086	7537366	CBRK-035	Bat Cave
120	522110	7537304	CBRK-037	Bat Cave
121	522197	7537272	CBRK-039	Bat Cave
122	507141	7495270	CBRK-040	Bat Cave
123	521908	7537085	CBRK-041	Bat Cave
124	528667	7521055	CBRK-045	Bat Cave
125	506140	7495636	CBRK-048	Bat Cave
126	505787	7496029	CBRK-050	Bat Cave
127	512860	7498258	CBRK-054	Bat Cave
128	512706	7498357	CBRK-056	Bat Cave
129	512430	7498450	CBRK-058	Bat Cave

Number	East	North	Receptor ID	Comment
130	505477	7494695	CBRK-064	Bat Cave
131	508438	7494305	CBRK-070	Bat Cave
132	508233	7494065	CBRK-072	Bat Cave
133	543058	7512309	CBRK-096	Bat Cave
134	543150	7512305	CBRK-098	Bat Cave
135	513411	7497868	CBRK-114	Bat Cave
136	536831	7501586	CBRK-122	Bat Cave
137	537192	7501488	CBRK-123	Bat Cave
138	537903	7503951	CBRK-124	Bat Cave
139	535897	7503448	CBRK-126	Bat Cave
140	514792	7508349	CBRK-138	Bat Cave
141	513531	7508067	CBRK-139	Bat Cave
142	522409	7499101	CBRK-152	Bat Cave
143	535665	7503130	CBRK-153	Bat Cave
144	535752	7503109	CBRK-154	Bat Cave
145	534088	7503412	Upper Beasley River PLNB Roost	Bat Cave
146	534290	7500655	B4jun16-09	Bat Cave
147	532360	7500795	B4jun16-26	Bat Cave
148	532485	7501947	B4jul16-26-27	Bat Cave
149	531540	7500642	B4jun16-36	Bat Cave
150	532800	7502023	BS4MMJul16-13	Bat Cave
151	532776	7502019	BS4MMJul16-14	Bat Cave
152	532799	7502035	BS4MMJul16-15	Bat Cave
153	532828	7502064	BS4MMJul16-17	Bat Cave
154	533238	7501799	BS4MM-Aug16-13	Bat Cave
155	533723	7501931	BS4MM-Aug16-15	Bat Cave
156	532267	7501956	BS4MM-Aug16-03	Bat Cave
157	532755	7501888	BS4MMJul16-11	Bat Cave
158	532358	7500797	B4June16-26	Bat Cave
159	532709	7501984	BS4MM-Aug16-04	Bat Cave
160	531034	7500610	BS4MM-Aug16-19	Bat Cave
161	530969	7500610	BS4MM-Aug16-18	Bat Cave
162	529893	7500818	BS4MMJul16-30	Bat Cave
163	535294	7532910	SG1	Bat Cave
164	535290	7532963	C3 (also CBRK-155)	Bat Cave
165	535254	7532899	C4 (also CBRK-155)	Bat Cave
166	535262	7532916	C5 (also CBRK-155)	Bat Cave
167	535153	7532890	C6	Bat Cave
168	535148	7533034	C7	Bat Cave
169	534970	7533287	C8	Bat Cave
170	505671	7494371	GBS_CA_01	Bat Cave
171	505999	7492622	GBS_CA_02	Bat Cave
172	518140	7509039	GBS_CA_03	Bat Cave
173	508988	7508372	GBS_CA_04	Bat Cave

Number	East	North	Receptor ID	Comment
174	515117	7498881	GBS_CA_05	Bat Cave
175	518830	7509326	GBS_CA_06	Bat Cave
176	512073	7495751	GBS_CA_07	Bat Cave
177	550693	7519704	GBS_CA_08	Bat Cave
178	550683	7519793	GBS_CA_09	Bat Cave
179	550652	7519771	GBS_CA_10	Bat Cave
180	551022	7519614	GBS_CA_11	Bat Cave
181	550950	7519548	GBS_CA_12	Bat Cave
182	512104	7495740	GBS_CA_13	Bat Cave
183	550683	7519770	GBS_CA_14	Bat Cave
184	552326	7518724	GBS_CA_15	Bat Cave
185	549820	7520371	GBS_CA_16	Bat Cave
186	550396	7520214	GBS_CA_17	Bat Cave
187	550386	7520203	GBS_CA_18	Bat Cave
188	505732	7492865	GBS_CA_19	Bat Cave
189	512206	7507949	GBS_CA_20	Bat Cave
190	515055	7508367	GBS_CA_21	Bat Cave
191	508987	7508040	GBS_CA_22	Bat Cave
192	535721	7501070	MAMbat81-01	Bat Cave
193	537635	7502527	MAMBAT93-01	Bat Cave
194	544847	7531160	CBRK-160	Bat Cave
195	544395	7531073	CBRK-161	Bat Cave
196	545214	7529843	CBRK-162	Bat Cave
197	545611	7530715	CBRK-163	Bat Cave
198	545596	7530730	CBRK-164	Bat Cave
199	543903	7531490	CBRK-165	Bat Cave
200	543822	7531417	CBRK-166	Bat Cave
201	543828	7531410	CBRK-167	Bat Cave
202	542779	7531694	CBRK-168	Bat Cave
203	543512	7531509	CBRK-170	Bat Cave
204	546816	7528266	CBRK-171	Bat Cave
205	531054	7500620	CBRK-173	Bat Cave
206	530958	7500612	CBRK-174	Bat Cave
207	521204	7538280	CBRK-175	Bat Cave
208	521246	7538767	CBRK-176	Bat Cave
209	521194	7538811	CBRK-177	Bat Cave
210	540174	7503456	Plunge Pool	Rock Pool
211	534430	7503074	Ridge Pool	Rock Pool
212	531858	7500977	Ephemeral Pool	Rock Pool
213	503954	7537537	Palm Springs Pool	Rock Pool
214	518476	7540608	Caves Creek - HS1	Rock Pool
215	517909	7540631	Caves Creek - HS2	Rock Pool
216	513898	7541221	Caves Creek - HS3	Rock Pool
217	510510	7540616	Caves Creek - HS4	Rock Pool

Number	East	North	Receptor ID	Comment
218	507157	7539317	Caves Creek - HS5	Rock Pool
219	505821	7538801	Caves Creek - HS6	Rock Pool
220	524839	7536345	Caves Creek - CCU1	Rock Pool
221	528471	7535170	Caves Creek - CCU2	Rock Pool
222	532592	7535347	Caves Creek - CCU3	Rock Pool
223	534649	7534112	Caves Creek - CCU4	Rock Pool
224	535422	7534203	Caves Creek - CCU5	Rock Pool
225	539084	7534010	Caves Creek - CCU6	Rock Pool
226	503946	7537565	Caves Creek - PS1	Rock Pool
227	502990	7536161	Caves Creek - PS2	Rock Pool
228	502586	7535229	Caves Creek - PS3	Rock Pool
229	502160	7532949	Caves Creek - PS4	Rock Pool
230	501278	7531808	Caves Creek - PS5	Rock Pool
231	501219	7529756	Caves Creek - PS6	Rock Pool
232	507407	7527760	Duck Creek Tributary - DCUT1	Rock Pool
233	531396	7527024	Duck Creek Upstream - DCU1	Rock Pool
234	530855	7526919	Duck Creek Upstream - DCU2	Rock Pool
235	530530	7526944	Duck Creek Upstream - DCU3	Rock Pool
236	529824	7526937	Duck Creek Upstream - DCU4	Rock Pool
237	529612	7526841	Duck Creek Upstream - DCU5	Rock Pool
238	527859	7527177	Duck Creek Upstream - DCU6	Rock Pool
239	518836	7528936	Duck Creek Upstream - DCU7	Rock Pool
240	516163	7528870	Duck Creek Upstream - DCU8	Rock Pool
241	514028	7529277	Duck Creek Upstream - DCU9	Rock Pool
242	508563	7529228	Duck Creek Upstream - DCU10	Rock Pool
243	506713	7528706	Duck Creek Upstream - DCU11	Rock Pool
244	502404	7528267	Duck Creek Upstream - DCU12	Rock Pool
245	501621	7527726	Duck Creek Downstream - DCD1	Rock Pool
246	500589	7527126	Duck Creek Downstream - DCD2	Rock Pool
247	495736	7525137	Duck Creek Downstream - DCD3	Rock Pool
248	495221	7525101	Duck Creek Downstream - DCD4	Rock Pool
249	493415	7524641	Duck Creek Downstream - DCD5	Rock Pool
250	491401	7523865	Duck Creek Downstream - DCD6	Rock Pool
251	487407	7524351	Duck Creek Downstream - DCD7	Rock Pool
252	484122	7524373	Duck Creek Downstream - DCD8	Rock Pool
253	479448	7525581	Duck Creek Downstream - DCD9	Rock Pool
254	497678	7524850	Duck Creek Tributary - DCDT1	Rock Pool
255	489303	7522903	Duck Creek Tributary - DCDT2	Rock Pool
256	550122	7534184	Caves Creek - CCUS1	Rock Pool
257	548120	7532725	Caves Creek - CCUS2	Rock Pool
258	539062	7533997	Caves Creek - CCUS3	Rock Pool
259	509218	7502784	Boolgeeda Creek - BS4_BC1	Rock Pool
260	507125	7501628	Boolgeeda Creek - BS4_BC2	Rock Pool
261	494044	7497983	Boolgeeda Creek - BS4_BC3	Rock Pool

Number	East	North	Receptor ID	Comment
262	489215	7497282	Boolgeeda Creek - BS4_BC4	Rock Pool
263	494049	7497490	Boolgeeda Creek - BS4_BC1	Rock Pool
264	491366	7497699	Boolgeeda Creek - BS4_BC2	Rock Pool
265	489062	7497225	Boolgeeda Creek - BS4_BC3	Rock Pool
266	487499	7497746	Boolgeeda Creek - BS4_BC4	Rock Pool
267	486129	7496484	Boolgeeda Creek - BS4_BC5	Rock Pool
268	483630	7494826	Boolgeeda Creek - BS4_BC6	Rock Pool
269	479367	7493728	Boolgeeda Creek - BS4_BC7	Rock Pool
270	525840	7527514	Duck Creek Upstream - WDUC-01	Rock Pool
271	525718	7527534	Duck Creek Upstream - WDUC-02	Rock Pool
272	487435	7524321	Duck Creek Downstream - WDUC-09	Rock Pool
273	481295	7525447	Duck Creek Downstream - WDUC-10	Rock Pool
274	483556	7524185	Duck Creek Downstream - WDUC-11	Rock Pool
275	483522	7524241	Duck Creek Downstream - WDUC-13	Rock Pool
276	529633	7526839	Duck Creek Upstream - WDUC-15	Rock Pool
277	484542	7524709	Duck Creek Downstream - WDUC-26	Rock Pool
278	493899	7524378	Duck Creek Downstream - WDUC-25	Rock Pool
279	479265	7525063	Duck Creek Downstream - WDUC-24	Rock Pool
280	491534	7523686	Duck Creek Downstream - WDUC-23	Rock Pool
281	526110	7527578	Duck Creek Upstream - WDUC-03	Rock Pool
282	503103	7528136	Duck Creek Upstream - WDUC-05	Rock Pool
283	495237	7525098	Duck Creek Downstream - WDUC-04	Rock Pool
284	495370	7525105	Duck Creek Downstream - WDUC-06	Rock Pool
285	503075	7528127	Duck Creek Upstream - WDUC-07	Rock Pool
286	484151	7524454	Duck Creek Downstream - WDUC-08	Rock Pool
287	502909	7528020	Duck Creek Upstream - WDUC-19	Rock Pool
288	501272	7531803	Caves Creek - Shreks Swamp	Rock Pool
289	513919	7541248	Caves Creek - Pancake Spring/Seep (Karingkulanha)	Rock Pool
290	518192	7540618	Caves Creek - Cockle Spring/seep (Jerithikunha)	Rock Pool
291	534444	7534182	Caves Creek - 2 Mile Pool (Thartawinha)	Rock Pool
292	542708	7533388	Caves Creek - Blooms Pool (Puntinaha)	Rock Pool
293	535553	7534010	Caves Creek - Crossing Bore Pool (Kayarnhunha)	Rock Pool
294	525289	7538401	Caves Creek - Johnny Cake Spring (Marmparrnha)	Rock Pool
295	526996	7535384	Caves Creek - Yantinha (ephemeral)	Rock Pool
296	530276	7533881	Mount Brockman	Cattle Yard
297	545753	7469185	Rocklea	Homestead
298	569757	7536146	Hamersley	Homestead
299	484607	7461336	Cheela Outcamp	Cattle Yard
300	497248	7463522	Cheela Plains Station Homestead	Homestead
301	531413	7503802	West Pilbara Village	Rio Tinto receptor
302	531894	7504040	Brockman 4 Village	Rio Tinto receptor
303	532018	7503864	Nammuldi Village	Rio Tinto receptor
304	538619	7523565	Jerriwah Camp	Rio Tinto receptor

Number	East	North	Receptor ID	Comment
305	538908	7524520	Brockman 2 Camp	Rio Tinto receptor
306	517818	7540203	Homestead Camp	Rio Tinto receptor
307	528139	7507392	Airport	Rio Tinto receptor
Note: Bat cave type is subject to ecological assessment, and therefore these classifications may change.				

Appendix D – Emission Rates

D.1: Variable emissions – 2027

Mine	Process	Source Id	Maximum (g/s)	99th Percentile (gs)	95th Percentile (gs)	90th Percentile (gs)	70th Percentile (g/s)	Average (g/s)
Silvergrass	Mining	S1-D1	0.49	0.49	0.49	0.49	0.49	0.41
		S1-D2	0.49	0.49	0.49	0.49	0.49	0.41
		S1-D3	0.49	0.49	0.49	0.49	0.49	0.41
		S1-D4	0.49	0.49	0.49	0.49	0.49	0.41
		S1-BI1	64.07	0.00	0.00	0.00	0.00	0.27
		S1-BI2	64.07	0.00	0.00	0.00	0.00	0.27
		S1-BI3	64.07	0.00	0.00	0.00	0.00	0.27
		S1-L1	2.94	2.94	2.94	2.94	2.94	2.43
		S1-L2	2.94	2.94	2.94	2.94	2.94	2.45
		S1-L3	2.94	2.94	2.94	2.94	2.94	2.44
		S1-L4	2.94	2.94	2.94	2.94	2.94	2.43
		S1-UW1	1.89	1.89	1.89	1.89	0.76	0.77
		S1-UW2	1.89	1.89	1.89	1.89	0.76	0.77
		S1-UW3	1.89	1.89	1.89	1.89	0.76	0.77
		S1-UW4	1.89	1.89	1.89	1.89	0.76	0.77
		S1-UW5	1.89	1.89	1.89	1.89	0.76	0.77
		S2-D1	0.00	0.00	0.00	0.00	0.00	0.00
		S2-D2	0.00	0.00	0.00	0.00	0.00	0.00
		S2-D3	0.00	0.00	0.00	0.00	0.00	0.00
		S2-D4	0.00	0.00	0.00	0.00	0.00	0.00
		S2-D5	0.00	0.00	0.00	0.00	0.00	0.00
		S2-BI1	0.00	0.00	0.00	0.00	0.00	0.00
		S2-BI2	0.00	0.00	0.00	0.00	0.00	0.00
		S2-BI3	0.00	0.00	0.00	0.00	0.00	0.00
		S2-BI4	0.00	0.00	0.00	0.00	0.00	0.00
		S2-L1	0.00	0.00	0.00	0.00	0.00	0.00
		S2-L2	0.00	0.00	0.00	0.00	0.00	0.00
		S2-L3	0.00	0.00	0.00	0.00	0.00	0.00
		S2-L4	0.00	0.00	0.00	0.00	0.00	0.00
		S2-L5	0.00	0.00	0.00	0.00	0.00	0.00
		S2-UW1	0.00	0.00	0.00	0.00	0.00	0.00
		S2-UW2	0.00	0.00	0.00	0.00	0.00	0.00
		S2-UW3	0.00	0.00	0.00	0.00	0.00	0.00
		S2-UW4	0.00	0.00	0.00	0.00	0.00	0.00
		S2-UW5	0.00	0.00	0.00	0.00	0.00	0.00
		S-UO1	0.22	0.22	0.22	0.22	0.22	0.18
		S-UO2	0.22	0.22	0.22	0.22	0.22	0.18
		S-UO3	0.22	0.22	0.22	0.22	0.22	0.18
	Haul Road	S-H1	0.20	0.20	0.20	0.20	0.20	0.20
		S-H2	0.20	0.20	0.20	0.20	0.20	0.20
		S-H3	0.20	0.20	0.20	0.20	0.20	0.20
		S-H4	0.20	0.20	0.20	0.20	0.20	0.20
		S-H5	0.20	0.20	0.20	0.20	0.20	0.20
		S-H6	0.20	0.20	0.20	0.20	0.20	0.20
		S-H7	0.20	0.20	0.20	0.20	0.20	0.20
		S-H8	0.20	0.20	0.20	0.20	0.20	0.20
		S-H9	0.20	0.20	0.20	0.20	0.20	0.20
		S-H10	0.20	0.20	0.20	0.20	0.20	0.20
		S-H11	0.20	0.20	0.20	0.20	0.20	0.20

Mine	Process	Source Id	Maximum (g/s)	99th Percentile (gs)	95th Percentile (gs)	90th Percentile (gs)	70th Percentile (g/s)	Average (g/s)
		S-H12	0.20	0.20	0.20	0.20	0.20	0.20
		S-H13	0.20	0.20	0.20	0.20	0.20	0.20
		S-H14	0.20	0.20	0.20	0.20	0.20	0.20
		S-H15	0.20	0.20	0.20	0.20	0.20	0.20
		S-H16	0.20	0.20	0.20	0.20	0.20	0.20
		S-H17	0.20	0.20	0.20	0.20	0.20	0.20
		S-H18	0.20	0.20	0.20	0.20	0.20	0.20
		S-H19	0.20	0.20	0.20	0.20	0.20	0.20
		S-H20	0.20	0.20	0.20	0.20	0.20	0.20
		S-H21	0.20	0.20	0.20	0.20	0.20	0.20
		S-H22	0.20	0.20	0.20	0.20	0.20	0.20
		S-H23	0.20	0.20	0.20	0.20	0.20	0.20
		S-H24	0.20	0.20	0.20	0.20	0.20	0.20
		S-H25	0.12	0.12	0.12	0.12	0.12	0.12
		S-H26	0.12	0.12	0.12	0.12	0.12	0.12
		S-H27	0.12	0.12	0.12	0.12	0.12	0.12
		S-H28	0.12	0.12	0.12	0.12	0.12	0.12
		S-H29	0.12	0.12	0.12	0.12	0.12	0.12
		S-H30	0.12	0.12	0.12	0.12	0.12	0.12
		S-H31	0.12	0.12	0.12	0.12	0.12	0.12
		S-H32	0.12	0.12	0.12	0.12	0.12	0.12
		S-H33	0.12	0.12	0.12	0.12	0.12	0.12
		S-H34	0.12	0.12	0.12	0.12	0.12	0.12
		S-H35	0.12	0.12	0.12	0.12	0.12	0.12
		S-H36	0.12	0.12	0.12	0.12	0.12	0.12
		S-H37	0.12	0.12	0.12	0.12	0.12	0.12
		S-H38	0.12	0.12	0.12	0.12	0.12	0.12
		S-H39	0.12	0.12	0.12	0.12	0.12	0.12
		S-H40	0.00	0.00	0.00	0.00	0.00	0.00
		S-H41	0.00	0.00	0.00	0.00	0.00	0.00
		S-H42	0.00	0.00	0.00	0.00	0.00	0.00
		S-H43	0.00	0.00	0.00	0.00	0.00	0.00
		S-H44	0.00	0.00	0.00	0.00	0.00	0.00
		S-H45	1.59	1.59	1.59	1.59	1.59	1.32
		S-H46	1.59	1.59	1.59	1.59	1.59	1.32
		S-H47	1.59	1.59	1.59	1.59	1.59	1.32
		S-H48	1.59	1.59	1.59	1.59	1.59	1.32
		S-H49	1.59	1.59	1.59	1.59	1.59	1.32
		S-H50	0.00	0.00	0.00	0.00	0.00	0.00
		S-H51	0.00	0.00	0.00	0.00	0.00	0.00
		S-H52	0.00	0.00	0.00	0.00	0.00	0.00
		S-H53	0.00	0.00	0.00	0.00	0.00	0.00
		S-H54	0.00	0.00	0.00	0.00	0.00	0.00
		S-H55	0.00	0.00	0.00	0.00	0.00	0.00
		S-H56	0.00	0.00	0.00	0.00	0.00	0.00
	Processing	S_PC	0.28	0.28	0.28	0.28	0.28	0.25
		S_SC	0.29	0.29	0.29	0.29	0.29	0.26
		S_Screen	0.08	0.08	0.08	0.08	0.08	0.08
		S_Stack	0.17	0.17	0.17	0.17	0.17	0.16
		S_Rec	1.35	1.35	1.35	1.35	1.35	0.71
		S_TS1	0.08	0.08	0.08	0.08	0.08	0.08
		S-TS2	0.08	0.08	0.08	0.08	0.08	0.08
		S_TS3	0.08	0.08	0.08	0.08	0.08	0.08
		S_FEL	0.84	0.84	0.84	0.84	0.84	0.42
LG	Mining	LG-D1	0.16	0.16	0.16	0.16	0.16	0.14

Mine	Process	Source Id	Maximum (g/s)	99th Percentile (gs)	95th Percentile (gs)	90th Percentile (gs)	70th Percentile (g/s)	Average (g/s)
		LG-D2	0.16	0.16	0.16	0.16	0.16	0.14
		LG-D3	0.16	0.16	0.16	0.16	0.16	0.14
		LG-B1	79.00	0.00	0.00	0.00	0.00	0.33
		LG-B2	79.00	0.00	0.00	0.00	0.00	0.32
		LG-B3	79.00	0.00	0.00	0.00	0.00	0.32
		LG-L1	3.38	3.38	3.38	3.38	3.38	2.84
		LG-L2	3.38	3.38	3.38	3.38	3.38	2.81
		LG-D3	3.38	3.38	3.38	3.38	3.38	2.81
		LG-L4	3.38	3.38	3.38	3.38	3.38	2.82
		LG-UW1	2.67	2.67	2.67	2.67	1.53	1.42
		LG-UW2	2.67	2.67	2.67	2.67	1.53	1.43
		LG-UW3	2.67	2.67	2.67	2.67	1.53	1.42
		LG-UO1	0.08	0.08	0.08	0.08	0.08	0.07
		LG-UO2	0.08	0.08	0.08	0.08	0.08	0.07
		LG-UO3	0.08	0.08	0.08	0.08	0.08	0.07
	Haul Road	LG-HR1	1.83	1.83	1.83	1.83	1.83	1.52
		LG-HR2	1.83	1.83	1.83	1.83	1.83	1.52
		LG-HR3	1.83	1.83	1.83	1.83	1.83	1.52
		LG-HR4	1.83	1.83	1.83	1.83	1.83	1.52
		LG-HR5	0.09	0.09	0.09	0.09	0.09	0.08
		LG-HR6	0.09	0.09	0.09	0.09	0.09	0.08
		LG-HR7	0.09	0.09	0.09	0.09	0.09	0.08
		LG-HR8	0.09	0.09	0.09	0.09	0.09	0.08
		LG-HR9	0.09	0.09	0.09	0.09	0.09	0.08
		LG-HR10	0.09	0.09	0.09	0.09	0.09	0.08
		LG-HR11	0.09	0.09	0.09	0.09	0.09	0.08
		LG-HR12	0.09	0.09	0.09	0.09	0.09	0.08
		LG-HR13	0.09	0.09	0.09	0.09	0.09	0.08
		LG-HR14	0.09	0.09	0.09	0.09	0.09	0.08
		LG-HR15	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR16	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR17	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR18	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR19	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR20	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR21	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR22	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR23	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR24	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR25	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR26	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR27	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR28	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR29	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR30	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR31	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR32	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR33	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR34	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR35	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR36	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR37	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR38	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR39	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR40	0.32	0.32	0.32	0.32	0.32	0.27

Mine	Process	Source Id	Maximum (g/s)	99th Percentile (gs)	95th Percentile (gs)	90th Percentile (gs)	70th Percentile (g/s)	Average (g/s)
		LG-HR41	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR42	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR43	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR44	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR45	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR46	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR47	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR48	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR49	0.32	0.32	0.32	0.32	0.32	0.27
		LG-HR50	0.32	0.32	0.32	0.32	0.32	0.27
Diesel	Mining	D-D1	0.16	0.16	0.16	0.16	0.16	0.14
		D-D2	0.16	0.16	0.16	0.16	0.16	0.14
		D-D3	0.16	0.16	0.16	0.16	0.16	0.14
		D-B1	90.27	0.00	0.00	0.00	0.00	0.38
		D-B2	90.27	0.00	0.00	0.00	0.00	0.37
		D-L1	3.29	3.29	3.29	3.29	3.29	2.76
		D-L2	3.29	3.29	3.29	3.29	3.29	2.73
		D-L3	3.29	3.29	3.29	3.29	3.29	2.73
		D-UW1	2.11	2.11	2.11	2.11	0.98	0.96
		D-UW2	2.11	2.11	2.11	2.11	0.98	0.96
		D-UW3	2.11	2.11	2.11	2.11	0.98	0.96
		D-UO1	0.30	0.30	0.30	0.30	0.30	0.25
		D-UO2	0.30	0.30	0.30	0.30	0.30	0.25
	Haul Road	D-HR1	1.34	1.34	1.34	1.34	1.34	1.11
		D-HR2	1.34	1.34	1.34	1.34	1.34	1.11
		D-HR3	1.34	1.34	1.34	1.34	1.34	1.11
		D-HR4	1.34	1.34	1.34	1.34	1.34	1.11
		D-HR5	0.23	0.23	0.23	0.23	0.23	0.19
		D-HR6	0.23	0.23	0.23	0.23	0.23	0.19
		D-HR7	0.23	0.23	0.23	0.23	0.23	0.19
		D-HR8	0.23	0.23	0.23	0.23	0.23	0.19
		D-HR9	0.23	0.23	0.23	0.23	0.23	0.19
		D-HR10	0.23	0.23	0.23	0.23	0.23	0.19
		D-HR11	0.23	0.23	0.23	0.23	0.23	0.19
		D-HR12	0.23	0.23	0.23	0.23	0.23	0.19
		D-HR13	0.23	0.23	0.23	0.23	0.23	0.19
		D-HR14	0.23	0.23	0.23	0.23	0.23	0.19
		D-HR15	0.23	0.23	0.23	0.23	0.23	0.19
		D-HR16	0.23	0.23	0.23	0.23	0.23	0.19
		D-HR17	0.23	0.23	0.23	0.23	0.23	0.19
LG/Diesel	Processing	LG-FEL	1.38	1.38	1.38	1.38	1.38	1.03
		LG-PC	0.46	0.46	0.46	0.46	0.46	0.34
		LG-SCR	0.14	0.14	0.14	0.14	0.14	0.10
		LG-TS1	0.14	0.14	0.14	0.14	0.14	0.10
		LG-TS2	0.14	0.14	0.14	0.14	0.14	0.10
		LG-STK1	0.17	0.17	0.17	0.17	0.17	0.13
		LG-STK2	0.17	0.17	0.17	0.17	0.17	0.13
		LG-REC1	4.17	4.17	4.17	4.17	0.00	1.03
		LG-REC2	4.17	4.17	4.17	4.17	0.00	1.03
Brockman 3 Extension	Mining	B3-D1	0.16	0.16	0.16	0.16	0.16	0.14
		B3-D2	0.16	0.16	0.16	0.16	0.16	0.14
		B3-D3	0.16	0.16	0.16	0.16	0.16	0.14
		B3-B1	73.75	0.00	0.00	0.00	0.00	0.31
		B3-B2	73.75	0.00	0.00	0.00	0.00	0.30
		B3-B3	73.75	0.00	0.00	0.00	0.00	0.30

