



Oyu Tolgoi LLC

Health, Safety and Environment Management System Procedures

Noise Monitoring and Control Procedure

Noise Monitoring and Control Procedure		
Effective Date: 2013.05.06	Document Number: OT-10-E2-PRC-0001-E	Version: 1.0

1. PURPOSE

To minimise noise impacts on identified sensitive environmental and community receptors. The procedure also identifies the guidelines for using portable noise level meters for monitoring ambient noise. Noise shall be monitored at point sources and sensitive receptors so that noise levels generated from operations can be evaluated against national regulatory requirements and background noise levels. If noise levels are found to exceed national regulatory requirements, corrective and preventative action will be taken to reduce the noise to an acceptable level.

2. SCOPE

This procedure applies to noise level monitoring in sensitive receptor areas, which are identified in the Oyu Tolgoi Environmental Protection Plan and Environmental Monitoring Program.

3. ROLES AND RESPONSIBILITIES

Role	Accountability
HSE General Manager	<ul style="list-style-type: none"> • Provide the necessary management support and resources to implement this procedure • Approve and make this procedure available to all Oyu Tolgoi employees and contractors
Environment Manager	<ul style="list-style-type: none"> • Make available environmental expertise to monitor noise production and advise staff and contractors on noise management
Environmental Supervisor	<ul style="list-style-type: none"> • Make available environmental expertise to monitor or advise on noise production and management • Monitor the implementation of this procedure. If the requirements of the procedure are not met, meet with department managers to determine why they were not met; implement reprimands or punishment as needed
Department Managers	<ul style="list-style-type: none"> • Enable department personnel to attend noise training programs as required
Workplace Supervisors / Superintendents	<ul style="list-style-type: none"> • Conduct work area inspections to determine whether noise producing activities are being undertaken in compliance with this procedure (e.g., noisy construction activities are not being performed during night time hours)
All employees and contractors	<ul style="list-style-type: none"> • Report any activities which are causing noise that are loud or disruptive to their immediate Supervisor
Training Department	<ul style="list-style-type: none"> • Define training requirements for staff who conduct jobs that are recognized as generating noise that may exceed acceptable standards
Regional Development and Social Performance	<ul style="list-style-type: none"> • Report relevant noise monitoring information to local communities • Manage community concerns regarding noise monitoring

Noise Monitoring and Control Procedure		
Effective Date: 2013.05.06	Document Number: OT-10-E2-PRC-0001-E	Version: 1.0

4. PROCEDURE

Noise monitoring shall be undertaken at source points (locations where noise is generated), as well as at sensitive receptors (e.g., winter herder camps, wildlife gathering areas, such as springs, breeding grounds, nesting areas).

4.1. Noise Mitigation (General)

- a) Operations will schedule noisy construction activities for normal daytime working hours (0700-2200), especially noisy mobile sources operating in communities on Oyu Tolgoi's behalf;
- b) Maintain equipment in optimum operating condition in line with manufacturer specifications and will be switched off when not in use;
- c) Where practicable and if deemed necessary by risk assessment, mobile equipment will have the following engineering controls installed to minimise noise generation:
 - Exhaust muffling maintained at manufacturer's specifications;
 - Suitable mufflers on engine exhausts and compressor components;
 - Acoustic enclosures for equipment causing radiating noise;
 - Silencers for fans;
 - Shielding and separation of noise generating equipment; and
 - Installation of vibration isolation will occur for mechanical equipment;
- d) Where practicable, fit equipment generating high noise levels (including generators, crushers, grinders, compressor, pumps, gearboxes) with noise barriers, baffles, sound insulation or enclosures;
- e) Where practicable, select equipment with lower noise levels or procure in preference to noisier equipment;
- f) Maximise distances between noisy equipment and the identified sensitive receptors where beneficial to do so.
- g) Undertake acoustic monitoring of the ore processing facility to confirm that operations will not exceed applicable standards for the relevant time of day;
- h) Provide notification to nearby residents of any exceptional mining activity planned which might create noise near to sensitive receptors in excess of Project Standards; and
- i) Prior to commencement of particularly noisy operations (which are considered likely or possible to exceed Project Standards at sensitive receptors), a HSE Management Plan detailing the work process, program of work, predicted noise levels and manufacturers specifications for equipment and machinery will be submitted by the contractor to Oyu Tolgoi for acceptance.

4.2. Measurement Preparation

- a) Complete the following tasks prior to starting field measurements:

Noise Monitoring and Control ProcedureEffective Date:
2013.05.06Document Number:
OT-10-E2-PRC-0001-EVersion:
1.0

- Notify the Environmental Supervisor of intentions to conduct night time monitoring a minimum of 2 days in advance, so as day work can be reallocated if necessary and sufficient prior rest can be accommodated for carrying out night-time measurements;
- Obtain a Noise Level Input Form for the fieldwork - the form is located on the internal server folder: in MS Excel and PDF format; and
- Obtain a copy of the SWP for Noise Sampling to take to the field, for detailed directions on sampling procedures, and how to use the monitoring instruments.

4.3. General Measurement Guidelines

Refer to SWP Noise for Sampling for detailed information on:

- a) Equipment needed for noise monitoring;
- b) Instrument preparation, certification, calibration;
- c) How to use the noise monitoring instrument (2238 Mediator noise level meter);
- d) How to use the portable weather tracker (Kestrel 4500), and climate variables to be documented;
- e) Required training for monitors; and
- f) Measurement duration, intervals, and all variables to be documented at the measurement site.

