13 Air Quality

Section 13 Air Quality

Emissions from the Alpha Coal Project (Mine) are generated primarily from activities that include the handling and transporting of overburden and coal. The main pollutant of concern is dust and to a lesser extent emissions associated with the combustion of diesel fuel in mobile equipment.

The emissions and impacts of dust from mine-related activities include:

- Total suspended particulates (TSP);
- Particulate matter less than 10 micrometres (µm) in diameter (PM_{10});
- Particulate matter less than 2.5 µm in diameter ($PM_{2.5}$); and
- Dust deposition.

These pollutants of concern have been considered in the air quality assessment for the Alpha Coal Project (Mine).

Air pollutants that result from the combustion of diesel fuel include sulphur dioxide, nitrogen dioxide and trace quantities of volatile organic compounds. Due to the scale (volume) of diesel fuel that is estimated to be consumed on site and the proximity of the potential sensitive (air) receptors to Alpha Coal Project (Mine), these pollutants were not considered to be emitted in sufficient quantities to impact significantly on air quality at sensitive receptor locations. Thus air quality impacts associated with sulphur dioxide, nitrogen dioxide and volatile organic compounds have not been considered.

Ground level concentrations of dust at sensitive receptors have been estimated for the following years of activities associated with the Project:

- Life of mine Year 5
- Life of mine Year 10
- Life of mine Year 15
- Life of mine Year 20
- Life of mine Year 25
- Life of mine Year 30

A detailed emissions inventory for dust emissions from the Project was developed using information provided by the Proponent in conjunction with emission factors from both the Australian National Pollutant Inventory (NPI) emission estimation manual and United States Environmental Protection Agency (US EPA) AP-42 emission estimation manual.

A comparison of ground level concentrations of dust associated with the Project and regulatory ambient air quality objectives at identified receptor locations are presented in this EIS section. The detailed air quality technical report is included as Volume 5, Appendix H.

13.1 Environmental Values

13.1.1 Legislative Framework

13.1.1.1 National Legislative Framework

National air quality guidelines are specified by the National Environment Protection Council (NEPC). The National Environment Protection Measure (NEPM) (Ambient Air Quality) was released in 1998[1] (with an amendment in 2003) and sets standards for ambient air quality in Australia.

The NEPM (Ambient Air Quality) specifies national ambient air quality standards and goals for the following common air pollutants: carbon monoxide, nitrogen dioxide, sulphur dioxide, ozone, particulates (as PM_{10} and $PM_{2.5}$), and lead.

In 2004 the NEPM (Air Toxics) was released which included monitoring investigation guidelines for five compounds classified as air toxics: benzene, benzo(a)pyrene, formaldehyde, toluene, and xylenes. These toxic air pollutants are not released in significant quantities from the Project and have not been addressed in the air quality assessment.

Ambient concentrations of $PM_{2.5}$ are addressed only by advisory reporting standards in the NEPM, which are not applied as goals. Potential particulate emissions and impacts are addressed through consideration of the impacts of total suspended particulates and PM_{10}.

The NEPM standards are intended to be applied at monitoring locations that represent air quality for a region or sub-region of more than 25,000 people, and are not used as recommendations for locations near industrial facilities. The air quality report has focussed on demonstrating compliance with the Environmental Protection (Air) Policy 2008 (EPP [Air]) air quality objectives.

13.1.1.2 Queensland Legislative Framework

In Queensland, air quality is managed under the *Environment Protection Act 1994* (the EP Act), the Environmental Protection Regulation 2008[2] (the EP Regulation) and the Environmental Protection (Air) Policy 2008[3] (EPP [Air]) which came into effect on January 1, 2009.

The EP Act provides for long-term protection for the environment in Queensland in a manner that is consistent with the principles of ecologically sustainable development. The primary purpose of the EPP (Air) is to achieve the objectives of the EP Act in relation to Queensland's air environment. This objective is achieved by the EPP (Air) through:

- Identification of environmental values to be enhanced or protected;
- Specification of air quality indicators and goals to protect environmental values; and

---

[1] National Environmental Protection Council, *National Environment Protection Measure for Ambient Air Quality*, 1988, with amendment in 2003

[2] Queensland Government, *Environmental Protection Regulation* 2008, Office of the Queensland Parliamentary Counsel

[3] Queensland Government, *Environmental Protection (Air) Policy* 2008, Office of the Queensland Parliamentary Counsel

- Provision of a framework for making consistent and fair decisions about managing the air environment and involving the community in achieving air quality goals that best protect Queensland's air environment.

The EPP (Air) applies "*…to Queensland's air environment*" but the air quality objectives specified in the EPP (Air) do not extend to workplaces covered by the Workplace Health and Safety Act (1995) (Section 8 of the EPP [Air]).

The air quality assessment presented in the air quality report addresses off-site ambient air quality impacts only and does not cover workplace health and safety exposure.

Schedule 1 of the EPP (Air) specifies the air quality objectives that are to be (progressively) achieved though no timeframe for achievement of these objectives is specified. The Schedule includes objectives associated designed to protect the environmental values of:

- Health and well being;
- Aesthetic environment;
- Health and biodiversity of ecosystems; and
- Agriculture.

The Queensland Department of Environment and Resource Management (DERM) have adopted a guideline for dust deposition of 4 g/m²/month (approximately140 mg/m²/day) to ensure adequate protection from nuisance levels of dust. This level was derived from ambient monitoring of dust conducted in the Hunter Valley, New South Wales (NSW) in the 1980's. The former NSW State Pollution Control Commission set the level to avoid a loss of amenity in residential areas, based on the levels of dust fallout that cause complaints. The current guideline level adopted in NSW[4] is that the maximum total dust deposition level should not exceed 4 g/m²/month, and that the maximum increase in deposited dust is 2 g/m²/month.

13.1.1.3 Summary of Project Ambient Air Goals

Air emissions from the Project comprise mainly particulate matter, also referred to as dust. Particulate matter for this Project is described in three size categories:

- Particulate matter less than 2.5 µm in diameter ($PM_{2.5}$);
- Particulate matter less than 10 µm in diameter (PM_{10}); and
- Total suspended particulates (TSP).

Minor pollutants that may be emitted from site operations include combustion pollutants from engine exhausts, namely nitrogen dioxide, sulphur dioxide and trace quantities of organic compounds. Due to the scale of the emission of these minor pollutants, impacts of nitrogen dioxide, sulphur dioxide and volatile organic compounds have not been quantified as part of the air quality assessment.

The EPP (Air) objectives and Queensland DERM guideline for TSP, PM_{10}, $PM_{2.5}$ and dust deposition are included in Table 13-1.

[4] NSW Department of Environment and Conservation, *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*, August 2005

Table 13-1: Summary of Project Goals for Particulate Matter

Pollutant	Averaging Period	Objective or Goal	Jurisdiction
Total Suspended Particulates	Annual	90 µg/m^3	EPP (Air)
PM_{10}	24-hour	50 µg/m^3 (five exceedences allowed per year)	EPP (Air)
$PM_{2.5}$	24-hour	25 µg/m^3	EPP (Air)
	Annual	8 µg/m^3	EPP (Air)
Dust Deposition	Monthly	140 mg/m^2/day	Queensland DERM

13.1.2 Existing Air Quality

13.1.2.1 Particulate Matter

As noted in Volume 2, Section 6, the region surrounding the Project is predominantly rural in character supporting cattle grazing and some minor crop farming. Dust emission sources in the surrounding region will, therefore, generally consist of agricultural activities such as cultivation and harvesting.

DERM operates dust monitoring at numerous sites across Queensland, unfortunately, the nearest DERM monitoring site to the Project site is located at West Mackay in a light industrial area, approximately 400 km north-east of the Project site. As the Project site is located in a rural area and without any light industries or operating mines in the vicinity, the existing dust levels are expected to be lower than those recorded at West Mackay.

Among DERM monitoring sites in Queensland that monitor particulate matter, the Toowoomba monitoring site located approximately 700 km south-east of the Project site has been identified as a closer representation of a rural land use.

The Ensham Central Project Environmental Impact Statement (EIS) contains 3 months of site-specific monitoring data for TSP and PM_{10} concentrations from nearby Ensham Coal Mine located approximately 40 km east of Emerald and 200 km east southeast of the Project site.

13.1.2.2 Dust Deposition

Site-specific dust deposition monitoring (data provided by the Proponent) was conducted at four locations during 2009. Data for approximately 12 months has been made available for the assessment in the technical report. Location HKD3 and HKD4 are within the mining lease application (MLA) 70426, HKD1 located just outside the eastern boundary of MLA 70426, and HKD2 located north of MLA 70426. Dust deposition monitoring locations are shown in Figure 13-1.