Mine	Process	Source Id	Maximum (g/s)	99th Percentile (gs)	95th Percentile (gs)	90th Percentile (gs)	70th Percentile (g/s)	Average (g/s)
		B3-L1	3.23	3.23	3.23	3.23	3.23	2.71
		B3-L2	3.23	3.23	3.23	3.23	3.23	2.68
		B3-L3	3.23	3.23	3.23	3.23	3.23	2.68
		B3-L4	3.23	3.23	3.23	3.23	3.23	2.68
		B3-UW1	2.31	2.31	2.31	2.31	1.18	1.12
		B3-UW2	2.31	2.31	2.31	2.31	1.18	1.13
		B3-UW3	2.31	2.31	2.31	2.31	1.18	1.12
	Haul Road	B3-HR1	1.74	1.74	1.74	1.74	1.74	1.46
		B3-HR2	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR3	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR4	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR5	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR6	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR7	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR8	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR9	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR10	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR11	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR12	0.41	0.41	0.41	0.41	0.41	0.35
		BR-HR13	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR14	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR15	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR16	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR17	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR18	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR19	0.41	0.41	0.41	0.41	0.41	0.35
		B2-HR20	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR21	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR22	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR23	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR24	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR25	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR26	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR27	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR28	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR29	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR30	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR31	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR32	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR33	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR34	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR35	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR36	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR37	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR38	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR39	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR40	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR41	0.41	0.41	0.41	0.41	0.41	0.35
		B3-HR42	0.41	0.41	0.41	0.41	0.41	0.35
Nammuldi	Mining	N-D1	0.49	0.49	0.49	0.49	0.49	0.41
		N-D2	0.49	0.49	0.49	0.49	0.49	0.41
		N-D3	0.49	0.49	0.49	0.49	0.49	0.41
		N-D4	0.49	0.49	0.49	0.49	0.49	0.41
		N-D5	0.49	0.49	0.49	0.49	0.49	0.41
		N-D6	0.49	0.49	0.49	0.49	0.49	0.41

Mine	Process	Source Id	Maximum (g/s)	99th Percentile (gs)	95th Percentile (gs)	90th Percentile (gs)	70th Percentile (g/s)	Average (g/s)
		N-B1	64.29	0.00	0.00	0.00	0.00	0.27
		N-B2	64.29	0.00	0.00	0.00	0.00	0.27
		N-B3	64.29	0.00	0.00	0.00	0.00	0.27
		N-B4	64.29	0.00	0.00	0.00	0.00	0.27
		N-B5	64.29	0.00	0.00	0.00	0.00	0.27
		N-B6	64.29	0.00	0.00	0.00	0.00	0.26
		N-L1	3.37	3.37	3.37	3.37	3.37	2.81
		N-L2	3.37	3.37	3.37	3.37	3.37	2.80
		N-L3	3.37	3.37	3.37	3.37	3.37	2.81
		N-L4	3.37	3.37	3.37	3.37	3.37	2.80
		N-L5	3.37	3.37	3.37	3.37	3.37	2.81
		N-L6	3.37	3.37	3.37	3.37	3.37	2.81
		N-L7	3.37	3.37	3.37	3.37	3.37	2.81
		N-UW1	2.59	2.59	2.59	2.59	1.46	1.36
		N-UW2	2.59	2.59	2.59	2.59	1.46	1.36
		N-UW3	2.59	2.59	2.59	2.59	1.46	1.36
		N-UW4	2.59	2.59	2.59	2.59	1.46	1.36
		N-UO1	1.02	1.02	1.02	1.02	1.02	0.85
		N-UO2	1.02	1.02	1.02	1.02	1.02	0.85
		N-UO3	1.02	1.02	1.02	1.02	1.02	0.85
	Haul Road	N-HR1	0.61	0.61	0.61	0.61	0.61	0.61
		N-HR2	0.61	0.61	0.61	0.61	0.61	0.61
		N-HR3	0.61	0.61	0.61	0.61	0.61	0.61
		N-HR4	0.31	0.31	0.31	0.31	0.31	0.31
		N-HR5	0.31	0.31	0.31	0.31	0.31	0.31
		N-HR6	0.31	0.31	0.31	0.31	0.31	0.31
		N-HR7	0.31	0.31	0.31	0.31	0.31	0.31
		N-HR8	1.74	1.74	1.74	1.74	1.74	1.74
		N-HR9	1.74	1.74	1.74	1.74	1.74	1.74
		N-HR10	1.74	1.74	1.74	1.74	1.74	1.74
		N-HR11	1.74	1.74	1.74	1.74	1.74	1.74
		N-HR12	1.74	1.74	1.74	1.74	1.74	1.74
		N-HR13	1.74	1.74	1.74	1.74	1.74	1.74
		N-HR14	1.74	1.74	1.74	1.74	1.74	1.74
	Processing	LG-FEL	1.58	1.58	1.58	1.58	1.58	1.18
		LG-PC	0.53	0.53	0.53	0.53	0.53	0.40
		LG-SCR	0.16	0.16	0.16	0.16	0.16	0.12
		LG-TS1	0.16	0.16	0.16	0.16	0.16	0.12
		LG-TS2	0.16	0.16	0.16	0.16	0.16	0.12
		LG-STK1	0.20	0.20	0.20	0.20	0.20	0.15
		LG-STK2	0.20	0.20	0.20	0.20	0.20	0.15
		LG-REC1	4.17	4.17	4.17	4.17	0.00	1.04
		LG-REC2	4.17	4.17	4.17	4.17	0.00	1.04
		N-FEL	2.59	2.59	2.59	2.59	2.59	2.38
		N-PC	0.86	0.86	0.86	0.86	0.86	0.79
		Screen	0.26	0.26	0.26	0.26	0.26	0.24
		N-SC	0.88	0.88	0.88	0.88	0.88	0.81
		N-TS1	0.26	0.26	0.26	0.26	0.26	0.24
		N-TS2	0.26	0.26	0.26	0.26	0.26	0.24
		N-STK1	0.19	0.19	0.19	0.19	0.19	0.18
		N-STK2	0.13	0.13	0.13	0.13	0.13	0.12
		N-REC	0.69	0.69	0.69	0.69	0.69	0.39
		N-TS3	0.42	0.42	0.42	0.42	0.42	0.24
		N-Rail	0.42	0.42	0.42	0.42	0.42	0.24
	Mining	B1-D1	0.06	0.06	0.06	0.06	0.06	0.05

Mine	Process	Source Id	Maximum (g/s)	99th Percentile (gs)	95th Percentile (gs)	90th Percentile (gs)	70th Percentile (g/s)	Average (g/s)
Brockman 1		B1-D2	0.06	0.06	0.06	0.06	0.06	0.05
		B1-D3	0.06	0.06	0.06	0.06	0.06	0.05
		B1-D4	0.06	0.06	0.06	0.06	0.06	0.05
		B1-D5	0.06	0.06	0.06	0.06	0.06	0.05
		B1-D6	0.06	0.06	0.06	0.06	0.06	0.05
		B1-D7	0.06	0.06	0.06	0.06	0.06	0.05
		B1-D8	0.06	0.06	0.06	0.06	0.06	0.05
		B1-B1	17.78	0.00	0.00	0.00	0.00	0.08
		B1-B2	17.78	0.00	0.00	0.00	0.00	0.07
		B1-B3	17.78	0.00	0.00	0.00	0.00	0.08
		B1-B4	17.78	0.00	0.00	0.00	0.00	0.08
		B1-B5	17.78	0.00	0.00	0.00	0.00	0.08
		B1-B6	17.78	0.00	0.00	0.00	0.00	0.08
		B1-B7	17.78	0.00	0.00	0.00	0.00	0.08
		B1-B8	17.78	0.00	0.00	0.00	0.00	0.08
		B1-L1	1.21	1.21	1.21	1.21	1.21	1.01
		B1-L2	1.21	1.21	1.21	1.21	1.21	1.02
		B1-L3	1.21	1.21	1.21	1.21	1.21	1.02
		B1-L5	1.21	1.21	1.21	1.21	1.21	1.02
		B1-L6	1.21	1.21	1.21	1.21	1.21	1.02
		B1-L7	1.21	1.21	1.21	1.21	1.21	1.01
		B1-L8	1.21	1.21	1.21	1.21	1.21	1.01
		B1-L9	1.21	1.21	1.21	1.21	1.21	1.01
		B1-L10	1.21	1.21	1.21	1.21	1.21	1.01
		B1-L11	1.21	1.21	1.21	1.21	1.21	1.02
		B1-L12	1.21	1.21	1.21	1.21	1.21	1.01
		B1-UW1	1.43	1.43	1.43	1.43	0.30	0.39
		B1-UW2	1.43	1.43	1.43	1.43	0.30	0.39
		B1-UW3	1.43	1.43	1.43	1.43	0.30	0.39
		B1-UW4	1.43	1.43	1.43	1.43	0.30	0.39
		B1-UW5	1.43	1.43	1.43	1.43	0.30	0.39
		B1-UW6	1.43	1.43	1.43	1.43	0.30	0.39
		B1-UW7	1.43	1.43	1.43	1.43	0.30	0.39
		B1-UW8	1.43	1.43	1.43	1.43	0.30	0.39
		B1-UW9	1.43	1.43	1.43	1.43	0.30	0.39
	Haul Road	B1-H1	0.26	0.26	0.26	0.26	0.26	0.21
		B1-H2	0.26	0.26	0.26	0.26	0.26	0.21
		B1-H3	0.26	0.26	0.26	0.26	0.26	0.21
		B1-H4	0.26	0.26	0.26	0.26	0.26	0.21
		B1-H5	0.26	0.26	0.26	0.26	0.26	0.21
		B1-H6	0.26	0.26	0.26	0.26	0.26	0.21
		B1-H7	0.26	0.26	0.26	0.26	0.26	0.21
		B1-H8	0.26	0.26	0.26	0.26	0.26	0.21
		B1-H9	0.26	0.26	0.26	0.26	0.26	0.21
		B1-H10	0.26	0.26	0.26	0.26	0.26	0.21
		B1-H11	0.26	0.26	0.26	0.26	0.26	0.21
		B1-H12	0.58	0.58	0.58	0.58	0.58	0.49
		B1-H13	0.58	0.58	0.58	0.58	0.58	0.49
		B1-H14	0.58	0.58	0.58	0.58	0.58	0.49
		B1-H15	0.58	0.58	0.58	0.58	0.58	0.49
		B1-H16	0.58	0.58	0.58	0.58	0.58	0.49
		B1-H17	0.58	0.58	0.58	0.58	0.58	0.49
		B1-H18	0.58	0.58	0.58	0.58	0.58	0.49
		B1-H19	0.58	0.58	0.58	0.58	0.58	0.49
		B1-H20	0.58	0.58	0.58	0.58	0.58	0.49

Mine	Process	Source Id	Maximum (g/s)	99th Percentile (gs)	95th Percentile (gs)	90th Percentile (gs)	70th Percentile (g/s)	Average (g/s)
		B1-H21	0.58	0.58	0.58	0.58	0.58	0.49
		B1-H22	0.58	0.58	0.58	0.58	0.58	0.49
		B1-H23	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H24	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H25	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H26	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H27	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H28	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H29	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H30	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H31	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H32	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H33	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H34	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H35	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H36	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H37	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H38	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H39	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H40	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H41	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H42	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H43	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H44	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H45	0.98	0.98	0.98	0.98	0.98	0.82
		B1-H46	0.32	0.32	0.32	0.32	0.32	0.27
		B1-H47	0.32	0.32	0.32	0.32	0.32	0.27
		B1-H48	0.32	0.32	0.32	0.32	0.32	0.27
		B1-H49	0.32	0.32	0.32	0.32	0.32	0.27
		B1-H50	0.32	0.32	0.32	0.32	0.32	0.27
		B1-H51	0.32	0.32	0.32	0.32	0.32	0.27
		B1-H52	0.32	0.32	0.32	0.32	0.32	0.27
		B1-H53	0.32	0.32	0.32	0.32	0.32	0.27
		B1-H54	0.32	0.32	0.32	0.32	0.32	0.27
		B1-H55	0.32	0.32	0.32	0.32	0.32	0.27
		B1-H56	0.32	0.32	0.32	0.32	0.32	0.27
		B1-H57	0.32	0.32	0.32	0.32	0.32	0.27
		B1-H58	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H59	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H60	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H61	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H62	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H63	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H64	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H65	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H66	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H67	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H68	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H69	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H70	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H71	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H72	0.94	0.94	0.94	0.94	0.94	0.79
		B1-H73	0.94	0.94	0.94	0.94	0.94	0.79
		B1-HR74	0.94	0.94	0.94	0.94	0.94	0.79
		B1-HR75	0.94	0.94	0.94	0.94	0.94	0.79

Mine	Process	Source Id	Maximum (g/s)	99th Percentile (gs)	95th Percentile (gs)	90th Percentile (gs)	70th Percentile (g/s)	Average (g/s)
		B1-HR76	0.94	0.94	0.94	0.94	0.94	0.79
		B1-HR77	0.94	0.94	0.94	0.94	0.94	0.79
		B1-HR78	0.94	0.94	0.94	0.94	0.94	0.79
		B1-HR79	0.94	0.94	0.94	0.94	0.94	0.79
		B1-HR80	0.94	0.94	0.94	0.94	0.94	0.79
		B1-HR81	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR82	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR83	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR84	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR85	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR86	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR87	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR88	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR89	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR90	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR91	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR92	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR93	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR94	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR95	0.53	0.53	0.53	0.53	0.53	0.45
		B1-HR96	0.53	0.53	0.53	0.53	0.53	0.45
Brockman 4 - O	Haul Road	B40-H1	0.41	0.41	0.41	0.41	0.41	0.35
		B4O-H2	0.41	0.41	0.41	0.41	0.41	0.35
		B4O-H3	0.41	0.41	0.41	0.41	0.41	0.35
		B40-H4	0.41	0.41	0.41	0.41	0.41	0.35
		B4O-H5	0.41	0.41	0.41	0.41	0.41	0.35
		B4O-H6	0.41	0.41	0.41	0.41	0.41	0.35
		B4O-H7	0.41	0.41	0.41	0.41	0.41	0.35
		B4O-H8	0.41	0.41	0.41	0.41	0.41	0.35
		B4O-H9	0.41	0.41	0.41	0.41	0.41	0.35
		B4O-H10	0.41	0.41	0.41	0.41	0.41	0.35
		B4O-H11	0.41	0.41	0.41	0.41	0.41	0.35
		B4O-H12	0.41	0.41	0.41	0.41	0.41	0.35
		B4O-H13	0.41	0.41	0.41	0.41	0.41	0.35
Brockman 4	Haul Road	B4-HR1	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR2	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR3	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR4	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR5	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR6	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR7	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR8	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR9	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR10	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR11	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR12	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR13	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR14	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR15	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR16	0.35	0.35	0.35	0.35	0.35	0.35
		B4-HR17	0.35	0.35	0.35	0.35	0.35	0.35
	Processing	B4-PC	0.49	0.49	0.49	0.49	0.49	0.45
		B2-SCREEN	0.15	0.15	0.15	0.15	0.15	0.14
		B4-SC	0.50	0.50	0.50	0.50	0.50	0.46

Mine	Process	Source Id	Maximum (g/s)	99th Percentile (gs)	95th Percentile (gs)	90th Percentile (gs)	70th Percentile (g/s)	Average (g/s)
		B4-TS1	0.15	0.15	0.15	0.15	0.15	0.14
		B4-TS2	0.15	0.15	0.15	0.15	0.15	0.14
		B4-TS3	0.15	0.15	0.15	0.15	0.15	0.14
		B4-STK1	0.11	0.11	0.11	0.11	0.11	0.10
		B4-STK2	0.07	0.07	0.07	0.07	0.07	0.07
		B4-REC1	0.42	0.42	0.42	0.42	0.42	0.27
		B4-REC2	0.28	0.28	0.28	0.28	0.28	0.18
		B4-UO1	0.35	0.35	0.35	0.35	0.35	0.32
		B4-UO2	0.35	0.35	0.35	0.35	0.35	0.32
		B4-UO3	0.35	0.35	0.35	0.35	0.35	0.32
		B4-FEL	1.47	1.47	1.47	1.47	1.47	1.34

Appendix E –Model results (statistics)

E.1: Phase 1

TSP

Appendix Table 2: Phase 1 - TSP concentrations at all discrete receptors – excluding background concentration

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
1	169	149	116	106	85	71	37	16
2	270	265	187	168	131	115	64	64
3	31	30	27	26	21	15	8	0
4	287	275	196	175	139	122	68	71
5	29	27	24	21	18	13	7	0
6	28	26	23	21	17	13	7	0
7	379	319	251	228	186	157	87	107
8	829	753	569	526	480	398	220	209
9	19	16	13	11	9	7	3	0
10	165	138	90	78	63	49	19	6
11	19	16	13	11	9	7	4	0
12	119	106	74	56	45	32	13	2
13	19	16	13	12	9	7	4	0
14	187	174	96	83	68	50	17	7
15	540	501	399	366	320	256	130	163
16	17	13	11	10	8	6	3	0
17	541	503	399	374	321	259	132	163
18	512	485	396	367	312	257	129	166
19	206	157	109	103	75	51	20	12
20	17	13	11	10	8	6	3	0
21	154	148	92	74	60	43	18	6
22	18	16	13	11	9	7	3	0
23	17	13	11	10	8	6	3	0
24	19	16	13	11	9	7	4	0
25	131	119	107	92	70	53	27	10
26	19	17	14	12	9	7	3	0
27	19	17	14	11	9	7	3	0
28	42	32	26	24	20	16	9	0
29	39	25	24	20	16	13	7	0
30	32	31	22	20	17	13	8	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
31	17	13	11	10	8	6	3	0
32	135	129	97	90	78	62	39	8
33	37	35	30	26	20	15	7	0
34	18	15	12	11	8	6	3	0
35	23	23	18	16	13	10	5	0
36	20	17	13	13	10	8	4	0
37	364	334	277	240	212	170	74	90
38	48	40	29	23	20	16	10	0
39	47	41	29	28	25	20	11	0
40	48	33	25	18	14	11	7	0
41	99	80	70	63	47	35	15	1
42	106	88	76	68	52	38	16	1
43	32	30	20	20	16	13	7	0
44	220	215	155	136	115	94	44	43
45	233	230	162	144	124	100	47	49
46	938	873	657	614	524	432	207	171
47	887	800	587	540	479	396	197	169
48	413	409	320	308	259	224	87	105
49	450	437	363	330	280	243	92	111
50	598	594	448	401	357	307	140	148
51	608	593	453	403	357	298	142	148
52	618	575	431	402	349	290	140	146
53	869	843	699	602	541	445	226	189
54	185	162	117	101	86	75	41	15
55	458	381	344	298	247	171	71	92
56	721	596	506	481	396	320	155	155
57	537	484	331	323	273	213	104	130
58	480	456	308	256	236	174	88	106
59	513	427	316	298	263	208	101	121
60	467	392	279	264	219	180	84	101
61	120	114	78	73	60	48	28	3
62	27	24	21	20	17	13	7	0
63	214	184	129	114	98	85	46	29
64	559	525	415	358	334	281	106	116
65	417	313	268	244	210	152	65	80
66	473	434	301	255	227	164	86	101
67	478	377	287	264	203	155	64	79

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
68	40	33	29	27	24	20	11	0
69	177	166	142	137	119	90	40	37
70	94	93	63	53	43	34	20	2
71	225	220	199	186	157	127	57	67
72	179	155	137	127	110	88	39	33
73	307	294	285	263	217	178	80	101
74	342	297	219	198	170	136	79	90
75	80	78	72	63	45	37	21	0
76	413	395	382	336	270	214	130	161
77	414	399	384	334	272	216	134	170
78	180	176	139	108	86	67	25	15
79	180	144	123	118	101	78	49	23
80	445	401	333	318	269	235	89	107
81	250	250	203	190	178	149	103	134
82	200	154	136	123	103	88	51	35
83	280	259	160	139	108	83	33	32
84	272	221	159	121	102	81	44	30
85	341	264	230	215	172	153	100	125
86	112	82	77	72	56	49	32	1
87	121	112	99	90	82	69	47	9
88	55	48	45	41	35	27	14	0
89	82	79	55	46	42	33	16	0
90	322	315	284	248	203	166	104	135
91	328	326	292	256	211	170	106	139
92	343	335	291	258	217	178	107	134
93	530	506	428	405	298	250	135	171
94	567	566	453	406	354	292	180	248
95	56	48	39	34	29	24	14	0
96	52	50	37	32	28	22	14	0
97	19	15	13	11	9	7	3	0
98	455	429	374	339	282	226	146	179
99	290	244	211	189	157	122	81	84
100	391	356	305	268	216	170	102	129
101	62	60	43	40	34	27	17	0
102	19	15	13	11	9	7	3	0
103	349	324	277	257	216	186	113	143
104	391	363	308	264	237	187	90	109

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
105	411	339	277	257	223	181	84	100
106	52	40	34	30	25	21	13	0
107	9	6	4	4	3	2	1	0
108	9	8	7	6	5	3	1	0
109	6	5	3	3	2	1	0	0
110	57	55	45	40	35	27	17	0
111	53	52	42	38	31	24	16	0
112	54	52	42	38	31	24	17	0
113	168	163	128	112	96	79	43	22
114	112	108	88	82	72	59	35	5
115	35	34	29	27	20	14	7	0
116	19	10	8	7	7	5	3	0
117	503	492	416	373	313	264	168	197
118	98	82	72	61	50	42	26	1
119	295	246	223	195	171	142	102	144
120	90	88	84	68	52	42	21	0
121	43	42	36	33	26	19	9	0
122	138	133	121	107	80	61	33	14
123	43	42	36	33	26	19	9	0
124	714	633	475	438	375	309	198	252
125	20	18	15	14	11	8	4	0
126	17	14	12	10	8	6	3	0
127	16	13	11	10	7	6	3	0
128	16	12	11	10	8	6	3	0
129	166	119	88	77	59	39	17	5
130	16	12	11	10	7	6	3	0
131	16	12	11	10	7	6	3	0
132	554	490	385	334	291	237	123	156
133	16	12	11	10	7	6	3	0
134	329	327	296	278	223	181	111	141
135	554	490	385	334	291	237	123	156
136	714	633	475	438	375	309	198	252
137	17	14	12	12	9	7	3	0
138	633	565	441	422	332	284	168	184
139	124	109	93	83	71	55	21	8
140	18	16	14	12	9	7	3	0
141	19	18	16	13	10	8	4	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
142	32	30	27	25	19	14	7	0
143	32	30	27	25	19	14	7	0
144	32	30	27	25	19	14	7	0
145	17	15	13	11	9	7	3	0
146	18	14	13	12	9	7	4	0
147	18	14	13	12	9	7	4	0
148	23	22	19	18	14	11	7	0
149	25	24	24	21	18	14	8	0
150	26	25	23	20	17	12	6	0
151	138	59	51	48	45	36	22	1
152	138	59	51	48	45	36	22	1
153	329	250	158	151	132	108	60	62
154	196	129	117	106	88	68	42	16
155	208	203	179	168	135	110	63	65
156	148	128	105	98	83	72	45	11
157	45	44	35	34	29	23	14	0
158	196	129	117	106	88	68	42	16
159	196	129	117	106	88	68	42	16
160	82	80	62	54	49	38	24	0
161	77	72	66	61	54	48	35	0
162	126	102	96	93	83	73	50	11
163	166	135	99	92	82	66	43	14
164	77	72	69	61	54	49	35	0
165	163	118	99	93	79	69	43	12
166	163	118	99	93	79	69	43	12
167	163	118	99	93	79	69	43	12
168	163	118	99	93	79	69	43	12
169	163	118	99	93	79	69	43	12
170	153	142	109	100	84	68	39	15
171	166	135	99	92	82	66	43	14
172	163	118	99	93	79	69	43	12
173	126	102	96	93	83	73	50	11
174	163	118	99	93	79	69	43	12
175	65	65	58	53	45	41	32	0
176	65	65	58	53	45	41	32	0
177	66	64	57	53	45	39	30	0
178	46	37	26	20	16	12	7	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
179	46	37	26	20	16	12	7	0
180	46	37	26	20	16	12	7	0
181	46	37	26	20	16	12	7	0
182	46	37	26	20	16	12	7	0
183	46	37	26	20	16	12	7	0
184	43	34	23	19	15	11	7	0
185	17	14	12	11	8	6	3	0
186	16	12	11	10	8	6	3	0
187	169	153	136	127	110	89	61	35
188	76	71	59	53	42	33	18	0
189	46	45	38	36	28	21	10	0
190	1328	993	593	465	367	247	147	207
191	22	21	17	16	14	10	5	0
192	1018	724	619	581	509	442	270	264
193	1018	724	619	581	509	442	270	264
194	1018	724	619	581	509	442	270	264
195	640	595	499	464	420	353	158	158
196	640	595	499	464	420	353	158	158
197	22	21	17	16	14	10	5	0
198	1018	724	619	581	509	442	270	264
199	177	162	154	144	129	99	41	47
200	645	467	413	345	296	235	138	181
201	629	593	476	436	361	291	153	156
202	629	593	476	436	361	291	153	156
203	16	12	11	10	7	6	3	0
204	240	234	205	184	140	118	78	87
205	208	203	179	168	135	110	63	65
206	76	71	59	53	42	33	18	0
207	183	169	141	129	105	91	61	40
208	415	215	177	159	131	116	78	79
209	29	28	22	19	14	10	5	0
210	31	28	21	19	15	10	5	0
211	33	32	28	21	15	12	6	0
212	29	28	24	19	14	10	5	0
213	29	28	24	19	14	10	5	0
214	31	28	21	19	15	10	5	0
215	31	28	21	19	15	10	5	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
216	31	28	21	19	15	10	5	0
217	36	30	25	20	15	11	6	0
218	33	29	24	20	15	11	5	0
219	39	38	30	26	19	15	9	0
220	65	65	58	53	45	41	32	0
221	65	65	58	53	45	41	32	0
222	138	133	121	107	80	61	33	14
223	151	79	69	60	52	41	16	1
224	151	79	69	60	52	41	16	1
225	33	32	31	28	21	15	7	0
226	33	32	31	28	21	15	7	0
227	19	18	16	15	12	9	5	0
228	13	11	10	10	8	7	4	0
229	14	11	9	8	7	6	4	0
230	16	10	8	8	7	6	3	0
231	291	233	194	175	147	112	54	59
232	55	52	45	36	32	27	14	0
233	48	36	30	26	22	19	11	0
234	42	36	26	19	16	14	8	0
235	40	28	21	18	13	11	6	0
236	34	21	19	16	12	9	5	0
237	19	9	8	8	6	6	3	0
238	22	9	8	8	6	5	3	0
239	23	9	8	8	6	5	3	0
240	25	10	9	8	7	6	3	0
241	24	10	8	8	7	6	3	0
242	24	12	9	8	7	6	3	0
243	26	15	13	12	11	9	5	0
244	61	40	33	27	23	18	11	0
245	59	42	31	27	23	19	11	0
246	59	42	31	27	23	19	11	0
247	57	40	29	25	22	18	11	0
248	50	38	25	22	19	16	9	0
249	45	40	27	20	17	14	9	0
250	31	29	20	18	15	13	7	0
251	25	24	19	16	14	12	7	0
252	20	19	17	15	13	10	6	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
253	24	14	12	11	10	8	5	0
254	27	14	12	12	10	8	5	0
255	24	14	10	9	8	7	3	0
256	23	14	10	9	8	6	3	0
257	20	14	10	9	8	6	3	0
258	11	11	9	8	7	6	3	0
259	11	11	8	7	7	5	3	0
260	11	10	9	8	7	5	2	0
261	10	10	9	7	6	5	2	0
262	10	9	8	6	5	4	2	0
263	10	9	7	6	4	3	2	0
264	7	7	5	4	3	2	1	0
265	12	12	10	9	8	6	3	0
266	12	11	9	7	6	5	2	0
267	17	16	14	11	8	7	3	0
268	20	20	16	13	10	8	4	0
269	34	21	19	16	12	9	5	0
270	41	40	35	32	28	21	13	0
271	42	42	35	31	26	20	11	0
272	20	17	15	12	10	7	3	0
273	17	16	11	10	8	6	2	0
274	20	17	15	12	10	7	3	0
275	19	17	12	11	9	7	3	0
276	16	16	11	10	8	6	2	0
277	16	14	10	9	8	6	2	0
278	15	14	9	9	7	5	2	0
279	14	13	8	8	6	5	1	0
280	9	8	5	5	4	3	1	0
281	46	40	24	21	17	15	9	0
282	46	40	24	21	17	15	9	0
283	10	9	8	6	5	4	2	0
284	9	8	6	5	3	3	1	0
285	10	9	7	6	4	3	1	0
286	10	9	7	6	4	3	1	0
287	50	38	25	22	19	16	9	0
288	9	9	7	6	4	3	2	0
289	11	10	9	8	7	5	2	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
290	7	6	5	4	3	2	1	0
291	10	10	9	7	6	5	2	0
292	46	40	24	21	17	15	9	0
293	25	15	11	10	8	7	4	0
294	11	11	8	7	7	5	3	0
295	11	11	8	7	7	5	3	0
296	25	15	11	10	8	7	4	0
297	10	9	7	6	4	3	2	0
298	25	15	11	10	8	7	4	0
299	24	10	8	8	7	6	3	0
300	19	18	16	15	12	9	5	0
301	33	32	31	28	21	15	7	0
302	42	36	26	19	16	14	8	0
303	29	21	18	14	11	8	4	0
304	40	28	21	18	13	11	6	0
305	156	150	109	87	61	41	17	9
306	145	107	91	74	57	49	19	6
307	7	7	4	4	3	2	0	0