Appendix 1 of this document provides an example of the form to be completed during noise monitoring. Appendix 2 provides the longitude and latitude of noise measurement locations. Appendix 3 shows these locations on a map. Noise monitoring points were selected to address the following:

- To measure Oyu Tolgoi's impacts from high noise generating activities on sensitive receiving environments; and
- To monitor background noise levels to allow meaningful comparisons with noise generated by Oyu Tolgoi.

4.4. Data and Record Control

- a) Upon arriving from the field, the Environmental Monitoring Officer will store measurement data and records in accordance with the SWP for Noise Sampling.

4.5. Result Reporting

- a) Environmental Supervisor reviews measurement level test results against national standard requirements. If noise levels exceed national regulatory requirements, these exceedances will be reported to regulators on a quarterly basis;
- b) If any abnormality or exceedances of regulatory requirements are noted, the Environmental Monitoring Officer will immediately notify the Environmental Supervisor who will investigate the exceedance. If required, Environmental Supervisor may carry out repeat-measurement to verify whether the exceedance has occurred;

Noise Monitoring and Control Procedure

Effective Date: 2013.05.06	Document Number: OT-10-E2-PRC-0001-E	Version: 1.0
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- c) If re-measurement confirms exceedances in noise levels, the department/contractor responsible for generating these high noise levels is notified and immediate corrective actions are taken; and
- d) Noise monitoring results will be incorporated into Quarterly Environmental Reports and Annual Environmental Reports which are submitted to regulatory authorities.

5. DEFINITIONS

OT - Oyu Tolgoi LLC

SOP - Standard Operating Procedure

Noise Vibration - The mechanical reverberation of sound in the air the transmission to the human body of low frequency environmental vibration

6. REFERENCES AND RELATED DOCUMENTS

6.1. Applicable Mongolian National Standards

The key Mongolian environmental quality standards applicable to noise and vibration are:

- MNS 4585:2007 *Mongolian National Air Quality Standards* – permissible ambient noise levels.
- MNS 17.5.1.21:1992 *External and Internal Noise of Motor Vehicles. Permissible Levels and Methods of Measurements*
- Attachment II of Government Resolution 149 of 2006, *Unified Safety Regulations for Blasting Operations* – OT must comply with the requirements of this rule during its blasting operation in mining license area.

6.2. Applicable Lender standards and guidelines

The standards which OT will implement are those set by the International Finance Corporation (IFC) and by the European Bank for Reconstruction and Development (EBRD). These include:

- IFC Performance Standards on Environmental and Social Sustainability (2006) (particularly PS1: *Social and Environmental Assessment and Management Systems* and PS3 *Pollution Prevention and Abatement*);
- IFC *Environmental, Health, and Safety General Guidelines* (April 2007);
- EBRD Performance Requirements (2008) (particularly PR1: *Environmental and Social Appraisal and Management*);
- *E6 - Noise and vibration control* (December 2008), although this guideline does not provide noise or vibration limits. This is supported by Rio Tinto standard *B3 – Manual handling and vibration* (December 2008), which covers occupational noise and vibration exposure;
- *Rio Tinto Noise and vibration control guidance note*; and
- *Rio Tinto occupational health standards*.

Noise Monitoring and Control Procedure		
Effective Date: 2013.05.06	Document Number: OT-10-E2-PRC-0001-E	Version: 1.0

7. DOCUMENT CONTROL

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Original Author(s)	Mark Newby
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Approved By	Mark Newby, Environment Manager
Approval Date	2013.05.06
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Risk Ranking	Assessment Date	Risk Assessor	Review Schedule	Next Review Date
Moderate	2013.05.06	Dolgor Baasansuren	2 Yearly	2015.05.06

Version	Revision Date	Author(s)	Approved By	Revision Notes
1.0	2013.05.06	Mark Newby	Mark Newby, Environment Manager	Approved version.

Noise Monitoring and Control Procedure		
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Appendix 2. Noise Level Monitoring Point Locations

No	Point Name	UTM	X	Y	Parameters	Frequency
1	NMP-AP01	48 T	651425	4772837	Noise Level (dB)	Monthly
2	NMP-AP02	48 T	649881	4775572		
3	NMP-AP03	48 T	651473	4778257		
4	NMP-AP04	48 T	653061	4775529		
5	NMP-AP05	48 T	648697	4775587		
6	NMP-AP06	48 T	654121	4775521		
7	NMP-LA01	48 T	651363	4769668		Quarterly (Within the first 10 days of Feb, Mar, Aug, Nov)
8	NMP-LA02	48 T	658038	4764168		
9	NMP-LA03	48 T	653732	4756733		
10	NMP-LA04	48 T	644802	4763987		
11	NMP-LA05	48 T	659894	4751623		
12	NMP-LA06	48 T	666314	4765565		
13	NMP-LA07	48 T	650786	4777811		
14	NMP-LA08	48 T	635498	4773418		
15	NMP-LA09	48 T	635960	4755321		
16	NMP-LA10	48 T	647811	4749515		
17	NMP-LA11	48 T	687332	4803854		
18	NMP-PA01	48 T	654770	4775427		Monthly
19	NMP-PA02	48 T	648237	4777345		
20	NMP-PA03	48 T	648251	4781459		
21	NMP-PA04	48 T	651505	4779197		
22	NMP-PA05	48 T	647285	4776895		
23	NMP-PA06	48 T	652471	4779686		

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Appendix 3. Noise Level Monitoring Point Location Map