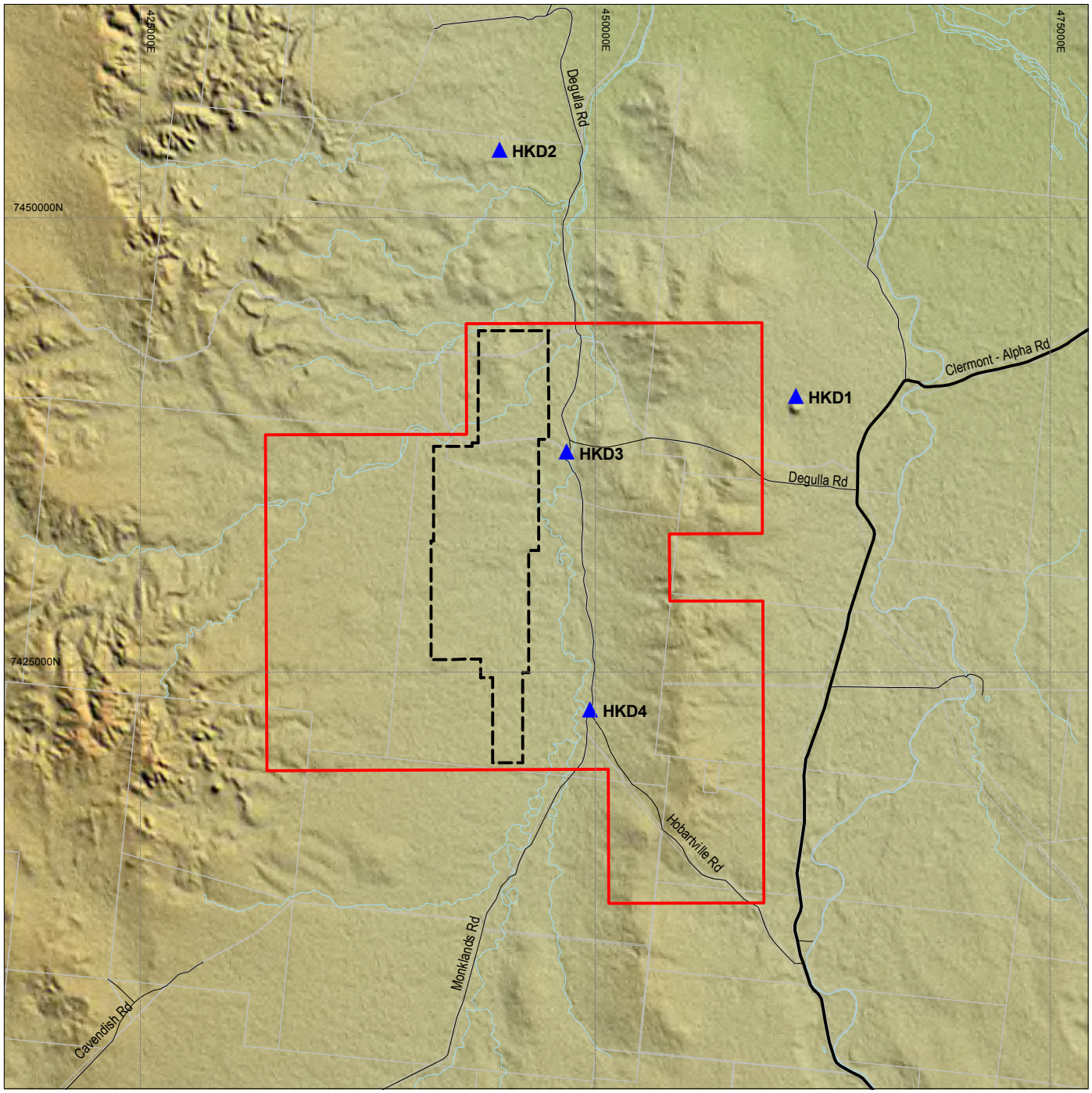
It is understood that as many as three of the dust deposition gauges were sited adjacent to dirt roads. Thus the dust fall out levels are expected to be a conservative representation of regional fall out levels away from the dirt roads.

13.1.2.3 Summary of Estimates of Background Levels

In the absence of site-specific data, estimates of background levels of dust used in the assessment of the Ensham Mine have been adopted, which is a conservative position. Due to the uncertainty in the representativeness of the estimated background levels, both the Project-only (i.e. incremental) and total (Project and background) ground level concentrations of dust will be reported (see Table 13-2).

Table 13-2: Background Levels of Particulate Matter, Ensham Coal Mine

Pollutant	Averaging Period	Background Level	Source
Total Suspended Particulates	Annual	28 µg/m^3	Ensham Coal Mine
PM_{10}	24-hour	27 µg/m^3	Ensham Coal Mine
$PM_{2.5}$	24-hour	5.4 µg/m^3	Ensham Coal Mine
	Annual	2.8 µg/m^3	Ensham Coal Mine
Dust Deposition	Monthly	68 mg/m^2/day	Hancock



Mining Lease Application (MLA70426) Boundary

Mine Pit Extent

Dust Deposition Monitoring Location

Source: See Copyright Details below and for full disclosure Please Refer to the EIS ***Volume 4 - References***

0 3.75 7.5km

Scale 1:325 000 (A4)

Datum: GDA94, MGA Zone55

N W E S

HANCOCK PROSPECTING PTY LTD

Alpha Coal Project
Environmental Impact Statement

LOCATION OF DUST DEPOSITION MONITORING SITES

Job Number	4262 6580
Revision	A
Date	24-09-2010

Figure:13-1

File No: 42626580-g-2095.wor

13.2 Air Quality Assessment Methodology

Dispersion modelling has been used to assess the likelihood of adverse air quality impacts at sensitive receptor locations surrounding the Alpha Coal Project (Mine). Air quality impacts resulting from emissions of dust from mine-related activities under typical and worst case conditions have been considered. The details of the assessment methodology are presented in Volume 5, Appendix H with a summary presented here. Results of the dispersion modelling are presented in Section 13.3 below.

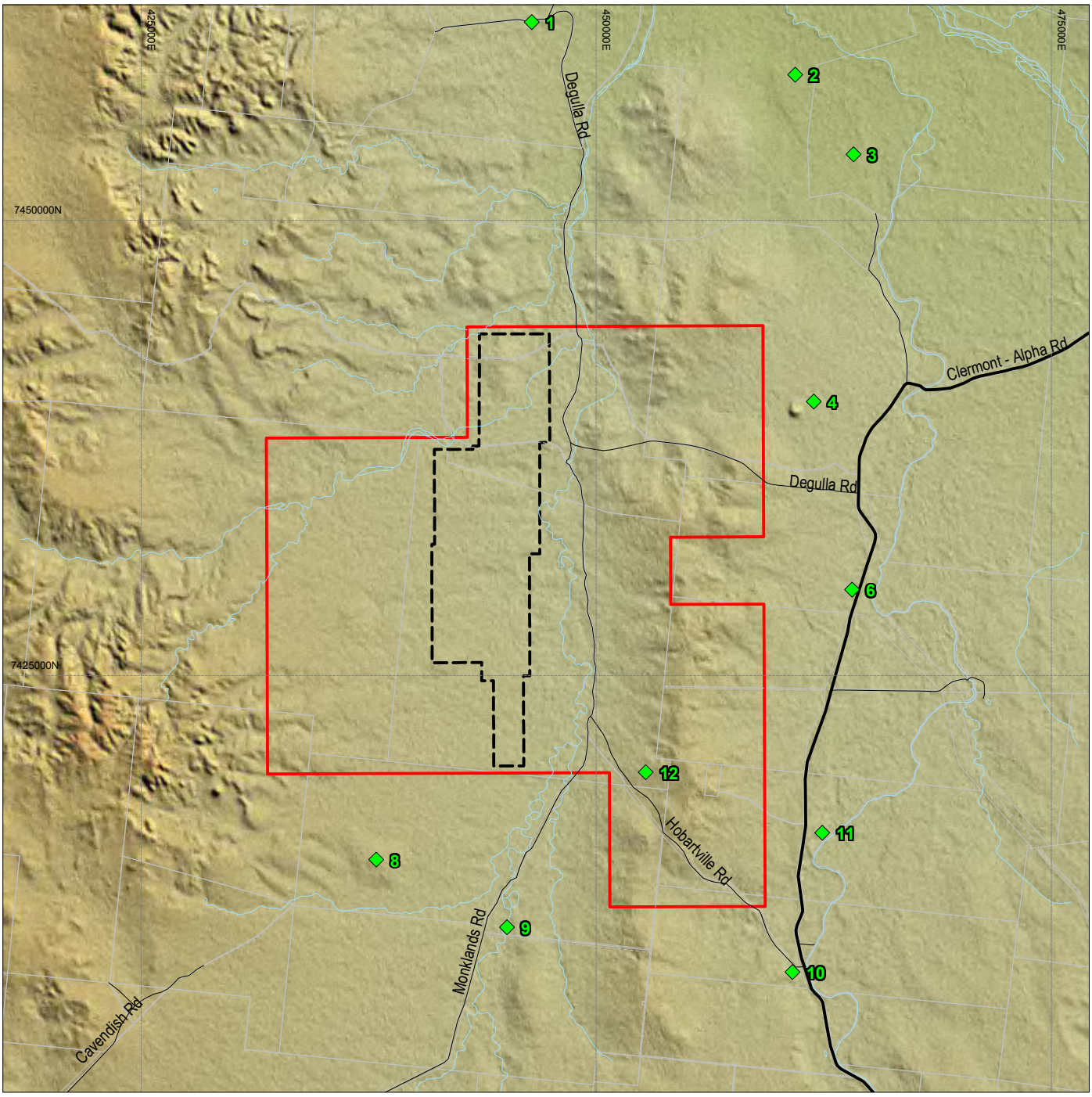
13.2.1 Sensitive Receptor Location

Presented in Table 13-3 are the locations of the sensitive receptors for which results of the dispersion modelling will be presented. These are indicated on Figure 13-2.

Table 13-3: Sensitive Receptor Locations in the Vicinity of the Alpha Coal Project (Mine)

Receptor ID	Receptor Description	UTM Easting (m)	UTM Northing (m)
1	Forrester Homestead	446462	7460888
2	Surbiton Station	460936	7458001
3	Eullmbie Homestead	464135	7453631
4	Surbiton Homestead (Surbiton South Station)	461950	7440055
6	Burtle Homestead	464057	7429716
8	Kia Ora Homestead	437918	7414891
9	Monklands Homestead	445097	7411185
10	Mentmore Homestead	460780	7408727
11	Tressillian Homestead	462419	7416374
12	Alpha Coal Project Accommodation Village	452720	7419695

There are currently two other residences within the study area (Hobartville and Wendouree homesteads). However these two residences are within the boundary of MLA 70426 and will be most likely acquired by the Proponent.



Mining Lease Application (MLA70426) Boundary

Mine Pit Extent

Sensitive Receptor Location

Source: See Copyright Details below and for full disclosure Please Refer to the EIS ***Volume 4 - References***

0 3.75 7.5km

Scale 1:325 000 (A4)

Datum: GDA94, MGA Zone55

N W E S

HANCOCK PROSPECTING PTY LTD

Alpha Coal Project
Environmental Impact Statement

SENSITIVE RECEPTOR LOCATIONS

Job Number | 4262 6580
Revision | A
Date | 24-09-2010

Figure:13-2

File No: 42626580-g-2096.wor

13.2.2 Air Emissions from the Alpha Coal Project (Mine)

13.2.2.1 Emission Sources

Dust emission sources associated with the Alpha Coal Project (Mine) include (but may not be limited to):

Construction Phase:

- Clearing of vegetation;
- Infrastructure construction (processing area, haul roads etc);
- Construction of the box cut;
- Transport of materials to site; and
- On-site quarrying activities.

Operational Phase:

- Graders;
- Scrapers;
- Dozers operating on overburden, interburden and coal;
- Blasting;
- Front end loading of material to trucks;
- Truck dumping of material;
- Loading and unloading of stockpiles;
- Draglines;
- Transport of material (overburden, coal, rejects);
- Conveying of coal to:
  - Run of mine (ROM),
  - Coal handling and preparation plant (CHPP);
- The product stockpiling area;
- The train load-out;
- Rehabilitation; and
- Transfer points.

13.2.2.2 Emission Factors for TSP and PM_{10}

Table 13-4 presents a summary of the uncontrolled emission factors for TSP and PM_{10} developed for the air quality assessment. Details of the development of the emission factors are presented in Volume 5, Appendix H.

