





**SUMMARY OF IMPLEMENTATION OF OYU  
TOLGOI MINE DEPOSIT'S ENVIRONMENTAL  
MANAGEMENT PLAN - 2015**

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## 1. MITIGATION PLAN PROGRESS

### 1.1. Implementation progress on mitigating negative impacts on biodiversity

№	Activities aimed to mitigate negative impacts for biodiversity	Work tasks undertaken
1	Organize trainings about threatened and endangered species listed and protected in the Mongolian Red Book, Local Red list and International Union for Conservation of Nature Red List (IUCN) and other applicable laws and conventions.	Environmental awareness program – a total of 987 employees had partaken by September, 2015
2	Enforce regulations related to illegal poaching as well as harvesting wild plant species, trafficking and using their raw materials	In order to enforce the implementation of the "Regulation on illegal activities on wildlife, plants and their raw materials" <b>38603 cars entering and exiting the mine site</b> were inspected until September, 2015; there were no evidence of any violations during inspections.
3	Monitor activities related to disposing and dumping food waste, prevent open dumping, and monitor omnivorous bird counts	Monitor regularly omnivorous bird counts, the decline in the number of prey species and competitions for food that affect directly or indirectly the lives of rare species around the project area, especially around the Waste Management Center.
4	Conduct researches on endangered species and its' habitat protection and review prior to obtaining Land Disturbance Permit (LDP)	As of September 31, 2015, a total of 31 LDPs have been granted (22 within the mining license area and 9 outside of the license area); and studies on vegetation and rare plants have been conducted on a total of 129.89 hectares of 120 sections.
5	Additional methods to mitigate negative impacts	A) Conducted monitoring studies on 41 Khulan (Mongolian wild asses) and 10 black-tailed gazelles using Satellite tracking collars, where 20 Khulan and 10 black-tailed gazelles were collared in 2014 and 21 Khulan were collared in 2015.  B) Trainings for drivers to not idle by the side of the road for long periods of time unless on a repose, to drive on approved road strips, to drive within the speed limits etc.

### 1.2. Implementation progress on mitigating negative impacts on water resources

(The information below is as of the beginning of September, 2015)

#### A. Water usage for Oyu Tolgoi project in 2015

Purpose		Water consumption, m <sup>3</sup>	Notes
1	Concentrator Unit	10226633	Total amount of infused water by the concentrator or the total amount of water infused from the water storage pools.
2	Drinking and domestic water	229287	The amount of water used for drinking and domestic consumption was estimated from the data by Water Treatment and Bottling Plant by OT.
	Total amount of water bottled by the Water Treatment and Bottling Plant	510	
3	Road	0	The data was extracted from the certified meters from the wells used for road use
4	Irrigation for tree nursery	11199	The data was extracted from the certified meters from the wells used to irrigate the central tree nursery
5	Water drained from the open pit mine	23289	The data was extracted from the certified meters installed on the open pit mine's water drainage device
6	Miscellaneous	300512,8	Watering roads, concrete and drilling, portable water etc.
<b>Total water consumption</b>		<b>10791430,8</b>	

#### B. Water consumption for Concentrator Complex

#	Specification	Tangible amount, m <sup>3</sup>
1	Total water cycle of the concentrator technology	<b>71119976</b>
2	Total amount of water the concentrator complex rejuvenated	<b>10226633</b>
3	Total amount of water recycled and reused by the concentrator complex	
	Out of this:	Total amount of water recollected from the thickener.
		XXБ-аас эргүүлэн татсан усны нийт ХЭМЖЭЭ
	<b>The amount of water reused by the concentrator</b>	<b>85.62%</b>

#### B. Percentage of reused water from the total amount of water consumed through the operations of Oyu Tolgoi project

#	Purpose	Water consumption, (m <sup>3</sup> )	Water reused (m <sup>3</sup> )	Percentage of water reused (%)
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1	Concentrator Complex	71119976	60893343	85.62
2	Waste water treatment facility	243301 merged wastewater	239042 treated wastewater	98.2
3	Road from OT to GS (Gashuun Sukhait)	0	0	0
4	Irrigation for tree nursery	11199	0	0
5	Water drained from the open pit mine	23289	0	0
<b>Overall</b>		<b>71397765</b>	<b>61132385</b>	<b>85.62</b>

