SECTION B: BASELINE ASSESSMENT

CHAPTER B3: AIR QUALITY

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3. AIR QUALITY

3.1 INTRODUCTION

The mining and processing of ore, together with its ancillary operations and infrastructure, has the potential to generate emissions of both gaseous pollutants and particulate matter (dust). This Chapter of the ESIA establishes the ambient or 'baseline' air quality within the Oyu Tolgoi Mine Licence Area and wider Project Area of Influence. Dust storm events, a significant contributor to ambient dust levels in the south Gobi, are discussed in further detail within *Chapter B2: Climate*.

3.2 SOURCES OF DATA

Data for this chapter has been obtained from a number of ambient air quality surveys conducted in preparation of the original DEIAs prepared for the Oyu Tolgoi project, together with more recent surveys commissioned by Oyu Tolgoi. Furthermore, Oyu Tolgoi has conducted its own air quality monitoring as part of its routine monitoring of environmental emissions. This section presents data considered to reflect 'pre-development' conditions. That is, historical measurements have either been:

- Collected prior to construction and establishment of operational site facilities; or
- Have been collected in areas that are not located near to or downwind of operational activities where these have existed during measurement periods.

The main source of historical data are the various DEIAs undertaken for the project in 2004, and as updated in 2006[1,2]. Data from the 2004 DEIAs was appraised by AMEC[3], and this report identified a number of deficiencies in relation to the 2004 data which, in turn, resulted in a new monitoring round being undertaken and incorporated into the 2006 DEIAs. In a number of instances data from 2002-2003 is referred to.

Additional monitoring was conducted in 2008 by the Mongolian Centre for Policy Research[4] and, more recently, by Oyu Tolgoi. The Oyu Tolgoi Annual Environmental Report (AER) for 2009 summarises the results of Oyu Tolgoi's own monitoring programme for 2009. Data from this monitoring programme has been assessed by international air quality specialists as part of the preparation of this ESIA. In addition, information is provided on existing emission sources.

Due to the QA/QC undertaken on the date and the subsequent multiple rounds of data collection It is considered that the Oyu Tolgoi monitoring data can be relied upon for the purposes of establishing a baseline and to support quantitative impact assessment (using an internationally recognised dispersion model).

3.3 REGULATORY FRAMEWORK

National air quality standards are described under the MNS 4585:2007, however these are intended for urban areas, rather than remote rural areas. Specifically, MNS 4585:2007 states:

> *"This standard applies to reconnaissance, assessment and monitoring of the quality of indoor and outdoor air during planning and utilisation of town and settlements, residential housing, offices, entertainment and public service facilities and civil constructions".*

As MNS 4585 is oriented to urban areas, where populations are subject to additional environmental stresses, the numerical values of the standards are set at a very low value. For example, the permissible

[1] Eco-Trade (2004), Oyu Tolgoi Project Environmental Impact Assessment, Volume 1 Oyu Tolgoi to Gashuun Sukhait Road and Infrastructure Corridor, Eco-Trade LLC 2004 (as updated in December 2006)

[2] Eco-Trade (2006), Oyu Tolgoi Project Environmental Impact Assessment, Volume 3 Mining and Processing, Eco-Trade LLC 2006

[3] AMEC Earth & Environment (2005), QA/QC of Air Quality Baseline Data and Information for the Oyu Tolgoi Project, Mongolia, AMEC Earth and Environmental, AMEC, April 2005

[4] Oyu Tolgoi Project Social, Economic and Environmental Subset, Final Report, Centre for Policy Research and Population Training and Research Centre, Ulaanbaatar, Mongolia. September 2009

level for SO_2, the 24-hour average is 20 µg/m^3. This is numerically equivalent to the World Health Organisation (WHO) standard for the same averaging period. The WHO publication setting out this guideline recognises that the level is difficult to achieve, and has suggested interim guidelines of 50 and 125 µg/m^3 [5]. Similarly for NO_2, MNS 4585 sets out a 20-minute average of 85 µg/m^3 and a 1-hour average of 68 µg/m^3. This compares to a WHO 1-hour standard of 200 µg/m^3.