Table 13-4: Summary of Uncontrolled TSP and PM_{10} Emission Factors

Source Description	Working Material	Final Emission Factors		
		TSP	PM_{10}	Unit
Dragline	Overburden	0.056	0.009	kg/bcm
Exc/Shov/FEL	Overburden	0.0004	0.0002	kg/t
Exc/Shov/FEL	Coal	0.016	0.008	kg/t
Bulldozers	Coal	16.4	4.7	kg/h
Bulldozers	Overburden	7.6	1.9	kg/h
Trucks (dumping overburden)	Overburden	0.012	0.004	kg/t
Trucks (dumping coal)	Coal	0.010	0.004	kg/t
Drilling	-	0.590	0.310	kg/hole
Blasting	interburden	220.0	114.4	(kg/blast)(ha^1.5)
Wheel generated dust (full)	Overburden	7.067	1.738	kg/VKT
Wheel generated dust (empty)	Overburden	4.918	1.209	kg/VKT
Wheel generated dust (full)	Interburden	4.679	1.151	kg/VKT
Wheel generated dust (empty)	Interburden	3.283	0.807	kg/VKT
Wheel generated dust (full)	Coal	6.882	1.692	kg/VKT
Wheel generated dust (empty)	Coal	5.145	1.265	kg/VKT
Wheel generated dust (full)	Rejects	5.680	1.397	kg/VKT
Wheel generated dust (empty)	Rejects	3.893	0.957	kg/VKT
Scrapers	Overburden	2.807	0.939	kg/VKT
Graders	Roads	0.190	0.085	kg/VKT
Loading Stockpiles	-	0.004	0.002	kg/t
Unloading from Stockpiles	-	0.030	0.013	kg/t
Loading to Trains	-	0.0004	0.0002	kg/t
Miscellaneous Transfer Points	-	0.0003	0.0001	kg/t
Erosion from exposed areas	-	Wind speed dependent	Wind speed dependant	kg/ha/h

13.2.2.3 Dust Reduction Measures

Dust control measures that will be implemented on site have been identified by the Proponent. These consist of a mixture of engineering controls (such as partial enclosure of conveyors) and control measures (such as watering of haul roads and stockpiles). The descriptions of control measures to be used for the Project have been matched to estimates of the control efficiency, as described in the NPI manual, for inclusion in modelling.

13.2.2.4 Emissions during Construction

As noted in Section 13.2.2.1, emissions of dust during the construction phase of the Project will primarily be associated with:

- Construction of infrastructure;
- Construction of the box cut; and
- Quarrying activities.

13.2.2.4.1 Construction of Infrastructure and Box Cut

Presented in Table 13-5 is a summary of emissions during construction associated with disturbance and the construction of the box cut. Emissions of dust associated with the construction of infrastructure such as the processing area and haul roads will be of a short duration and have not been estimated.

Table 13-5: Site Specific Emissions During Construction (kg/year)

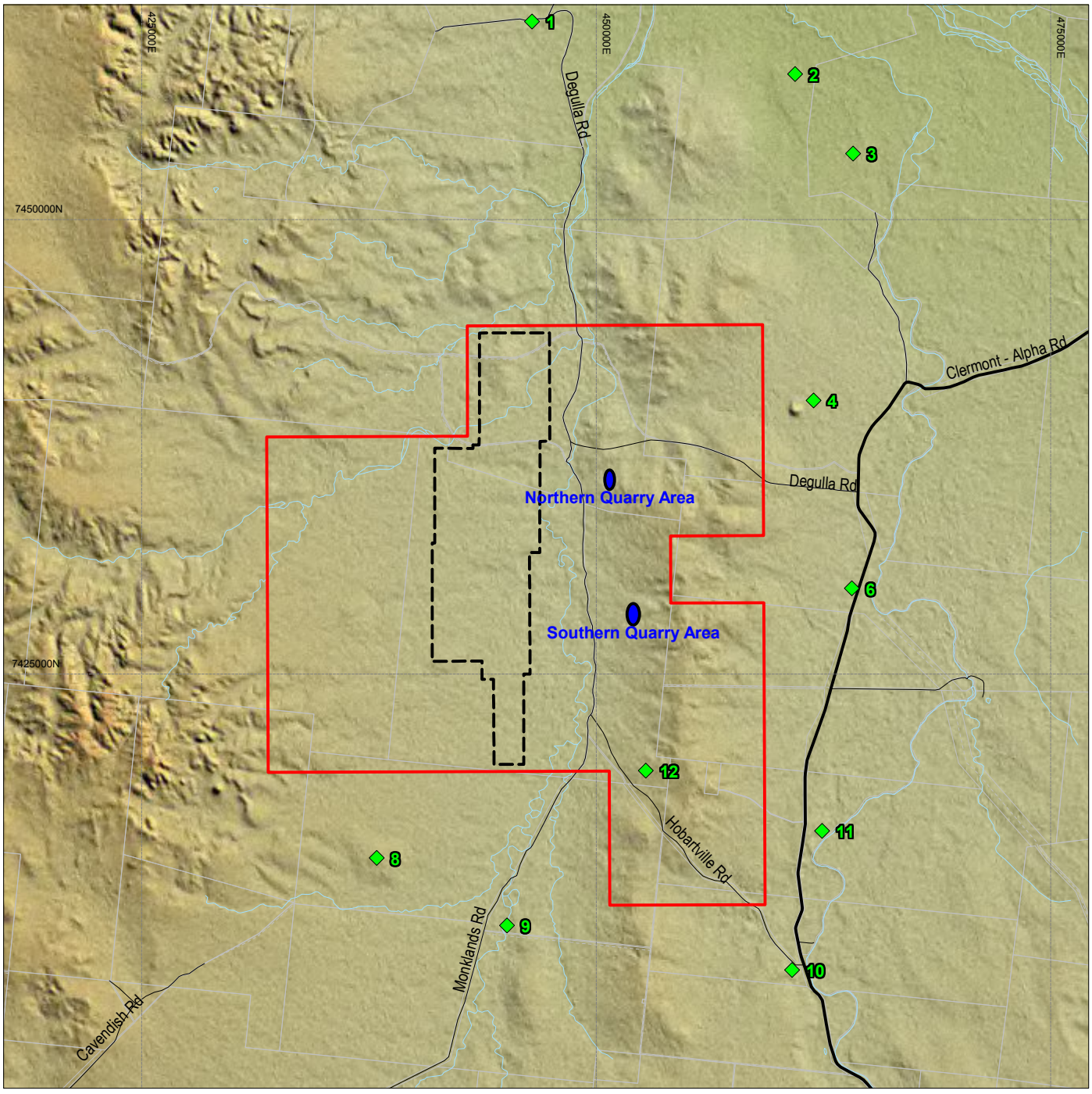
Parameter	Construction Year 1	Construction Year 2
Topsoil		
Disturbance	48,935	13,617
Overburden & In Pit		
Drilling & blasting	-	15,682
Front end loading (FEL) of overburden into trucks	-	7,911
Wheel generated dust - transport of overburden to dumps	-	214,584
Truck dumping at overburden dumps	-	172,847
Dozers	-	17,810
Graders	-	623
TOTAL (kg/year)	**48,935**	**443,075**

13.2.2.4.2 Quarrying

The Project site will provide approximately 2.3 million m^3 of on-site gravel materials over the life of the Project (Figure 13-3). The amount of material to be sourced on-site in the initial construction period is approximately 170,000 m^3 with the remainder sourced from off-site supplies.

Of this approximately 170,000 m^3 to be sourced on site during the initial construction period, 5,000 m^3 will be sourced from the footprint of the tailing storage facility (southern area in Figure 13-3), and the remainder (approximately165,000 m^3) is proposed to come from the nominated borrow pit adjacent to the rail loop (northern area in Figure 13-3). The size of these borrow pits are just indicative of the area that suitable material may be found not the area that will be necessarily disturbed.

Due to the scale of the quarrying activities during the construction phase of the Project, emission of dust associated with quarrying is considered immaterial compared with dust generation during the operational phase of the Project and therefore dust emissions estimation has not been undertaken.



Mining Lease Application (MLA70426) Boundary

Mine Pit Extent

Sensitive Receptor Location

Quarry Area (Indicative)

Source: See Copyright Details below and for full disclosure Please Refer to the EIS ***Volume 4 - References***

0 3.75 7.5km

Scale 1:325 000 (A4)

Datum: GDA94, MGA Zone55

N W E S

HANCOCK PROSPECTING PTY LTD

Alpha Coal Project
Environmental Impact Statement

INDICATIVE LOCATION OF PROPOSED QUARRYING ACTIVITIES

Job Number	4262 6580
Revision	A
Date	24-09-2010

Figure:13-3

File No: 42626580-g-2097.wor

13.2.2.5 Emissions during Operation

Presented in Table 13-6 is a summary of the site emissions inventory for PM_{10} based on level 2 watering of haul road (i.e. greater than 2 L/m^2 per hour). The key sources of dust emissions are estimated to be associated with the transport of overburden and overburden dumping as well as wind erosion from the tailing storage facility.

Table 13-6: Site-specific PM_{10} Emissions During Operation (kg/year)

Activity	Y1	Y5	Y10	Y15	Y20	Y25	Y30
Topsoil							
Disturbance & Rehabilitation	45,759	129,493	89,765	88,528	88,967	84,837	90,058
Overburden & In Pit							
Drilling & Blasting	85,886	433,308	391,404	447,837	374,669	383,614	439,609
Dragline	-	126,771	701,551	1,325,310	1,933,320	2,093,051	2,171,533
FEL of Overburden into Trucks	33,825	119,497	92,794	81,338	83,032	89,460	110,379
Transport of Overburden to dumps	932,346	3,403,907	2,629,672	2,291,753	2,310,160	2,480,075	3,030,093
Truck Dumping at Overburden Dumps	739,061	2,610,994	2,027,534	1,777,225	1,814,224	1,954,674	2,411,761
FEL of coal trucks	37,831	338,704	352,241	358,688	360,175	361,483	364,728
Dozers	101,493	539,422	486,871	476,120	487,638	527,206	610,657
Graders	2,894	14,043	13,933	13,819	14,303	15,432	18,632
ROM Activities							
Processing	6,507	58,255	60,583	61,692	61,948	62,173	62,731
Truck Dumping at ROM	20,219	181,020	188,25	191,700	192,495	193,194	194,928
FEL at ROM	7,566	67,741	70,448	71,738	72,035	72,297	72,946
Dozer hours - Coal at ROM (total)	1,839	18,307	19,111	19,457	19,535	19,610	19,788
Wind Erosion from Stockpiles	959	959	959	959	959	959	959
ROM to CHPP Conveyor							
Conveyors	1,034	1,034	1,034	1,034	1,034	1,034	1,034
Miscellaneous Transfer Points	7,135	63,883	66,436	67,652	67,932	68,179	68,791
CHPP Activities							
Processing	13,014	116,509	121,166	123,384	123,895	124,345	125,461
FEL at CHPP	7,566	67,741	70,448	71,738	72,035	72,297	72,946