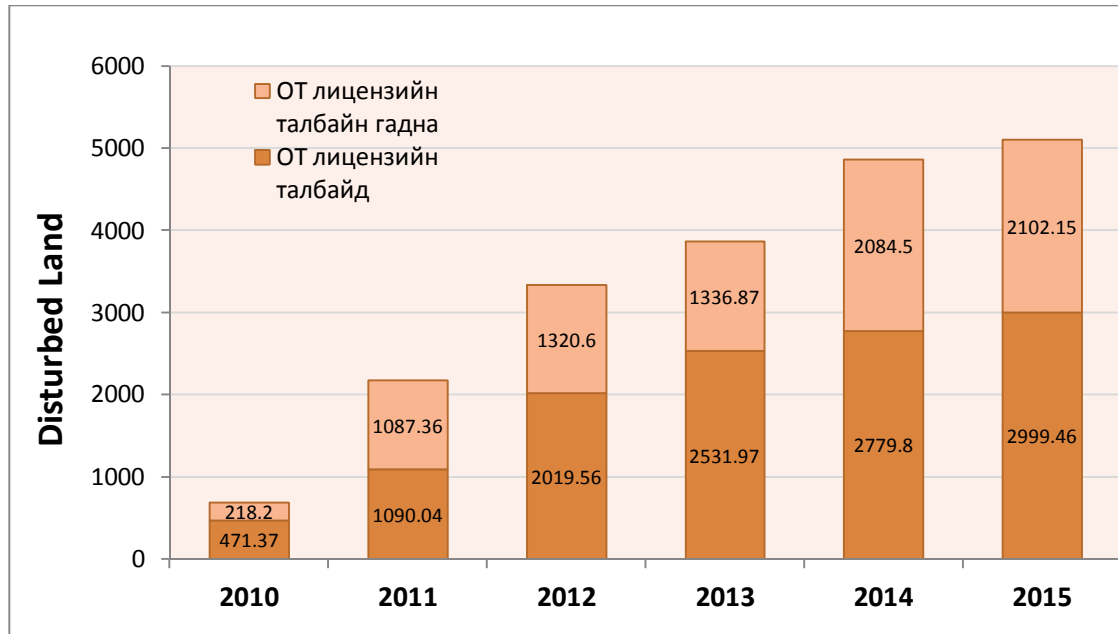
Since the first of January, 2015 until the twentieth of September, 2015, Oyu Tolgoi has paid **10,118,323,876** Tugriks (Ten billion one hundred eighteen million three hundred twenty three thousand eight hundred seventy six) to Dalanzadgad soum in Umnugobi province as water usage fee for project operations.

### 1.3. Mitigating negative impacts due to land uses

Internal procedures for LDPs to control and keep land disturbance impacts to a minimal have been implemented successfully in 2015.

№	Land disturbance permit requests, permissions	Amount of permits /piece/	Area size /hectare/
1	Total number of LDP requests	76	
2	Total number of LDPs granted in 2015	37	169.39
3	Within the licensed area	27	93.96
4	Outside the licensed area	10	75.47

A case of land disturbance without LDP was recorded and appropriate corrective measures were taken for unauthorized land disturbance for this area and one previous year's area.



#### 1.4. Mitigation of negative impacts on air quality

1. **Monitoring dust particles:** Gadgets like the Dust deposition gauge and Dust Trak™ DRX Monitor 8533 have been placed across 33 spots around the mine site and potential areas to be impacted by the operations since 2007 to monitor the fine particles PM<sub>2.5</sub>, coarse dust particles PM<sub>10</sub> and Total Suspended Particles (TSP) in the air.
2. **Monitoring Greenhouse gases:** Portable gas detection device - Dragger X@m 5000 is used to monitor gases like methane, carbon dioxide, carbon monoxide, nitrogen oxides, ammonia and sulfur dioxide across 40 spots each month.
3. **Methods for reducing dust emission:** Effective long term sustainable plans to reduce dust emissions are constructed based on the results from the dust monitoring activities. Although measures like road watering activities are carried out regularly and the installation of dust suppression systems using foam on primary crushers are taken to reduce dust emissions, the records indicate many are exceeding the standards, and hence, further reduction measures are required in these areas.
4. Specialized organizations analyze the exhaust emissions from the Central Heating Plant's 7 and 29 Megawatt furnaces, Khanbumbat airport's boilers and Waste Management Center's waste furnaces monthly to determine the level of pollutant gases and dust concentrations. Corrective actions recommended in the reports are taken for measurements exceeding the standards.
5. The roads are watered regularly using a 30 ton – Komatsu and two 25 ton – Terex vehicles, using treated water in accordance to the standard MNS 4943-2011 *Treated wastewater to be discharged into the Environment* to reduce dust emission levels.