As a result, MNS 4585:2007 is not considered directly applicable to a remote mining facility due to it being developed for urban environments and compliance with this Standard has not been required for previous DEIAs prepared for the Oyu Tolgoi project. IFC General EHS Guidelines (2007)[6] state that in the absence of applicable national ambient air quality standards (and in this case, national standards are considered to apply to urban areas), internationally recognised standards should be applied. EU ambient air quality standards[7] are cited in the IFC General EHS Guidance as recognised international standards and have been adopted for the purposes of this assessment *(Table 3.1).*

Table 3.1: EU Ambient Air Quality Standards

Parameter	Averaging Period	EU Ambient Air Quality Standard [(3)] (µg/m^3)	Permitted Number of Exceedences per Year
Sulphur dioxide (SO_2)	1 hour 24 hours	350 125	24 3
Carbon monoxide (CO)	8 hours	10,000	N/A
Nitrogen dioxide (NO_2)	1 hour Annual	200 40	18 N/A
Ozone (O_3)	8 hours	120	25
PM_{10}[1]	24 hours Annual	50 40	35 N/A
$PM_{2.5}$[2]	Annual	25	N/A
Lead	Annual	0.5	N/A
Benzo a pyrene	Annual	0.001	N/A

Notes:

1: PM_{10} denotes particulate matter of less than 10 microns in diameter

2: $PM_{2.5}$ denotes particulate matter of less than 2.5 microns in diameter

3: EU air quality requirements from Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe

3.4 AIR QUALITY OVERVIEW AND REGIONAL SETTING

The dry climate, seasonal strong winds, and fine desert soils of the south Gobi provide conditions favourable for significant dust generation. High levels of atmospheric dust has the potential to cause contamination of water bodies or vegetation, and to impact the amenity and health of people. Particles less than 10 µg/m^3 (PM_{10}) in diameter can pose human health risks. For instance, when inhaled, particles between 2.5 and 10 µg/m^3 in diameter are deposited in the trachea and bronchial sections of the lung, while particles with diameters less than 2.5 µg/m^3 lodge in the alveolar region of the human lung. NO_2, SO_2 and CO are also of concern causing deterioration in human health to those exposed to elevated levels of such pollutants. Likely sources of such existing pollutants include the existing use of combustion equipment (boilers and power plants) and the use of heavy goods vehicles.

Dust from unpaved roads and tracks in the Project Area of Influence and the early construction works of Oyu Tolgoi are a source of dust which mainly consists of particles, ranging from 1 to 100 microns in diameter. This dust is generated from a wide range of project development activities and from general

[5] World Health Organisation (2006). Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen Dioxide and Sulphur Dioxide. Global Update 2005. Summary of Risk Assessment. WHO/SDE/PHE/OEH/06.02.

[6] International Finance Corporation, (2007), Environmental, Health and Safety Guidelines. General EHS Guidelines, Washington, 2007, pp4.

[7] EU air quality requirements from Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe.

road traffic. Mining pits, waste rock dumps, disturbed bare grounds, and tailings also contribute. The nature of soils and dry climatic conditions in the Project area is such that disturbed soils have the potential to create significant levels of fine airborne dust.

3.5 AMBIENT AIR QUALITY CONDITIONS

Baseline assessments of the ambient air quality of the Oyu Tolgoi Project Area were initially carried out in July 2002 by Eco-Trade Co Ltd[8]. Measurements were taken of average concentrations of dust, SO_2 and NO_2, and were taken at seven locations. As part of the initial baseline monitoring, further particulate monitoring was undertaken in 2003 and 2004. The objective of this monitoring round was to collect data on particulate matter of less than 2.5 microns ($PM_{2.5}$) and less than 10 microns (PM_{10}).

In addition to these studies, a further programme of regional gas and dust monitoring was undertaken in 2008 by the Centre for Policy Research for the 2008 Oyu Tolgoi Social, Economic and Environmental Subset document prepared to assist in regional planning activities[9]. Finally, dust sampling was undertaken by Oyu Tolgoi in 2009 as reported in the AER[10]. Ongoing dust monitoring in not included in this baseline assessment as it now encompasses Project construction-related activities.

A short description of the sampling methodologies used together with a summary of the results obtained from these surveys is provided in the following sections.

Table 3.2 provides a summary of the gas and dust monitoring conducted for the Oyu Tolgoi Project.

Table 3.2: Summary of Air Quality Sampling Events at Oyu Tolgoi

Sampling Event	Results Reported	Parameters Sampled	Coordinates of Sampling Points	Zone
Baseline Environmental Study July and August 2002	Appendix 4.1	Total Suspended Particulates (TSP), SO_2, NO_2	650990 / 4765357	Far east Oyu
			650842 / 4764801	North Oyu
			650860 / 4764118	Central Oyu
			650351 / 4763164	Southwest Oyu
			651280 / 4762876	South Oyu
			650220 / 4763397	Near existing camp
			648981 / 4765216	Airport
Dust Monitoring 10-27 June 2003	Appendix 4.1	TSP, $PM_{2.5}$, PM_{10}	651000 / 4767000	North 3 km from Oyu Tolgoi camp
			654000 / 4764000	East 3 km from Oyu Tolgoi camp
			651000 / 4760000	South 3 km from Oyu Tolgoi camp
			648000 / 4764000	West 3 km from Oyu Tolgoi camp
Dust Monitoring April to June 2004	Appendix 4.2	TSP, $PM_{2.5}$, PM_{10}	648066 / 4764388	West
			650630 / 4767015	North
			654112 / 4764175	East
			652649 / 4759876	South
			650144 / 4763595	Camp