Activity	Y1	Y5	Y10	Y15	Y20	Y25	Y30
Dozer Hours - Coal at CHPP	1,839	18,307	19,111	19,457	19,535	19,610	19,788
Loading Stockpiles	3,825	30,590	30,610	30,621	30,659	30,550	30,613
Unloading from Stockpiles	29,250	233,920	234,076	234,158	234,453	233,615	234,101
CHPP Conveyors	148	148	148	148	148	148	148
Miscellaneous Transfer Points	926	7,408	7,413	7,416	7,425	7,399	7,414
Wind Erosion from Stockpiles	29,144	29,144	29,144	29,144	29,144	29,144	29,144
Main Haul Roads							
Transport of Coal To ROM	51,465	542,108	676,220	794,600	897,061	1,001,950	1,125,676
Transport of Rejects to Dumps	7,106	90,722	131,202	166,774	195,303	230,675	243,224
Tailing storage facility							
Wind Erosion from Tailing storage facility	556,276	556,276	556,276	556,276	556,276	556,276	556,276
TOTAL (kg/year)	**2,724,914**	**9,800,210**	**9,068,404**	**9,308,564**	**10,048,359**	**10,713,285**	**12,113,416**

13.2.3 Modelling Methodology

A brief overview of the methodology for meteorological modelling using a three-dimensional prognostic meteorological model (The Air Pollution Model [TAPM]), the meteorological model (CALMET), and dispersion using CALPUFF is described below. Additional details are included in Volume 5, Appendix H.

13.2.3.1 Meteorological Modelling Methodology

No meteorological monitoring station recording hourly data of wind speed and direction, temperature, mixing height and stability class have been identified in the vicinity of the Project; as such there was insufficient data with which to undertake detailed dispersion modelling. To overcome these limitations, the three-dimensional prognostic meteorological model TAPM, developed by the CSIRO (Hurley, 2005), was used to generate wind data for the site location.

TAPM was set up for the region around the Project to simulate wind flows around the location to a 1 km resolution. Output data files were used as direct inputs to the CALMET meteorological model. The resultant three-dimensional wind fields from CALMET were used as inputs to the dispersion model CALPUFF.

13.2.3.2 Dispersion Modelling Methodology

13.2.3.2.1 Pollutants Modelled

The pollutants modelled from the operation of the Project were TSP, PM_{10} and included dust deposition. Emission rates for each dust source on site were derived using the methodology described in the previous sections. The emission sources, identified from the data provided by the Proponent, were modelled for average and peak 24-hour emissions for the year, as detailed in Section 13.2.2 above.

Model results for PM_{10} will be used to predict the impact of emissions of $PM_{2.5}$ from mine-related dust generating activities based on a conservative estimate of 20% of PM_{10} as $PM_{2.5}$.

13.2.3.2.2 Receptor Locations Modelled

Sensitive receptor locations were included in the CALPUFF modelling for the prediction of air quality impacts as described in Section 3.1 above.

13.2.3.2.3 Emission Source Locations

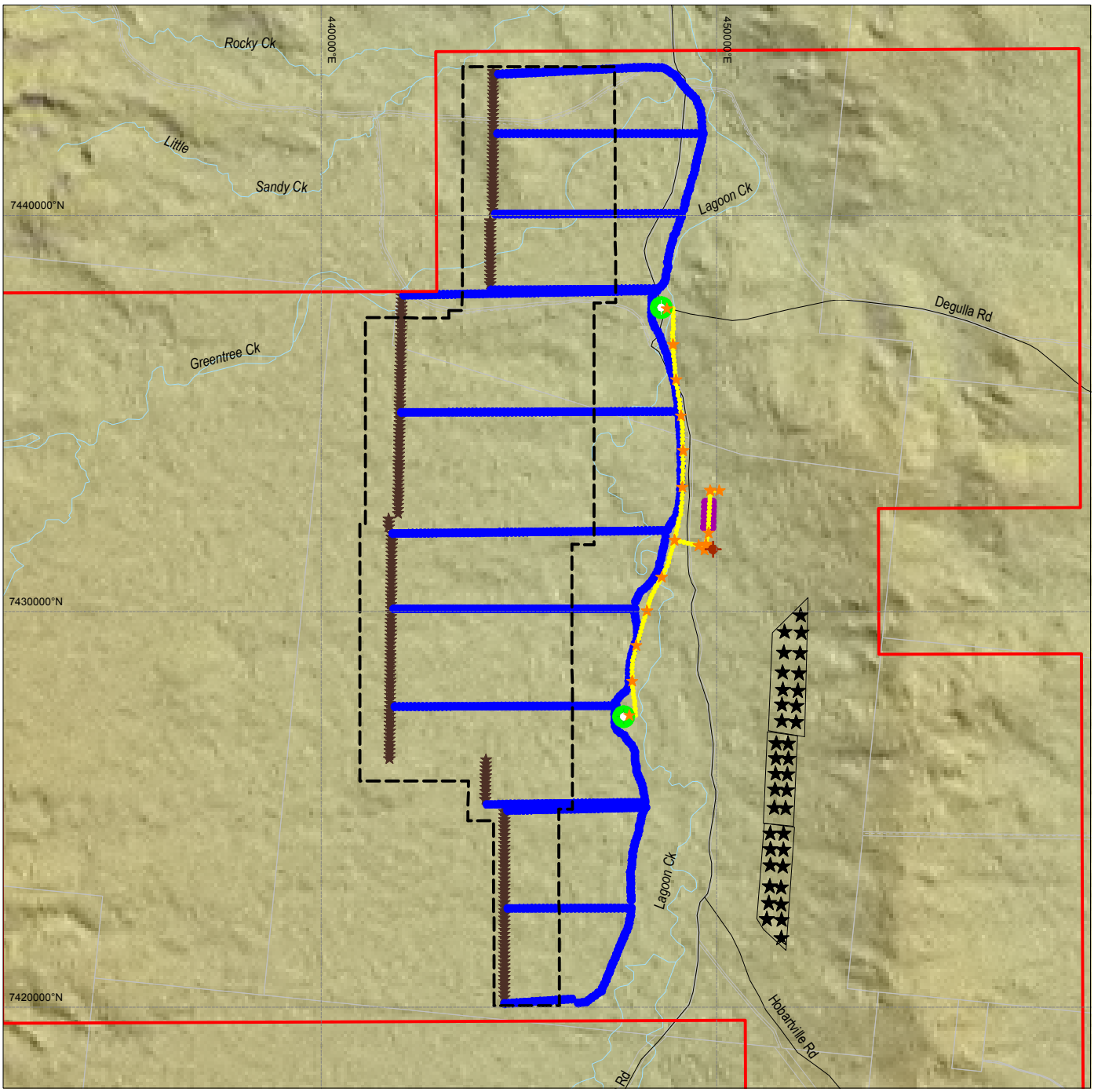
The location of emission sources that were modelled for operational year 30 is presented in Figure 13-4. Additional figures indicating the location of modelled dust emission sources for years 5, 10, 15, 20, and 25 are presented in Volume 5, Appendix H.

13.2.3.2.4 Averaging Time Percentiles for Compliance

The modelling results have been analysed for the same averaging periods as the relevant air quality goals presented in Section 13.1.1.3 above.

Schedule 1 of the EPP (Air) 2008 indicates an allowance of five exceedences of the air quality objective of 50 µg/m^3 for the 24-hour average concentration of PM_{10}. Thus for these results, the 5th highest 24-hour average ground level concentration of PM_{10} at each receptor location was presented in the appropriate tables and figures of this section.

The maximum 24-hour average ground level concentration of $PM_{2.5}$ is also presented.



Mining Lease Application (MLA70426) Boundary

Mine Pit Extent

Tailing Storage Facility

Conveyer Transfer Points

ROM Processing

Haul Roads

Conveyer

ROM Stockpiles

Over burden handling, Blasting, Wind Erosion, Dragline operations

Source: See Copyright Details below and for full disclosure Please Refer to the EIS ***Volume 4 - References***

0 1.25 2.5km

Scale 1:125 000 (A4)

Datum: GDA94, MGA Zone55

N W E S

HANCOCK PROSPECTING PTY LTD

Alpha Coal Project
Environmental Impact Statement

LOCATION OF DUST EMISSION SOURCES FOR YEAR 30

Job Number	4262 6580
Revision	B
Date	24-09-2010

Figure:13-4

File No: 42626580-g-2098b.wor

13.2.3.3 Refinements to the Assessment Methodology

The assessment methodology includes a number of conservative assumptions that may lead to unnecessarily conservative dispersion modelling results.

As such, there are a number of opportunities for future refinement of the assessment methodology including (but not limited to):

- Refine input parameters such as the estimates of tailing storage facility areas that are dry.
- Obtain additional Project specific information in order to refine emissions estimation including:
  - Blasting hole depth;
  - Moisture content of in situ coal, ROM coal and product coal;
  - Moisture content of overburden and interburden; and
  - Silt content of materials (of tailings, coal, over burden, haul roads).
- Development of site-specific emission factors (for example):
  - Truck dumping; and
  - Dozers operations on over- and inter- burden.
- Develop an estimate of background levels based on site-specific monitoring data (if available).
- Investigate opportunities for revised Project definition with improved air quality outcomes for example:
  - Reduction in Vehicle Kilometres Travelled (VKT);
    - Optimise material handling to reduce the number of VKT travelled by empty vehicles
    - Transport via conveyors as opposed to truck and shovel
  - Reduce equipment fleet such as the number of dozers.
- Incorporate pit retention factor for activities below 50 m.

13.3 Dispersion Modelling Results

Results from the dispersion modelling have been analysed at discrete receptor locations in the vicinity of the Alpha Coal Project (Mine). Additionally, contour plots showing the predicted impacts in the vicinity of the proposed mine are presented.

Results presented in the following sections include both the Project related incremental contribution to ground level concentrations of dust at receptor locations as well as combined impacts that incorporate the estimates of background levels of dust.

13.3.1 Construction Phase

Based on information provided by the Proponent, impacts during construction are anticipated to be significantly less than that during operation of the mine and impacts at receptor locations have not been explicitly modelled. Mitigation measures during construction (and operation) of the mine are discussed in Section 13.4 below.