Appendix Table 3: Phase 1 - TSP concentrations at all discrete receptors – including background concentration

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
1	205	185	152	142	121	108	73	69
2	306	302	223	204	167	151	100	142
3	68	66	63	62	57	51	44	0
4	323	311	233	211	175	158	104	148
5	65	63	60	57	54	49	43	0
6	65	63	60	57	54	49	43	0
7	416	355	287	265	223	193	124	164
8	865	789	605	562	516	434	257	265
9	55	52	50	48	45	43	40	0
10	201	174	126	114	99	85	55	31
11	55	52	50	48	45	43	40	0
12	155	142	110	92	81	68	49	11
13	55	52	50	48	45	43	40	0
14	224	210	132	119	104	86	53	31
15	576	537	436	403	356	292	166	203
16	53	50	47	46	44	42	39	0
17	577	539	436	410	357	295	168	203
18	549	522	433	403	348	293	165	206
19	242	194	145	139	112	88	56	33
20	53	49	47	46	44	42	39	0
21	190	184	128	110	96	79	54	29
22	55	52	49	47	45	43	40	0
23	53	49	47	47	44	42	39	0
24	55	52	50	48	45	43	40	0
25	167	155	143	128	106	89	63	36
26	55	53	50	48	46	43	40	0
27	55	53	50	48	45	43	40	0
28	78	68	62	60	56	52	45	0
29	75	61	60	56	52	49	44	0
30	69	67	58	56	53	50	44	0
31	53	49	47	47	44	42	39	0
32	171	165	133	126	114	99	75	57
33	73	71	67	62	56	51	44	0
34	54	51	49	47	45	43	39	0
35	59	59	54	52	49	46	41	0
36	56	53	49	49	46	44	40	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
37	400	370	313	276	248	206	110	132
38	84	76	65	59	57	52	46	0
39	84	77	66	64	61	56	47	0
40	84	69	61	54	50	48	43	0
41	135	116	106	99	83	71	51	13
42	143	124	112	104	88	74	52	15
43	68	66	57	56	52	49	43	0
44	256	252	191	172	152	130	80	91
45	269	266	198	180	161	136	83	94
46	975	909	693	651	560	468	244	194
47	923	837	623	576	515	432	233	197
48	450	445	356	344	295	261	124	143
49	486	473	400	366	317	279	128	152
50	634	630	484	438	393	343	176	175
51	644	630	489	439	393	334	178	177
52	654	611	467	438	385	326	177	177
53	905	879	735	638	577	481	262	203
54	222	198	153	137	122	111	77	74
55	494	418	380	334	283	207	107	134
56	758	633	542	517	432	356	191	179
57	573	521	367	359	309	249	140	162
58	517	492	344	292	272	210	125	148
59	549	463	353	335	299	244	137	161
60	503	429	316	300	255	216	120	154
61	157	150	115	109	96	84	64	26
62	63	60	57	56	53	49	43	0
63	251	221	165	150	134	121	83	93
64	596	561	451	395	370	317	142	152
65	454	349	304	280	246	188	101	125
66	510	470	337	292	263	200	122	143
67	514	413	323	300	240	191	100	122
68	76	69	65	64	60	56	47	0
69	213	203	178	173	155	127	76	89
70	130	129	99	90	79	70	56	9
71	262	256	235	222	193	163	93	112
72	215	192	173	163	146	124	75	89
73	343	330	322	300	253	214	117	130

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
74	379	333	255	234	206	172	115	162
75	116	114	108	99	81	73	57	14
76	449	431	418	372	306	250	167	218
77	450	436	420	371	308	252	170	220
78	216	213	175	144	123	103	61	52
79	216	181	159	154	137	115	85	91
80	481	437	369	354	305	271	125	146
81	286	286	239	226	214	186	139	233
82	236	190	173	159	139	124	87	102
83	316	295	196	176	144	119	69	68
84	308	257	196	157	138	117	81	82
85	377	301	266	251	208	190	136	233
86	148	118	113	108	92	85	68	24
87	157	148	135	126	118	105	83	85
88	91	84	81	77	71	64	51	1
89	118	115	92	83	78	69	52	6
90	359	351	320	284	240	202	140	223
91	364	363	329	292	247	207	142	224
92	379	371	327	294	253	214	143	223
93	566	542	464	441	334	286	171	253
94	603	602	489	443	390	328	216	319
95	92	84	76	70	65	60	50	1
96	88	86	73	68	64	58	50	0
97	55	51	49	48	45	43	39	0
98	491	466	411	375	318	262	183	252
99	327	280	247	225	193	158	118	184
100	427	392	341	304	253	206	138	220
101	98	96	80	76	70	64	53	3
102	55	51	49	48	46	43	39	0
103	385	360	313	293	252	223	150	227
104	427	399	344	300	273	223	126	156
105	447	376	313	293	259	217	120	152
106	88	76	70	66	61	57	49	0
107	45	42	40	40	39	38	37	0
108	46	44	43	42	41	40	37	0
109	43	41	40	39	38	37	36	0
110	93	92	81	76	71	63	54	2

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
111	89	88	78	74	68	60	53	0
112	90	88	78	74	67	61	53	0
113	204	199	164	148	133	115	79	78
114	148	144	124	118	108	96	71	47
115	71	71	65	63	56	51	43	0
116	56	47	44	44	43	42	40	0
117	540	528	453	409	349	300	204	232
118	134	118	109	97	87	78	62	16
119	331	282	259	231	207	178	138	262
120	126	124	120	104	88	78	58	18
121	80	78	72	71	62	55	46	0
122	174	169	158	149	116	97	70	53
123	80	78	72	71	62	55	46	0
124	750	669	512	481	411	345	234	317
125	56	54	51	50	47	45	40	0
126	53	50	48	47	44	42	39	0
127	52	49	47	46	44	42	39	0
128	52	48	47	47	44	42	39	0
129	202	155	125	118	96	76	53	22
130	52	48	47	46	44	42	39	0
131	52	48	47	46	44	42	39	0
132	590	526	421	401	327	273	160	205
133	52	48	47	46	44	42	39	0
134	365	363	332	322	259	217	147	217
135	590	526	421	401	327	273	160	205
136	750	669	512	481	411	345	234	317
137	53	50	48	48	45	43	39	0
138	669	601	477	466	368	321	204	228
139	160	145	129	126	108	91	57	38
140	54	52	50	49	46	43	40	0
141	56	54	52	50	47	44	40	0
142	68	66	63	62	55	50	43	0
143	68	66	63	62	55	50	43	0
144	68	66	63	62	55	50	43	0
145	54	51	49	48	45	43	39	0
146	54	50	49	48	46	44	40	0
147	54	50	49	48	46	44	40	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
148	59	58	55	54	51	47	43	0
149	62	60	60	58	54	51	44	0
150	62	61	59	57	53	48	43	0
151	175	95	87	86	81	72	59	3
152	175	95	87	86	81	72	59	3
153	366	286	195	191	168	144	96	118
154	232	166	153	143	124	105	78	63
155	244	239	216	207	171	146	99	138
156	185	164	141	140	119	108	82	67
157	82	81	71	70	65	59	50	0
158	232	166	153	143	124	105	78	63
159	232	166	153	143	124	105	78	63
160	118	117	99	95	85	74	60	9
161	113	108	102	98	90	85	71	19
162	162	139	132	130	119	109	86	93
163	202	171	135	131	119	102	80	72
164	113	108	105	99	90	85	71	19
165	200	155	135	131	115	105	79	68
166	200	155	135	131	115	105	79	68
167	200	155	135	131	115	105	79	68
168	200	155	135	131	115	105	79	68
169	200	155	135	131	115	105	79	68
170	190	178	145	139	120	104	76	66
171	202	171	135	131	119	102	80	72
172	200	155	135	131	115	105	79	68
173	162	139	132	130	119	109	86	93
174	200	155	135	131	115	105	79	68
175	101	101	94	92	81	77	68	9
176	101	101	94	92	81	77	68	9
177	102	100	93	91	81	75	67	9
178	83	73	62	57	52	49	44	0
179	83	73	62	57	52	49	44	0
180	83	73	62	57	52	49	44	0
181	83	73	62	57	52	49	44	0
182	83	73	62	57	52	49	44	0
183	83	73	62	57	52	49	44	0
184	80	71	59	56	51	48	43	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
185	53	50	48	47	44	42	39	0
186	52	48	47	47	44	42	39	0
187	205	189	173	164	146	125	98	148
188	112	107	95	91	78	69	54	8
189	83	82	74	72	64	57	46	0
190	1364	1029	629	583	403	283	183	293
191	58	57	53	52	50	46	41	0
192	1054	760	655	637	545	478	306	308
193	1054	760	655	637	545	478	306	308
194	1054	760	655	637	545	478	306	308
195	676	631	536	516	456	390	194	182
196	676	631	536	516	456	390	194	182
197	58	57	53	52	50	46	41	0
198	1054	760	655	637	545	478	306	308
199	213	198	190	183	165	136	77	90
200	681	503	450	394	332	271	174	243
201	665	630	512	472	397	327	189	194
202	665	630	512	472	397	327	189	194
203	52	48	47	46	44	42	39	0
204	276	270	241	230	176	154	114	183
205	244	239	216	207	171	146	99	138
206	112	107	95	91	78	69	54	8
207	220	205	177	169	142	127	97	129
208	451	251	213	201	168	153	114	184
209	65	64	58	56	50	46	41	0
210	67	64	57	57	51	47	41	0
211	69	68	64	59	52	48	43	0
212	65	64	61	57	50	46	42	0
213	65	64	61	57	50	46	42	0
214	67	64	57	57	51	47	41	0
215	67	64	57	57	51	47	41	0
216	67	64	57	57	51	47	41	0
217	72	67	61	58	51	48	42	0
218	70	65	60	57	52	47	42	0
219	75	74	66	64	55	51	45	0
220	101	101	94	92	81	77	68	9
221	101	101	94	92	81	77	68	9

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
222	174	169	158	149	116	97	70	53
223	187	115	105	102	89	77	53	17
224	187	115	105	102	89	77	53	17
225	69	69	67	65	57	51	43	0
226	69	69	67	65	57	51	43	0
227	56	54	52	52	49	45	41	0
228	49	47	47	46	44	43	40	0
229	51	48	45	45	43	42	40	0
230	52	46	44	44	43	42	39	0
231	327	269	230	220	183	148	90	110
232	92	88	82	77	69	63	50	1
233	84	72	66	65	59	55	48	0
234	78	72	63	58	52	50	44	0
235	76	64	58	55	49	47	42	0
236	70	58	56	54	48	45	41	0
237	55	45	45	44	43	42	39	0
238	58	45	44	44	43	42	39	0
239	59	45	44	44	43	42	39	0
240	61	46	45	44	43	42	40	0
241	60	47	45	44	43	42	39	0
242	60	48	45	45	44	43	39	0
243	63	51	49	48	47	45	41	0
244	97	76	69	67	60	55	47	1
245	96	78	68	64	60	55	47	1
246	96	78	68	64	60	55	47	1
247	93	76	65	61	58	54	47	1
248	86	75	61	59	56	52	46	0
249	81	77	63	58	54	50	45	0
250	67	65	56	55	52	49	44	0
251	61	60	55	53	50	48	43	0
252	56	56	53	52	49	47	42	0
253	60	50	48	48	47	44	41	0
254	63	51	49	48	47	44	41	0
255	60	50	46	45	44	43	40	0
256	59	50	46	46	44	43	40	0
257	56	50	46	46	44	42	40	0
258	47	47	45	44	43	42	39	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
259	47	47	45	44	43	42	39	0
260	47	47	45	44	43	41	39	0
261	46	46	45	44	42	41	38	0
262	46	45	44	43	41	40	38	0
263	46	45	43	43	40	40	38	0
264	43	43	41	41	39	38	37	0
265	48	48	46	45	44	42	39	0
266	48	47	45	45	42	41	38	0
267	53	53	50	48	44	43	40	0
268	56	56	52	50	46	44	40	0
269	70	58	56	54	48	45	41	0
270	77	76	71	70	64	57	50	0
271	78	78	71	68	63	57	47	0
272	56	53	51	49	46	43	39	0
273	53	53	47	46	44	42	38	0
274	56	53	51	49	46	43	39	0
275	55	53	48	48	45	43	39	0
276	53	52	47	46	44	43	38	0
277	52	50	46	46	44	42	38	0
278	51	50	46	45	43	42	38	0
279	50	49	45	44	42	41	38	0
280	45	44	41	41	40	39	37	0
281	82	76	61	58	54	51	45	0
282	82	76	61	58	54	51	45	0
283	46	45	44	43	41	40	38	0
284	45	44	42	41	40	39	37	0
285	46	45	43	42	40	40	38	0
286	46	45	43	42	40	40	38	0
287	86	75	61	59	56	52	46	0
288	45	45	43	42	40	40	38	0
289	47	47	45	44	43	41	39	0
290	43	42	41	40	39	38	37	0
291	46	46	45	44	42	41	38	0
292	82	76	61	58	54	51	45	0
293	62	52	47	46	45	43	40	0
294	47	47	45	44	43	42	39	0
295	47	47	45	44	43	42	39	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
296	62	52	47	46	45	43	40	0
297	46	45	43	43	40	40	38	0
298	62	52	47	46	45	43	40	0
299	60	47	45	44	43	42	39	0
300	56	54	52	52	49	45	41	0
301	69	69	67	65	57	51	43	0
302	78	72	63	58	52	50	44	0
303	65	57	54	53	47	44	41	0
304	76	64	58	55	49	47	42	0
305	192	186	145	133	97	77	53	20
306	181	143	127	118	93	85	55	25
307	43	43	40	40	39	38	37	0

PM_{10}

Appendix Table 4: Phase 1 - PM_{10} concentrations at all discrete receptors – excluding background concentration

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
1	97	68	55	48	43	36	17	12.6	1
2	160	119	98	84	75	60	30	23.0	25
3	20	16	11	11	8	7	3	2.5	0
4	164	126	104	88	78	64	32	24.3	28
5	14	10	9	9	7	5	3	2.0	0
6	15	10	9	9	7	5	3	2.0	0
7	167	156	121	105	88	75	42	29.9	41
8	540	449	377	351	305	260	149	113.7	205
9	7	6	6	5	4	3	1	1.0	0
10	76	63	39	35	30	23	9	7.9	1
11	7	6	6	5	4	3	1	1.0	0
12	50	48	34	27	21	14	7	5.5	0
13	7	7	6	5	4	3	1	1.1	0
14	106	92	52	40	33	25	9	9.1	3
15	327	302	247	235	199	161	82	64.3	128
16	7	6	5	4	3	2	1	0.9	0
17	327	303	246	236	201	164	85	65.0	129
18	306	288	241	224	194	156	82	63.7	127
19	113	90	60	52	42	28	10	10.1	2
20	7	7	5	4	3	2	1	0.9	0
21	69	63	43	33	27	19	9	7.4	0
22	7	6	5	5	4	3	1	1.0	0
23	7	7	5	4	4	3	1	0.9	0
24	7	6	6	5	4	3	1	1.0	0
25	66	63	54	47	38	28	14	11.0	0
26	7	6	6	5	4	3	1	1.1	0
27	7	6	6	5	4	3	1	1.1	0
28	15	12	11	10	8	7	4	3.1	0
29	14	12	9	8	7	5	3	2.6	0
30	16	12	11	9	7	6	3	2.7	0
31	7	7	5	4	4	3	1	0.9	0
32	114	107	79	75	63	49	24	20.7	15
33	14	13	12	11	9	6	3	2.3	0
34	7	6	5	5	3	3	1	1.0	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
35	10	9	8	7	5	4	2	1.5	0
36	9	8	6	5	4	3	2	1.2	0
37	168	155	132	114	101	83	34	28.1	47
38	23	20	14	11	10	8	5	3.5	0
39	22	20	14	14	12	10	5	4.0	0
40	22	16	12	9	6	6	3	2.5	0
41	54	42	36	32	24	18	7	6.5	0
42	58	48	39	35	26	20	8	7.1	0
43	15	12	11	9	7	6	3	2.6	0
44	99	98	73	63	54	44	19	17.0	6
45	105	104	76	67	58	48	21	17.9	7
46	382	339	266	255	219	176	92	64.3	136
47	412	403	301	289	243	196	101	70.5	143
48	197	162	144	137	120	97	45	32.5	64
49	211	174	153	150	130	105	48	35.3	74
50	314	301	228	211	188	145	79	53.5	119
51	317	308	231	216	188	145	79	54.2	119
52	317	314	231	220	188	147	79	54.6	121
53	446	412	342	333	268	219	120	82.1	156
54	77	68	51	42	37	32	18	13.2	1
55	180	146	135	122	100	73	32	25.9	43
56	278	226	205	188	160	132	67	46.6	103
57	198	184	141	132	110	89	44	32.1	56
58	182	171	126	107	96	75	36	26.6	41
59	188	162	130	126	105	85	42	30.6	56
60	171	148	113	107	91	73	36	26.3	42
61	53	50	37	33	29	22	12	10.7	0
62	12	12	10	9	8	6	3	2.9	0
63	90	77	56	49	41	36	21	14.8	2
64	231	205	164	150	135	109	50	35.8	72
65	161	124	110	100	87	61	30	22.1	32
66	180	164	123	105	95	72	35	25.6	38
67	277	250	173	156	124	92	39	31.9	54
68	19	15	14	13	11	10	5	4.0	0
69	122	109	88	85	67	56	25	18.1	17
70	43	39	27	25	21	15	9	7.9	0
71	167	146	127	121	98	80	35	25.8	49

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
72	112	108	83	80	64	53	24	17.2	16
73	227	212	185	174	142	117	51	37.0	86
74	273	102	73	62	53	43	26	20.1	6
75	35	35	32	28	20	16	9	7.3	0
76	362	356	313	272	215	179	103	77.3	173
77	358	351	318	281	223	180	108	80.3	183
78	86	85	65	56	47	34	14	11.5	3
79	100	66	50	48	44	37	26	19.6	1
80	200	188	151	145	125	105	49	35.7	79
81	75	74	61	57	53	45	31	24.2	3
82	117	62	51	49	41	36	25	19.3	1
83	150	149	88	77	58	45	19	15.6	13
84	83	66	53	46	39	30	18	14.4	1
85	101	78	69	64	52	46	30	25.0	5
86	34	27	25	23	19	16	11	8.9	0
87	38	36	32	30	26	22	16	12.0	0
88	39	27	20	18	16	13	6	4.6	0
89	27	25	18	17	14	12	6	5.2	0
90	114	106	95	83	68	58	38	30.1	17
91	115	107	97	86	69	59	39	30.8	18
92	123	115	99	88	74	61	38	31.1	24
93	168	160	141	127	96	81	45	40.5	48
94	258	255	211	202	171	149	101	80.5	181
95	20	19	15	12	11	9	5	4.3	0
96	22	20	15	13	11	9	6	4.5	0
97	7	6	5	5	4	3	1	1.0	0
98	217	187	169	162	140	111	69	53.5	108
99	103	85	70	64	54	42	27	22.7	5
100	139	127	102	90	75	59	34	29.2	23
101	51	48	25	20	15	12	7	5.1	0
102	7	6	5	5	4	3	1	1.0	0
103	153	151	129	122	99	86	51	39.2	59
104	157	148	122	109	96	74	38	27.7	44
105	150	135	115	106	91	75	35	26.2	42
106	25	19	17	14	11	10	7	4.6	0
107	4	2	2	2	1	1	0	0.3	0
108	5	4	3	3	2	2	1	0.5	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
109	4	2	2	1	1	0	0	0.2	0
110	23	21	17	15	13	10	7	5.5	0
111	22	19	16	14	12	9	6	5.1	0
112	23	19	16	15	12	9	6	5.2	0
113	91	83	66	59	51	40	23	16.8	5
114	58	56	48	43	35	29	17	12.3	0
115	18	17	14	13	10	7	3	2.6	0
116	7	5	3	3	3	2	2	1.0	0
117	169	154	127	116	102	84	55	38.3	71
118	45	36	30	29	25	19	10	8.7	0
119	87	73	66	59	52	43	31	25.5	3
120	31	30	27	24	18	14	8	6.4	0
121	24	20	15	14	11	8	4	3.0	0
122	72	67	64	56	42	32	18	13.5	1
123	24	20	15	14	11	8	4	3.0	0
124	332	299	240	222	189	159	101	85.5	192
125	8	8	6	6	5	3	2	1.3	0
126	6	6	5	4	3	2	1	0.9	0
127	6	6	5	4	3	2	1	0.9	0
128	7	6	5	4	3	3	1	0.9	0
129	91	69	47	39	31	21	8	8.0	1
130	7	6	4	4	3	2	1	0.8	0
131	7	6	4	4	3	2	1	0.8	0
132	343	295	245	218	179	145	77	59.3	123
133	7	6	4	4	3	2	1	0.8	0
134	185	178	161	141	117	92	50	40.7	61
135	343	295	245	218	179	145	77	59.3	123
136	332	299	240	222	189	159	101	85.5	192
137	7	7	5	5	4	3	1	1.0	0
138	388	342	268	247	216	176	106	73.3	157
139	61	55	47	40	35	29	10	9.4	0
140	7	6	6	5	4	3	1	1.1	0
141	7	7	6	6	4	3	2	1.2	0
142	12	11	11	10	8	6	3	2.2	0
143	12	11	11	10	8	6	3	2.2	0
144	12	11	11	10	8	6	3	2.2	0
145	7	6	5	5	3	3	1	1.0	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
146	9	7	5	5	4	3	1	1.1	0
147	9	7	5	5	4	3	1	1.1	0
148	13	10	9	8	7	5	3	2.6	0
149	14	12	11	10	8	7	4	3.1	0
150	12	12	9	8	7	5	3	2.0	0
151	127	31	19	16	15	12	8	5.9	1
152	127	31	19	16	15	12	8	5.9	1
153	122	100	61	47	42	36	20	17.5	5
154	71	60	49	45	36	29	16	13.2	1
155	67	64	57	54	44	36	22	17.5	0
156	59	51	41	38	31	27	17	14.2	0
157	28	24	16	15	12	9	5	4.0	0
158	71	60	49	45	36	29	16	13.2	1
159	71	60	49	45	36	29	16	13.2	1
160	39	34	28	25	22	17	9	8.0	0
161	31	25	22	20	18	16	12	7.8	0
162	40	32	30	29	26	23	16	11.9	0
163	49	41	30	28	26	20	14	11.5	0
164	25	24	22	20	18	16	11	8.5	0
165	49	36	30	28	25	21	14	11.2	0
166	49	36	30	28	25	21	14	11.2	0
167	49	36	30	28	25	21	14	11.2	0
168	49	36	30	28	25	21	14	11.2	0
169	49	36	30	28	25	21	14	11.2	0
170	46	42	33	30	26	21	13	11.0	0
171	49	41	30	28	26	20	14	11.5	0
172	49	36	30	28	25	21	14	11.2	0
173	40	32	30	29	26	23	16	11.9	0
174	49	36	30	28	25	21	14	11.2	0
175	22	21	19	18	16	14	11	7.6	0
176	22	21	19	18	16	14	11	7.6	0
177	26	21	20	19	17	14	11	7.4	0
178	22	18	12	10	8	6	4	2.7	0
179	22	18	12	10	8	6	4	2.7	0
180	22	18	12	10	8	6	4	2.7	0
181	22	18	12	10	8	6	4	2.7	0
182	22	18	12	10	8	6	4	2.7	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
183	22	18	12	10	8	6	4	2.7	0
184	20	17	11	9	7	6	3	2.5	0
185	6	6	5	4	3	3	1	0.9	0
186	7	6	5	4	3	3	1	0.9	0
187	54	52	44	41	35	30	21	17.2	0
188	38	31	25	20	17	13	7	5.3	0
189	29	24	16	15	12	9	5	3.4	0
190	666	498	290	234	164	110	66	61.4	97
191	12	10	7	7	6	4	2	1.5	0
192	404	271	257	240	198	173	104	81.8	182
193	404	271	257	240	198	173	104	81.8	182
194	404	271	257	240	198	173	104	81.8	182
195	338	266	238	208	185	153	71	54.0	111
196	338	266	238	208	185	153	71	54.0	111
197	12	10	7	7	6	4	2	1.5	0
198	404	271	257	240	198	173	104	81.8	182
199	139	117	101	90	80	62	27	20.0	25
200	248	189	167	137	116	96	56	43.2	70
201	235	230	189	178	145	118	62	44.1	95
202	235	230	189	178	145	118	62	44.1	95
203	7	6	4	4	3	2	1	0.8	0
204	86	83	72	66	55	42	29	23.2	6
205	67	64	57	54	44	36	22	17.5	0
206	38	31	25	20	17	13	7	5.3	0
207	54	51	44	38	33	28	19	14.0	0
208	384	152	79	61	52	43	28	23.5	7
209	13	13	11	9	7	5	2	1.8	0
210	14	13	11	9	7	5	2	1.9	0
211	18	15	13	10	7	5	3	2.2	0
212	15	14	12	9	7	5	3	1.9	0
213	15	14	12	9	7	5	3	1.9	0
214	14	13	11	9	7	5	2	1.9	0
215	14	13	11	9	7	5	2	1.9	0
216	14	13	11	9	7	5	2	1.9	0
217	17	15	12	10	8	5	3	2.1	0
218	15	14	11	9	8	5	3	2.0	0
219	27	17	14	12	9	7	4	2.8	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
220	22	21	19	18	16	14	11	7.6	0
221	22	21	19	18	16	14	11	7.6	0
222	72	67	64	56	42	32	18	13.5	1
223	76	43	35	31	27	22	8	7.1	1
224	76	43	35	31	27	22	8	7.1	1
225	17	16	15	14	10	7	3	2.6	0
226	17	16	15	14	10	7	3	2.6	0
227	9	9	8	7	6	5	2	1.6	0
228	6	5	5	5	4	3	2	1.2	0
229	5	5	4	4	3	3	2	1.1	0
230	6	4	4	3	3	2	1	1.0	0
231	109	92	72	67	54	44	21	16.3	7
232	25	25	20	17	14	12	7	5.3	0
233	23	17	15	13	11	9	6	3.8	0
234	19	17	12	10	8	7	4	2.9	0
235	19	14	10	9	6	5	3	2.3	0
236	16	10	9	8	6	4	3	1.9	0
237	7	4	4	3	3	2	1	1.0	0
238	7	4	3	3	3	2	1	0.9	0
239	8	4	3	3	3	2	1	1.0	0
240	8	4	4	3	3	2	1	1.0	0
241	8	4	4	3	3	2	1	1.0	0
242	8	4	4	4	3	3	1	1.1	0
243	9	6	5	5	4	3	2	1.5	0
244	29	19	17	14	12	9	6	4.3	0
245	28	20	16	13	11	9	6	4.3	0
246	28	20	16	13	11	9	6	4.3	0
247	27	19	14	12	11	9	5	4.0	0
248	24	18	12	10	9	8	5	3.6	0
249	21	19	12	9	8	7	4	3.2	0
250	14	12	8	8	7	6	3	2.6	0
251	12	10	7	7	6	5	3	2.2	0
252	10	8	7	6	5	4	3	2.0	0
253	8	5	5	5	4	3	2	1.5	0
254	9	6	5	5	4	3	2	1.5	0
255	8	5	4	4	3	3	2	1.1	0
256	8	5	4	4	3	3	2	1.1	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
257	7	5	4	4	3	3	2	1.1	0
258	5	4	4	3	3	2	1	0.9	0
259	4	4	3	3	3	2	1	0.9	0
260	5	4	4	3	3	2	1	0.8	0
261	4	4	4	3	3	2	1	0.8	0
262	4	4	3	3	2	2	1	0.6	0
263	4	4	3	3	2	1	1	0.5	0
264	3	3	2	2	1	1	0	0.4	0
265	5	4	4	4	3	3	1	1.0	0
266	5	5	4	3	3	2	1	0.7	0
267	10	7	6	5	4	3	2	1.1	0
268	11	9	7	6	5	4	2	1.4	0
269	16	10	9	8	6	4	3	1.9	0
270	17	15	13	13	10	8	5	3.4	0
271	16	15	13	12	10	8	4	3.0	0
272	8	7	6	5	4	3	1	1.0	0
273	9	6	5	4	4	3	1	0.8	0
274	8	7	6	5	4	3	1	1.0	0
275	9	7	5	5	4	3	1	0.9	0
276	9	6	4	4	3	3	1	0.8	0
277	8	5	4	4	3	2	1	0.8	0
278	8	5	4	4	3	2	1	0.7	0
279	8	5	4	3	3	2	1	0.6	0
280	5	3	2	2	2	1	0	0.4	0
281	20	19	11	10	8	7	4	3.1	0
282	20	19	11	10	8	7	4	3.1	0
283	4	4	3	3	2	2	1	0.6	0
284	4	3	3	2	1	1	1	0.4	0
285	4	4	3	3	2	1	1	0.5	0
286	4	4	3	3	2	1	1	0.5	0
287	24	18	12	10	9	8	5	3.6	0
288	4	4	3	3	2	1	1	0.5	0
289	5	4	4	3	3	2	1	0.8	0
290	3	3	2	2	1	1	0	0.3	0
291	4	4	4	3	3	2	1	0.8	0
292	20	19	11	10	8	7	4	3.1	0
293	9	5	4	4	3	3	2	1.2	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
294	4	4	3	3	3	2	1	0.9	0
295	4	4	3	3	3	2	1	0.9	0
296	9	5	4	4	3	3	2	1.2	0
297	4	4	3	3	2	1	1	0.5	0
298	9	5	4	4	3	3	2	1.2	0
299	8	4	4	3	3	2	1	1.0	0
300	9	9	8	7	6	5	2	1.6	0
301	17	16	15	14	10	7	3	2.6	0
302	19	17	12	10	8	7	4	2.9	0
303	13	11	8	7	5	4	2	1.6	0
304	19	14	10	9	6	5	3	2.3	0
305	60	57	44	40	27	20	9	7.6	0
306	60	45	37	32	25	20	9	7.7	0
307	5	3	2	2	1	1	0	0.2	0