[8] Eco-Trade (2006), Oyu Tolgoi Project Environmental Impact Assessment, Volume 3 Mining and Processing, Eco-Trade LLC 2006

[9] Oyu Tolgoi Project Social, Economic and Environmental Subset, Final Report, Centre for Policy Research and Population Training and Research Centre, Ulaanbaatar, Mongolia. September 2009

[10] Oyu Tolgoi. Report On The Implementation Of Environmental Protection Plan- 2009

Sampling Event	Results Reported	Parameters Sampled	Coordinates of Sampling Points	Zone
			648058.63 / 4765657.25	Northwest
			652610.44 / 4766652.37	Northeast
			654162.27 / 4762088.35	Southeast
			650700.08 / 4760869.31	Southwest
			650108.12 / 4764097.00	Weather Stn
			42 sample points within the three territory zones	Dalanzadgad *soum*, Tsogttsetsii *soum*, Khanbogd *soum*
Gas Monitoring Programme 2008	Oyu Tolgoi Project Social, Economic and Environmental Subset	SO_2, NO_2, CO, PM10 Dust mg/m^3, PM2.5 Dust mg/m^3	647596 / 4767983	Northwest
Dust Monitoring 2009	Oyu Tolgoi AER 2009	TSP	657245 / 4763349	East
			655696 / 4758786	Southeast
			647169 / 4757121	Southwest
			644554 / 4777622	northwest

3.6 ECO-TRADE MONITORING PROGRAMME, JULY 2002

In July 2002, measurements of average concentrations of dust, SO_2, and NO_2 were taken at seven locations within the Mine Licence Area as part of the initial baseline monitoring programme.

The results indicate that air quality in the Oyu Tolgoi Mine Licence Area was essentially unaffected by industrial or vehicle-related emissions. SO_2 and NO_2 concentrations were typical of an unpolluted airshed and were well below EU Air Quality Standards.

At the same time, the survey recorded elevated natural dust concentrations in the air in the Gobi region, particularly associated with seasonal dust storms. The concentration of dust is generally higher in areas of overgrazing, vehicle traffic and mineral exploration and at heavily disturbed areas such as roads, exploration camp and drilling sites[11].

[11] AMEC Earth & Environment (2005), QA/QC of Air Quality Baseline Data and Information for the Oyu Tolgoi Project, Mongolia, AMEC Earth and Environmental, AMEC, April 2005

Figure 3.1: Dust Storm at Shaft 2 at 10am on 22nd April 2009

Source: Oyu Tolgoi (2009) Report on the Implementation of Environmental Plan, December 2009

3.7 ECO-TRADE MONITORING PROGRAMME, 2003-2004

As part of the wider 2003-4 monitoring programme, the dust monitoring programme of June 2003 involved the measurement of 12-hour average dust concentrations at locations 3 km around the Oyu Tolgoi camp during a dust storm event. The results indicated substantial exceedances of the Mongolian 24-hour dust standard (no comparable EU standard exists). Dust collected was analysed for heavy metal contents (including copper, lead, cadmium and arsenic). The results indicated that concentrations were well within EU / WHO guidelines for these species (in this instance WHO guidelines are referred to in the absence of EU legislation governing the concentration of certain metals in ambient air).

Results of the 2003 monitoring programme are included in *Table 3.3* below and reported in full in Appendix 4.2 of the Mining and Processing DEIA[12].

Table 3.3: Averaged Concentrations of Metals from High Volume Sampling at Oyu Tolgoi from June 2003

Sampling Point	Sampling Point Location	Average Concentration from High Volume Samples (µg/m^3)			
		Copper	Arsenic	Lead	Cadmium
651000 / 4767000	3 km north of Oyu Tolgoi Camp	0.0267	0.0004	<0.0054	<0.001
654000 / 4764000	3 km east of Oyu Tolgoi Camp	0.0447	0.0018	<0.0114	<0.001
651000 / 4760000	4 km south of Oyu Tolgoi Camp	0.0252	0.0016	0.0171	<0.001
648000 / 4764000	4 km west of Oyu Tolgoi Camp	0.0574	0.0005	<0.0062	<0.001
WHO/IFC Guideline Value (µg/m^3)		N/A	0.066	0.500	0.005

[12] Eco-Trade (2006), Oyu Tolgoi Project Environmental Impact Assessment, Volume 3 Mining and Processing, Eco-Trade LLC 2006

3.8 2008 SURVEY OF GASEOUS POLLUTANTS IN THE PROJECT AREA OF INFLUENCE

In August 2008, an ambient air quality survey was carried out by air quality service experts from the Department of Nature Protection at 42 points within the Dalanzadgad, Tsogttsetsii and Khanbogd *soums*[13]. The Dalanzadgad *soum* was selected from the first central Zone (Zone 1), Tsogttsetsii *soum* was selected from the second central Zone (Zone 2), and Khanbogd *soum* was selected from the eastern Zone (Zone 3).