13.3.2 Operational Phase

A summary of results of the dispersion modelling are presented for Year 5 and Year 30 (representing worst-case impacts at receptor locations) in the following. Results for Years 10, 15, 20, and 25 are included in Volume 5, Appendix H.

13.3.2.1 Particulate Matter as PM_{10}

Presented in Table 13-7 is summary of results for the fifth highest 24-hour average predicted ground level concentration of PM_{10}. Results suggest an exceedence of the Project goals at six receptor locations during Year 5 and Year 30 with receptors to the south of the site predicted to be the most affected by dust emissions from the mine.

Contour plots for year 5 and year 30 are presented as Table 13-7 and Table 13-8, respectively and highlight the areal extent of the region predicted to exceed the EPP (Air) objective of 50 $\mu g/m^3$.

Table 13-7: Results for the 5th Highest 24-hour Average Ground Level Concentration of PM_{10}.

Receptor	Y05			Y30		
	Project	Total	% of EPP (Air)	Project	Total	% of EPP (Air)
1	51	**78**	156%	49	**76**	153%
2	24	**51**	102%	23	50	100%
3	22	49	99%	22	49	98%
4	55	**82**	164%	55	**82**	164%
6	21	48	95%	21	48	96%
8	96	**123**	246%	172	**199**	399%
9	139	**166**	332%	104	**131**	262%
10	10	37	75%	11	38	76%
11	11	38	77%	11	38	76%
12	56	**83**	166%	42	**69**	138%

Note (1): Numbers highlighted in bold exceed the relevant EPP (Air) Objective
The EPP (Air) Objective is 50 $\mu g/m^3$. Background concentration estimated at 27 $\mu g/m^3$.

Presented in Table 13-8 is a summary of the estimated frequency of exceedences of the ambient air objective of 50 $\mu g/m^3$ for the 24-hour average ground level concentration of PM_{10}.

Receptor 8 and Receptor 9 located to the south of the Project and Receptor 1 located to the north of the Project are predicted to be the most affected with elevated levels of dust above the EPP (Air) objective predicted to occur approximately 30%, 20% and 10% of the time, respectively. Note that Receptor 12 is the accommodation village located within the MLA 70426. The predicted number of exceedences is not reported for this receptor.

Table 13-8: Predicted Frequency of Exceedences of the PM_{10} 24-hour Average Criteria Per Year.

Receptor	1	2	3	4	6	8	9	10	11
Year 5	12%	2%	1%	5%	1%	28%	20%	1%	1%
Year 10	10%	1%	1%	5%	1%	27%	18%	1%	0%
Year 15	10%	1%	1%	5%	1%	29%	18%	1%	0%
Year 20	10%	1%	1%	5%	1%	31%	18%	1%	0%
Year 25	10%	1%	1%	5%	1%	32%	18%	1%	0%
Year 30	11%	1%	1%	5%	1%	34%	18%	1%	0%
The EPP (Air) Objective is 50 µg/m^3. Background concentration estimated at 27 µg/m^3 has been included.									

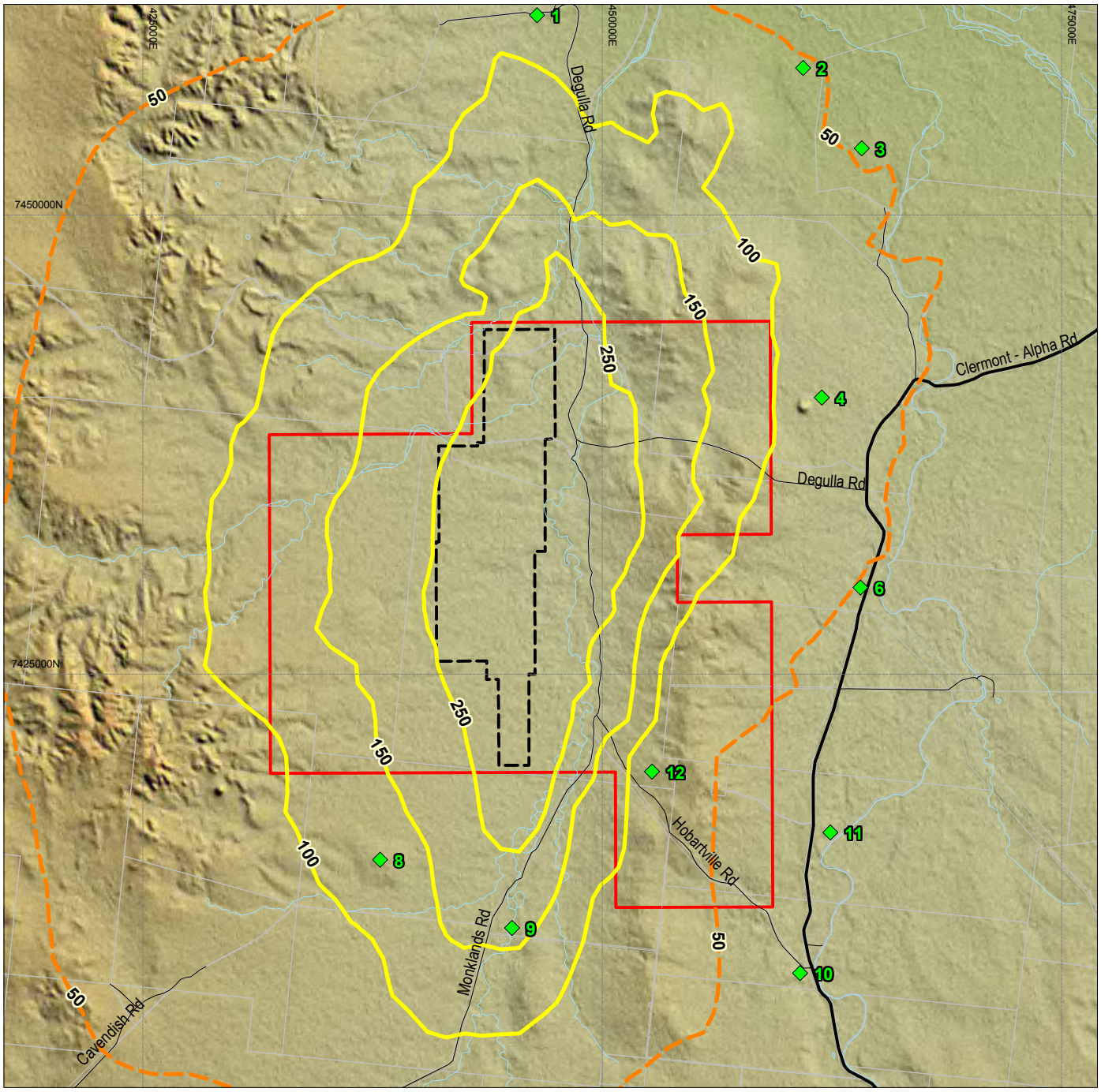
13.3.2.2 Particulate Matter as $PM_{2.5}$

Presented in Table 13-9 is a summary of the predicted maximum 24-hour average ground level concentration of $PM_{2.5}$ at receptor locations. Both the Project only and total ground level concentrations are presented. Results of the dispersion modelling suggest that elevated levels of dust above the EPP (Air) objective of 25 µg/m^3 may occur at Receptors 4 and 12 (to the east of the Project) and Receptors 8 and 9 (to the south).

The results for the annual average ground level concentration of $PM_{2.5}$ are presented in Table 13-10. An exceedence of the EPP (Air) objective of 8 µg/m^3 is predicted to occur only at Receptor 8 for year 30. No other exceedences are predicted at sensitive receptor locations during these two years.

Contour plots for year 30 are presented in Figure 13-7 and Figure 13-8.

Additional results are presented in Volume 5, Appendix H.



Mining Lease Application (MLA70426) Boundary

Mine Pit Extent

Sensitive Receptor Location

Predicted 24 Hour Average PM_{10} Concentration

The EPP (Air) Objective

Source: See Copyright Details below and for full disclosure Please Refer to the EIS ***Volume 4 - References***

The EPP (Air) Objective is 50 µg/m³. Background concentration estimated at 27 µg/m³ has been included.

0 3.75 7.5km

Scale 1:325 000 (A4)

Datum: GDA94, MGA Zone55

N W E S

HANCOCK PROSPECTING PTY LTD

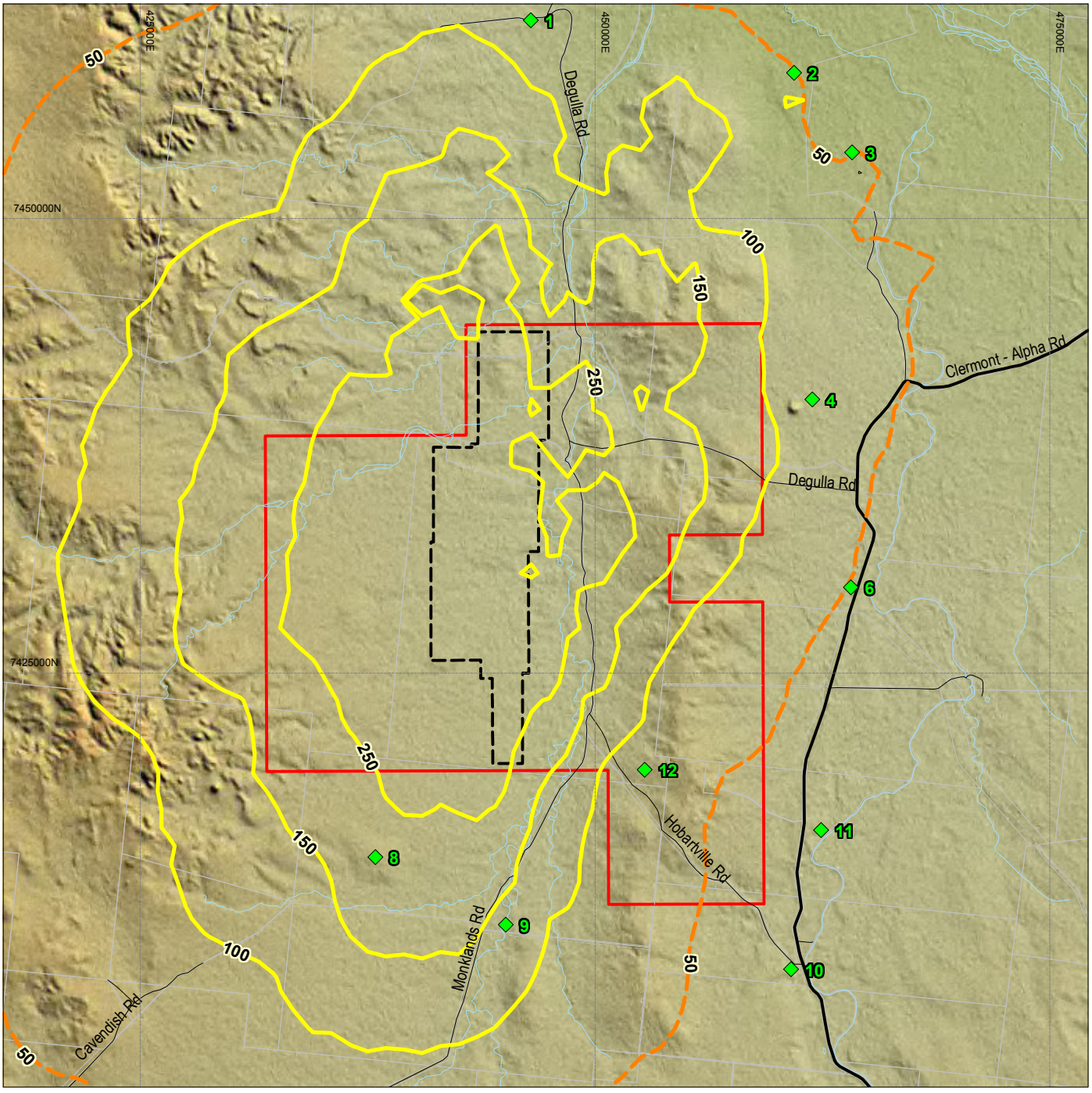
Alpha Coal Project
Environmental Impact Statement