Appendix Table 5: Phase 1 - PM_{10} concentrations at all discrete receptors – including background concentration

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
1	115	86	73	66	61	54	35	30.7	7
2	178	138	116	102	93	78	48	41.1	47
3	38	34	29	29	27	25	21	20.6	0
4	182	145	122	106	96	82	50	42.4	52
5	33	29	27	27	25	24	21	20.1	0
6	33	28	27	27	25	24	21	20.1	0
7	185	174	139	123	106	94	60	48.0	75
8	558	468	395	369	323	278	167	131.8	229
9	25	24	24	23	22	21	20	19.1	0
10	94	82	57	53	48	41	27	26.0	2
11	25	24	24	23	22	21	20	19.1	0
12	68	66	52	45	39	32	25	23.6	0
13	25	25	24	23	22	21	20	19.2	0
14	124	110	71	58	52	43	27	27.2	6
15	345	320	265	253	217	179	100	82.4	170
16	25	24	23	22	21	21	19	19.0	0
17	345	321	264	254	220	182	103	83.1	171

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
18	325	307	259	242	212	174	100	81.8	171
19	131	109	78	70	61	46	28	28.2	9
20	25	25	23	22	21	21	19	19.0	0
21	87	81	61	51	45	38	27	25.5	2
22	25	24	24	23	22	21	20	19.1	0
23	26	25	23	22	22	21	19	19.0	0
24	25	24	24	23	22	21	20	19.1	0
25	84	81	73	65	56	46	32	29.1	6
26	25	24	24	23	22	21	20	19.2	0
27	25	24	24	23	22	21	20	19.2	0
28	33	31	29	28	26	25	22	21.2	0
29	33	30	27	26	25	24	21	20.7	0
30	34	30	29	27	25	24	21	20.8	0
31	26	25	23	22	22	21	19	19.0	0
32	132	125	97	93	81	67	42	38.8	34
33	32	32	30	29	27	24	21	20.4	0
34	25	24	23	23	21	21	19	19.1	0
35	29	27	26	25	23	22	20	19.6	0
36	27	26	24	23	22	21	20	19.3	0
37	187	173	150	132	120	101	52	46.2	74
38	41	38	32	29	28	26	23	21.6	0
39	41	38	32	32	31	28	23	22.1	0
40	41	34	30	27	25	24	21	20.6	0
41	72	60	54	50	42	36	25	24.6	1
42	76	66	57	53	44	38	26	25.2	1
43	33	30	29	27	25	24	21	20.7	0
44	117	116	91	81	72	62	37	35.1	27
45	123	122	94	85	76	66	39	36.0	29
46	400	357	284	273	237	194	110	82.4	161
47	430	421	319	307	261	214	119	88.6	164
48	215	180	162	155	138	115	63	50.6	97
49	229	192	171	168	148	123	66	53.4	99
50	333	319	246	229	206	164	97	71.6	146
51	335	326	249	234	206	163	97	72.3	146
52	335	332	249	238	207	165	97	72.7	150
53	464	430	360	351	286	237	138	100.2	182
54	95	86	69	60	55	50	37	31.3	4

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
55	199	164	153	140	118	91	50	44.0	68
56	296	244	223	206	178	150	86	64.7	136
57	217	202	159	150	128	107	62	50.2	92
58	201	189	144	125	115	93	54	44.7	65
59	206	180	148	144	123	103	60	48.7	86
60	189	166	131	126	109	91	54	44.4	69
61	71	68	55	51	48	40	30	28.8	1
62	31	30	28	27	26	24	21	21.0	0
63	108	95	74	67	59	55	39	32.9	7
64	249	223	182	168	153	127	68	53.9	104
65	179	142	128	118	105	79	48	40.2	50
66	198	182	141	123	113	91	53	43.7	64
67	295	269	191	174	142	110	57	50.0	87
68	37	33	32	31	29	28	23	22.1	0
69	140	127	107	103	85	74	43	36.2	46
70	61	57	45	43	39	33	27	26.0	0
71	185	164	145	139	116	98	54	43.9	76
72	130	126	101	98	82	71	42	35.3	42
73	245	230	203	192	160	135	69	55.1	107
74	291	120	91	80	71	61	44	38.2	20
75	53	53	50	47	38	34	27	25.4	0
76	380	374	332	290	233	197	121	95.4	204
77	376	369	336	299	241	198	127	98.4	210
78	104	103	84	74	65	52	32	29.6	13
79	118	84	68	66	62	55	44	37.7	5
80	218	206	169	163	143	123	68	53.8	105
81	93	92	79	75	71	63	50	42.3	22
82	135	80	69	67	59	54	43	37.4	5
83	168	167	106	95	76	63	37	33.7	30
84	101	85	71	64	57	49	36	32.5	7
85	119	96	87	82	70	64	48	43.1	18
86	52	45	43	41	37	34	29	27.0	0
87	56	55	50	48	44	40	34	30.1	0
88	57	45	38	36	34	31	24	22.7	0
89	45	43	37	35	32	30	24	23.3	0
90	133	124	113	102	87	76	57	48.2	54
91	133	125	116	104	87	77	57	48.9	58

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
92	141	133	117	106	93	79	56	49.2	62
93	186	178	159	145	114	99	63	58.6	91
94	276	274	229	220	189	167	119	98.6	243
95	39	37	33	30	29	27	23	22.4	0
96	40	38	34	31	29	27	24	22.6	0
97	25	24	24	23	22	21	19	19.1	0
98	235	205	188	180	158	129	87	71.6	151
99	121	103	88	82	73	60	45	40.8	20
100	157	145	120	109	93	77	53	47.3	47
101	69	66	43	38	33	30	25	23.2	0
102	25	24	23	23	22	21	19	19.1	0
103	171	169	147	140	117	104	69	57.3	100
104	175	167	140	127	114	92	56	45.8	74
105	168	153	134	124	109	93	53	44.3	66
106	43	37	35	32	30	28	25	22.7	0
107	22	21	20	20	19	19	18	18.4	0
108	23	22	21	21	20	20	19	18.6	0
109	22	20	20	19	19	19	18	18.3	0
110	41	39	35	33	31	28	25	23.6	0
111	40	37	34	32	30	27	24	23.2	0
112	41	37	34	33	30	27	24	23.3	0
113	109	102	84	77	69	58	41	34.9	17
114	76	74	66	61	54	47	35	30.4	3
115	36	36	32	31	28	25	21	20.7	0
116	25	23	22	21	21	20	20	19.1	0
117	188	172	145	134	120	102	73	56.4	122
118	63	54	49	47	43	37	28	26.8	0
119	106	91	84	77	70	61	49	43.6	19
120	49	48	46	42	36	32	26	24.5	0
121	42	38	33	32	29	26	22	21.1	0
122	90	86	82	75	60	50	36	31.6	12
123	42	38	33	32	29	26	22	21.1	0
124	350	317	258	240	207	177	119	103.6	259
125	26	26	24	24	23	21	20	19.4	0
126	25	24	23	22	21	21	19	19.0	0
127	24	24	23	22	21	20	19	19.0	0
128	25	24	23	22	21	21	19	19.0	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
129	109	87	65	58	49	39	26	26.1	3
130	25	24	23	22	21	20	19	18.9	0
131	25	24	23	22	21	20	19	18.9	0
132	361	313	263	236	197	163	96	77.4	156
133	25	24	23	22	21	20	19	18.9	0
134	203	196	179	159	135	110	68	58.8	100
135	361	313	263	236	197	163	96	77.4	156
136	350	317	258	240	207	177	119	103.6	259
137	25	25	23	23	22	21	19	19.1	0
138	407	360	286	265	234	194	124	91.4	192
139	79	73	65	59	53	47	29	27.5	2
140	25	24	24	23	22	21	20	19.2	0
141	26	25	24	24	22	21	20	19.3	0
142	30	30	29	28	26	24	21	20.3	0
143	30	30	29	28	26	24	21	20.3	0
144	30	30	29	28	26	24	21	20.3	0
145	25	24	23	23	22	21	19	19.1	0
146	27	25	23	23	22	21	20	19.2	0
147	27	25	23	23	22	21	20	19.2	0
148	31	28	27	26	25	23	21	20.7	0
149	32	30	29	28	26	25	22	21.2	0
150	30	30	27	27	25	23	21	20.1	0
151	145	49	37	34	33	30	26	24.0	1
152	145	49	37	34	33	30	26	24.0	1
153	140	119	79	65	60	54	38	35.6	7
154	89	78	67	63	54	47	34	31.3	4
155	85	82	75	72	62	54	40	35.6	11
156	77	69	59	56	50	45	35	32.3	1
157	47	42	34	33	30	28	24	22.1	0
158	89	78	67	63	54	47	34	31.3	4
159	89	78	67	63	54	47	34	31.3	4
160	57	52	46	43	40	35	27	26.1	0
161	49	43	40	38	36	34	30	25.9	0
162	58	50	48	47	44	41	34	30.0	0
163	67	59	48	46	44	38	32	29.6	0
164	43	42	40	38	36	34	29	26.6	0
165	67	54	48	46	43	39	32	29.3	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
166	67	54	48	46	43	39	32	29.3	0
167	67	54	48	46	43	39	32	29.3	0
168	67	54	48	46	43	39	32	29.3	0
169	67	54	48	46	43	39	32	29.3	0
170	64	60	51	48	44	39	31	29.1	0
171	67	59	48	46	44	38	32	29.6	0
172	67	54	48	46	43	39	32	29.3	0
173	58	50	48	47	44	41	34	30.0	0
174	67	54	48	46	43	39	32	29.3	0
175	40	40	37	36	34	32	29	25.7	0
176	40	40	37	36	34	32	29	25.7	0
177	44	39	38	37	35	32	29	25.5	0
178	40	36	30	28	26	24	22	20.8	0
179	40	36	30	28	26	24	22	20.8	0
180	40	36	30	28	26	24	22	20.8	0
181	40	36	30	28	26	24	22	20.8	0
182	40	36	30	28	26	24	22	20.8	0
183	40	36	30	28	26	24	22	20.8	0
184	38	35	29	27	25	24	21	20.6	0
185	25	24	23	22	21	21	19	19.0	0
186	25	24	23	22	21	21	19	19.0	0
187	72	70	63	59	53	48	39	35.3	2
188	56	49	43	38	35	31	25	23.4	0
189	47	42	34	33	30	27	23	21.5	0
190	684	516	308	252	182	128	84	79.5	153
191	30	28	25	25	24	22	20	19.6	0
192	422	289	275	258	216	191	122	99.9	229
193	422	289	275	258	216	191	122	99.9	229
194	422	289	275	258	216	191	122	99.9	229
195	356	284	256	227	203	171	89	72.1	142
196	356	284	256	227	203	171	89	72.1	142
197	30	28	25	25	24	22	20	19.6	0
198	422	289	275	258	216	191	122	99.9	229
199	157	135	120	109	98	80	45	38.1	49
200	266	207	185	155	134	114	74	61.3	120
201	253	248	207	197	163	136	80	62.2	129
202	253	248	207	197	163	136	80	62.2	129

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
203	25	24	23	22	21	20	19	18.9	0
204	104	101	90	84	73	60	47	41.3	20
205	85	82	75	72	62	54	40	35.6	11
206	56	49	43	38	35	31	25	23.4	0
207	73	69	62	56	51	46	37	32.1	1
208	402	170	97	79	70	61	46	41.6	18
209	31	31	29	27	25	23	20	19.9	0
210	32	31	29	27	25	23	21	20.0	0
211	36	34	31	28	25	24	21	20.3	0
212	33	32	30	27	25	23	21	20.0	0
213	33	32	30	27	25	23	21	20.0	0
214	32	31	29	27	25	23	21	20.0	0
215	32	31	29	27	25	23	21	20.0	0
216	32	31	29	27	25	23	21	20.0	0
217	35	33	30	28	26	23	21	20.2	0
218	33	32	29	27	26	23	21	20.1	0
219	45	35	32	30	27	25	22	20.9	0
220	40	40	37	36	34	32	29	25.7	0
221	40	40	37	36	34	32	29	25.7	0
222	90	86	82	75	60	50	36	31.6	12
223	94	61	53	49	45	40	26	25.2	1
224	94	61	53	49	45	40	26	25.2	1
225	35	35	33	32	28	25	21	20.7	0
226	35	35	33	32	28	25	21	20.7	0
227	28	27	26	25	24	23	20	19.7	0
228	24	23	23	23	22	21	20	19.3	0
229	23	23	22	22	21	21	20	19.2	0
230	24	22	22	22	21	21	20	19.1	0
231	127	110	90	85	72	63	39	34.4	23
232	43	43	38	35	32	30	25	23.4	0
233	41	35	33	32	29	28	24	21.9	0
234	38	36	30	28	26	25	22	21.0	0
235	37	32	28	27	24	23	21	20.4	0
236	34	28	27	26	24	22	21	20.0	0
237	25	22	22	21	21	20	20	19.1	0
238	26	22	21	21	21	20	19	19.0	0
239	26	22	22	21	21	20	19	19.1	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
240	27	22	22	21	21	21	20	19.1	0
241	26	22	22	21	21	21	20	19.1	0
242	26	22	22	22	21	21	20	19.2	0
243	27	24	23	23	22	22	20	19.6	0
244	47	37	35	32	30	27	24	22.4	0
245	46	38	35	31	29	27	24	22.4	0
246	46	38	35	31	29	27	24	22.4	0
247	45	37	32	30	29	27	24	22.1	0
248	42	36	30	28	27	26	23	21.7	0
249	39	37	30	27	26	25	22	21.3	0
250	32	30	27	26	25	24	21	20.7	0
251	30	28	26	25	24	23	21	20.3	0
252	28	26	25	24	23	22	21	20.1	0
253	26	24	23	23	22	22	20	19.6	0
254	27	24	23	23	22	22	20	19.6	0
255	27	23	22	22	21	21	20	19.2	0
256	26	23	22	22	21	21	20	19.2	0
257	25	23	22	22	21	21	20	19.2	0
258	23	22	22	21	21	20	19	19.0	0
259	23	22	22	21	21	20	19	19.0	0
260	23	22	22	21	21	20	19	18.9	0
261	22	22	22	22	21	20	19	18.9	0
262	22	22	22	21	20	20	19	18.7	0
263	22	22	22	21	20	20	19	18.6	0
264	21	21	20	20	19	19	19	18.5	0
265	23	23	22	22	21	21	19	19.1	0
266	23	23	22	21	21	20	19	18.8	0
267	28	26	24	23	22	21	20	19.2	0
268	29	27	25	24	23	22	20	19.5	0
269	34	28	27	26	24	22	21	20.0	0
270	35	33	31	31	28	26	23	21.5	0
271	34	33	31	30	28	26	22	21.1	0
272	26	26	24	23	23	21	19	19.1	0
273	27	25	23	22	22	21	19	18.9	0
274	26	26	24	23	23	21	19	19.1	0
275	27	25	23	23	22	21	19	19.0	0
276	27	24	23	22	21	21	19	18.9	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >70
		Highest			Percentile				
277	26	24	23	22	21	21	19	18.9	0
278	26	23	22	22	21	20	19	18.8	0
279	26	23	22	21	21	20	19	18.7	0
280	23	21	20	20	20	19	18	18.5	0
281	39	37	29	28	26	25	22	21.2	0
282	39	37	29	28	26	25	22	21.2	0
283	22	22	22	21	20	20	19	18.7	0
284	22	21	21	20	20	19	19	18.5	0
285	22	22	22	21	20	19	19	18.6	0
286	22	22	22	21	20	19	19	18.6	0
287	42	36	30	28	27	26	23	21.7	0
288	22	22	21	21	20	19	19	18.6	0
289	23	22	22	21	21	20	19	18.9	0
290	21	21	20	20	19	19	19	18.4	0
291	22	22	22	22	21	20	19	18.9	0
292	39	37	29	28	26	25	22	21.2	0
293	27	24	22	22	21	21	20	19.3	0
294	23	22	22	21	21	20	19	19.0	0
295	23	22	22	21	21	20	19	19.0	0
296	27	24	22	22	21	21	20	19.3	0
297	22	22	22	21	20	20	19	18.6	0
298	27	24	22	22	21	21	20	19.3	0
299	26	22	22	21	21	21	20	19.1	0
300	28	27	26	25	24	23	20	19.7	0
301	35	35	33	32	28	25	21	20.7	0
302	38	36	30	28	26	25	22	21.0	0
303	31	29	26	25	23	22	20	19.7	0
304	37	32	28	27	24	23	21	20.4	0
305	78	75	62	58	45	38	27	25.7	4
306	78	63	55	50	43	38	27	25.8	1
307	23	21	20	20	19	19	18	18.3	0

$PM_{2.5}$

Appendix Table 6: Phase 1 - $PM_{2.5}$ concentrations at all discrete receptors – excluding background concentration

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
1	41	37	31	28	21	17	9	6.6	13
2	71	67	49	44	35	30	17	11.9	58
3	5	4	3	3	2	2	1	0.7	0
4	76	69	52	47	37	33	18	12.7	66
5	4	3	3	2	2	2	1	0.6	0
6	4	3	3	2	2	2	1	0.6	0
7	104	82	71	63	53	44	24	17.2	100
8	216	203	150	140	124	103	57	43.8	204
9	2	2	2	1	1	1	0	0.3	0
10	27	24	14	12	11	8	3	2.9	1
11	2	2	2	1	1	1	0	0.3	0
12	19	17	12	10	7	5	2	2.0	0
13	2	2	2	1	1	1	0	0.3	0
14	44	39	20	18	15	11	3	3.6	4
15	118	111	96	91	74	62	33	25.0	141
16	2	2	1	1	1	1	0	0.3	0
17	118	110	96	91	74	62	33	25.1	144
18	112	109	94	86	71	60	32	24.5	144
19	47	37	24	22	18	12	4	4.0	5
20	2	2	1	1	1	1	0	0.3	0
21	25	24	16	13	10	7	3	2.7	0
22	2	2	2	1	1	1	0	0.3	0
23	2	2	1	1	1	1	0	0.3	0
24	2	2	2	1	1	1	0	0.3	0
25	29	26	24	21	16	12	6	4.7	4
26	2	2	2	2	1	1	0	0.3	0
27	2	2	2	2	1	1	0	0.3	0
28	4	4	3	3	2	2	1	1.0	0
29	4	4	3	2	2	2	1	0.9	0
30	5	4	3	3	2	2	1	0.9	0
31	2	2	1	1	1	1	0	0.3	0
32	32	30	22	21	18	14	7	5.8	3
33	4	4	3	3	2	2	1	0.7	0
34	2	2	2	1	1	1	0	0.3	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
35	3	3	2	2	2	1	1	0.4	0
36	2	2	2	2	1	1	1	0.3	0
37	47	44	38	33	29	22	10	8.4	29
38	9	7	4	4	3	3	2	1.2	0
39	9	7	5	4	4	3	2	1.4	0
40	9	5	4	3	2	2	1	0.9	0
41	16	12	10	9	7	5	2	1.9	0
42	17	13	11	10	8	6	2	2.1	0
43	5	4	3	3	2	2	1	0.8	0
44	28	28	20	18	16	13	6	5.4	4
45	30	29	21	19	17	14	6	5.6	4
46	151	120	104	97	84	67	33	23.5	133
47	168	139	118	111	90	70	34	25.1	140
48	89	74	60	57	47	38	16	12.5	74
49	95	78	65	61	51	41	18	13.5	80
50	135	115	94	87	71	55	28	19.6	119
51	136	116	95	87	72	55	28	19.9	120
52	135	118	96	87	73	56	29	20.0	120
53	181	157	129	123	103	78	41	28.7	148
54	85	72	53	48	42	34	16	12.3	65
55	78	68	59	55	44	31	14	10.9	56
56	112	87	82	76	65	51	26	18.0	112
57	84	84	61	59	49	37	20	13.6	80
58	81	73	57	52	44	32	17	11.5	57
59	83	78	61	57	49	35	19	13.2	76
60	77	72	54	51	43	31	16	11.6	68
61	62	48	41	37	32	23	14	10.7	31
62	13	12	11	9	7	5	2	2.0	0
63	101	82	62	56	47	40	18	14.0	86
64	98	78	69	63	53	41	18	13.7	83
65	72	55	51	47	39	29	13	9.8	46
66	80	70	56	51	43	31	16	11.1	56
67	243	201	132	124	87	67	22	20.7	101
68	17	17	13	12	10	8	3	2.7	0
69	49	45	36	35	29	22	10	7.2	27
70	52	37	30	27	22	14	9	7.5	13
71	60	60	51	47	39	30	13	9.9	54

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
72	48	44	34	33	28	21	9	6.9	23
73	82	80	72	64	53	42	18	13.6	87
74	74	29	20	18	15	12	8	5.9	2
75	43	40	35	30	23	17	8	6.4	13
76	105	105	85	75	65	51	29	22.3	136
77	107	105	89	76	66	51	31	23.2	143
78	82	75	65	45	36	28	9	8.6	43
79	28	26	17	15	13	11	8	6.0	2
80	91	80	64	60	52	39	18	13.5	82
81	22	21	18	17	15	13	9	7.0	0
82	33	24	15	15	13	11	8	5.9	1
83	140	122	73	58	47	36	13	11.4	56
84	24	19	15	13	12	9	5	4.3	0
85	29	22	20	18	15	13	9	7.2	1
86	9	8	7	7	6	5	3	2.6	0
87	10	10	10	8	8	6	4	3.4	0
88	10	7	5	5	4	3	2	1.2	0
89	16	15	9	8	7	6	3	2.7	0
90	32	30	27	24	19	16	11	8.4	6
91	32	30	27	25	20	16	11	8.6	7
92	34	32	28	25	21	17	11	8.7	9
93	47	45	40	36	27	23	13	11.3	23
94	72	72	59	56	48	41	28	22.5	132
95	16	13	10	9	7	6	3	2.7	0
96	21	15	12	11	10	7	4	3.3	0
97	2	2	2	1	1	1	0	0.3	0
98	61	52	47	45	39	31	20	15.0	72
99	29	24	20	18	15	12	8	6.3	1
100	39	36	29	26	21	17	10	8.2	10
101	14	13	7	5	4	3	2	1.4	0
102	2	2	2	1	1	1	0	0.3	0
103	43	42	36	34	28	24	14	11.0	31
104	68	67	56	52	46	35	17	12.5	65
105	71	65	54	49	42	32	16	11.8	65
106	9	7	6	5	4	3	2	1.6	0
107	1	1	1	1	0	0	0	0.1	0
108	2	2	1	1	1	1	0	0.2	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
109	1	1	1	0	0	0	0	0.1	0
110	6	6	5	4	4	3	2	1.7	0
111	6	5	5	4	4	3	2	1.6	0
112	6	5	5	4	4	3	2	1.6	0
113	26	25	20	17	14	11	7	5.0	1
114	18	17	13	12	10	9	5	3.7	0
115	7	7	5	5	4	3	1	1.0	0
116	2	2	1	1	1	1	1	0.3	0
117	47	44	40	35	29	24	17	11.4	34
118	13	11	10	9	7	6	3	2.7	0
119	25	21	19	17	14	12	9	7.3	0
120	9	8	7	7	5	4	2	1.9	0
121	11	9	7	6	5	3	2	1.3	0
122	32	30	28	25	18	14	8	5.9	9
123	11	9	7	6	5	3	2	1.3	0
124	146	131	106	98	83	70	44	37.6	238
125	3	3	3	3	2	1	1	0.6	0
126	3	3	2	2	1	1	1	0.4	0
127	3	3	2	2	1	1	1	0.4	0
128	3	3	2	2	1	1	1	0.4	0
129	40	30	21	17	14	9	4	3.5	2
130	3	3	2	2	1	1	0	0.4	0
131	3	3	2	2	1	1	0	0.4	0
132	151	130	108	96	79	64	34	26.1	145
133	3	3	2	2	1	1	0	0.4	0
134	81	78	71	62	51	40	22	17.9	91
135	151	130	108	96	79	64	34	26.1	145
136	146	131	106	98	83	70	44	37.6	238
137	3	3	2	2	2	1	1	0.4	0
138	171	151	118	108	95	77	47	32.2	173
139	27	24	21	18	15	13	5	4.2	1
140	3	3	2	2	2	1	1	0.5	0
141	3	3	3	2	2	1	1	0.5	0
142	5	5	5	4	4	3	1	1.0	0
143	5	5	5	4	4	3	1	1.0	0
144	5	5	5	4	4	3	1	1.0	0
145	3	3	2	2	2	1	1	0.4	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
146	4	3	2	2	2	1	1	0.5	0
147	4	3	2	2	2	1	1	0.5	0
148	6	4	4	4	3	2	1	1.1	0
149	6	5	5	4	4	3	2	1.4	0
150	5	5	4	4	3	2	1	0.9	0
151	56	14	8	7	6	5	3	2.6	1
152	56	14	8	7	6	5	3	2.6	1
153	54	44	27	21	18	16	9	7.7	6
154	31	26	22	20	16	13	7	5.8	2
155	29	28	25	24	19	16	10	7.7	5
156	26	23	18	17	14	12	8	6.3	1
157	13	11	7	7	5	4	2	1.8	0
158	31	26	22	20	16	13	7	5.8	2
159	31	26	22	20	16	13	7	5.8	2
160	17	15	12	11	10	8	4	3.5	0
161	14	11	10	9	8	7	5	3.4	0
162	17	14	13	13	12	10	7	5.2	0
163	22	18	13	12	12	9	6	5.0	0
164	11	10	10	9	8	7	5	3.7	0
165	21	16	13	12	11	9	6	4.9	0
166	21	16	13	12	11	9	6	4.9	0
167	21	16	13	12	11	9	6	4.9	0
168	21	16	13	12	11	9	6	4.9	0
169	21	16	13	12	11	9	6	4.9	0
170	20	19	14	13	11	9	6	4.8	0
171	22	18	13	12	12	9	6	5.0	0
172	21	16	13	12	11	9	6	4.9	0
173	17	14	13	13	12	10	7	5.2	0
174	21	16	13	12	11	9	6	4.9	0
175	10	9	8	8	7	6	5	3.3	0
176	10	9	8	8	7	6	5	3.3	0
177	11	9	9	8	7	6	5	3.3	0
178	10	8	5	4	3	3	2	1.2	0
179	10	8	5	4	3	3	2	1.2	0
180	10	8	5	4	3	3	2	1.2	0
181	10	8	5	4	3	3	2	1.2	0
182	10	8	5	4	3	3	2	1.2	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
183	10	8	5	4	3	3	2	1.2	0
184	9	7	5	4	3	3	1	1.1	0
185	3	3	2	2	1	1	1	0.4	0
186	3	3	2	2	1	1	1	0.4	0
187	24	23	20	18	15	13	9	7.6	0
188	17	14	11	9	7	6	3	2.4	0
189	13	11	7	6	5	4	2	1.5	0
190	293	219	128	103	72	49	29	27.0	131
191	5	4	3	3	3	2	1	0.7	0
192	178	119	113	105	87	76	46	36.0	216
193	178	119	113	105	87	76	46	36.0	216
194	178	119	113	105	87	76	46	36.0	216
195	149	117	105	92	81	67	31	23.8	134
196	149	117	105	92	81	67	31	23.8	134
197	5	4	3	3	3	2	1	0.7	0
198	178	119	113	105	87	76	46	36.0	216
199	61	52	45	40	35	27	12	8.8	45
200	109	83	73	60	51	42	25	19.0	106
201	103	101	83	79	64	52	27	19.4	114
202	103	101	83	79	64	52	27	19.4	114
203	3	3	2	2	1	1	0	0.4	0
204	38	36	32	29	24	19	13	10.2	17
205	29	28	25	24	19	16	10	7.7	5
206	17	14	11	9	7	6	3	2.4	0
207	24	22	19	17	14	12	8	6.2	0
208	169	67	35	27	23	19	12	10.3	12
209	6	6	5	4	3	2	1	0.8	0
210	6	6	5	4	3	2	1	0.8	0
211	8	7	6	4	3	2	1	1.0	0
212	7	6	5	4	3	2	1	0.8	0
213	7	6	5	4	3	2	1	0.8	0
214	6	6	5	4	3	2	1	0.8	0
215	6	6	5	4	3	2	1	0.8	0
216	6	6	5	4	3	2	1	0.8	0
217	7	6	5	4	3	2	1	0.9	0
218	7	6	5	4	3	2	1	0.9	0
219	12	7	6	5	4	3	2	1.2	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
220	10	9	8	8	7	6	5	3.3	0
221	10	9	8	8	7	6	5	3.3	0
222	32	30	28	25	18	14	8	5.9	9
223	34	19	15	14	12	10	3	3.1	1
224	34	19	15	14	12	10	3	3.1	1
225	8	7	7	6	4	3	1	1.1	0
226	8	7	7	6	4	3	1	1.1	0
227	4	4	4	3	2	2	1	0.7	0
228	2	2	2	2	2	1	1	0.5	0
229	2	2	2	2	1	1	1	0.5	0
230	3	2	2	2	1	1	1	0.4	0
231	48	41	32	29	24	20	9	7.2	17
232	11	11	9	7	6	5	3	2.3	0
233	10	7	7	6	5	4	2	1.7	0
234	9	8	5	4	4	3	2	1.3	0
235	8	6	5	4	3	2	1	1.0	0
236	7	4	4	4	2	2	1	0.8	0
237	3	2	2	1	1	1	1	0.4	0
238	3	2	1	1	1	1	1	0.4	0
239	3	2	1	1	1	1	1	0.4	0
240	4	2	2	1	1	1	1	0.4	0
241	4	2	2	1	1	1	1	0.5	0
242	4	2	2	2	1	1	1	0.5	0
243	4	3	2	2	2	2	1	0.7	0
244	13	8	8	6	5	4	3	1.9	0
245	12	9	7	6	5	4	3	1.9	0
246	12	9	7	6	5	4	3	1.9	0
247	12	8	6	5	5	4	2	1.8	0
248	10	8	5	5	4	3	2	1.6	0
249	9	8	5	4	4	3	2	1.4	0
250	6	5	4	3	3	2	1	1.1	0
251	5	4	3	3	2	2	1	1.0	0
252	4	3	3	3	2	2	1	0.9	0
253	4	2	2	2	2	2	1	0.7	0
254	4	2	2	2	2	2	1	0.7	0
255	4	2	2	2	1	1	1	0.5	0
256	3	2	2	2	1	1	1	0.5	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
257	3	2	2	2	1	1	1	0.5	0
258	2	2	2	1	1	1	1	0.4	0
259	2	2	2	1	1	1	1	0.4	0
260	2	2	2	1	1	1	0	0.4	0
261	2	2	2	1	1	1	0	0.3	0
262	2	2	1	1	1	1	0	0.3	0
263	2	2	2	1	1	1	0	0.2	0
264	1	1	1	1	1	0	0	0.2	0
265	2	2	2	2	1	1	1	0.4	0
266	2	2	2	1	1	1	0	0.3	0
267	4	3	3	2	2	1	1	0.5	0
268	5	4	3	3	2	2	1	0.6	0
269	7	4	4	4	2	2	1	0.8	0
270	7	7	6	6	5	4	2	1.5	0
271	7	7	6	5	5	3	2	1.3	0
272	3	3	3	2	2	1	1	0.5	0
273	4	3	2	2	2	1	0	0.4	0
274	3	3	3	2	2	1	1	0.5	0
275	4	3	2	2	2	1	0	0.4	0
276	4	3	2	2	1	1	0	0.4	0
277	4	2	2	2	1	1	0	0.3	0
278	4	2	2	2	1	1	0	0.3	0
279	3	2	2	1	1	1	0	0.3	0
280	2	1	1	1	1	1	0	0.2	0
281	9	8	5	4	4	3	2	1.4	0
282	9	8	5	4	4	3	2	1.4	0
283	2	2	1	1	1	1	0	0.3	0
284	2	1	1	1	1	0	0	0.2	0
285	2	2	2	1	1	1	0	0.2	0
286	2	2	2	1	1	1	0	0.2	0
287	10	8	5	5	4	3	2	1.6	0
288	2	2	1	1	1	1	0	0.2	0
289	2	2	2	1	1	1	0	0.4	0
290	1	1	1	1	1	0	0	0.1	0
291	2	2	2	1	1	1	0	0.3	0
292	9	8	5	4	4	3	2	1.4	0
293	4	2	2	2	1	1	1	0.5	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
294	2	2	2	1	1	1	1	0.4	0
295	2	2	2	1	1	1	1	0.4	0
296	4	2	2	2	1	1	1	0.5	0
297	2	2	2	1	1	1	0	0.2	0
298	4	2	2	2	1	1	1	0.5	0
299	4	2	2	1	1	1	1	0.5	0
300	4	4	4	3	2	2	1	0.7	0
301	8	7	7	6	4	3	1	1.1	0
302	9	8	5	4	4	3	2	1.3	0
303	6	5	4	3	2	2	1	0.7	0
304	8	6	5	4	3	2	1	1.0	0
305	26	25	19	18	12	9	4	3.4	2
306	26	20	16	14	11	9	4	3.4	1
307	2	1	1	1	0	0	0	0.1	0