3.8.1 Methodology

A total of 42 locations across the three zones were selected. Air samples were collected in balloons at each of the monitoring locations and then transported to the Central Laboratory for Environment for subsequent detailed analysis. SO_2, NO_2, and CO were measured using Ecotech continuous analysers. In addition, particulate concentrations were measured using a handheld infrared light scattering device.

It is important to note that there was no assessment of dust or gases along the Oyu Tolgoi infrastructure corridor as part of this monitoring programme. The infrastructure corridor is located in an area of low population density. Apart from periodic dust storm events, the air quality of the corridor is considered to be typical of an unpolluted airshed as recorded by the air quality monitoring within the Oyu Tolgoi Mine Licence Area.

3.8.2 Results

The gaseous pollutant monitoring results are summarised in *Table 3.4* below.

Table 3.4: 2008 Ambient Air Quality Monitoring Results

Parameter	Measured Levels ($\mu g/m^3$)	EU Standard (ug/m^3)
SO_2	3-64	350 (1 hr average)
CO	140-420	N/A
NO_2	12-155	200 (1 hr average)

SO_2

The range of SO_2 concentrations across the three zones were recorded as relatively constant, although slightly lower average values were found across the Dalanzadgad *soum*:

- Zone 1 average (Dalanzadgad *soum*) – 18 $\mu g/m^3$;
- Zone 2 average (Tsogttsetsii *soum*) – 28 $\mu g/m^3$; and
- Zone 3 average (Khanbogd *soum*) – 29 $\mu g/m^3$.

When comparing these baseline values against the applicable EU standards, the average values within each of the zones are within the applicable Project standards.

NO_2

The NO_2 hourly average concentrations at each of the zones were recorded as being more variable on a short term basis as follows:

- Zone 1 average (Dalanzadgad *soum*) – 38 $\mu g/m^3$;
- Zone 2 average (Tsogttsetsii *soum*) – 75 $\mu g/m^3$; and
- Zone 3 average (Khanbogd *soum*) – 27 $\mu g/m^3$.

When comparing these values against the corresponding EU short term standard, the average values within each of the zones has been demonstrated to comply. Annual average values are exceeded in Zones 1 and 2.

[13] Reported in Section 8.2 of Oyu Tolgoi Project Social, Economic and Environmental Subset, Final Report, Centre for Policy Research and Population Training and Research Centre, Ulaanbaatar, Mongolia. September 2009

CO

The CO concentrations observed across all of the zones were observed to be well within the EU limits.

Whilst the regional gaseous monitoring programme provides a limited source of data on regional ambient conditions, the scale is too large for the purposes of this ESIA. In addition, the short-term measurements cannot be assured given the lack of continuous measurement over a sufficiently long time period. These data, therefore, have been considered as informative only but have not been used as a basis for project planning or modelling.

3.9 2009 DUST MONITORING SURVEY: MINE LICENCE AREA

Oyu Tolgoi's Environmental Department has been conducting regular dust monitoring for $PM_{2.5}$ and PM_{10}, and Total Suspended Particles (TSP) since 2006. The scale of this monitoring programme is considered appropriate – monitoring has been conducted at the Mine Licence Area. This section reports on the most recent data set supplied by Oyu Tolgoi from 2009[14].

3.9.1 Dust Monitoring Locations

Five locations have been selected for dust monitoring (see *Table 3.5* and *Figure 3.2*). These locations were chosen on the basis of prevailing wind conditions and the areas of likely greatest impacts.