YEAR 5: THE FIFTH HIGHEST 24-HOUR AVERAGE GROUND-LEVEL CONCENTRATION OF PM10

Job Number	4262 6580
Revision	A
Date	24-09-2010

Figure:13-5

File No: 42626580-g-2099.wor



Mining Lease Application (MLA70426) Boundary

Mine Pit Extent

Sensitive Receptor Location

Predicted 24 Hour Average PM_{10} Concentration

The EPP (Air) Objective

Source: See Copyright Details below and for full disclosure Please Refer to the EIS ***Volume 4 - References***

The EPP (Air) Objective is 50 µg/m³. Background concentration estimated at 27 µg/m³ has been included.

0 3.75 7.5km

Scale 1:325 000 (A4)

Datum: GDA94, MGA Zone55

N W E S

HANCOCK PROSPECTING PTY LTD

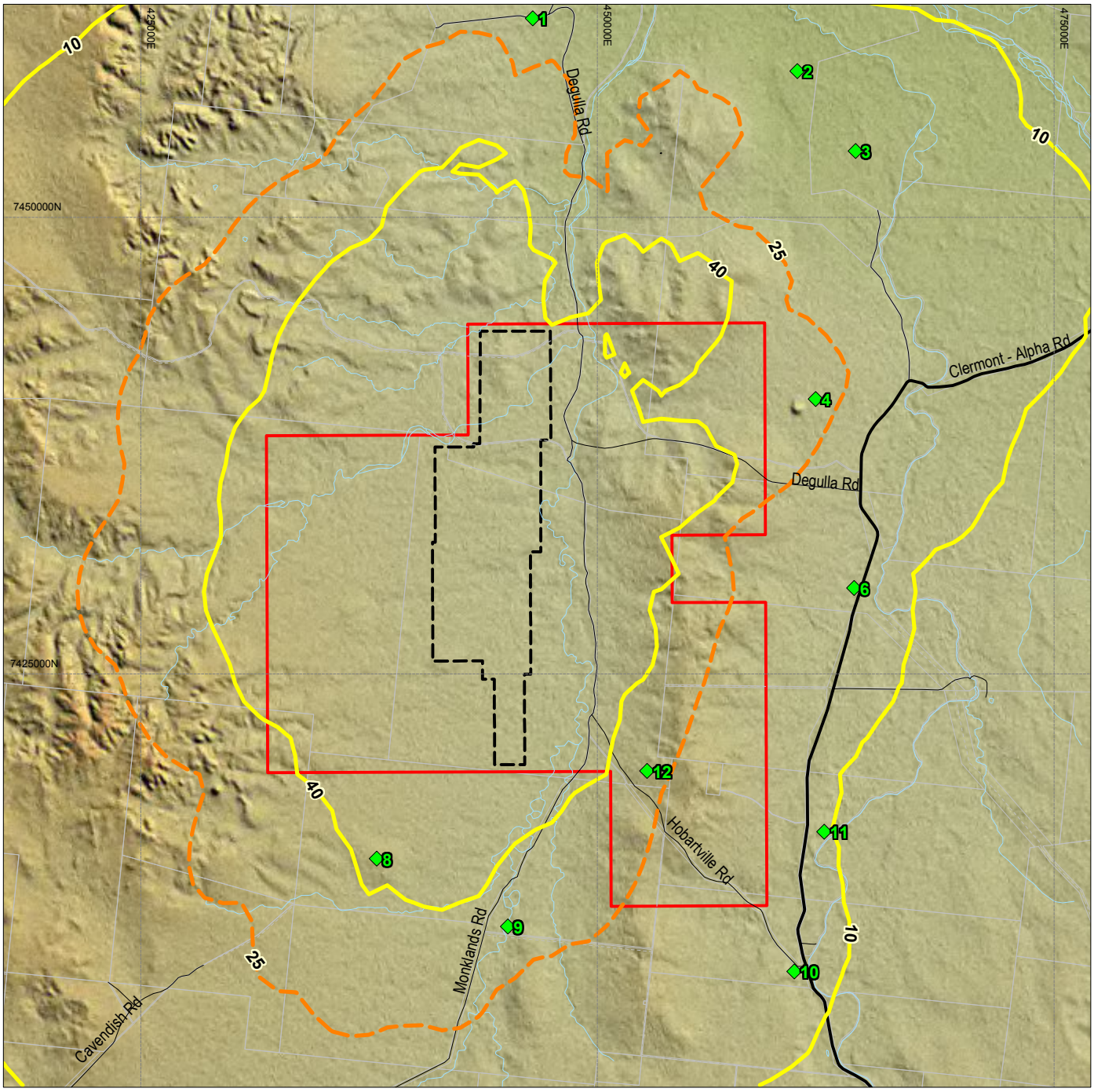
Alpha Coal Project
Environmental Impact Statement

YEAR 30: THE FIFTH HIGHEST 24-HOUR AVERAGE GROUND-LEVEL CONCENTRATION OF PM$_{10}$

Job Number	4262 6580
Revision	A
Date	24-09-2010

Figure:13-6

File No: 42626580-g-2100.wor



Mining Lease Application (MLA70426) Boundary

Mine Pit Extent

Sensitive Receptor Location

Predicted 24 Hour Average $PM_{2.5}$ Concentration

The EPP (Air) Objective

Source: See Copyright Details below and for full disclosure Please Refer to the EIS ***Volume 4 - References***

The EPP (Air) Objective is 25 µg/m³. Background concentration estimated at 5.4 µg/m³ has been included.

0 3.75 7.5km

Scale 1:325 000 (A4)

Datum: GDA94, MGA Zone55

N W E S

HANCOCK PROSPECTING PTY LTD

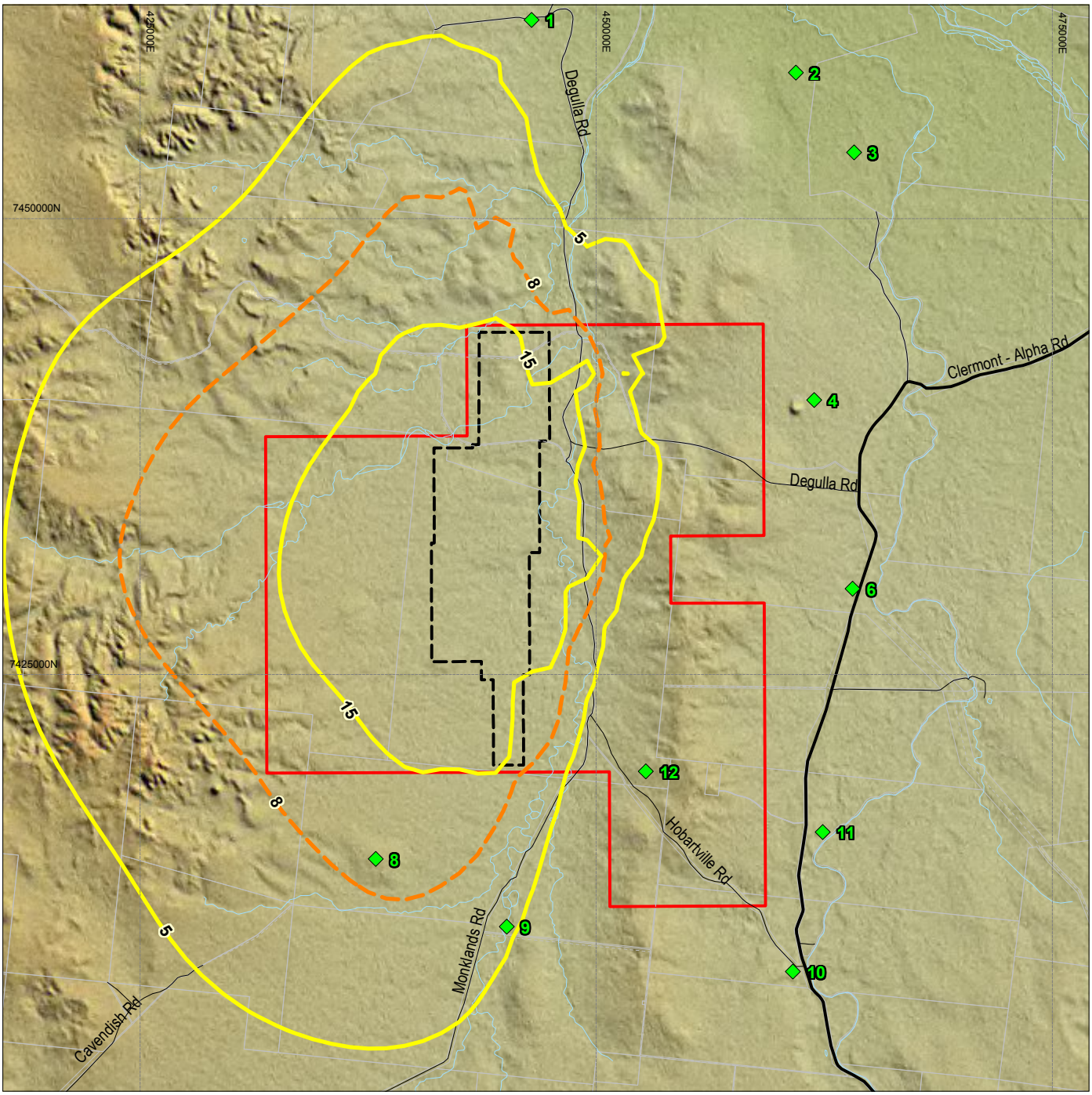
Alpha Coal Project
Environmental Impact Statement

YEAR 30: THE MAXIMUM 24-HOUR AVERAGE GROUND-LEVEL CONCENTRATION OF $PM_{2.5}$

Job Number	4262 6580
Revision	A
Date	24-09-2010

Figure:13-7

File No: 42626580-g-2101.wor



Mining Lease Application (MLA70426) Boundary

Mine Pit Extent

Sensitive Receptor Location

Predicted 24 Hour Average $PM_{2.5}$ Concentration

The EPP (Air) Objective

Source: See Copyright Details below and for full disclosure Please Refer to the EIS ***Volume 4 - References***

The EPP (Air) Objective is 25 µg/m³. Background concentration estimated at 5.4 µg/m³ has been included.