Appendix Table 7: Phase 1 - $PM_{2.5}$ concentrations at all discrete receptors – including background concentration

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
1	46	42	36	34	27	23	14	11.7	24
2	76	72	54	49	40	35	22	17.0	83
3	11	10	8	8	7	7	6	5.8	0
4	81	74	57	52	43	38	23	17.8	93
5	9	8	8	8	7	7	6	5.7	0
6	9	8	8	8	7	7	6	5.7	0
7	109	87	76	69	58	49	29	22.3	134
8	221	208	155	145	129	108	62	48.9	224
9	7	7	7	7	6	6	6	5.4	0
10	33	29	19	17	16	13	9	8.0	2
11	7	7	7	7	6	6	6	5.4	0
12	24	22	17	15	12	10	8	7.1	0
13	7	7	7	7	6	6	6	5.4	0
14	49	44	25	23	20	16	8	8.7	6
15	123	116	101	96	79	67	38	30.1	170
16	7	7	7	6	6	6	6	5.4	0
17	123	115	101	96	79	67	38	30.2	171

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
18	117	114	99	91	76	65	37	29.6	167
19	52	42	29	27	23	17	9	9.1	14
20	7	7	6	6	6	6	6	5.4	0
21	30	29	21	18	15	12	8	7.8	2
22	7	7	7	7	6	6	6	5.4	0
23	7	7	6	6	6	6	6	5.4	0
24	7	7	7	7	6	6	6	5.4	0
25	34	31	29	26	21	17	11	9.8	10
26	7	7	7	7	6	6	6	5.4	0
27	7	7	7	7	6	6	6	5.4	0
28	9	9	8	8	8	7	6	6.1	0
29	9	9	8	8	7	7	6	6.0	0
30	10	9	8	8	7	7	6	6.0	0
31	7	7	6	6	6	6	6	5.4	0
32	37	35	27	26	23	19	12	10.9	13
33	9	9	8	8	8	7	6	5.8	0
34	7	7	7	6	6	6	6	5.4	0
35	8	8	7	7	7	6	6	5.5	0
36	7	7	7	7	6	6	6	5.4	0
37	53	49	43	38	34	28	15	13.5	46
38	14	12	9	9	8	8	7	6.3	0
39	14	12	10	9	9	8	7	6.5	0
40	14	11	9	8	7	7	6	6.0	0
41	21	17	15	14	12	10	7	7.0	0
42	22	18	16	15	13	11	7	7.2	0
43	10	9	8	8	7	7	6	5.9	0
44	33	33	26	23	21	18	11	10.5	6
45	35	34	26	24	22	19	11	10.7	8
46	157	125	109	103	89	72	39	28.6	155
47	173	144	123	116	95	75	39	30.2	153
48	95	79	65	62	52	43	21	17.6	92
49	100	83	70	66	56	46	23	18.6	99
50	140	120	99	92	76	60	33	24.7	135
51	141	122	100	92	77	60	33	25.0	134
52	140	124	101	92	78	61	34	25.1	136
53	186	162	134	128	108	83	47	33.8	167
54	90	77	58	53	47	39	21	17.4	92

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
55	83	73	64	60	49	37	19	16.0	77
56	118	92	87	81	70	56	31	23.1	132
57	89	89	66	64	55	42	25	18.7	106
58	86	78	62	57	49	37	22	16.6	86
59	88	83	66	62	54	40	24	18.3	100
60	82	77	59	56	48	36	21	16.7	87
61	67	53	46	42	37	28	19	15.8	52
62	18	17	16	14	12	10	7	7.1	0
63	106	87	67	61	52	45	23	19.1	104
64	103	83	74	68	58	46	24	18.8	98
65	77	60	57	52	44	34	19	14.9	66
66	85	75	62	56	48	36	21	16.2	82
67	248	207	137	129	92	72	27	25.8	116
68	23	22	18	17	15	13	8	7.8	0
69	54	50	42	40	34	27	15	12.3	48
70	57	42	35	32	27	19	14	12.6	23
71	65	65	56	52	44	35	18	15.0	78
72	53	49	39	38	33	26	15	12.0	42
73	87	85	77	69	59	47	23	18.7	102
74	79	34	26	23	20	18	13	11.0	6
75	48	45	40	35	28	22	13	11.5	28
76	110	110	90	80	70	57	34	27.4	166
77	112	110	94	81	71	56	36	28.3	178
78	87	80	70	50	41	33	14	13.7	61
79	33	32	22	20	18	16	13	11.1	3
80	96	85	69	65	57	44	23	18.6	101
81	27	26	23	22	20	18	14	12.1	3
82	38	29	20	20	18	16	13	11.0	3
83	145	127	78	63	53	41	18	16.5	77
84	29	24	20	18	17	14	10	9.4	1
85	34	27	25	23	20	18	14	12.3	5
86	15	13	12	12	11	10	8	7.7	0
87	16	15	15	14	13	12	10	8.5	0
88	15	12	10	10	9	8	7	6.3	0
89	21	20	14	13	12	11	8	7.8	0
90	37	35	32	29	24	21	16	13.5	16
91	37	35	33	30	25	22	16	13.7	17

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
92	39	37	33	30	26	22	16	13.8	23
93	52	50	45	41	32	28	18	16.4	47
94	77	77	64	61	53	46	34	27.6	179
95	22	18	15	14	12	11	8	7.8	0
96	26	20	17	16	15	12	9	8.4	1
97	7	7	7	7	6	6	6	5.4	0
98	66	58	52	50	44	36	25	20.1	107
99	34	29	25	23	20	17	13	11.4	5
100	44	41	34	31	26	22	15	13.3	22
101	20	18	12	10	9	8	7	6.5	0
102	7	7	7	6	6	6	6	5.4	0
103	48	47	41	39	33	29	19	16.1	57
104	73	72	61	57	51	40	22	17.6	91
105	76	70	59	55	48	38	21	16.9	85
106	14	12	11	10	9	8	7	6.7	0
107	6	6	6	6	6	5	5	5.2	0
108	7	7	6	6	6	6	5	5.3	0
109	6	6	6	6	5	5	5	5.2	0
110	11	11	10	10	9	8	7	6.8	0
111	11	10	10	9	9	8	7	6.7	0
112	12	10	10	9	9	8	7	6.7	0
113	31	30	25	22	19	17	12	10.1	5
114	23	22	18	17	15	14	10	8.8	0
115	13	12	11	10	9	8	6	6.1	0
116	7	7	6	6	6	6	6	5.4	0
117	52	49	45	40	35	29	22	16.5	72
118	18	16	15	14	12	11	8	7.8	0
119	30	26	24	22	20	17	14	12.4	3
120	14	13	12	12	10	9	7	7.0	0
121	16	14	12	11	10	9	7	6.4	0
122	37	35	33	30	23	19	13	11.0	16
123	16	14	12	11	10	9	7	6.4	0
124	151	137	111	103	88	75	49	42.7	288
125	8	8	8	8	7	7	6	5.7	0
126	8	8	7	7	7	6	6	5.5	0
127	8	8	7	7	6	6	6	5.5	0
128	8	8	7	7	7	6	6	5.5	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
129	45	35	26	22	19	14	9	8.6	6
130	8	8	7	7	7	6	6	5.5	0
131	8	8	7	7	7	6	6	5.5	0
132	156	135	113	101	84	69	39	31.2	166
133	8	8	7	7	7	6	6	5.5	0
134	87	83	76	67	56	45	27	23.0	123
135	156	135	113	101	84	69	39	31.2	166
136	151	137	111	103	88	75	49	42.7	288
137	8	8	7	7	7	6	6	5.5	0
138	176	156	123	114	100	83	52	37.3	200
139	32	29	26	23	20	18	10	9.3	8
140	8	8	8	7	7	6	6	5.6	0
141	8	8	8	8	7	7	6	5.6	0
142	10	10	10	10	9	8	6	6.1	0
143	10	10	10	10	9	8	6	6.1	0
144	10	10	10	10	9	8	6	6.1	0
145	8	8	7	7	7	6	6	5.5	0
146	9	8	7	7	7	6	6	5.6	0
147	9	8	7	7	7	6	6	5.6	0
148	11	9	9	9	8	7	6	6.2	0
149	11	11	10	9	9	8	7	6.5	0
150	11	11	9	9	8	7	6	6.0	0
151	61	19	13	12	12	10	9	7.7	1
152	61	19	13	12	12	10	9	7.7	1
153	59	49	32	26	23	21	14	12.8	13
154	36	31	27	25	21	18	12	10.9	9
155	35	33	30	29	24	21	15	12.8	17
156	31	28	23	22	19	17	13	11.4	3
157	18	16	12	12	10	9	7	6.9	0
158	36	31	27	25	21	18	12	10.9	9
159	36	31	27	25	21	18	12	10.9	9
160	22	20	17	16	15	13	9	8.6	0
161	19	16	15	14	13	12	10	8.5	0
162	23	19	18	18	17	15	12	10.3	0
163	27	23	18	18	17	14	11	10.1	1
164	16	16	15	14	13	12	10	8.8	0
165	26	21	18	17	16	15	11	10.0	1

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
166	26	21	18	17	16	15	11	10.0	1
167	26	21	18	17	16	15	11	10.0	1
168	26	21	18	17	16	15	11	10.0	1
169	26	21	18	17	16	15	11	10.0	1
170	25	24	19	18	16	14	11	9.9	1
171	27	23	18	18	17	14	11	10.1	1
172	26	21	18	17	16	15	11	10.0	1
173	23	19	18	18	17	15	12	10.3	0
174	26	21	18	17	16	15	11	10.0	1
175	15	15	14	13	12	11	10	8.4	0
176	15	15	14	13	12	11	10	8.4	0
177	17	14	14	13	13	11	10	8.4	0
178	15	13	10	9	8	8	7	6.3	0
179	15	13	10	9	8	8	7	6.3	0
180	15	13	10	9	8	8	7	6.3	0
181	15	13	10	9	8	8	7	6.3	0
182	15	13	10	9	8	8	7	6.3	0
183	15	13	10	9	8	8	7	6.3	0
184	14	12	10	9	8	8	7	6.2	0
185	8	8	7	7	7	6	6	5.5	0
186	8	8	7	7	7	6	6	5.5	0
187	29	28	25	23	21	18	14	12.7	5
188	22	19	16	14	12	11	8	7.5	0
189	18	16	12	12	10	9	7	6.6	0
190	298	224	133	108	77	54	34	32.1	188
191	10	9	8	8	8	7	6	5.8	0
192	183	124	118	111	92	81	51	41.1	246
193	183	124	118	111	92	81	51	41.1	246
194	183	124	118	111	92	81	51	41.1	246
195	154	122	110	97	86	72	36	28.9	152
196	154	122	110	97	86	72	36	28.9	152
197	10	9	8	8	8	7	6	5.8	0
198	183	124	118	111	92	81	51	41.1	246
199	66	57	50	45	40	32	17	13.9	67
200	114	88	78	65	56	47	30	24.1	140
201	108	106	88	84	69	57	32	24.5	144
202	108	106	88	84	69	57	32	24.5	144

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
203	8	8	7	7	7	6	6	5.5	0
204	43	42	37	34	29	24	18	15.3	29
205	35	33	30	29	24	21	15	12.8	17
206	22	19	16	14	12	11	8	7.5	0
207	29	27	24	22	20	17	14	11.3	3
208	174	72	40	32	28	24	17	15.4	33
209	11	11	10	9	8	7	6	5.9	0
210	11	11	10	9	8	7	6	5.9	0
211	13	12	11	9	8	8	6	6.1	0
212	12	11	10	9	8	7	6	5.9	0
213	12	11	10	9	8	7	6	5.9	0
214	11	11	10	9	8	7	6	5.9	0
215	11	11	10	9	8	7	6	5.9	0
216	11	11	10	9	8	7	6	5.9	0
217	12	12	10	9	8	7	6	6.0	0
218	12	11	10	9	8	7	6	6.0	0
219	17	13	11	10	9	8	7	6.3	0
220	15	15	14	13	12	11	10	8.4	0
221	15	15	14	13	12	11	10	8.4	0
222	37	35	33	30	23	19	13	11.0	16
223	39	24	20	19	17	15	9	8.2	1
224	39	24	20	19	17	15	9	8.2	1
225	13	12	12	11	10	8	6	6.2	0
226	13	12	12	11	10	8	6	6.2	0
227	9	9	9	8	8	7	6	5.8	0
228	8	7	7	7	7	7	6	5.6	0
229	7	7	7	7	6	6	6	5.6	0
230	8	7	7	7	6	6	6	5.5	0
231	53	46	37	35	29	25	14	12.3	36
232	16	16	14	12	11	11	8	7.4	0
233	15	13	12	11	10	9	8	6.8	0
234	14	13	11	9	9	8	7	6.4	0
235	13	11	10	9	8	7	6	6.1	0
236	12	10	9	9	8	7	6	5.9	0
237	8	7	7	7	6	6	6	5.5	0
238	8	7	7	6	6	6	6	5.5	0
239	9	7	7	6	6	6	6	5.5	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
240	9	7	7	7	6	6	6	5.5	0
241	9	7	7	7	6	6	6	5.6	0
242	9	7	7	7	6	6	6	5.6	0
243	9	8	7	7	7	7	6	5.8	0
244	18	14	13	11	10	9	8	7.0	0
245	18	14	12	11	10	9	8	7.0	0
246	18	14	12	11	10	9	8	7.0	0
247	17	14	11	10	10	9	8	6.9	0
248	16	13	10	10	9	8	7	6.7	0
249	14	13	10	9	9	8	7	6.5	0
250	11	10	9	9	8	8	7	6.2	0
251	10	9	8	8	8	7	6	6.1	0
252	9	9	8	8	7	7	6	6.0	0
253	9	8	7	7	7	7	6	5.8	0
254	9	8	7	7	7	7	6	5.8	0
255	9	7	7	7	7	6	6	5.6	0
256	9	7	7	7	7	6	6	5.6	0
257	8	7	7	7	7	6	6	5.6	0
258	7	7	7	7	6	6	6	5.5	0
259	7	7	7	6	6	6	6	5.5	0
260	7	7	7	7	6	6	6	5.5	0
261	7	7	7	7	6	6	6	5.4	0
262	7	7	7	6	6	6	5	5.4	0
263	7	7	7	6	6	6	5	5.3	0
264	7	6	6	6	6	6	5	5.3	0
265	7	7	7	7	6	6	6	5.5	0
266	7	7	7	7	6	6	6	5.4	0
267	10	8	8	7	7	6	6	5.6	0
268	10	9	8	8	7	7	6	5.7	0
269	12	10	9	9	8	7	6	5.9	0
270	12	12	11	11	10	9	7	6.6	0
271	12	12	11	11	10	8	7	6.4	0
272	8	8	8	7	7	6	6	5.6	0
273	9	8	7	7	7	6	5	5.5	0
274	8	8	8	7	7	6	6	5.6	0
275	9	8	7	7	7	6	6	5.5	0
276	9	8	7	7	7	6	5	5.5	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
277	9	8	7	7	7	6	5	5.4	0
278	9	7	7	7	6	6	5	5.4	0
279	8	7	7	7	6	6	5	5.4	0
280	7	6	6	6	6	6	5	5.3	0
281	14	13	10	9	9	8	7	6.5	0
282	14	13	10	9	9	8	7	6.5	0
283	7	7	7	6	6	6	5	5.4	0
284	7	7	6	6	6	6	5	5.3	0
285	7	7	7	6	6	6	5	5.3	0
286	7	7	7	6	6	6	5	5.3	0
287	16	13	10	10	9	8	7	6.7	0
288	7	7	6	6	6	6	5	5.3	0
289	7	7	7	7	6	6	6	5.5	0
290	6	6	6	6	6	5	5	5.2	0
291	7	7	7	7	6	6	6	5.4	0
292	14	13	10	9	9	8	7	6.5	0
293	9	7	7	7	7	6	6	5.6	0
294	7	7	7	6	6	6	6	5.5	0
295	7	7	7	6	6	6	6	5.5	0
296	9	7	7	7	7	6	6	5.6	0
297	7	7	7	6	6	6	5	5.3	0
298	9	7	7	7	7	6	6	5.6	0
299	9	7	7	7	6	6	6	5.6	0
300	9	9	9	8	8	7	6	5.8	0
301	13	12	12	11	10	8	6	6.2	0
302	14	13	11	9	9	8	7	6.4	0
303	11	10	9	8	7	7	6	5.8	0
304	13	11	10	9	8	7	6	6.1	0
305	32	30	24	23	17	14	9	8.5	5
306	31	25	21	19	16	14	9	8.5	1
307	7	6	6	6	6	5	5	5.2	0

E.2: Phase 2

TSP

Appendix Table 8: Phase 2 - TSP concentrations at all discrete receptors – excluding background concentration