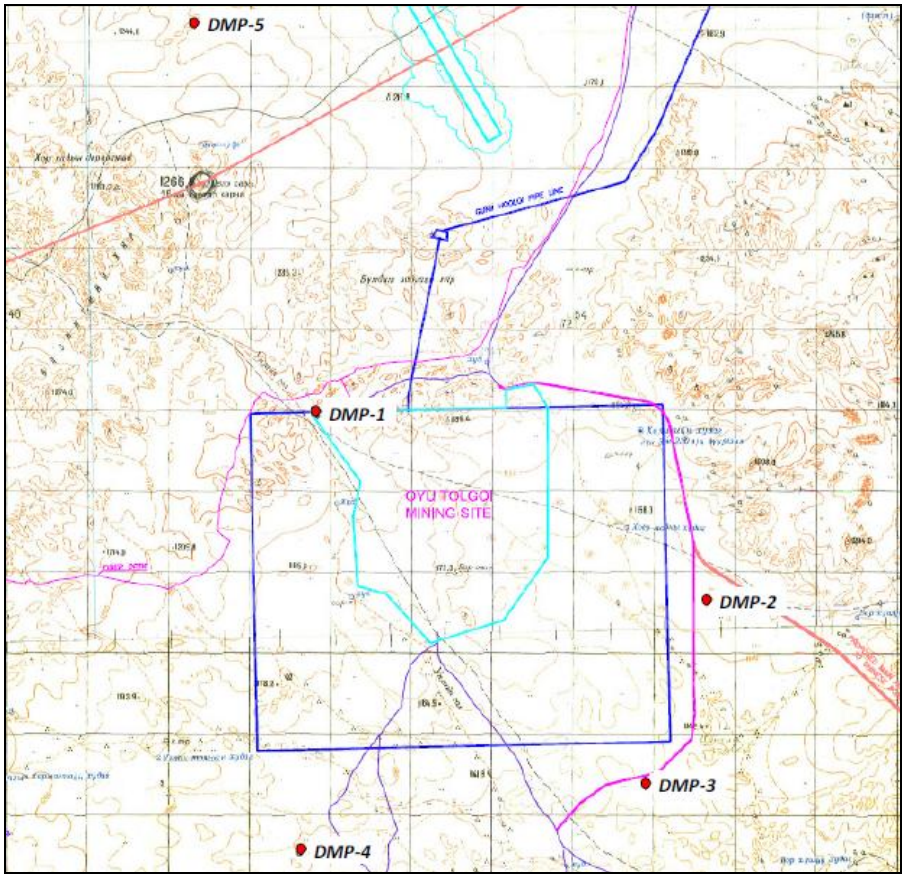
Table 3.5: Oyu Tolgoi Dust Monitoring Locations

Monitoring points*	Coordinates	
	Eastern	Northern
DMP - 1	647596	4767983
DMP - 2	657245	4763349
DMP - 3	655696	4758786
DMP - 4	647169	4757121
DMP - 5 (Control)	644554	4777622

**DMP=dust monitoring point.*

[14] Oyu Tolgoi (2009) Report on the Implementation of Environmental Plan, December 2009

Figure 3.2: Oyu Tolgoi Dust Monitoring Locations



Source: Adapted from Oyu Tolgoi (2009) Report on the Implementation of Environmental Plan, December 2009

A description and rationale for the selection of dust monitoring locations (DMPs) is as follows:

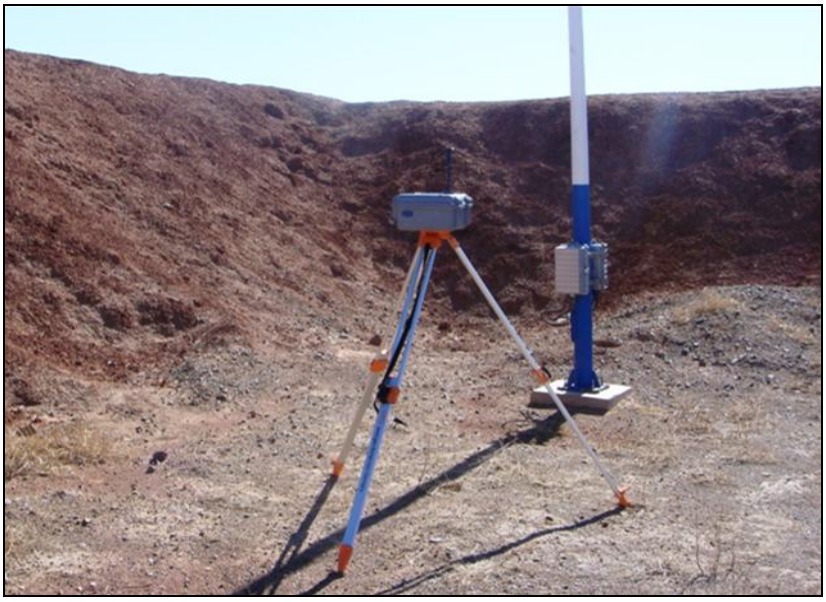
- DMP-1 – located on the north west of the property inside the existing Oyu Tolgoi site fence;
- DMP-2 – DMP-3, DMP-4 – located downwind of Oyu Tolgoi along the border of the lease area; and
- DMP-5 – located 15 km north of Oyu Tolgoi.

DMP-1 to DMP-4 are positioned in order to get information on dust sources such as traffic, batch plant operations and construction activities. DMP-5 was selected primarily as the control point for ambient conditions.