0 3.75 7.5km

Scale 1:325 000 (A4)

Datum: GDA94, MGA Zone55

N W E S

HANCOCK PROSPECTING PTY LTD

Alpha Coal Project
Environmental Impact Statement

YEAR 30: ANNUAL AVERAGE GROUND-LEVEL CONCENTRATION OF PM 2.5

Job Number	4262 6580
Revision	A
Date	24-09-2010

Figure:13-8

File No: 42626580-g-2102.wor

Table 13-9: Results for the Maximum 24-hour Average Ground Level Concentration of $PM_{2.5}$

Receptor	Y05			Y30		
	Project ($\mu g/m^3$)	Total ($\mu g/m^3$)	% of EPP (Air)	Project ($\mu g/m^3$)	Total ($\mu g/m^3$)	% of EPP (Air)
1	14	20	79%	14	19	77%
2	9	14	56%	8	13	53%
3	8	13	54%	8	14	54%
4	20	**25**	101%	22	**28**	110%
6	6	12	46%	6	11	45%
8	21	**27**	107%	40	**45**	180%
9	32	**38**	151%	25	**30**	122%
10	6	11	45%	6	11	45%
11	5	11	43%	5	10	41%
12	24	**30**	119%	23	**29**	115%

Note (1): Numbers highlighted in bold exceed the relevant EPP (Air) Objective
. The EPP (Air) Objective is 25 $\mu g/m^3$. Background concentration estimated at 5.4 $\mu g/m^3$.

Table 13-10: Results for the Annual Average Ground Level Concentration of $PM_{2.5}$.

Receptor	Y05			Y30		
	Project ($\mu g/m^3$)	Total ($\mu g/m^3$)	% of EPP (Air)	Project ($\mu g/m^3$)	Total ($\mu g/m^3$)	% of EPP (Air)
1	2	4	54%	1	4	54%
2	0	3	40%	0	3	40%
3	0	3	39%	0	3	39%
4	1	4	44%	1	4	44%
6	0	3	38%	0	3	38%
8	5	7	92%	8	**11**	131%
9	4	7	86%	3	6	74%
10	0	3	37%	0	3	37%
11	0	3	37%	0	3	37%
12	1	4	46%	1	4	46%

Note: Numbers highlighted in bold exceed the relevant EPP (Air) Objective
The EPP (Air) Objective is 8 $\mu g/m^3$. Background concentration estimated at 2.8 $\mu g/m^3$.

13.3.2.3 Particulate Matter as TSP

Presented in Table 13-11 are the results for the annual average ground level concentration of TSP. Results do not highlight any issues with respect to meeting the EPP (Air) objective of 90 $\mu g/m^3$.

Results for the other modelled years are given in Volume 5, Appendix H.

Table 13-11: Results for the Annual Average Ground Level Concentration of TSP.

Receptor	Y05			Y30		
	Project ($\mu g/m^3$)	Total ($\mu g/m^3$)	% of EPP (Air)	Project ($\mu g/m^3$)	Total ($\mu g/m^3$)	% of EPP (Air)
1	8	36	40%	8	36	41%
2	3	31	34%	3	31	34%
3	3	31	34%	2	30	34%
4	4	32	36%	4	32	36%
6	1	29	33%	1	29	32%
8	28	56	62%	47	75	83%
9	25	53	59%	19	47	52%
10	1	29	32%	1	29	32%
11	1	29	32%	1	29	32%
12	6	34	38%	5	33	36%
Note: Numbers highlighted in bold exceed the relevant EPP (Air) Objective The EPP (Air) Objective is 90 $\mu g/m^3$. Background concentration estimated at 28 $\mu g/m^3$.						

13.3.2.4 Dust Deposition

Presented in Table 13-12 is a summary of the results for dust deposition. No issues relating to the deposition of dust at sensitive receptor locations are highlighted.

Results for the other modelled years are given in Volume 5, Appendix H.

Table 13-12: Results for Dust Deposition.

Receptor	Y05			Y30		
	Project (µg/m3)	Total (µg/m3)	% of EPP (Air)	Project (µg/m3)	Total (µg/m3)	% of EPP (Air)
1	3	71	60%	4	72	60%
2	3	71	59%	3	71	59%
3	3	71	59%	2	70	59%
4	3	71	59%	2	70	59%
6	1	69	57%	1	69	57%
8	20	88	73%	33	101	84%
9	20	88	73%	14	82	69%
10	1	69	58%	1	69	57%
11	1	69	57%	1	69	57%

Receptor	Y05			Y30		
	Project (µg/m3)	Total (µg/m3)	% of EPP (Air)	Project (µg/m3)	Total (µg/m3)	% of EPP (Air)
12	5	73	61%	3	71	59%

Note: Numbers highlighted in bold exceed the relevant EPP (Air) Objective
The project goal is 140 mg/m2/day. Background levels estimated at 68 mg/m2/day.

13.3.2.5 Cumulative Impacts

The role of dispersion modelling is to highlight the potential for adverse air quality impacts within the study region and to guide decisions relating to the design and implementation of ambient air monitoring programs. Assurances that air quality is maintained at levels that are acceptable to the local communities can be verified through a well designed and implemented ambient air monitoring program.

Based on the geographic location of the sensitive receptors and proposed mining operations including Alpha Coal Project (Mine), Waratah Coal Project (immediately to the south), and Kevin's Corner Coal Project (immediately to the north), possible impacts on the 24-hour average concentration of PM_{10} at current sensitive receptor locations may include (but may not be limited to) the following:

- Impacts from dust generating activities located within a similar band of wind directions will be additive. Thus when the wind is from the west (for example), dust sources to the west of a receptor will be additive;
- Impacts from activities located within different bands of wind directions will not be additive. Thus when the wind is from the west (for example), dust sources to the south of a receptor are not likely to have a significant impact on dust levels at that location; and / or
- Even if worst-case impacts from two or more dust emissions sources are not additive at a particular sensitive receptor location, as mining increases within the airshed, the frequency of elevated levels of PM_{10} is likely to increase.

Thus, worst-case 24-hour average concentrations of PM_{10} due to dust-generating activities from emission sources in the region are not additive during any given 24-hour period as worst-case meteorological conditions for each significant emission source (such as wind speed and wind direction) differ depending on the geographic location of the significant dust emission source(s) to the receptor.

With respect to the annual average of $PM_{2.5}$, TSP, and monthly dust deposition, impacts will be cumulative.

13.4 Mitigation Measures

Dust mitigation for the operation of Alpha Coal Project (Mine) involves several elements to ensure adequate management of air quality in the vicinity of the mine, namely:

- Engineering control measures;
- Dust suppression measures;
- Rehabilitation of exposed surfaces;

- Operational procedures; and
- Measurement of ambient air quality.

13.4.1 Engineering Control Measures

Possible control measures at the CHPP include the following:

- Partial enclosure of transfer points and sizing stations;
- Roof on overland conveyors;
- Belt washing and belt scrapers to minimise dust from the return conveyors;
- Reduced drop height from stackers to stockpiles; and
- Enclosure of raw coal surge bins.

13.4.2 Dust Suppression Measures

Dust suppression measures primarily include the application of water to control dust emissions such as:

- Watering of haul roads to best-practice level of more than 2 L/m²/hour of water applied;
- Watering of ROM stockpiles using water sprays as required;
- Water sprays on stacker/reclaimer units; and
- High moisture content of product coal and reject material as they leave the CHPP which avoids the need for supplementary watering.

In the event that any adverse conditions are encountered during operation of Alpha Coal Project (Mine), additional dust suppression measures may have to be implemented. The circumstances where this might be required include pre-strip and overburden dumping operations in the northern and southern pits and during construction of the CHPP and associated infrastructure.

13.4.3 Rehabilitation of Exposed Surfaces

Rehabilitation of exposed surfaces will be undertaken progressively as mining and stockpiling activities are completed. A detailed rehabilitation plan will be developed for the Project, which will include the use of fast-growing temporary cover material to accelerate the effectiveness of dust controls. Improving the effectiveness and time for rehabilitation measures may result in reduced dust emissions from exposed areas.

13.4.4 Operational Procedures

Operational procedures set out how the Project is to be operated in order to meet targets for air quality performance. In relation to air quality, the following procedures will be incorporated into the site operational procedures:

- Use of water trucks to achieve sufficient watering of haul roads and other high-risk areas. The schedule for truck use will be developed for the Project and will incorporate consideration of recent rainfall and weather conditions;
- Use of water sprays as required with additional use as determined by ambient conditions;

- Maintenance of water spray equipment and engineering controls to minimise dust emissions; and
- Sufficient number of watering trucks to allow for continuation of dust suppression when one or more truck is out of service.

These procedures will be incorporated into the site Environmental Management Plan (EM Plan). The EM Plan will be regularly audited to ensure that these key elements for air quality management are satisfied.

13.4.4.1 Prevention and mitigation of Worst Case Impacts

To prevent worst-case conditions from occurring, the EM Plan and mine planning will give consideration to:

- Implementing additional dust control measures for operations that are close to the natural surface level. These could include watering of truck and shovel operations that are close to the ends of the northern and southern most pits;
- Implementation of dust monitoring to gauge the level of off-site impacts; and
- Implementation of management strategies that restrict operations in the northern and southern most pts during adverse meteorological conditions.

13.4.5 Measurement of Ambient Air Quality

It is widely recognised that although elevated levels of Total Suspended Particulate matter (TSP) may lead to dust nuisance, it is elevated levels of PM_{10} that is associated with an increased risk of adverse impacts on human health. Recent studies suggests that particulate matter in the range associated with $PM_{2.5}$ may pose an even greater risk to human health as the smaller sized particles have an increased potential to penetrate deep into the lungs.