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
1	80	72	62	56	47	39	21	0
2	95	93	84	75	60	49	27	4
3	42	35	28	25	23	16	8	0
4	98	96	87	78	62	51	28	5
5	34	26	23	21	18	13	6	0
6	34	26	23	20	18	13	6	0
7	111	110	96	85	68	59	34	8
8	164	152	121	101	94	74	43	21
9	14	13	11	10	8	6	3	0
10	47	42	31	28	24	18	9	0
11	14	13	11	10	8	6	3	0
12	44	40	30	26	19	15	8	0
13	14	14	11	10	8	6	3	0
14	105	99	76	69	56	43	25	3
15	155	120	105	100	85	72	38	16
16	13	12	10	9	7	5	2	0
17	155	121	105	101	85	72	38	16
18	155	122	106	101	85	74	38	16
19	111	80	67	59	53	43	23	1
20	13	13	9	8	6	5	2	0
21	48	45	31	28	23	18	9	0
22	14	13	11	10	7	6	3	0
23	13	13	10	8	7	5	2	0
24	14	13	11	10	8	6	3	0
25	106	71	55	46	41	34	17	1
26	15	13	12	10	8	6	3	0
27	15	13	12	10	8	6	3	0
28	33	22	20	18	15	12	7	0
29	29	21	17	15	12	10	5	0
30	25	21	16	14	12	9	5	0
31	13	13	10	8	7	5	2	0
32	107	104	76	70	61	50	30	3
33	33	29	28	22	18	14	6	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
34	14	13	10	9	7	5	3	0
35	21	20	17	14	12	9	4	0
36	18	15	12	10	9	7	3	0
37	176	162	148	134	111	86	32	33
38	45	44	33	31	27	22	10	0
39	48	46	42	39	34	28	12	0
40	34	28	19	16	15	11	6	0
41	74	59	52	43	29	22	10	0
42	80	66	56	46	32	25	11	0
43	25	21	15	14	11	9	5	0
44	101	99	76	68	60	47	18	4
45	106	105	82	71	64	50	20	4
46	40	32	16	14	8	5	2	0
47	82	56	24	13	9	6	2	0
48	75	40	13	10	8	5	2	0
49	77	41	13	10	8	5	2	0
50	87	78	21	14	9	6	2	0
51	87	80	21	14	9	6	2	0
52	88	87	21	14	9	6	2	0
53	92	91	25	15	10	6	2	2
54	43	16	11	9	6	4	2	0
55	29	26	16	11	7	5	2	0
56	27	23	16	11	8	5	2	0
57	58	36	15	12	8	5	2	0
58	51	24	14	12	8	5	2	0
59	45	43	13	10	8	5	2	0
60	41	30	12	10	8	5	2	0
61	28	19	10	8	6	4	2	0
62	20	13	8	7	6	4	2	0
63	45	17	11	9	6	5	2	0
64	51	35	17	12	8	5	2	0
65	45	21	15	11	7	5	2	0
66	50	23	14	12	8	5	2	0
67	256	28	17	12	7	5	2	1
68	22	16	11	9	7	5	3	0
69	58	22	18	10	6	4	2	0
70	23	13	10	8	6	4	2	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
71	60	30	22	11	7	4	2	0
72	57	23	12	10	7	4	2	0
73	69	41	27	12	7	5	2	0
74	440	166	134	122	106	88	53	33
75	15	14	10	8	7	4	2	0
76	117	117	107	102	84	69	41	16
77	122	119	109	104	85	69	43	17
78	18	16	9	7	5	4	2	0
79	109	67	52	45	39	34	21	1
80	75	60	12	11	8	5	2	0
81	75	75	67	63	56	49	35	0
82	124	68	53	50	42	36	22	1
83	28	15	11	7	5	4	2	0
84	247	237	152	126	89	73	35	18
85	88	82	66	61	55	47	33	0
86	66	49	42	40	35	28	18	0
87	129	98	85	71	54	45	25	4
88	106	102	90	79	64	50	26	5
89	13	12	10	8	6	5	2	0
90	256	252	226	197	162	137	83	100
91	262	259	233	203	167	140	85	103
92	272	268	235	209	169	144	86	99
93	423	403	339	322	232	199	108	141
94	451	450	367	337	285	240	146	214
95	13	12	8	8	6	4	2	0
96	13	11	8	7	5	4	2	0
97	15	12	10	10	7	6	3	0
98	363	342	298	276	225	182	119	147
99	226	197	168	148	125	96	63	44
100	307	283	241	212	166	132	81	90
101	156	128	105	98	80	63	33	13
102	15	12	10	9	7	5	3	0
103	279	259	221	205	164	144	86	100
104	54	18	13	10	8	6	2	0
105	40	18	12	10	8	6	2	0
106	42	40	37	35	31	27	17	0
107	6	4	3	2	2	1	0	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
108	7	4	3	3	2	2	0	0
109	6	4	3	2	1	1	0	0
110	56	47	37	30	24	21	11	0
111	50	43	34	29	22	18	10	0
112	49	42	32	28	22	18	10	0
113	121	109	90	75	70	51	28	5
114	77	72	62	55	47	37	22	0
115	36	24	21	18	15	11	5	0
116	14	7	6	6	5	4	2	0
117	171	152	132	123	104	88	53	32
118	65	60	45	35	30	23	15	0
119	98	84	70	64	57	48	34	1
120	67	66	55	50	39	31	16	0
121	41	41	32	30	23	18	9	0
122	112	86	63	54	48	38	20	1
123	41	41	32	30	23	18	9	0
124	166	145	119	105	91	74	44	19
125	17	15	13	11	10	7	3	0
126	13	12	9	9	7	5	2	0
127	12	12	9	8	6	4	2	0
128	13	12	9	9	7	5	2	0
129	88	69	57	48	40	33	18	0
130	12	12	9	8	6	4	2	0
131	12	12	9	8	6	4	2	0
132	153	119	112	98	81	71	37	12
133	12	12	9	8	6	4	2	0
134	219	207	127	116	97	77	44	25
135	153	119	112	98	81	71	37	12
136	166	145	119	105	91	74	44	19
137	15	13	10	9	8	5	3	0
138	257	226	165	158	145	117	70	70
139	90	79	70	58	51	40	15	0
140	14	14	11	10	8	6	3	0
141	15	15	13	10	9	7	3	0
142	29	29	23	21	17	13	6	0
143	29	29	23	21	17	13	6	0
144	29	29	23	21	17	13	6	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
145	13	13	10	9	7	5	3	0
146	18	13	11	10	9	6	3	0
147	18	13	11	10	9	6	3	0
148	21	12	9	8	6	5	2	0
149	21	12	9	8	6	4	2	0
150	32	27	22	19	16	12	6	0
151	154	38	26	25	22	19	12	1
152	154	38	26	25	22	19	12	1
153	290	257	204	179	130	103	51	47
154	177	120	84	78	64	49	31	3
155	177	175	148	131	107	89	52	35
156	124	120	92	81	72	60	37	6
157	100	93	70	67	60	44	23	2
158	177	120	84	78	64	49	31	3
159	177	120	84	78	64	49	31	3
160	52	52	41	34	28	21	14	0
161	56	39	35	33	30	25	15	0
162	89	63	56	51	42	34	22	0
163	67	57	44	43	37	30	21	0
164	93	72	59	52	42	33	20	1
165	67	57	44	43	37	32	21	0
166	67	57	44	43	37	32	21	0
167	67	57	44	43	37	32	21	0
168	67	57	44	43	37	32	21	0
169	67	57	44	43	37	32	21	0
170	60	51	42	37	33	29	19	0
171	67	57	44	43	37	30	21	0
172	67	57	44	43	37	32	21	0
173	89	63	56	51	42	34	22	0
174	67	57	44	43	37	32	21	0
175	116	92	70	60	48	38	20	2
176	116	92	70	60	48	38	20	2
177	147	107	81	74	56	43	22	3
178	38	26	19	18	15	12	7	0
179	38	26	19	18	15	12	7	0
180	38	26	19	18	15	12	7	0
181	38	26	19	18	15	12	7	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
182	38	26	19	18	15	12	7	0
183	38	26	19	18	15	12	7	0
184	35	25	19	16	14	11	6	0
185	13	13	10	9	7	5	2	0
186	13	12	9	9	7	5	2	0
187	137	129	109	101	89	76	52	17
188	72	61	47	44	33	27	15	0
189	46	44	35	31	26	20	11	0
190	1330	990	578	464	314	199	121	167
191	24	20	16	15	13	9	5	0
192	34	29	15	10	7	6	2	0
193	34	29	15	10	7	6	2	0
194	34	29	15	10	7	6	2	0
195	40	39	16	13	8	5	2	0
196	40	39	16	13	8	5	2	0
197	24	20	16	15	13	9	5	0
198	34	29	15	10	7	6	2	0
199	59	25	19	9	6	4	2	0
200	99	73	20	14	10	7	3	1
201	56	27	15	12	9	6	2	0
202	56	27	15	12	9	6	2	0
203	12	12	9	8	6	4	2	0
204	200	197	175	154	127	107	72	63
205	177	175	148	131	107	89	52	35
206	72	61	47	44	33	27	15	0
207	61	58	50	45	38	34	23	0
208	487	406	353	325	282	231	131	161
209	19	15	12	9	7	6	3	0
210	18	16	12	10	8	6	3	0
211	24	17	13	10	8	6	3	0
212	21	15	12	10	7	6	3	0
213	21	15	12	10	7	6	3	0
214	18	16	12	10	8	6	3	0
215	18	16	12	10	8	6	3	0
216	18	16	12	10	8	6	3	0
217	18	18	15	11	9	6	3	0
218	17	17	13	11	9	6	3	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
219	32	15	14	11	10	8	3	0
220	116	92	70	60	48	38	20	2
221	116	92	70	60	48	38	20	2
222	112	86	63	54	48	38	20	1
223	71	47	36	34	29	24	12	0
224	71	47	36	34	29	24	12	0
225	35	25	22	18	15	12	5	0
226	35	25	22	18	15	12	5	0
227	15	14	13	11	9	7	4	0
228	9	9	7	7	6	5	3	0
229	10	8	6	6	5	4	3	0
230	11	8	6	6	5	4	2	0
231	84	80	61	54	46	40	23	0
232	48	48	40	36	29	25	17	0
233	48	46	35	30	26	21	12	0
234	38	36	25	23	19	16	8	0
235	27	23	17	15	13	10	6	0
236	17	15	12	11	9	7	4	0
237	14	7	6	5	5	4	2	0
238	17	7	6	5	5	4	2	0
239	18	8	6	6	5	4	2	0
240	20	8	6	6	5	5	3	0
241	20	9	7	6	5	4	3	0
242	21	10	7	6	6	5	3	0
243	21	12	10	9	8	7	4	0
244	42	30	26	21	18	14	9	0
245	42	31	28	24	19	16	9	0
246	42	31	28	24	19	16	9	0
247	40	31	27	24	19	15	9	0
248	36	30	21	19	16	12	8	0
249	33	33	20	17	14	12	7	0
250	35	26	19	17	14	11	7	0
251	24	21	17	14	11	10	6	0
252	17	17	14	13	11	9	6	0
253	18	13	10	9	8	7	4	0
254	22	12	10	9	8	7	4	0
255	22	11	7	7	6	5	3	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
256	21	11	8	7	6	5	3	0
257	19	12	8	7	6	5	3	0
258	9	8	8	6	5	4	2	0
259	8	8	7	6	5	4	2	0
260	8	8	6	5	5	4	2	0
261	8	7	6	5	5	4	2	0
262	6	6	5	4	4	3	1	0
263	7	7	5	4	3	2	1	0
264	5	5	3	3	2	2	1	0
265	10	10	9	7	6	5	3	0
266	8	7	6	5	4	3	2	0
267	13	9	6	6	5	3	2	0
268	16	11	8	6	5	4	2	0
269	17	15	12	11	9	7	4	0
270	37	34	30	28	25	20	12	0
271	36	35	28	27	23	18	10	0
272	17	15	12	11	8	6	2	0
273	17	12	9	8	7	5	2	0
274	17	15	12	11	8	6	2	0
275	18	14	11	9	7	5	2	0
276	17	12	9	8	6	5	2	0
277	16	10	9	7	6	5	2	0
278	16	10	7	7	5	4	1	0
279	15	9	7	6	5	4	1	0
280	9	5	4	4	3	2	1	0
281	39	30	21	20	15	12	7	0
282	39	30	21	20	15	12	7	0
283	6	6	5	4	4	3	1	0
284	6	5	4	3	2	2	1	0
285	7	6	5	4	3	2	1	0
286	7	6	5	4	3	2	1	0
287	36	30	21	19	16	12	8	0
288	6	6	5	4	3	2	1	0
289	8	8	6	5	5	4	2	0
290	5	4	3	3	2	1	1	0
291	8	7	6	5	5	4	2	0
292	39	30	21	20	15	12	7	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
293	23	12	8	7	6	5	3	0
294	8	8	7	6	5	4	2	0
295	8	8	7	6	5	4	2	0
296	23	12	8	7	6	5	3	0
297	7	7	5	4	3	2	1	0
298	23	12	8	7	6	5	3	0
299	20	9	7	6	5	4	3	0
300	15	14	13	11	9	7	4	0
301	35	25	22	18	15	12	5	0
302	38	36	25	23	19	16	8	0
303	15	14	11	10	7	5	3	0
304	27	23	17	15	13	10	6	0
305	51	48	36	30	24	19	10	0
306	70	63	53	46	38	32	19	0
307	6	5	3	3	2	1	0	0

Appendix Table 9: Phase 2: TSP concentrations at all discrete receptors – including background concentration

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
1	116	108	98	93	83	76	58	11
2	131	129	120	111	96	86	63	28
3	78	71	64	61	59	53	44	0
4	134	132	123	114	98	87	64	31
5	70	62	59	57	54	49	43	0
6	70	62	59	56	54	49	43	0
7	147	147	132	122	104	95	71	49
8	201	188	157	138	130	110	79	76
9	50	50	47	46	44	42	39	0
10	83	78	67	64	60	54	45	0
11	50	50	47	46	44	42	39	0
12	81	76	66	62	55	51	44	0
13	51	50	47	47	44	42	39	0
14	141	135	113	105	92	79	61	21
15	191	157	141	137	121	108	74	66
16	49	49	46	45	43	41	39	0
17	191	157	141	137	121	108	74	67

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
18	191	158	143	138	122	110	75	67
19	147	116	104	95	89	79	59	18
20	49	49	45	44	43	41	39	0
21	84	81	68	65	59	54	45	0
22	50	49	47	46	43	42	39	0
23	50	49	46	45	43	41	39	0
24	50	50	47	46	44	42	39	0
25	142	107	91	83	77	70	53	7
26	51	49	48	46	44	42	39	0
27	51	49	48	46	44	42	39	0
28	69	58	56	54	51	48	43	0
29	66	57	53	51	48	46	41	0
30	61	57	52	50	48	46	42	0
31	50	49	46	45	43	41	39	0
32	143	140	112	106	98	86	66	30
33	69	65	64	58	54	50	43	0
34	50	49	46	46	43	42	39	0
35	57	56	53	51	48	45	41	0
36	54	51	48	47	46	43	40	0
37	212	198	184	170	147	122	69	73
38	81	80	69	67	64	58	47	0
39	84	83	79	75	70	64	48	0
40	70	64	55	52	51	48	42	0
41	110	95	89	79	65	59	46	5
42	116	102	93	82	68	61	47	6
43	61	57	51	50	47	45	41	0
44	137	136	112	104	96	83	54	27
45	142	141	118	108	100	86	56	31
46	76	68	52	50	44	42	39	0
47	118	92	60	49	45	42	39	2
48	111	77	49	47	45	41	38	1
49	113	77	49	47	45	41	38	1
50	123	114	57	50	45	42	38	2
51	123	116	57	50	45	42	38	2
52	125	123	57	50	45	42	38	4
53	128	127	61	52	47	42	39	3
54	79	52	47	45	43	41	38	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
55	65	62	53	47	43	41	38	0
56	63	59	52	47	44	42	39	0
57	94	72	51	48	44	42	39	1
58	87	60	51	48	44	41	38	0
59	81	79	49	46	44	42	39	0
60	77	66	48	46	44	42	39	0
61	64	55	46	44	42	40	38	0
62	56	50	45	44	42	40	38	0
63	81	53	47	45	43	41	38	0
64	87	71	53	48	44	42	38	0
65	81	57	51	47	43	41	38	0
66	87	59	50	48	44	41	38	0
67	292	64	53	48	43	41	38	1
68	58	52	47	45	43	41	39	0
69	95	58	54	46	43	40	38	1
70	59	49	46	44	42	40	38	0
71	97	67	58	48	43	40	38	1
72	93	59	49	46	43	40	38	1
73	105	78	63	48	43	41	38	1
74	476	202	170	158	142	124	89	104
75	51	50	46	44	43	40	38	0
76	154	153	143	138	120	105	78	72
77	158	155	145	140	121	105	79	75
78	54	52	45	43	41	40	38	0
79	145	103	88	82	76	70	57	4
80	111	97	48	47	44	41	38	3
81	111	111	103	99	93	85	71	24
82	161	104	89	87	78	72	58	5
83	64	51	47	43	42	40	38	0
84	283	274	188	162	125	109	71	56
85	125	119	102	97	92	83	69	22
86	102	85	78	77	71	64	55	1
87	165	134	121	107	91	81	62	19
88	142	138	126	115	100	87	62	32
89	49	48	46	44	43	41	38	0
90	292	288	262	233	198	173	120	194
91	298	295	269	239	203	176	121	195

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
92	308	304	271	245	205	180	122	195
93	459	439	375	359	268	235	144	224
94	487	486	404	373	321	276	182	301
95	49	48	45	44	42	41	38	0
96	49	47	44	43	42	40	38	0
97	51	48	46	46	43	42	39	0
98	399	378	334	312	261	218	156	231
99	262	233	204	185	161	132	100	145
100	343	319	277	249	202	168	117	180
101	192	164	141	134	117	99	70	56
102	51	48	46	45	43	42	39	0
103	316	295	257	241	200	180	123	185
104	90	54	49	46	44	42	39	0
105	76	54	48	46	44	42	39	0
106	78	76	73	71	67	63	53	0
107	42	40	39	39	38	38	37	0
108	44	41	39	39	38	38	37	0
109	42	40	39	38	38	37	36	0
110	92	83	73	66	61	57	47	1
111	87	80	70	65	58	55	46	0
112	85	78	69	64	58	54	46	0
113	157	145	126	112	106	87	65	32
114	113	108	98	91	83	73	58	12
115	72	60	57	54	51	47	41	0
116	50	43	42	42	41	40	39	0
117	207	188	168	159	140	124	89	108
118	101	96	81	71	66	59	51	3
119	134	121	106	100	93	84	71	22
120	103	102	92	86	75	67	52	7
121	77	77	68	66	59	54	45	0
122	148	122	99	90	84	75	56	10
123	77	77	68	66	59	54	45	0
124	202	181	155	141	127	110	80	80
125	53	51	49	48	46	43	40	0
126	49	48	46	45	43	41	38	0
127	49	48	45	44	43	41	38	0
128	49	48	45	45	43	41	39	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
129	124	105	94	84	76	69	55	7
130	49	48	45	45	43	41	38	0
131	49	48	45	45	43	41	38	0
132	189	156	148	134	117	107	73	67
133	49	48	45	45	43	41	38	0
134	256	243	163	152	133	113	80	86
135	189	156	148	134	117	107	73	67
136	202	181	155	141	127	110	80	80
137	51	49	47	45	44	42	39	0
138	293	262	201	194	181	153	106	165
139	126	115	106	94	87	76	52	16
140	50	50	47	46	44	42	39	0
141	52	51	49	46	45	43	39	0
142	66	65	59	57	53	49	42	0
143	66	65	59	57	53	49	42	0
144	66	65	59	57	53	49	42	0
145	50	49	46	45	43	42	39	0
146	54	50	47	46	45	43	39	0
147	54	50	47	46	45	43	39	0
148	58	48	46	44	42	41	38	0
149	57	48	45	44	42	40	38	0
150	68	63	58	55	53	48	42	0
151	190	75	62	61	58	55	48	1
152	190	75	62	61	58	55	48	1
153	326	294	240	215	167	139	87	101
154	213	156	121	114	100	85	68	27
155	213	212	185	167	143	125	89	108
156	161	156	128	117	108	96	74	52
157	136	129	107	103	96	80	59	25
158	213	156	121	114	100	85	68	27
159	213	156	121	114	100	85	68	27
160	89	88	78	70	64	58	50	0
161	93	76	71	69	66	61	52	1
162	125	99	92	87	78	70	59	7
163	104	94	81	79	73	66	57	2
164	129	108	96	88	78	69	56	8
165	103	94	80	79	73	68	58	2

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
166	103	94	80	79	73	68	58	2
167	103	94	80	79	73	68	58	2
168	103	94	80	79	73	68	58	2
169	103	94	80	79	73	68	58	2
170	96	87	78	74	69	65	55	1
171	104	94	81	79	73	66	57	2
172	103	94	80	79	73	68	58	2
173	125	99	92	87	78	70	59	7
174	103	94	80	79	73	68	58	2
175	152	128	106	96	84	74	56	13
176	152	128	106	96	84	74	56	13
177	183	143	117	111	93	79	59	21
178	74	62	55	54	51	49	43	0
179	74	62	55	54	51	49	43	0
180	74	62	55	54	51	49	43	0
181	74	62	55	54	51	49	43	0
182	74	62	55	54	51	49	43	0
183	74	62	55	54	51	49	43	0
184	71	61	56	52	50	48	42	0
185	49	49	46	45	43	41	39	0
186	49	48	45	45	43	41	39	0
187	173	165	145	137	125	112	88	97
188	108	97	83	80	70	63	51	5
189	82	80	72	67	62	57	47	0
190	1366	1026	615	500	350	235	157	272
191	60	56	52	51	49	46	41	0
192	70	66	51	46	44	42	39	0
193	70	66	51	46	44	42	39	0
194	70	66	51	46	44	42	39	0
195	76	75	52	50	44	42	38	0
196	76	75	52	50	44	42	38	0
197	60	56	52	51	49	46	41	0
198	70	66	51	46	44	42	39	0
199	96	61	55	45	43	40	38	1
200	136	110	56	50	46	43	39	2
201	92	63	51	48	46	42	39	1
202	92	63	51	48	46	42	39	1

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
203	49	48	45	45	43	41	38	0
204	236	233	211	190	163	143	108	170
205	213	212	185	167	143	125	89	108
206	108	97	83	80	70	63	51	5
207	97	94	86	82	75	70	59	4
208	523	442	390	361	318	267	167	234
209	55	52	48	46	43	42	39	0
210	54	53	48	46	44	42	39	0
211	60	53	50	46	45	42	39	0
212	57	51	48	46	43	42	39	0
213	57	51	48	46	43	42	39	0
214	54	53	48	46	44	42	39	0
215	54	53	48	46	44	42	39	0
216	54	53	48	46	44	42	39	0
217	54	54	51	47	45	43	40	0
218	54	54	49	47	45	43	39	0
219	69	51	51	48	46	44	40	0
220	152	128	106	96	84	74	56	13
221	152	128	106	96	84	74	56	13
222	148	122	99	90	84	75	56	10
223	107	83	73	70	66	61	48	1
224	107	83	73	70	66	61	48	1
225	72	61	58	54	52	48	41	0
226	72	61	58	54	52	48	41	0
227	51	50	49	47	45	43	40	0
228	45	45	43	43	42	41	39	0
229	46	45	43	42	41	41	39	0
230	47	44	42	42	41	40	39	0
231	120	116	98	90	82	76	59	9
232	85	84	76	72	65	62	53	0
233	84	82	71	66	62	57	48	0
234	74	72	61	59	56	52	45	0
235	63	59	53	51	49	46	42	0
236	54	51	49	47	45	43	40	0
237	50	43	43	42	41	40	39	0
238	53	43	42	42	41	40	39	0
239	54	44	43	42	41	40	39	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
240	56	44	42	42	42	41	39	0
241	56	45	43	42	42	41	39	0
242	57	46	43	42	42	41	39	0
243	58	48	46	46	45	43	40	0
244	78	67	62	57	54	51	45	0
245	78	68	64	60	55	52	46	0
246	78	68	64	60	55	52	46	0
247	77	67	63	60	55	52	45	0
248	72	67	58	55	52	49	44	0
249	69	69	56	54	50	48	43	0
250	71	62	55	53	50	47	43	0
251	60	57	53	50	48	46	42	0
252	54	53	50	49	47	45	42	0
253	54	49	46	45	44	43	40	0
254	58	48	46	45	44	43	40	0
255	58	47	44	43	42	41	39	0
256	57	47	44	43	42	41	39	0
257	55	48	44	43	42	41	39	0
258	45	45	44	42	41	40	38	0
259	45	44	43	42	41	40	38	0
260	45	44	43	42	41	40	38	0
261	44	44	42	41	41	40	38	0
262	43	42	41	41	40	39	38	0
263	43	43	41	40	39	39	37	0
264	41	41	40	39	38	38	37	0
265	47	46	45	43	42	41	39	0
266	44	44	42	41	41	40	38	0
267	50	45	43	42	41	40	38	0
268	52	47	44	42	41	40	38	0
269	54	51	49	47	45	43	40	0
270	73	71	66	64	62	56	48	0
271	72	71	64	64	60	54	46	0
272	53	51	48	47	45	42	39	0
273	54	49	46	44	43	41	38	0
274	53	51	48	47	45	42	39	0
275	54	50	47	45	44	42	38	0
276	54	48	45	44	43	41	38	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Days >90
		Highest			Percentile			
277	52	46	45	44	42	41	38	0
278	52	46	43	43	42	41	38	0
279	51	45	43	42	41	40	37	0
280	46	42	40	40	39	38	37	0
281	76	66	58	56	52	49	44	0
282	76	66	58	56	52	49	44	0
283	43	42	41	41	40	39	38	0
284	42	42	40	40	39	38	37	0
285	43	43	41	40	39	38	37	0
286	43	43	41	40	39	38	37	0
287	72	67	58	55	52	49	44	0
288	42	42	41	40	39	39	37	0
289	45	44	43	42	41	40	38	0
290	41	41	39	39	38	38	37	0
291	44	44	42	41	41	40	38	0
292	76	66	58	56	52	49	44	0
293	59	48	44	43	43	42	39	0
294	45	44	43	42	41	40	38	0
295	45	44	43	42	41	40	38	0
296	59	48	44	43	43	42	39	0
297	43	43	41	40	39	39	37	0
298	59	48	44	43	43	42	39	0
299	56	45	43	42	42	41	39	0
300	51	50	49	47	45	43	40	0
301	72	61	58	54	52	48	41	0
302	74	72	61	59	56	52	45	0
303	52	50	47	46	43	41	39	0
304	63	59	53	51	49	46	42	0
305	87	84	73	66	60	55	46	0
306	106	99	89	82	75	68	55	5
307	42	41	40	39	38	37	37	0

PM_{10}

Appendix Table 10: Phase 2 - PM_{10} concentrations at all discrete receptors – excluding background concentration

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
1	29	27	24	21	18	15	8	5.5	0
2	45	37	33	28	22	19	10	7.2	0
3	22	13	11	10	8	7	3	2.4	0
4	47	38	34	29	23	19	11	7.5	0
5	17	12	8	8	7	5	3	1.8	0
6	17	11	8	8	7	5	3	1.8	0
7	42	42	37	31	27	22	13	8.5	0
8	64	59	48	41	38	31	17	13.1	0
9	7	5	4	4	3	2	1	0.8	0
10	18	17	13	11	9	7	3	2.6	0
11	7	5	4	4	3	2	1	0.8	0
12	18	17	12	10	7	6	3	2.2	0
13	7	5	4	4	3	2	1	0.8	0
14	56	40	35	33	26	20	11	8.7	0
15	59	49	42	40	34	29	15	11.3	0
16	6	5	3	3	2	2	1	0.7	0
17	59	49	43	40	35	30	15	11.3	0
18	59	49	43	40	35	30	15	11.3	0
19	54	41	32	30	26	22	11	8.9	0
20	7	5	3	3	2	2	1	0.6	0
21	19	18	12	11	9	7	3	2.6	0
22	7	5	4	4	3	2	1	0.8	0
23	7	5	4	3	3	2	1	0.7	0
24	7	5	4	4	3	2	1	0.8	0
25	40	27	21	18	16	13	7	4.9	0
26	7	5	4	4	3	2	1	0.8	0
27	6	5	4	4	3	2	1	0.8	0
28	12	8	7	6	5	4	2	1.9	0
29	11	8	6	5	4	4	2	1.6	0
30	9	8	6	5	4	4	2	1.5	0
31	7	5	4	3	3	2	1	0.7	0
32	91	85	64	60	50	39	20	16.5	3
33	13	12	10	8	7	5	3	1.9	0
34	7	5	4	3	3	2	1	0.7	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
35	10	10	6	5	4	3	2	1.2	0
36	9	5	4	4	3	3	1	0.9	0
37	71	67	61	55	44	35	13	10.8	1
38	18	17	13	12	10	8	4	3.0	0
39	19	18	16	15	13	11	5	3.6	0
40	13	11	7	6	6	4	2	1.7	0
41	30	24	20	16	12	9	4	3.4	0
42	32	27	22	18	13	10	4	3.7	0
43	9	8	6	5	4	3	2	1.5	0
44	41	41	31	28	24	19	7	5.8	0
45	43	43	33	29	26	20	8	6.2	0
46	30	23	9	7	4	3	1	1.1	0
47	78	51	23	9	5	3	1	1.6	1
48	71	34	10	6	4	2	1	1.2	1
49	73	37	12	6	4	2	1	1.2	1
50	82	72	20	10	5	3	1	1.7	2
51	83	75	20	11	5	3	1	1.7	2
52	84	81	20	12	5	3	1	1.8	2
53	87	85	24	14	6	3	1	1.9	2
54	26	12	7	5	3	2	1	1.0	0
55	27	17	7	5	3	2	1	1.0	0
56	22	19	9	5	4	3	1	1.0	0
57	28	23	8	5	4	3	1	1.0	0
58	25	18	7	5	4	3	1	1.0	0
59	26	21	7	5	3	2	1	1.0	0
60	24	14	5	4	3	2	1	0.9	0
61	14	12	6	5	3	2	1	0.9	0
62	8	5	4	3	2	2	1	0.8	0
63	28	13	6	5	3	2	1	1.0	0
64	49	18	11	6	4	2	1	1.1	0
65	21	19	7	4	3	2	1	1.0	0
66	24	18	7	5	4	3	1	1.0	0
67	236	24	15	10	4	2	1	1.8	1
68	9	7	5	4	3	2	1	0.9	0
69	50	19	16	5	3	2	1	1.0	0
70	12	11	5	4	3	2	1	0.8	0
71	52	28	17	7	3	2	1	1.1	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
72	48	19	10	6	3	2	1	0.9	0
73	60	38	22	9	3	2	1	1.3	0
74	225	118	91	82	66	50	26	21.0	16
75	10	9	6	5	4	2	1	0.9	0
76	97	95	92	83	67	55	32	23.6	16
77	101	96	91	84	68	56	33	24.4	16
78	16	12	5	3	2	2	1	0.7	0
79	48	33	28	24	21	17	11	8.3	0
80	71	54	10	8	4	2	1	1.4	1
81	29	28	24	23	20	18	12	8.9	0
82	56	33	28	24	21	17	11	8.5	0
83	26	12	5	3	3	2	1	0.8	0
84	145	142	93	80	57	44	21	17.5	11
85	28	27	21	19	19	16	11	9.0	0
86	31	25	20	19	16	13	7	6.1	0
87	39	30	27	22	17	14	9	6.9	0
88	46	37	30	26	23	18	10	7.0	0
89	5	5	4	3	3	2	1	0.8	0
90	90	86	75	67	55	47	30	24.2	7
91	90	87	77	69	56	48	31	24.8	7
92	97	94	80	71	59	49	31	25.1	10
93	134	127	111	101	76	64	36	32.5	23
94	208	206	170	163	140	119	82	64.8	138
95	5	5	3	3	2	2	1	0.7	0
96	5	4	4	3	3	2	1	0.7	0
97	6	5	4	4	3	2	1	0.7	0
98	172	149	134	130	112	89	55	42.9	74
99	79	67	55	49	43	32	21	17.6	1
100	108	100	81	70	60	45	27	22.8	9
101	48	48	34	31	26	20	12	8.6	0
102	6	5	4	3	3	2	1	0.7	0
103	123	121	103	97	78	66	37	29.9	33
104	29	12	6	5	3	2	1	1.0	0
105	23	9	5	4	3	2	1	0.9	0
106	16	16	14	12	12	9	6	3.9	0
107	2	2	1	1	1	1	0	0.2	0
108	4	2	1	1	1	1	0	0.2	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
109	3	1	1	1	1	0	0	0.1	0
110	18	17	13	11	10	8	5	3.6	0
111	16	16	13	10	8	7	4	3.3	0
112	16	16	13	11	8	7	4	3.4	0
113	49	44	36	31	28	21	11	8.1	0
114	31	29	25	22	19	15	9	6.0	0
115	14	9	8	7	6	4	2	1.5	0
116	5	3	2	2	2	2	1	0.6	0
117	68	65	56	50	43	35	20	14.5	0
118	34	31	23	21	16	13	8	6.0	0
119	31	29	22	21	18	16	12	9.2	0
120	23	22	19	17	13	10	6	4.2	0
121	16	15	13	10	9	7	3	2.6	0
122	42	34	24	21	18	15	8	5.8	0
123	16	15	13	10	9	7	3	2.6	0
124	64	57	50	44	36	29	17	13.5	0
125	8	6	5	5	3	3	1	1.0	0
126	6	5	3	3	2	2	1	0.7	0
127	6	4	3	3	2	2	1	0.6	0
128	7	5	3	3	2	2	1	0.7	0
129	42	34	27	24	19	17	8	6.9	0
130	6	4	3	3	2	2	1	0.6	0
131	6	4	3	3	2	2	1	0.6	0
132	59	49	42	40	32	28	15	10.9	0
133	6	4	3	3	2	2	1	0.6	0
134	110	80	49	44	37	29	16	13.1	2
135	59	49	42	40	32	28	15	10.9	0
136	64	57	50	44	36	29	17	13.5	0
137	8	5	4	3	3	2	1	0.8	0
138	101	87	64	60	56	44	25	21.4	3
139	34	28	26	24	20	15	6	5.4	0
140	7	5	4	4	3	2	1	0.8	0
141	6	5	4	4	3	2	1	0.9	0
142	14	10	9	8	7	5	2	1.8	0
143	14	10	9	8	7	5	2	1.8	0
144	14	10	9	8	7	5	2	1.8	0
145	6	5	4	3	3	2	1	0.7	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
146	9	5	4	4	3	2	1	0.8	0
147	9	5	4	4	3	2	1	0.8	0
148	9	5	4	3	2	2	1	0.8	0
149	9	5	4	3	2	2	1	0.8	0
150	15	13	8	7	6	4	2	1.7	0
151	77	15	13	10	9	7	5	3.4	1
152	77	15	13	10	9	7	5	3.4	1
153	176	171	129	111	79	63	29	24.6	29
154	95	70	50	47	38	30	18	12.9	1
155	55	54	47	41	34	28	17	14.3	0
156	49	45	32	30	27	22	14	11.6	0
157	31	30	23	21	20	15	8	6.1	0
158	95	70	50	47	38	30	18	12.9	1
159	95	70	50	47	38	30	18	12.9	1
160	27	24	22	18	14	11	7	5.3	0
161	20	18	12	11	11	9	6	4.1	0
162	28	20	17	17	14	12	8	5.7	0
163	28	20	18	17	15	12	8	6.4	0
164	29	22	18	16	14	11	7	5.3	0
165	29	25	20	19	16	13	8	6.7	0
166	29	25	20	19	16	13	8	6.7	0
167	29	25	20	19	16	13	8	6.7	0
168	29	25	20	19	16	13	8	6.7	0
169	29	25	20	19	16	13	8	6.7	0
170	30	21	18	15	14	12	8	6.2	0
171	28	20	18	17	15	12	8	6.4	0
172	29	25	20	19	16	13	8	6.7	0
173	28	20	17	17	14	12	8	5.7	0
174	29	25	20	19	16	13	8	6.7	0
175	36	28	21	19	16	12	7	5.6	0
176	36	28	21	19	16	12	7	5.6	0
177	45	32	25	23	18	13	8	6.1	0
178	14	10	7	7	6	5	2	1.8	0
179	14	10	7	7	6	5	2	1.8	0
180	14	10	7	7	6	5	2	1.8	0
181	14	10	7	7	6	5	2	1.8	0
182	14	10	7	7	6	5	2	1.8	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
183	14	10	7	7	6	5	2	1.8	0
184	13	10	7	6	5	4	2	1.7	0
185	7	4	3	3	3	2	1	0.7	0
186	7	5	3	3	2	2	1	0.7	0
187	43	42	35	32	28	24	17	13.8	0
188	35	29	21	16	13	10	6	4.3	0
189	18	17	15	12	10	8	4	3.0	0
190	664	493	287	232	132	89	53	52.2	65
191	12	9	6	5	5	3	2	1.3	0
192	23	14	8	6	4	2	1	1.0	0
193	23	14	8	6	4	2	1	1.0	0
194	23	14	8	6	4	2	1	1.0	0
195	38	22	10	7	5	2	1	1.2	0
196	38	22	10	7	5	2	1	1.2	0
197	12	9	6	5	5	3	2	1.3	0
198	23	14	8	6	4	2	1	1.0	0
199	51	23	16	6	3	2	1	1.0	0
200	52	36	11	7	5	3	1	1.4	0
201	27	17	9	6	4	2	1	1.1	0
202	27	17	9	6	4	2	1	1.1	0
203	6	4	3	3	2	2	1	0.6	0
204	73	72	61	54	45	37	25	20.5	2
205	55	54	47	41	34	28	17	14.3	0
206	35	29	21	16	13	10	6	4.3	0
207	31	28	18	16	15	13	9	6.4	0
208	241	178	148	136	122	101	58	44.2	75
209	8	6	4	4	3	2	1	0.8	0
210	7	6	5	4	3	2	1	0.8	0
211	10	6	5	4	3	2	1	0.9	0
212	9	6	5	4	3	2	1	0.8	0
213	9	6	5	4	3	2	1	0.8	0
214	7	6	5	4	3	2	1	0.8	0
215	7	6	5	4	3	2	1	0.8	0
216	7	6	5	4	3	2	1	0.8	0
217	7	7	6	4	3	2	1	1.0	0
218	7	7	5	4	3	2	1	0.9	0
219	14	6	5	4	4	3	1	1.0	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
220	36	28	21	19	16	12	7	5.6	0
221	36	28	21	19	16	12	7	5.6	0
222	42	34	24	21	18	15	8	5.8	0
223	27	18	15	13	11	9	5	3.4	0
224	27	18	15	13	11	9	5	3.4	0
225	14	9	8	7	6	4	2	1.5	0
226	14	9	8	7	6	4	2	1.5	0
227	6	5	5	4	4	3	1	1.0	0
228	3	3	3	3	2	2	1	0.7	0
229	3	3	2	2	2	2	1	0.7	0
230	4	3	2	2	2	2	1	0.6	0
231	29	29	22	20	17	15	8	6.1	0
232	18	18	14	13	11	9	6	4.1	0
233	17	17	13	11	9	8	4	2.9	0
234	15	14	10	9	7	6	3	2.3	0
235	10	9	6	5	5	4	2	1.5	0
236	7	6	5	4	3	3	2	1.1	0
237	5	3	2	2	2	2	1	0.6	0
238	6	3	2	2	2	2	1	0.6	0
239	6	4	2	2	2	2	1	0.6	0
240	7	3	2	2	2	2	1	0.7	0
241	7	3	2	2	2	2	1	0.7	0
242	7	3	3	2	2	2	1	0.7	0
243	7	4	4	3	3	3	1	1.1	0
244	16	11	9	8	7	5	4	2.6	0
245	16	12	10	9	7	6	4	2.7	0
246	16	12	10	9	7	6	4	2.7	0
247	16	12	10	9	7	5	3	2.5	0
248	14	11	8	7	6	5	3	2.2	0
249	12	12	7	6	5	4	3	2.0	0
250	13	10	7	6	5	4	3	2.0	0
251	9	8	6	5	4	4	2	1.7	0
252	6	6	5	5	4	3	2	1.5	0
253	6	5	3	3	3	3	1	1.1	0
254	7	4	3	3	3	3	1	1.1	0
255	7	4	3	2	2	2	1	0.8	0
256	7	4	3	2	2	2	1	0.8	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
257	6	4	3	3	2	2	1	0.8	0
258	3	3	3	2	2	2	1	0.6	0
259	3	3	3	2	2	2	1	0.6	0
260	3	3	2	2	2	2	1	0.6	0
261	3	3	2	2	2	1	1	0.5	0
262	2	2	2	2	1	1	1	0.4	0
263	3	2	2	2	1	1	0	0.3	0
264	2	2	1	1	1	1	0	0.2	0
265	4	3	3	2	2	2	1	0.7	0
266	3	3	2	2	2	1	1	0.5	0
267	6	3	2	2	2	1	1	0.5	0
268	6	4	3	2	2	2	1	0.6	0
269	7	6	5	4	3	3	2	1.1	0
270	12	12	10	9	9	7	4	2.8	0
271	12	12	10	9	8	7	3	2.4	0
272	8	5	4	4	3	2	1	0.8	0
273	8	4	3	3	3	2	1	0.6	0
274	8	5	4	4	3	2	1	0.8	0
275	8	5	4	3	3	2	1	0.7	0
276	8	4	3	3	2	2	1	0.6	0
277	7	4	3	3	2	2	1	0.6	0
278	7	4	3	3	2	2	1	0.5	0
279	7	3	3	2	2	1	0	0.4	0
280	4	2	2	2	1	1	0	0.3	0
281	14	11	8	7	6	5	3	2.2	0
282	14	11	8	7	6	5	3	2.2	0
283	2	2	2	2	1	1	1	0.4	0
284	2	2	1	1	1	1	0	0.3	0
285	3	2	2	1	1	1	0	0.3	0
286	3	2	2	1	1	1	0	0.3	0
287	14	11	8	7	6	5	3	2.2	0
288	2	2	2	1	1	1	0	0.3	0
289	3	3	2	2	2	2	1	0.6	0
290	2	2	1	1	1	1	0	0.2	0
291	3	3	2	2	2	1	1	0.5	0
292	14	11	8	7	6	5	3	2.2	0
293	8	4	3	3	2	2	1	0.8	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
294	3	3	3	2	2	2	1	0.6	0
295	3	3	3	2	2	2	1	0.6	0
296	8	4	3	3	2	2	1	0.8	0
297	3	2	2	2	1	1	0	0.3	0
298	8	4	3	3	2	2	1	0.8	0
299	7	3	2	2	2	2	1	0.7	0
300	6	5	5	4	4	3	1	1.0	0
301	14	9	8	7	6	4	2	1.5	0
302	15	14	10	9	7	6	3	2.3	0
303	6	5	4	4	3	2	1	0.8	0
304	10	9	6	5	5	4	2	1.5	0
305	20	19	14	11	9	7	4	2.8	0
306	26	24	18	18	14	12	7	4.9	0
307	3	2	1	1	1	0	0	0.1	0