3.9.2 Sampling Methodology

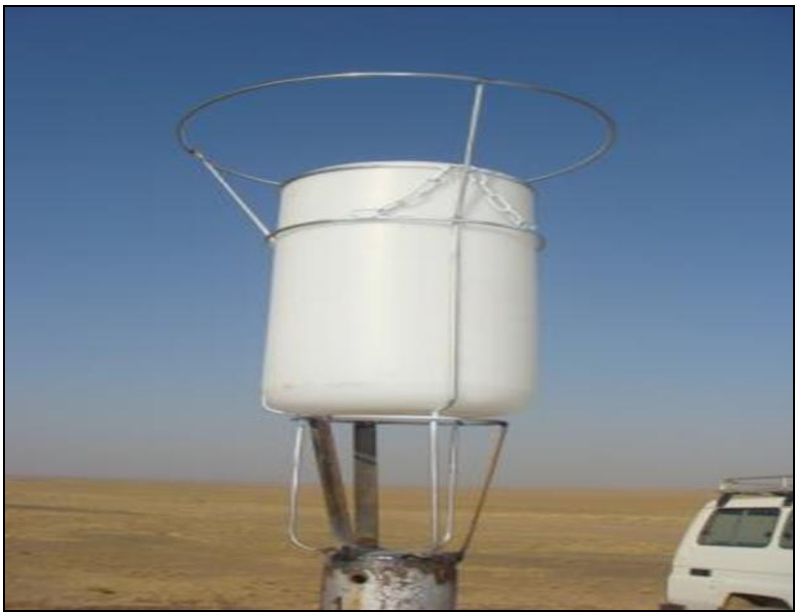
PM_{10} and $PM_{2.5}$ has been measured using the Dust Trak™ device as shown in *Figure 3.3.*

Figure 3.3: Dust Track™ Monitoring Device



The Dust Trak™ monitoring device is placed at each monitoring location for a 24-hour measurement period. Dust deposition was measured using a dust deposition gauge, as presented in *Figure 3.4.*

Figure 3.4: Dust Deposition Gauge

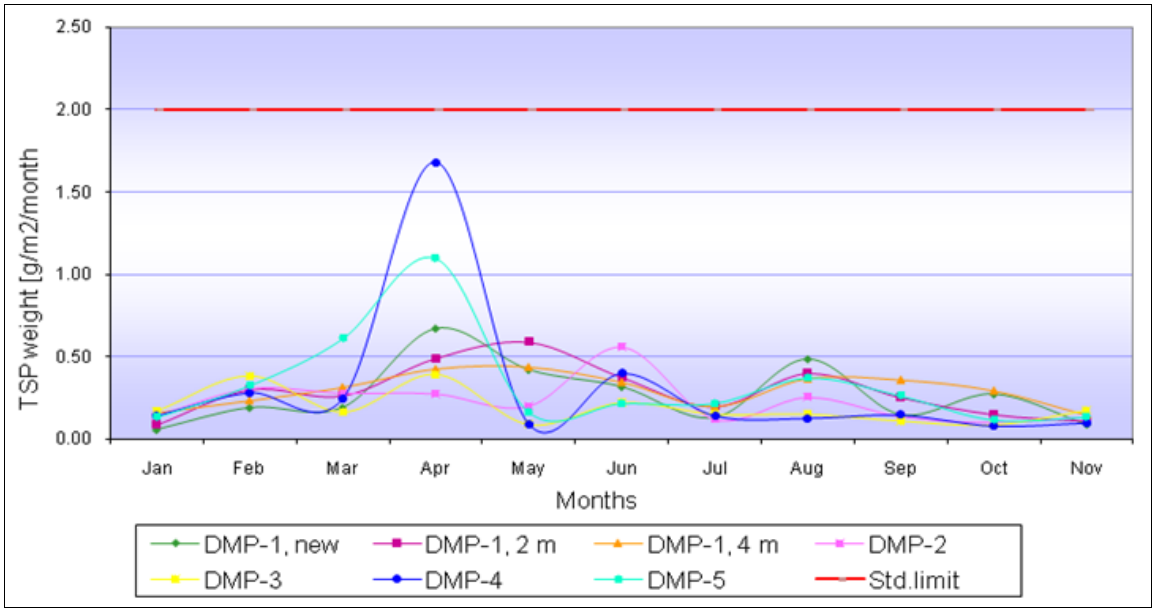


Accumulated dust is collected once per month from each of the monitoring locations. Samples are taken to a Government-accredited laboratory in Ulaanbaatar for analysis to determine the concentration of TSP, and subsequently a deposition concentration is determined. TSP typically includes particles up to 50 µg/m^3 in diameter.

3.9.3 Results from 2009 Dust Deposition Monitoring

Results of the 2009 dust deposition monitoring are presented below on a monthly basis (*Figure 3.5)*.