The results of the dispersion modelling presented in Section 13.3 above have highlighted the potential for adverse air quality impacts at some of the nearby receptor locations. It should be noted that the confirmation of (both adverse and absence of) air quality impacts predicted by the model can only be validated by observational data.

As discussed in Volume 5, Appendix H, in general, the mechanical generation of dust (as opposed to particulate matter associated with combustion processes) is associated with only a small fraction (i.e. 10% - 20%) of particulate matter in the range of $PM_{2.5}$. Thus the proposed site-based ambient air quality monitoring program focuses on dust deposition and PM_{10}.

The outcomes of the ambient monitoring program outlined below will be used by the Proponent to determine whether the mine operations are contributing to excessive dust levels at nearby residential locations. The Proponent will take action to avoid adverse impacts on air quality at nearby receptor locations. The monitoring data will be used to provide an indication of excessive off-site dust levels that may be attributable to the mine operations in order that appropriate and effective corrective actions can be identified and implemented.

An operational monitoring program outlined in Section 13.4.6 is proposed for the purpose of monitoring air quality within the region predicted to be directly impacted upon by dust generating activities at the proposed Project site and will be incorporated into the site-based EM Plan. This monitoring program will allow the Proponent to monitor local air quality with the level of review and

implementation of additional mitigation measures dependent on the level of impacts as measured at the operational monitoring sites.

13.4.5.1 Monitoring Standards

Ambient air monitoring will be conducted in accordance with and/or in consideration of:

- AS/NZS 3580.1.1:2007, Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment;
- AS/NZS 3580.9.10:2006, Methods for sampling and analysis of ambient air Method 9.10: Determination of suspended particulate matter— $PM_{2.5}$ low volume sampler— Gravimetric method;
- AS/NZS 3580.9.9:2006, Determination of suspended particulate matter – PM_{10} Low volume sampler – Gravimetric method;
- AS/NZS 3580.9.3.2003 Determination of suspended particulate matter-Total suspended particulate matter (TSP) - High volume sampler gravimetric method;
- AS/NZS 3580.9.6:2003, Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} High Volume sampler with size selective inlet - Gravimetric method;
- AS/NZS 3580.10.1:2003, Methods for sampling and analysis of ambient air – Determination of ambient air - Determination of suspended particulate matter – Deposited matter – Gravimetric method;
- Queensland Government, Air Quality Sampling Manual; and
- A method determined in consultation with the QLD DERM.

13.4.5.2 Monitoring Locations

The precise location of monitoring equipment will be dependent on siting requirements of the instrumentation to be implemented at each site.

Presented in Figure 13-9 and Table 13-13 are the proposed monitoring locations for the Project. Proposed monitoring locations correspond to receptor locations, the processing area (or offices area), the accommodation village, and additional sites not represented by receptor locations. Revision of the site monitoring program may be warranted based on future development within the regional airshed.

Table 13-13: Proposed Monitoring Locations

Location *	Description
A	Receptor 1
B	Receptor 4
C	Receptor 12 (Alpha Coal Project Accommodation Village)
D	Receptor 8
E	Receptor 9
F	CHPP
G	Receptor 6
H	Receptor 10
I	Receptor 11
J	To the northeast of mine lease area
* Monitoring locations are indicative only. Actual siting of the monitoring stations will depend on the availability of suitable locations.	

13.4.5.3 Ambient Air Monitoring Program

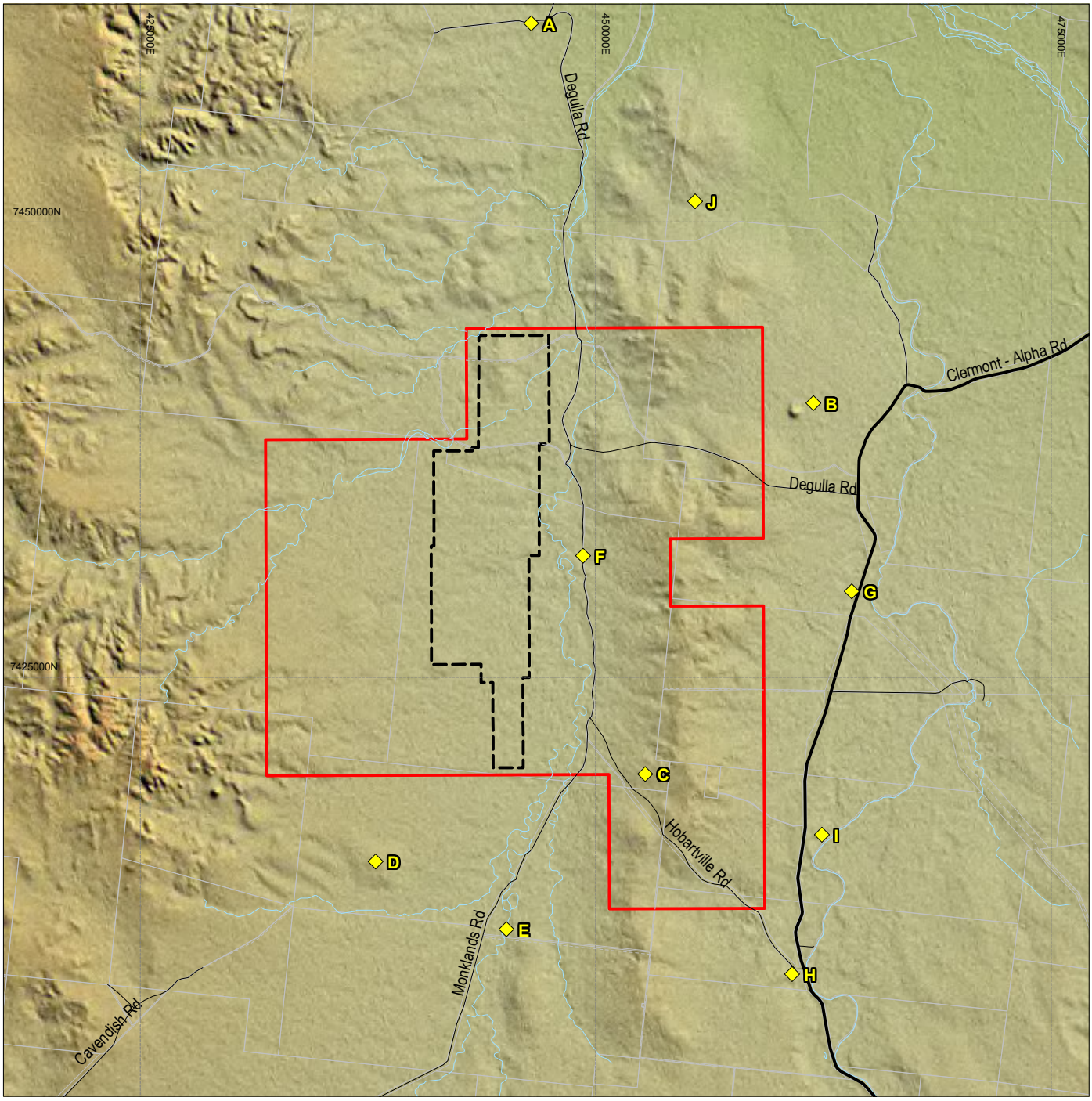
Presented in Table 13-14 is a summary of the proposed frequency of monitoring for PM_{10}, dust deposition, and meteorology.

Meteorological monitoring is required to include (as a minimum) wind speed, wind direction, relative humidity, and air temperature. Additional meteorological parameters may include (but may not be limited to): solar radiation, rainfall, differential temperature, and differential wind speed.

Monitoring of PM_{10} is proposed to be undertaken using the TEOM (an automated continuous particle monitor) sampling methodology at the specified locations.

Table 13-14: Pollutant and Frequency of Monitoring at Specified Locations (Indicative only)

Location	PM_{10}	Dust Deposition	Meteorology
A	Continuous	Monthly	Continuous
B	-	Monthly	-
D	Continuous	Monthly	Continuous
E	Continuous	Monthly	Continuous
G	-	Monthly	-
H	-	Monthly	-
I	-	Monthly	-
J	-	Monthly	-



Mining Lease Application (MLA70426) Boundary

Mine Pit Extent

Proposed monitoring locations (Indicative only)

Source: See Copyright Details below and for full disclosure Please Refer to the EIS ***Volume 4 - References***

0 3.75 7.5km

Scale 1:325 000 (A4)

Datum: GDA94, MGA Zone55

N W E S

HANCOCK PROSPECTING PTY LTD

Alpha Coal Project
Environmental Impact Statement

PROPOSED MONITORING LOCATIONS
(INDICATIVE ONLY)

Job Number	4262 6580
Revision	A
Date	24-09-2010

Figure:13-9

File No: 42626580-g-2103.wor

13.4.6 Operational and On-Site Monitoring Program

Presented in Table 13-15 is a summary of the proposed frequency of monitoring of on-site meteorology for the purposes of minimising off-site impacts. Dust monitoring at the location of the accommodation village will assist in the assessment of the effectiveness of implement dust mitigation measures.

It is noted that due to the prevailing wind direction and the relative location of receptors and mining activities, the accommodation village (Receptor 12) is not predicted to be the most affective sensitive receptor. Thus air quality within the accommodation village will not be representative of worst-case impacts which is predicted to occur to the south of the mine and monitoring location D and E (Figure 13-9).

Table 13-15: Operational Monitoring Program

Location	PM_{10}	Dust Deposition	Meteorology
C	Continuous	Monthly	Continuous
D	Continuous	Monthly	Continuous
E	Continuous	Monthly	Continuous
F	-	-	Continuous

Due to the level of impacts predicted at the location of Receptor 8 and Receptor 9, meteorological data (from their corresponding monitoring locations D and E) (Figure 13-9) will be incorporated into the site based EM Plan in order to ensure that dust impacts at these locations are minimised as far as practicable.

Monitoring of dust levels at locations D and E will commence prior to the commencement of construction to establish a representative baseline. Dust levels recorded at sites D and E during construction (particularly of the box cut) will provide some insight into the relative level of conservatism that is inherent in the modelling methodology. Based on the results of the dispersion modelling, the effective management of mine-related dust as determined by measurements of dust at site D will lead to improved air quality outcomes at other receptor locations.

13.4.7 Consultation

As part of the Proponent's community consultation program, discussions are continuing with landowners and occupiers in the vicinity of the Project site, including those noted in Section 13.2.1. The discussions will include the provision of information from the air quality assessment and the provision of additional relevant information as the implementation plans for the Project are further developed. The discussions will include appropriate compensation arrangements to ensure the land holders specific requirements are properly satisfied.