Appendix Table 11: Phase 2 - PM_{10} concentrations at all discrete receptors – including background concentration

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
1	47	45	42	40	36	33	26	23.6	0
2	63	55	51	46	40	37	28	25.3	0
3	40	32	29	28	26	25	21	20.5	0
4	65	56	52	47	41	37	29	25.6	0
5	35	30	26	26	25	23	21	19.9	0
6	35	29	26	26	25	23	21	19.9	0
7	60	60	55	49	45	40	31	26.6	0
8	82	77	66	59	56	49	35	31.2	3
9	25	23	22	22	21	20	19	18.9	0
10	36	35	31	29	27	25	22	20.7	0
11	25	23	22	22	21	20	19	18.9	0
12	36	35	30	28	25	24	21	20.3	0
13	25	23	22	22	21	20	19	18.9	0
14	74	58	53	51	44	38	29	26.8	1
15	78	67	61	58	52	48	33	29.4	1
16	25	23	21	21	21	20	19	18.8	0
17	78	68	61	58	53	48	33	29.4	1

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
18	77	67	61	58	53	48	33	29.4	1
19	72	59	51	48	44	40	29	27.0	1
20	25	23	21	21	21	20	19	18.7	0
21	37	36	30	29	27	25	21	20.7	0
22	25	23	22	22	21	20	19	18.9	0
23	25	23	22	21	21	20	19	18.8	0
24	25	23	22	22	21	20	19	18.9	0
25	59	46	39	36	34	31	25	23.0	0
26	25	23	22	22	21	20	19	18.9	0
27	25	23	22	22	21	20	19	18.9	0
28	30	26	25	25	23	22	21	20.0	0
29	29	26	24	23	23	22	20	19.7	0
30	27	26	24	23	23	22	20	19.6	0
31	25	23	22	21	21	20	19	18.8	0
32	109	103	82	78	68	57	38	34.6	16
33	31	30	28	26	25	23	21	20.0	0
34	25	23	22	21	21	20	19	18.8	0
35	28	28	24	24	22	21	20	19.3	0
36	27	23	23	22	22	21	19	19.0	0
37	89	85	79	73	62	53	31	28.9	12
38	36	35	31	30	29	26	22	21.1	0
39	37	36	34	33	31	29	23	21.7	0
40	31	29	25	24	24	22	20	19.8	0
41	48	42	38	34	30	27	22	21.5	0
42	50	45	40	36	31	28	22	21.8	0
43	27	26	24	23	22	22	20	19.6	0
44	59	59	49	46	42	37	26	23.9	0
45	61	61	51	47	44	38	26	24.3	0
46	48	41	27	25	22	21	19	19.2	0
47	96	70	41	28	23	21	19	19.7	1
48	89	52	28	24	22	20	19	19.3	1
49	91	55	30	25	22	20	19	19.3	1
50	100	90	38	28	23	21	19	19.8	2
51	101	93	38	29	23	21	19	19.8	2
52	102	99	38	30	23	21	19	19.9	2
53	105	103	42	32	24	21	19	20.0	2
54	44	30	25	23	21	20	19	19.1	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
55	45	36	25	23	21	21	19	19.1	0
56	40	37	27	23	22	21	19	19.1	0
57	46	41	26	23	22	21	19	19.1	0
58	43	36	25	23	22	21	19	19.1	0
59	44	39	25	23	21	21	19	19.1	0
60	42	32	24	23	21	20	19	19.0	0
61	32	30	24	23	21	20	19	19.0	0
62	26	23	22	21	20	20	19	18.9	0
63	46	31	25	23	21	20	19	19.1	0
64	67	36	29	24	22	21	19	19.2	0
65	40	37	25	23	22	21	19	19.1	0
66	42	36	25	23	22	21	19	19.1	0
67	254	42	33	28	22	20	19	19.9	1
68	27	25	23	22	21	20	19	19.0	0
69	68	37	34	23	21	20	19	19.1	0
70	30	30	23	22	21	20	19	18.9	0
71	70	46	36	25	22	20	19	19.2	0
72	66	37	28	24	21	20	19	19.0	0
73	78	57	40	27	22	20	19	19.4	1
74	243	136	109	100	84	68	44	39.1	33
75	28	28	24	23	22	20	19	19.0	0
76	115	113	110	101	85	73	50	41.7	49
77	120	114	109	102	86	74	51	42.5	53
78	34	30	23	22	20	20	19	18.8	0
79	66	51	46	42	39	35	29	26.4	0
80	89	72	28	26	22	20	19	19.5	2
81	47	46	43	41	38	36	30	27.0	0
82	74	51	47	42	40	35	29	26.6	1
83	44	30	23	22	21	20	19	18.9	0
84	163	160	111	98	75	63	39	35.6	26
85	46	45	39	38	37	34	29	27.1	0
86	49	43	38	37	35	31	26	24.2	0
87	58	48	45	40	36	32	27	25.0	0
88	64	55	48	44	41	36	28	25.1	0
89	23	23	22	21	21	20	19	18.9	0
90	108	104	93	85	73	65	48	42.3	25
91	109	105	95	87	74	66	49	42.9	29

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
92	115	112	98	89	77	67	49	43.2	28
93	152	145	129	119	94	82	54	50.6	59
94	226	224	188	181	158	138	100	82.9	195
95	23	23	21	21	21	20	19	18.8	0
96	23	22	22	21	21	20	19	18.8	0
97	24	23	22	22	21	20	19	18.8	0
98	190	167	152	148	130	107	73	61.0	119
99	97	85	73	67	61	50	39	35.7	6
100	127	118	99	88	78	63	45	40.9	27
101	66	66	52	49	44	38	30	26.7	0
102	24	23	22	21	21	20	19	18.8	0
103	141	139	121	115	96	85	55	48.0	69
104	48	30	24	23	21	21	19	19.1	0
105	41	27	23	22	21	21	19	19.0	0
106	34	34	32	31	30	27	24	22.0	0
107	20	20	19	19	19	19	18	18.3	0
108	22	20	19	19	19	19	18	18.3	0
109	21	20	19	19	19	18	18	18.2	0
110	36	35	31	29	28	26	23	21.7	0
111	35	34	31	28	26	25	22	21.4	0
112	34	34	31	29	26	25	22	21.5	0
113	67	62	54	49	46	39	30	26.2	0
114	49	47	43	40	37	33	27	24.1	0
115	32	27	26	25	24	22	20	19.6	0
116	23	21	20	20	20	20	19	18.7	0
117	86	83	74	68	61	53	38	32.6	9
118	52	49	41	39	34	31	26	24.1	0
119	49	47	40	39	36	34	30	27.3	0
120	41	40	37	36	31	29	24	22.3	0
121	34	34	31	28	27	25	21	20.7	0
122	60	52	42	39	36	33	26	23.9	2
123	34	34	31	28	27	25	21	20.7	0
124	82	75	68	62	55	48	36	31.6	29
125	26	24	23	23	22	21	19	19.1	0
126	24	23	21	21	21	20	19	18.8	0
127	24	22	21	21	20	20	19	18.7	0
128	25	23	21	21	21	20	19	18.8	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
129	61	52	45	43	37	35	26	25.0	3
130	25	23	21	21	20	20	19	18.7	0
131	25	23	21	21	20	20	19	18.7	0
132	77	67	61	58	50	46	33	29.0	19
133	25	23	21	21	20	20	19	18.7	0
134	128	98	67	63	55	48	35	31.2	32
135	77	67	61	58	50	46	33	29.0	19
136	82	75	68	62	55	48	36	31.6	29
137	26	23	22	22	21	20	19	18.9	0
138	120	105	82	78	74	62	44	39.5	84
139	52	46	44	42	38	33	24	23.5	1
140	25	23	22	22	21	20	19	18.9	0
141	24	23	22	22	21	20	19	19.0	0
142	32	28	27	26	25	23	20	19.9	0
143	32	28	27	26	25	23	20	19.9	0
144	32	28	27	26	25	23	20	19.9	0
145	25	23	22	21	21	20	19	18.8	0
146	27	23	22	22	21	20	19	18.9	0
147	27	23	22	22	21	20	19	18.9	0
148	27	23	22	21	20	20	19	18.9	0
149	27	23	22	21	20	20	19	18.9	0
150	34	31	26	25	24	23	21	19.8	0
151	95	33	31	28	27	25	23	21.5	1
152	95	33	31	28	27	25	23	21.5	1
153	194	189	147	129	97	81	47	42.7	105
154	113	88	68	65	56	48	37	31.0	30
155	73	72	65	59	52	46	35	32.4	26
156	67	63	50	48	45	40	32	29.7	6
157	49	48	41	39	38	33	26	24.2	0
158	113	88	68	65	56	48	37	31.0	30
159	113	88	68	65	56	48	37	31.0	30
160	45	42	40	36	32	29	25	23.4	0
161	38	36	30	29	29	27	24	22.2	0
162	46	38	35	35	32	30	26	23.8	0
163	46	38	36	35	33	30	27	24.5	0
164	47	40	36	34	32	29	25	23.4	0
165	47	43	38	37	35	31	26	24.8	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
166	47	43	38	37	35	31	26	24.8	0
167	47	43	38	37	35	31	26	24.8	0
168	47	43	38	37	35	31	26	24.8	0
169	47	43	38	37	35	31	26	24.8	0
170	48	39	36	33	32	30	26	24.3	0
171	46	38	36	35	33	30	27	24.5	0
172	47	43	38	37	35	31	26	24.8	0
173	46	38	35	35	32	30	26	23.8	0
174	47	43	38	37	35	31	26	24.8	0
175	54	46	39	38	34	30	25	23.7	1
176	54	46	39	38	34	30	25	23.7	1
177	63	51	43	41	36	31	26	24.2	2
178	32	28	25	25	24	23	21	19.9	0
179	32	28	25	25	24	23	21	19.9	0
180	32	28	25	25	24	23	21	19.9	0
181	32	28	25	25	24	23	21	19.9	0
182	32	28	25	25	24	23	21	19.9	0
183	32	28	25	25	24	23	21	19.9	0
184	31	28	25	24	23	22	20	19.8	0
185	25	23	22	21	21	20	19	18.8	0
186	25	23	21	21	21	20	19	18.8	0
187	61	60	53	50	46	42	35	31.9	12
188	53	47	39	34	31	28	24	22.4	1
189	36	35	33	30	28	26	22	21.1	0
190	682	511	305	250	150	107	71	70.3	217
191	30	27	24	23	23	22	20	19.4	0
192	42	32	26	24	22	21	19	19.1	0
193	42	32	26	24	22	21	19	19.1	0
194	42	32	26	24	22	21	19	19.1	0
195	56	40	28	25	23	20	19	19.3	1
196	56	40	28	25	23	20	19	19.3	1
197	30	27	24	23	23	22	20	19.4	0
198	42	32	26	24	22	21	19	19.1	0
199	69	41	35	24	21	20	19	19.1	1
200	70	54	29	26	23	21	19	19.5	2
201	45	35	27	24	22	21	19	19.2	0
202	45	35	27	24	22	21	19	19.2	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
203	25	23	21	21	20	20	19	18.7	0
204	91	90	79	72	63	56	43	38.6	61
205	73	72	65	59	52	46	35	32.4	26
206	53	47	39	34	31	28	24	22.4	1
207	49	46	36	34	33	31	27	24.5	0
208	259	196	166	154	140	119	76	62.3	189
209	26	24	22	22	21	20	19	18.9	0
210	25	24	23	22	21	20	19	18.9	0
211	28	24	23	22	21	20	19	19.0	0
212	27	24	23	22	21	20	19	18.9	0
213	27	24	23	22	21	20	19	18.9	0
214	25	24	23	22	21	20	19	18.9	0
215	25	24	23	22	21	20	19	18.9	0
216	25	24	23	22	21	20	19	18.9	0
217	25	25	24	22	22	21	19	19.1	0
218	25	25	23	22	22	21	19	19.0	0
219	32	24	24	22	22	21	19	19.1	0
220	54	46	39	38	34	30	25	23.7	1
221	54	46	39	38	34	30	25	23.7	1
222	60	52	42	39	36	33	26	23.9	2
223	45	36	33	31	29	28	23	21.5	0
224	45	36	33	31	29	28	23	21.5	0
225	32	27	26	25	24	22	20	19.6	0
226	32	27	26	25	24	22	20	19.6	0
227	24	23	23	22	22	21	19	19.1	0
228	21	21	21	21	20	20	19	18.8	0
229	22	21	20	20	20	20	19	18.8	0
230	22	21	20	20	20	20	19	18.7	0
231	47	47	40	38	35	33	27	24.2	0
232	36	36	32	31	29	28	24	22.2	0
233	35	35	31	29	27	26	22	21.0	0
234	33	32	28	27	25	24	21	20.4	0
235	28	27	25	24	23	22	20	19.6	0
236	25	24	23	22	21	21	20	19.2	0
237	23	21	20	20	20	20	19	18.7	0
238	24	21	20	20	20	20	19	18.7	0
239	24	22	21	20	20	20	19	18.7	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
240	25	21	21	20	20	20	19	18.8	0
241	25	21	20	20	20	20	19	18.8	0
242	25	21	21	20	20	20	19	18.8	0
243	25	22	22	21	21	21	20	19.2	0
244	35	30	28	26	25	23	22	20.7	0
245	34	30	28	27	25	24	22	20.8	0
246	34	30	28	27	25	24	22	20.8	0
247	34	30	28	27	25	24	22	20.6	0
248	32	30	26	25	24	23	21	20.3	0
249	30	30	25	24	23	22	21	20.1	0
250	31	28	25	24	23	22	21	20.1	0
251	27	26	24	23	22	22	20	19.8	0
252	25	24	23	23	22	21	20	19.6	0
253	24	23	22	21	21	21	20	19.2	0
254	25	22	22	21	21	21	19	19.2	0
255	25	22	21	21	20	20	19	18.9	0
256	25	22	21	21	20	20	19	18.9	0
257	25	22	21	21	20	20	19	18.9	0
258	21	21	21	20	20	20	19	18.7	0
259	21	21	21	20	20	20	19	18.7	0
260	21	21	20	20	20	20	19	18.7	0
261	21	21	20	20	20	19	19	18.6	0
262	21	20	20	20	19	19	19	18.5	0
263	21	21	20	20	19	19	19	18.4	0
264	20	20	19	19	19	19	18	18.3	0
265	22	21	21	21	20	20	19	18.8	0
266	21	21	20	20	20	19	19	18.6	0
267	24	21	21	20	20	19	19	18.6	0
268	25	22	21	20	20	20	19	18.7	0
269	25	24	23	22	21	21	20	19.2	0
270	30	30	28	28	27	25	22	20.9	0
271	30	30	28	28	26	25	22	20.5	0
272	26	24	22	22	21	20	19	18.9	0
273	26	22	21	21	21	20	19	18.7	0
274	26	24	22	22	21	20	19	18.9	0
275	26	23	22	22	21	20	19	18.8	0
276	26	22	21	21	21	20	19	18.7	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual Average	Days >70
		Highest			Percentile				
277	25	22	21	21	20	20	19	18.7	0
278	25	22	21	21	20	20	19	18.6	0
279	25	21	21	21	20	19	19	18.5	0
280	22	20	20	20	19	19	18	18.4	0
281	32	29	26	25	24	23	21	20.3	0
282	32	29	26	25	24	23	21	20.3	0
283	21	20	20	20	19	19	19	18.5	0
284	20	20	20	19	19	19	18	18.4	0
285	21	20	20	20	19	19	19	18.4	0
286	21	20	20	20	19	19	19	18.4	0
287	32	30	26	25	24	23	21	20.3	0
288	20	20	20	20	19	19	19	18.4	0
289	21	21	20	20	20	20	19	18.7	0
290	20	20	19	19	19	19	18	18.3	0
291	21	21	20	20	20	19	19	18.6	0
292	32	29	26	25	24	23	21	20.3	0
293	26	22	21	21	20	20	19	18.9	0
294	21	21	21	20	20	20	19	18.7	0
295	21	21	21	20	20	20	19	18.7	0
296	26	22	21	21	20	20	19	18.9	0
297	21	21	20	20	19	19	19	18.4	0
298	26	22	21	21	20	20	19	18.9	0
299	25	21	20	20	20	20	19	18.8	0
300	24	23	23	22	22	21	19	19.1	0
301	32	27	26	25	24	22	20	19.6	0
302	33	32	28	27	25	24	21	20.4	0
303	24	24	22	22	21	20	19	18.9	0
304	28	27	25	24	23	22	20	19.6	0
305	38	37	32	29	27	25	22	20.9	0
306	44	42	37	36	32	30	25	23.0	0
307	21	20	20	19	19	19	18	18.2	0

$PM_{2.5}$

Appendix Table 12: Phase 2 - $PM_{2.5}$ concentrations at all discrete receptors – excluding background concentration