Figure 3.5: Dust Deposition Rates, 2009

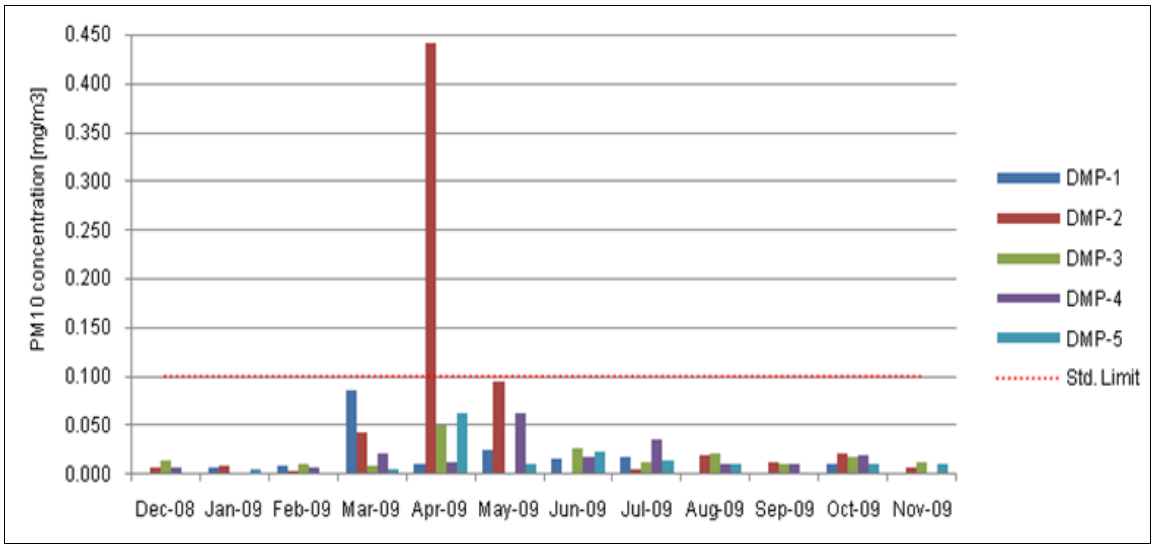


Source: Oyu Tolgoi (2009) Report on the Implementation of Environmental Plan, December 2009

From *Figure 3.5* it can be seen that elevated dust deposition was observed during the month of April at stations DMP-4 and DMP-5. This increase may be explained by the impacts from dust lift-off related to dust storms which are common in spring months and prevalent in April. It is also shown in *Figure 3.5* that deposition of TSP did not exceed the standard limit of 2 g/m^2/month[15] at any of the DMPs throughout the year. However, increased depositions were reported generally for March-May.

Figure 3.6 and *Figure 3.7* present PM_{10} and $PM_{2.5}$ results from each of the monitoring sites during 2009.

Figure 3.6: PM_{10} Concentrations at Oyu Tolgoi Monitoring Locations, 2009



Source: Oyu Tolgoi (2009) Report on the Implementation of Environmental Plan, December 2009

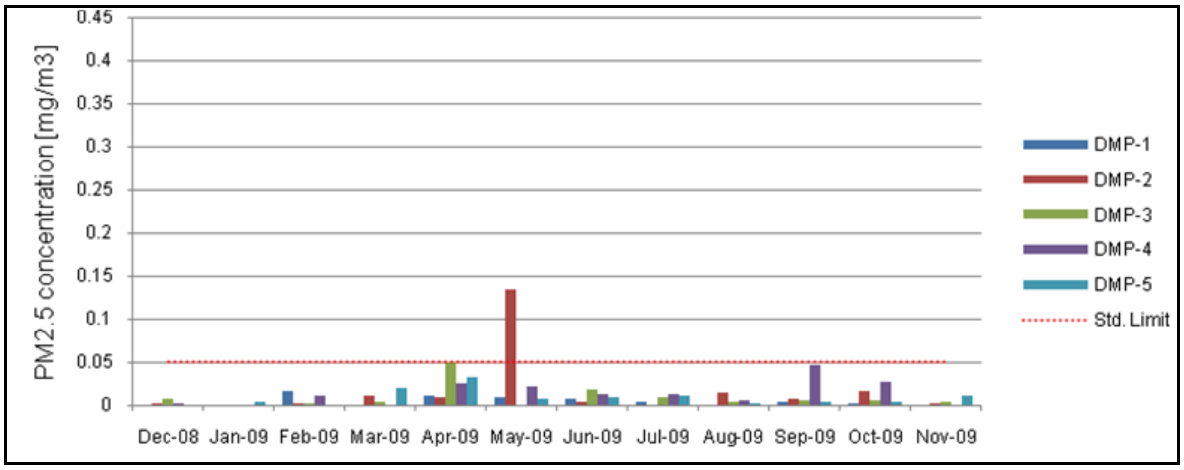
From *Figure 3.6* it can be seen that concentrations of PM_{10} were recorded to be below the Mongolian 24-hour and annual standard of 100 µg/m^3 (0.1 mg/m^3) and 50 µg/m^3 (0.05 mg/m^3) respectively[16], with the

[15] To reflect international good practice in the absence of regulatory standards, Oyu Tolgoi has based this on standard Australian practice where levels of 2 g/ m^2 per month are seen as an acceptable upper limit.

[16] This is higher than the 24-hour average of 50 µg/m^3 EU standard and the annual average of 20 µg/m^3 in IFC EHS Guidelines and 40 µg/m^3 in EU ambient air quality legislation.

exception of the months of March, April and May. Again, these months correspond to a time of year when dust lift-off and storm events are common. During March the measurement made at DMP-1 exceeds the annual standard; during April the measurement made at DMP-2 exceeds the 24-hour standard and the measurement made at DMP-5 exceeds the long term standard; and during May measurements made at DMP-2 and DMP-4 exceed the annual standard.

Figure 3.7: $PM_{2.5}$ Concentrations at Oyu Tolgoi Monitoring Locations, 2009



Source: Oyu Tolgoi (2009) Report on the Implementation of Environmental Plan, December 2009

From *Figure 3.7* it can be seen that concentrations of $PM_{2.5}$ were largely within the Mongolian 24-hour and annual standards of 50 µg/m^3 and 25 µg/m^3 respectively. Exceptions occurred in April when measurements made at DMP-3 and 5 exceeded the annual standard, and in May when the measurement made at DMP-2 exceeded both the 24 hour and annual standard. A breach in the annual standard was also recorded during September at the DMP-4 measurement location. The elevated May result coincided with monitoring when wind speeds were 8.27 m/s to 11.62 m/s i.e. strong enough to cause dust erosion from unsealed roads or other loose surfaces.

It should be noted that, despite the measurement period being 24 hours, caution should be exercised when comparing such values to a 24-hour standard unless continuous measurements are made over multiple months.

3.10 EMISSIONS FROM EXISTING COMBUSTION SOURCES

At the time of writing, a number of stationary emission sources were installed on site to support the construction programme. These include:

- A Diesel Power Station (DPS) for emergency backup only, a coal-fired Central Heating Plant (CHP), and a waste incinerator[17]; and
- A number of small-scale coal-fired boilers.

Emissions from the multiple stationary emission sources (DPS and small-scale coal-fired boilers) are summarised in *Table 3.6*

Table 3.6: Oyu Tolgoi Construction Phase Stationary Emissions (tonnes/year)

Emission	Equipment Type	
	10 x diesel generators	10 x Small-Scale Coal Fired Boilers
CO	999	5
NO_x	1,375	15

[17] Note that the proposed coal-fired power plant is excluded from this assessment and will be assessed in a supplemental report.

Emission	Equipment Type	
	10 x diesel generators	10 x Small-Scale Coal Fired Boilers
SO_x	216	341
PM	47	8
CO_2	69,002	48,462

Additional emissions will be associated with the operation of the waste incinerator; however these will be very minor when compared to DPS or coal fired boilers. Individually, emission sources are relatively small and are not currently monitored for in-stack concentration. During Project operations, the DPS will operate for short periods only and the small scale coal fired boilers will be replaced with a single Central Heating Plant (CHP).

Impacts associated with stationary emission sources and greenhouse gas emissions during the construction phase are discussed in *Chapter C2 Climate and Air Quality Impact Assessment*.

3.11 CONCLUSIONS

Dust monitoring campaigns in the Project area have been heavily influenced by climatic conditions - higher dust concentrations and deposition rates have been observed during high wind events and during times when vegetation is sparse. The dust monitoring campaign conducted by Oyu Tolgoi in 2009 has shown relatively consistent data with elevated levels during the months of March, April and May when dust storms and dust lift events (see *Figure 3.1*) are common.

In addition, local influences such as existing road traffic have influenced dust and gaseous pollutant concentrations. Dust is, for example, clearly visible along many of the unsealed roads and tracks in the Project Area of Influence. Dust is also very apparent along the existing coal transport route to the Chinese border (see *Figure 3.8*).

Figure 3.8: Dust on the Existing Coal Transport Corridor

Such localised activities and climatic conditions are considered likely to have contributed towards occasional readings being in excess of the Mongolian and international ambient air quality standards.

A direct comparison of short-term averaging periods has not been possible due to the absence of continuous data monitoring, however, a comparison with the standards provides a picture of relative conditions in and around the Mine Licence Area and a benchmark for comparison with future impact assessment and monitoring campaigns.

The regional (*aimag*-wide) gaseous pollutant survey is considered to be on too large a scale for the Oyu Tolgoi project. The 2002 data, conducted within the Mine Licence Area, supports the view that

background gas concentrations are not affected by pre-existing industrial activity. The 2008 survey provides a series of average readings but these are given at the *soum* level. Oyu Tolgoi's routine monitoring programme will include gaseous monitoring going forwards. The monitoring programme is described in *Chapter D2: Atmospheric Emissions Management Plan* of this ESIA.