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
1	8	7	7	6	5	4	2	1.5	0
2	10	10	9	8	6	5	3	1.9	0
3	4	4	3	3	2	2	1	0.7	0
4	11	10	9	8	6	5	3	2.0	0
5	3	3	2	2	2	1	1	0.5	0
6	3	3	2	2	2	1	1	0.5	0
7	12	12	10	9	7	6	3	2.2	0
8	18	16	13	11	10	8	4	3.2	0
9	1	1	1	1	1	1	0	0.2	0
10	5	5	3	3	3	2	1	0.7	0
11	1	1	1	1	1	1	0	0.2	0
12	5	5	3	3	2	2	1	0.6	0
13	1	1	1	1	1	1	0	0.2	0
14	15	11	10	9	7	6	3	2.3	0
15	17	14	12	11	9	8	4	3.0	0
16	1	1	1	1	1	1	0	0.2	0
17	17	14	12	11	9	8	4	3.0	0
18	16	14	12	11	9	8	4	3.0	0
19	15	11	9	8	7	6	3	2.4	0
20	1	1	1	1	1	1	0	0.2	0
21	5	5	3	3	2	2	1	0.7	0
22	1	1	1	1	1	1	0	0.2	0
23	1	1	1	1	1	1	0	0.2	0
24	1	1	1	1	1	1	0	0.2	0
25	11	8	6	5	4	4	2	1.3	0
26	2	1	1	1	1	1	0	0.2	0
27	2	1	1	1	1	1	0	0.2	0
28	4	3	2	2	2	1	1	0.6	0
29	4	3	2	2	2	1	1	0.5	0
30	3	2	2	2	1	1	1	0.5	0
31	1	1	1	1	1	1	0	0.2	0
32	25	24	18	17	14	11	6	4.7	1
33	4	3	2	2	2	1	1	0.5	0
34	1	1	1	1	1	1	0	0.2	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
35	3	2	2	1	1	1	1	0.3	0
36	2	1	1	1	1	1	0	0.3	0
37	20	19	17	15	13	10	4	3.0	0
38	5	4	3	3	3	2	1	0.8	0
39	5	5	4	4	4	3	1	1.0	0
40	4	3	2	2	2	1	1	0.5	0
41	8	7	6	5	3	3	1	0.9	0
42	9	8	6	5	4	3	1	1.0	0
43	3	2	2	2	1	1	1	0.5	0
44	12	11	9	8	7	5	2	1.6	0
45	12	12	9	8	7	6	2	1.8	0
46	2	2	1	1	1	1	0	0.2	0
47	2	2	1	1	1	1	0	0.2	0
48	2	2	1	1	1	1	0	0.2	0
49	2	2	1	1	1	1	0	0.2	0
50	2	1	1	1	1	1	0	0.2	0
51	2	1	1	1	1	1	0	0.2	0
52	2	1	1	1	1	1	0	0.2	0
53	2	1	1	1	1	1	0	0.2	0
54	2	2	1	1	1	1	0	0.3	0
55	2	2	1	1	1	1	0	0.2	0
56	2	2	1	1	1	1	0	0.2	0
57	2	2	1	1	1	1	0	0.2	0
58	2	2	1	1	1	1	0	0.2	0
59	2	2	1	1	1	1	0	0.2	0
60	2	2	1	1	1	1	0	0.2	0
61	2	2	1	1	1	1	0	0.2	0
62	3	3	2	1	1	1	0	0.3	0
63	2	2	1	1	1	1	0	0.3	0
64	2	2	1	1	1	1	0	0.2	0
65	2	2	1	1	1	1	0	0.2	0
66	2	2	1	1	1	1	0	0.2	0
67	3	2	1	1	1	1	0	0.3	0
68	4	4	3	2	2	1	1	0.5	0
69	2	1	1	1	1	1	0	0.2	0
70	2	2	1	1	1	1	0	0.2	0
71	2	1	1	1	1	1	0	0.2	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
72	2	1	1	1	1	1	0	0.2	0
73	2	1	1	1	1	1	0	0.2	0
74	111	109	82	74	60	44	21	16.6	92
75	2	2	1	1	1	1	0	0.2	0
76	95	94	89	81	63	53	30	22.3	138
77	99	94	88	81	65	55	31	23.1	145
78	3	2	1	1	1	1	0	0.3	0
79	27	24	22	20	17	14	9	6.7	1
80	2	1	1	1	1	1	0	0.2	0
81	17	17	14	12	12	9	5	4.0	0
82	25	23	23	20	16	14	9	6.7	1
83	3	2	1	1	1	1	0	0.3	0
84	137	130	88	74	54	40	17	14.8	74
85	15	12	11	10	9	7	4	3.5	0
86	22	22	17	16	12	9	4	3.5	0
87	11	8	8	7	6	5	3	2.3	0
88	10	10	8	7	6	5	3	1.9	0
89	2	2	1	1	1	1	0	0.2	0
90	25	25	21	19	15	13	9	6.9	1
91	25	25	22	19	16	14	9	7.0	1
92	27	27	23	20	17	14	9	7.1	2
93	38	36	31	29	22	18	10	9.2	13
94	59	58	48	46	39	34	23	18.2	90
95	2	2	1	1	1	1	0	0.2	0
96	2	2	1	1	1	1	0	0.2	0
97	2	1	1	1	1	1	0	0.2	0
98	48	42	38	37	31	25	15	12.1	37
99	22	19	16	14	12	9	6	5.0	0
100	31	28	23	20	17	13	8	6.5	4
101	13	11	9	8	7	6	3	2.3	0
102	2	1	1	1	1	1	0	0.2	0
103	34	34	29	27	22	19	10	8.4	13
104	2	2	1	1	1	1	0	0.2	0
105	2	2	1	1	1	1	0	0.2	0
106	5	5	4	4	3	3	2	1.1	0
107	1	1	0	0	0	0	0	0.1	0
108	1	1	0	0	0	0	0	0.1	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
109	0	0	0	0	0	0	0	0.0	0
110	9	8	6	5	4	4	2	1.7	0
111	9	9	6	5	4	3	2	1.6	0
112	10	9	7	6	5	4	2	1.6	0
113	14	13	11	9	8	6	3	2.3	0
114	9	9	7	6	5	4	3	1.7	0
115	4	3	2	2	2	1	1	0.4	0
116	2	1	1	1	1	0	0	0.2	0
117	55	53	47	41	34	27	15	11.0	54
118	32	26	18	15	13	10	6	4.1	2
119	14	13	11	10	9	7	4	3.6	0
120	7	6	6	5	4	3	2	1.4	0
121	7	7	6	4	4	3	1	1.1	0
122	19	15	11	9	8	7	3	2.5	0
123	7	7	6	4	4	3	1	1.1	0
124	28	25	22	19	16	13	8	6.0	2
125	4	2	2	2	2	1	1	0.4	0
126	3	2	1	1	1	1	0	0.3	0
127	3	2	1	1	1	1	0	0.3	0
128	3	2	1	1	1	1	0	0.3	0
129	19	15	12	11	8	7	4	3.0	0
130	3	2	1	1	1	1	0	0.3	0
131	3	2	1	1	1	1	0	0.3	0
132	26	22	19	18	14	12	6	4.8	1
133	3	2	1	1	1	1	0	0.3	0
134	48	35	21	20	16	13	7	5.8	3
135	26	22	19	18	14	12	6	4.8	1
136	28	25	22	19	16	13	8	6.0	2
137	3	2	2	2	1	1	0	0.3	0
138	45	38	28	26	24	19	11	9.4	17
139	15	12	12	11	9	7	3	2.4	0
140	3	2	2	2	1	1	0	0.3	0
141	3	2	2	2	1	1	1	0.4	0
142	6	4	4	3	3	2	1	0.8	0
143	6	4	4	3	3	2	1	0.8	0
144	6	4	4	3	3	2	1	0.8	0
145	3	2	2	1	1	1	0	0.3	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
146	4	2	2	2	1	1	0	0.4	0
147	4	2	2	2	1	1	0	0.4	0
148	4	2	2	1	1	1	0	0.3	0
149	4	2	2	1	1	1	0	0.3	0
150	7	6	4	3	2	2	1	0.8	0
151	34	7	6	5	4	3	2	1.5	1
152	34	7	6	5	4	3	2	1.5	1
153	78	75	57	49	35	28	13	10.8	49
154	42	31	22	21	17	13	8	5.7	2
155	24	24	21	18	15	12	8	6.3	0
156	22	20	14	13	12	10	6	5.1	0
157	13	13	10	9	9	6	4	2.7	0
158	42	31	22	21	17	13	8	5.7	2
159	42	31	22	21	17	13	8	5.7	2
160	12	11	10	8	6	5	3	2.3	0
161	9	8	5	5	5	4	3	1.8	0
162	12	9	8	7	6	5	4	2.5	0
163	12	9	8	8	7	5	4	2.8	0
164	13	10	8	7	6	5	3	2.3	0
165	13	11	9	8	7	6	4	2.9	0
166	13	11	9	8	7	6	4	2.9	0
167	13	11	9	8	7	6	4	2.9	0
168	13	11	9	8	7	6	4	2.9	0
169	13	11	9	8	7	6	4	2.9	0
170	13	9	8	7	6	5	3	2.7	0
171	12	9	8	8	7	5	4	2.8	0
172	13	11	9	8	7	6	4	2.9	0
173	12	9	8	7	6	5	4	2.5	0
174	13	11	9	8	7	6	4	2.9	0
175	16	12	9	9	7	5	3	2.4	0
176	16	12	9	9	7	5	3	2.4	0
177	20	14	11	10	8	6	3	2.7	0
178	6	4	3	3	3	2	1	0.8	0
179	6	4	3	3	3	2	1	0.8	0
180	6	4	3	3	3	2	1	0.8	0
181	6	4	3	3	3	2	1	0.8	0
182	6	4	3	3	3	2	1	0.8	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
183	6	4	3	3	3	2	1	0.8	0
184	6	4	3	3	2	2	1	0.7	0
185	3	2	2	1	1	1	0	0.3	0
186	3	2	1	1	1	1	0	0.3	0
187	19	19	15	14	12	10	7	6.1	0
188	15	13	9	7	6	4	3	1.9	0
189	8	8	7	5	4	3	2	1.3	0
190	292	217	126	102	58	39	23	23.0	99
191	5	4	3	2	2	2	1	0.6	0
192	10	6	3	3	2	1	0	0.4	0
193	10	6	3	3	2	1	0	0.4	0
194	10	6	3	3	2	1	0	0.4	0
195	17	10	4	3	2	1	0	0.5	0
196	17	10	4	3	2	1	0	0.5	0
197	5	4	3	2	2	2	1	0.6	0
198	10	6	3	3	2	1	0	0.4	0
199	22	10	7	2	1	1	0	0.4	0
200	23	16	5	3	2	1	0	0.6	0
201	12	8	4	3	2	1	0	0.5	0
202	12	8	4	3	2	1	0	0.5	0
203	3	2	1	1	1	1	0	0.3	0
204	32	32	27	24	20	16	11	9.0	8
205	24	24	21	18	15	12	8	6.3	0
206	15	13	9	7	6	4	3	1.9	0
207	14	12	8	7	7	6	4	2.8	0
208	106	78	65	60	54	44	25	19.4	110
209	3	3	2	2	1	1	0	0.3	0
210	3	3	2	2	1	1	0	0.4	0
211	4	3	2	2	1	1	1	0.4	0
212	4	3	2	2	1	1	0	0.3	0
213	4	3	2	2	1	1	0	0.3	0
214	3	3	2	2	1	1	0	0.4	0
215	3	3	2	2	1	1	0	0.4	0
216	3	3	2	2	1	1	0	0.4	0
217	3	3	2	2	2	1	1	0.4	0
218	3	3	2	2	2	1	1	0.4	0
219	6	3	2	2	2	1	1	0.5	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
220	16	12	9	9	7	5	3	2.4	0
221	16	12	9	9	7	5	3	2.4	0
222	19	15	11	9	8	7	3	2.5	0
223	12	8	7	6	5	4	2	1.5	0
224	12	8	7	6	5	4	2	1.5	0
225	6	4	4	3	3	2	1	0.7	0
226	6	4	4	3	3	2	1	0.7	0
227	3	2	2	2	2	1	1	0.4	0
228	1	1	1	1	1	1	0	0.3	0
229	2	1	1	1	1	1	0	0.3	0
230	2	1	1	1	1	1	0	0.3	0
231	13	13	10	9	7	6	4	2.7	0
232	8	8	6	6	5	4	3	1.8	0
233	8	8	6	5	4	3	2	1.3	0
234	6	6	4	4	3	3	1	1.0	0
235	4	4	3	2	2	2	1	0.7	0
236	3	3	2	2	1	1	1	0.5	0
237	2	1	1	1	1	1	0	0.3	0
238	2	1	1	1	1	1	0	0.3	0
239	3	2	1	1	1	1	0	0.3	0
240	3	1	1	1	1	1	0	0.3	0
241	3	1	1	1	1	1	0	0.3	0
242	3	1	1	1	1	1	0	0.3	0
243	3	2	2	1	1	1	1	0.5	0
244	7	5	4	4	3	2	2	1.1	0
245	7	5	4	4	3	3	2	1.2	0
246	7	5	4	4	3	3	2	1.2	0
247	7	5	4	4	3	2	2	1.1	0
248	6	5	3	3	3	2	1	1.0	0
249	5	5	3	3	2	2	1	0.9	0
250	6	4	3	3	2	2	1	0.9	0
251	4	3	3	2	2	2	1	0.7	0
252	3	3	2	2	2	1	1	0.7	0
253	3	2	2	1	1	1	1	0.5	0
254	3	2	2	1	1	1	1	0.5	0
255	3	2	1	1	1	1	0	0.3	0
256	3	2	1	1	1	1	0	0.3	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
257	3	2	1	1	1	1	0	0.3	0
258	1	1	1	1	1	1	0	0.3	0
259	1	1	1	1	1	1	0	0.3	0
260	1	1	1	1	1	1	0	0.3	0
261	1	1	1	1	1	1	0	0.2	0
262	1	1	1	1	1	0	0	0.2	0
263	1	1	1	1	0	0	0	0.2	0
264	1	1	1	0	0	0	0	0.1	0
265	2	1	1	1	1	1	0	0.3	0
266	1	1	1	1	1	1	0	0.2	0
267	2	1	1	1	1	1	0	0.2	0
268	3	2	1	1	1	1	0	0.2	0
269	3	3	2	2	1	1	1	0.5	0
270	5	5	5	4	4	3	2	1.2	0
271	5	5	4	4	4	3	2	1.1	0
272	3	2	2	2	1	1	0	0.3	0
273	3	2	1	1	1	1	0	0.3	0
274	3	2	2	2	1	1	0	0.3	0
275	3	2	2	2	1	1	0	0.3	0
276	3	2	1	1	1	1	0	0.3	0
277	3	2	1	1	1	1	0	0.2	0
278	3	2	1	1	1	1	0	0.2	0
279	3	1	1	1	1	1	0	0.2	0
280	2	1	1	1	0	0	0	0.1	0
281	6	5	3	3	2	2	1	1.0	0
282	6	5	3	3	2	2	1	1.0	0
283	1	1	1	1	1	0	0	0.2	0
284	1	1	1	1	0	0	0	0.1	0
285	1	1	1	1	0	0	0	0.1	0
286	1	1	1	1	0	0	0	0.1	0
287	6	5	3	3	3	2	1	1.0	0
288	1	1	1	1	1	0	0	0.1	0
289	1	1	1	1	1	1	0	0.3	0
290	1	1	1	0	0	0	0	0.1	0
291	1	1	1	1	1	1	0	0.2	0
292	6	5	3	3	2	2	1	1.0	0
293	3	2	1	1	1	1	0	0.4	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
294	1	1	1	1	1	1	0	0.3	0
295	1	1	1	1	1	1	0	0.3	0
296	3	2	1	1	1	1	0	0.4	0
297	1	1	1	1	0	0	0	0.2	0
298	3	2	1	1	1	1	0	0.4	0
299	3	1	1	1	1	1	0	0.3	0
300	3	2	2	2	2	1	1	0.4	0
301	6	4	4	3	3	2	1	0.7	0
302	6	6	4	4	3	3	1	1.0	0
303	3	2	2	2	1	1	1	0.4	0
304	4	4	3	2	2	2	1	0.7	0
305	9	8	6	5	4	3	2	1.2	0
306	12	10	8	8	6	5	3	2.2	0
307	1	1	1	0	0	0	0	0.1	0

Appendix Table 13: Phase 2 - $PM_{2.5}$ concentrations at all discrete receptors – including background concentration

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
1	13	13	12	11	10	9	7	6.6	0
2	15	15	14	13	11	10	8	7.0	0
3	9	9	8	8	7	7	6	5.8	0
4	16	15	14	13	11	10	8	7.1	0
5	8	8	7	7	7	7	6	5.6	0
6	8	8	8	7	7	7	6	5.6	0
7	17	17	15	14	12	11	8	7.3	0
8	23	21	18	16	15	13	9	8.3	0
9	7	7	6	6	6	6	5	5.3	0
10	10	10	9	8	8	7	6	5.8	0
11	7	7	6	6	6	6	5	5.3	0
12	10	10	8	8	7	7	6	5.7	0
13	7	7	6	6	6	6	5	5.3	0
14	21	16	15	14	12	11	8	7.4	0
15	22	19	17	16	14	13	9	8.1	0
16	6	6	6	6	6	6	5	5.3	0
17	22	19	17	16	14	13	9	8.1	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
18	22	19	17	16	15	13	9	8.1	0
19	20	16	14	13	12	11	8	7.5	0
20	6	6	6	6	6	6	5	5.3	0
21	10	10	8	8	8	7	6	5.8	0
22	7	6	6	6	6	6	5	5.3	0
23	6	6	6	6	6	6	5	5.3	0
24	7	7	6	6	6	6	5	5.3	0
25	16	13	11	10	9	9	7	6.4	0
26	7	7	6	6	6	6	5	5.3	0
27	7	7	6	6	6	6	5	5.3	0
28	9	8	7	7	7	6	6	5.7	0
29	9	8	7	7	7	6	6	5.6	0
30	9	8	7	7	7	6	6	5.6	0
31	6	6	6	6	6	6	5	5.3	0
32	31	29	23	22	19	16	11	9.8	3
33	9	8	8	7	7	7	6	5.6	0
34	7	6	6	6	6	6	5	5.3	0
35	8	7	7	7	6	6	6	5.4	0
36	7	7	6	6	6	6	6	5.4	0
37	25	24	22	21	18	15	9	8.1	1
38	10	9	9	8	8	7	6	5.9	0
39	10	10	10	9	9	8	6	6.1	0
40	9	8	7	7	7	6	6	5.6	0
41	13	12	11	10	8	8	6	6.0	0
42	14	13	11	10	9	8	6	6.1	0
43	9	8	7	7	6	6	6	5.6	0
44	17	17	14	13	12	11	7	6.7	0
45	17	17	15	13	12	11	7	6.9	0
46	7	7	6	6	6	6	5	5.3	0
47	7	7	6	6	6	6	5	5.3	0
48	7	7	6	6	6	6	5	5.3	0
49	7	7	6	6	6	6	5	5.3	0
50	7	7	6	6	6	6	5	5.3	0
51	7	7	6	6	6	6	5	5.3	0
52	7	7	6	6	6	6	5	5.3	0
53	7	7	6	6	6	6	5	5.3	0
54	7	7	6	6	6	6	5	5.4	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
55	7	7	6	6	6	6	5	5.3	0
56	7	7	6	6	6	6	5	5.3	0
57	7	7	6	6	6	6	5	5.3	0
58	7	7	6	6	6	6	5	5.3	0
59	7	7	6	6	6	6	5	5.3	0
60	7	7	6	6	6	6	5	5.3	0
61	7	7	6	6	6	6	5	5.3	0
62	8	8	7	7	6	6	6	5.4	0
63	7	7	6	6	6	6	5	5.4	0
64	7	7	6	6	6	6	5	5.3	0
65	7	7	6	6	6	6	5	5.3	0
66	7	7	6	6	6	6	5	5.3	0
67	8	7	6	6	6	6	6	5.4	0
68	9	9	8	7	7	6	6	5.6	0
69	7	7	6	6	6	6	5	5.3	0
70	7	7	6	6	6	6	5	5.3	0
71	7	7	6	6	6	6	5	5.3	0
72	7	7	6	6	6	6	5	5.3	0
73	7	7	6	6	6	6	5	5.3	0
74	116	114	87	80	66	49	27	21.7	117
75	7	7	6	6	6	6	5	5.3	0
76	100	99	94	86	68	59	35	27.4	170
77	104	99	93	86	71	60	36	28.2	180
78	8	7	6	6	6	6	5	5.4	0
79	33	29	28	25	22	20	14	11.8	8
80	7	7	6	6	6	6	5	5.3	0
81	22	22	19	17	17	15	10	9.1	0
82	30	29	28	25	21	19	14	11.8	8
83	8	7	6	6	6	6	6	5.4	0
84	142	135	93	79	59	45	22	19.9	96
85	20	18	16	15	14	12	9	8.6	0
86	27	27	22	21	17	14	9	8.6	3
87	16	14	13	12	11	10	8	7.4	0
88	15	15	13	13	11	10	8	7.0	0
89	7	7	6	6	6	6	5	5.3	0
90	30	30	26	24	21	18	14	12.0	7
91	31	30	27	25	21	19	14	12.1	7

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
92	32	32	28	25	22	19	14	12.2	9
93	43	41	37	34	27	23	15	14.3	23
94	64	63	53	51	44	39	28	23.3	134
95	7	7	6	6	6	6	5	5.3	0
96	7	7	6	6	6	6	5	5.3	0
97	7	6	6	6	6	6	5	5.3	0
98	53	47	43	42	36	30	21	17.2	73
99	27	24	21	19	17	14	11	10.1	1
100	36	33	28	25	22	18	13	11.6	9
101	19	16	14	13	12	11	8	7.4	0
102	7	6	6	6	6	6	5	5.3	0
103	40	39	34	32	27	24	16	13.5	31
104	7	7	6	6	6	6	5	5.3	0
105	7	7	6	6	6	6	5	5.3	0
106	10	10	9	9	8	8	7	6.2	0
107	6	6	6	5	5	5	5	5.2	0
108	6	6	5	5	5	5	5	5.2	0
109	6	6	5	5	5	5	5	5.1	0
110	14	13	11	10	9	9	7	6.8	0
111	14	14	11	11	9	8	7	6.7	0
112	15	14	12	11	10	9	7	6.7	0
113	19	18	16	14	13	11	8	7.4	0
114	14	14	12	11	10	9	8	6.8	0
115	9	8	8	7	7	6	6	5.5	0
116	7	6	6	6	6	6	5	5.3	0
117	60	58	52	46	39	32	20	16.1	84
118	37	31	23	20	18	15	11	9.2	3
119	19	18	16	15	14	12	10	8.7	0
120	12	12	11	10	9	8	7	6.5	0
121	12	12	11	10	9	8	7	6.2	0
122	24	20	16	14	13	12	8	7.6	0
123	12	12	11	10	9	8	7	6.2	0
124	33	30	27	25	21	18	13	11.1	8
125	9	8	7	7	7	6	6	5.5	0
126	8	7	7	6	6	6	6	5.4	0
127	8	7	7	6	6	6	5	5.4	0
128	8	7	7	6	6	6	5	5.4	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
129	24	20	17	16	14	13	9	8.1	0
130	8	7	6	6	6	6	5	5.4	0
131	8	7	6	6	6	6	5	5.4	0
132	31	27	24	23	19	17	12	9.9	4
133	8	7	6	6	6	6	5	5.4	0
134	53	40	27	25	22	18	12	10.9	6
135	31	27	24	23	19	17	12	9.9	4
136	33	30	27	25	21	18	13	11.1	8
137	8	7	7	7	6	6	6	5.4	0
138	50	43	33	31	30	24	16	14.5	34
139	20	17	17	16	14	12	8	7.5	0
140	8	7	7	7	6	6	6	5.4	0
141	8	7	7	7	6	6	6	5.5	0
142	11	10	9	9	8	7	6	5.9	0
143	11	10	9	9	8	7	6	5.9	0
144	11	10	9	9	8	7	6	5.9	0
145	8	7	7	7	6	6	6	5.4	0
146	9	7	7	7	7	6	6	5.5	0
147	9	7	7	7	7	6	6	5.5	0
148	9	7	7	7	6	6	6	5.4	0
149	9	7	7	7	6	6	6	5.4	0
150	12	11	9	8	8	7	6	5.9	0
151	39	12	11	10	9	8	7	6.6	1
152	39	12	11	10	9	8	7	6.6	1
153	83	80	62	54	40	33	18	15.9	70
154	47	36	27	26	22	18	13	10.8	12
155	29	29	26	23	20	17	13	11.4	6
156	27	25	19	18	17	15	11	10.2	1
157	19	18	15	15	14	12	9	7.8	0
158	47	36	27	26	22	18	13	10.8	12
159	47	36	27	26	22	18	13	10.8	12
160	17	16	15	13	11	10	8	7.4	0
161	14	13	10	10	10	9	8	6.9	0
162	17	14	13	12	11	10	9	7.6	0
163	18	14	13	13	12	10	9	7.9	0
164	18	15	13	12	11	10	8	7.4	0
165	18	16	14	13	12	11	9	8.0	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
166	18	16	14	13	12	11	9	8.0	0
167	18	16	14	13	12	11	9	8.0	0
168	18	16	14	13	12	11	9	8.0	0
169	18	16	14	13	12	11	9	8.0	0
170	18	14	13	12	11	10	8	7.8	0
171	18	14	13	13	12	10	9	7.9	0
172	18	16	14	13	12	11	9	8.0	0
173	17	14	13	12	11	10	9	7.6	0
174	18	16	14	13	12	11	9	8.0	0
175	21	18	15	14	12	10	8	7.5	0
176	21	18	15	14	12	10	8	7.5	0
177	25	19	16	15	13	11	8	7.8	0
178	11	10	8	8	8	7	6	5.9	0
179	11	10	8	8	8	7	6	5.9	0
180	11	10	8	8	8	7	6	5.9	0
181	11	10	8	8	8	7	6	5.9	0
182	11	10	8	8	8	7	6	5.9	0
183	11	10	8	8	8	7	6	5.9	0
184	11	9	8	8	7	7	6	5.8	0
185	8	7	7	6	6	6	6	5.4	0
186	8	7	7	6	6	6	5	5.4	0
187	24	24	21	19	18	16	13	11.2	0
188	21	18	14	12	11	9	8	7.0	0
189	13	13	12	10	9	8	7	6.4	0
190	297	222	131	107	63	44	29	28.1	135
191	11	9	8	7	7	7	6	5.7	0
192	15	11	9	8	7	6	6	5.5	0
193	15	11	9	8	7	6	6	5.5	0
194	15	11	9	8	7	6	6	5.5	0
195	22	15	9	8	7	6	6	5.6	0
196	22	15	9	8	7	6	6	5.6	0
197	11	9	8	7	7	7	6	5.7	0
198	15	11	9	8	7	6	6	5.5	0
199	28	15	12	8	6	6	5	5.5	1
200	28	21	10	8	7	6	6	5.7	1
201	17	13	9	8	7	6	6	5.6	0
202	17	13	9	8	7	6	6	5.6	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
203	8	7	6	6	6	6	5	5.4	0
204	37	37	32	29	25	22	16	14.1	18
205	29	29	26	23	20	17	13	11.4	6
206	21	18	14	12	11	9	8	7.0	0
207	19	17	13	12	12	11	9	7.9	0
208	111	83	70	65	59	50	31	24.5	144
209	8	8	7	7	6	6	6	5.4	0
210	8	8	7	7	6	6	6	5.5	0
211	10	8	7	7	6	6	6	5.5	0
212	9	8	7	7	6	6	6	5.4	0
213	9	8	7	7	6	6	6	5.4	0
214	8	8	7	7	6	6	6	5.5	0
215	8	8	7	7	6	6	6	5.5	0
216	8	8	7	7	6	6	6	5.5	0
217	8	8	8	7	7	6	6	5.5	0
218	8	8	7	7	7	6	6	5.5	0
219	11	8	8	7	7	6	6	5.6	0
220	21	18	15	14	12	10	8	7.5	0
221	21	18	15	14	12	10	8	7.5	0
222	24	20	16	14	13	12	8	7.6	0
223	17	13	12	11	10	9	7	6.6	0
224	17	13	12	11	10	9	7	6.6	0
225	11	9	9	8	8	7	6	5.8	0
226	11	9	9	8	8	7	6	5.8	0
227	8	7	7	7	7	6	6	5.5	0
228	7	7	6	6	6	6	6	5.4	0
229	7	6	6	6	6	6	6	5.4	0
230	7	6	6	6	6	6	5	5.4	0
231	18	18	15	14	12	12	9	7.8	0
232	13	13	11	11	10	9	8	6.9	0
233	13	13	11	10	9	8	7	6.4	0
234	12	11	9	9	8	8	6	6.1	0
235	10	9	8	7	7	7	6	5.8	0
236	8	8	7	7	7	6	6	5.6	0
237	7	6	6	6	6	6	5	5.4	0
238	8	6	6	6	6	6	5	5.4	0
239	8	7	6	6	6	6	5	5.4	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
240	8	6	6	6	6	6	6	5.4	0
241	8	6	6	6	6	6	6	5.4	0
242	8	6	6	6	6	6	6	5.4	0
243	8	7	7	7	6	6	6	5.6	0
244	12	10	9	9	8	7	7	6.2	0
245	12	10	9	9	8	8	7	6.3	0
246	12	10	9	9	8	8	7	6.3	0
247	12	10	9	9	8	8	7	6.2	0
248	11	10	9	8	8	7	6	6.1	0
249	11	10	8	8	7	7	6	6.0	0
250	11	9	8	8	7	7	6	6.0	0
251	9	8	8	7	7	7	6	5.8	0
252	8	8	7	7	7	7	6	5.8	0
253	8	7	7	7	6	6	6	5.6	0
254	8	7	7	7	6	6	6	5.6	0
255	8	7	6	6	6	6	6	5.4	0
256	8	7	6	6	6	6	6	5.4	0
257	8	7	6	6	6	6	6	5.4	0
258	6	6	6	6	6	6	5	5.4	0
259	6	6	6	6	6	6	5	5.4	0
260	6	6	6	6	6	6	5	5.4	0
261	6	6	6	6	6	6	5	5.3	0
262	6	6	6	6	6	6	5	5.3	0
263	6	6	6	6	6	6	5	5.3	0
264	6	6	6	6	5	5	5	5.2	0
265	7	7	6	6	6	6	6	5.4	0
266	6	6	6	6	6	6	5	5.3	0
267	8	7	6	6	6	6	5	5.3	0
268	8	7	7	6	6	6	5	5.3	0
269	8	8	7	7	7	6	6	5.6	0
270	11	10	10	9	9	8	7	6.3	0
271	10	10	9	9	9	8	7	6.2	0
272	8	7	7	7	7	6	5	5.4	0
273	8	7	7	6	6	6	5	5.4	0
274	8	7	7	7	7	6	5	5.4	0
275	9	7	7	7	6	6	5	5.4	0
276	8	7	7	6	6	6	5	5.4	0

Receptor	Max	2nd	6th	10th	95th	90th	70th	Annual	Days >25
		Highest			Percentile				
277	8	7	7	6	6	6	5	5.3	0
278	8	7	6	6	6	6	5	5.3	0
279	8	7	6	6	6	6	5	5.3	0
280	7	6	6	6	6	5	5	5.2	0
281	11	10	8	8	8	7	6	6.1	0
282	11	10	8	8	8	7	6	6.1	0
283	6	6	6	6	6	6	5	5.3	0
284	6	6	6	6	5	5	5	5.2	0
285	6	6	6	6	6	5	5	5.2	0
286	6	6	6	6	6	5	5	5.2	0
287	11	10	9	8	8	7	6	6.1	0
288	6	6	6	6	6	5	5	5.2	0
289	6	6	6	6	6	6	5	5.4	0
290	6	6	6	6	5	5	5	5.2	0
291	6	6	6	6	6	6	5	5.3	0
292	11	10	8	8	8	7	6	6.1	0
293	8	7	6	6	6	6	6	5.5	0
294	6	6	6	6	6	6	5	5.4	0
295	6	6	6	6	6	6	5	5.4	0
296	8	7	6	6	6	6	6	5.5	0
297	6	6	6	6	6	6	5	5.3	0
298	8	7	6	6	6	6	6	5.5	0
299	8	6	6	6	6	6	6	5.4	0
300	8	7	7	7	7	6	6	5.5	0
301	11	9	9	8	8	7	6	5.8	0
302	12	11	9	9	8	8	6	6.1	0
303	8	7	7	7	6	6	6	5.5	0
304	10	9	8	7	7	7	6	5.8	0
305	14	13	11	10	9	8	7	6.3	0
306	17	15	13	13	11	10	8	7.3	0
307	6	6	6	6	5	5	5	5.2	0