## 2. REHABILITATION PLAN PROGRESS

### 2.1. Technical rehabilitation plan progress

#### A. Rehabilitation report on areas included in 2015 Environmental Management Plan:

#	Name of the area	Projected area /ha/	Execution /ha/	Comments
<b>1. Disturbed areas during construction works</b>		<b>16.94</b>		
1.1	Disturbed area around Shaft - 2	7.88	8.35	Rehabilitation works are complete.
1.2	Disturbed areas around the Diesel Station	2.79	1.23	Rehabilitation works are complete.
1.3	Disturbed areas around the Central Thermal Station – 1	1.34	1.66	Rehabilitation works are complete.
1.4	Disturbed areas around the new Explosives plant	4.93	5.00	Rehabilitation works are complete.
<b>2. Areas and facilities no longer in use</b>		<b>58.52</b>		
2.1	Workers' temporary camp - A	2	0	Cost estimations required for rehabilitation project is being conducted.
2.2	Oyut airport	46.5	46.5	Rehabilitation works are complete. Additional 9.55 hectares which have been used for parking lot and flood drainage have been rehabilitated.
2.3	Crusher plant – 2 for OTGS road operation	5.93	0	The responsibility of rehabilitation work was transferred to Monroad LLC through the Decree number a/265 by the Governor of Khanbogd on the first of December, 2014.
2.4	Temporary collection point for scrap woods	4.09	4.09	
<b>3. Old roads, strips</b>		<b>1.5</b>	<b>1.68</b>	
3.1	Temporary road for Oyut airport	1.5	1.68	Rehabilitation works are complete.
<b>4. Quarries</b>		<b>56.38</b>	<b>56.38</b>	
4.1	Khaliv sand quarry	44.78	30.41	Technical reclamation is complete for 30.41 hectares for using the resources of the sand deposit. The remaining 14.37 hectares is not completely finished.
4.2	Khaliv sand quarry's extension	6.55	7.84	Rehabilitation works have been performed.



#	Name of the area	Projected area /ha/	Execution /ha/	Comments
4.3	Q-05 pebble quarry	5.05	5.05	Rehabilitation works are complete.
<b>5. Drilling areas</b>		<b>7.0</b>	<b>7.0</b>	
5.1	Drill sites planned to be handed over in 2015	7	7.0	Rehabilitation works are complete. The amount of land disturbed and rehabilitated was much lesser than estimated.
<b>TOTAL AREA</b>		<b>140.34</b>	<b>127,77</b>	<b>Successfully completed technical reclamation on 91% of the total planned area</b>

### B. Rehabilitation report on areas not included in 2015 Environmental Management Plan:

#	Name of the area	Size / ha /	Comments
1.	Optical fiber cable connecting Shaft-1 to the Concentrate storage.	0.70	Rehabilitation works are complete.
2.	Historical and cultural heritage protection project in Bayan-Ovoo and Manlai soums	0.0009	Rehabilitation works are complete.
3.	Protecting archaeological artifacts along Khanbogd – OT - Javkhlant / including the camp /	0.28	Rehabilitation works are complete.
4.	Relocate the state geodetic control point	0.005	Rehabilitation works are complete.
5.	Car racing area	0.37	
6.	Water monitoring borehole along Oyu Tolgoi and Gunii Khooloi	1.75	Rehabilitation works are complete.
7	The temporary camp used during the drilling of OT – Gunii Khooloi water monitoring borehole	1	Rehabilitation works are complete.
8	The unauthorized parking space next to Undai River inside the licensed area	0.16	Rehabilitation works have been performed and violation has been removed
<b>Total area where technical reclamation has been performed</b>		<b>4.27</b>	

## 2.2. Biological rehabilitation plan progress

№	Planned work	Work tasks undertaken
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1	Monitoring the quality of topsoil	1,623,348.51 cubic meters of soil is piled in 8 stockpiles on 71.59 hectares area <ul style="list-style-type: none"> <li>• Monitoring salinity, electrical conductivity, and mechanical components</li> <li>• Microflora analysis have been conducted</li> </ul>
2	Preparations for Biological rehabilitation	As of the 30 <sup>th</sup> of August, 2015, 32 kg seeds from 3 species of plants have been collected and prepared. A total of 20468 branches have been prepared for 2015 cultivation, 7832 tamarisk and 12636 willow branches. 16 species, <b>81762</b> pieces of trees, shrubs and perennial plants have been planted in 2015. 89.7% used seeds, and 10.3% used branch cuttings.
3	Rare plant breeding	As of 2015, additional 5217 <i>Caryopteris mongolica</i> , <i>Sophora alopecuroides</i> and <i>Elaeagnus moorcroftii</i> have been planted
4	Supplying the prepared seedlings and saplings to local areas	A total of 53675 seedlings and saplings were supplied to Khanbogd, Manlai, Bayan-Ovoo, Khurmen soums and Dalanzadgad city from 2012-2015.
5	Establishing green facilities, landscaping the camp area	In consideration to the requests by the 8 departments working at the mine site, 1764 woody plant saplings have been planted on 1.55 hectare land with the survival rate of 63.2 percent as of spring, 2015.
6	Biological rehabilitation	<b>146.52 hectares</b> of new area has undergone through biological rehabilitation in 2015 (72.17 hectares of GKh pipeline and the old Oyut airport), replantation of <b>74.35 hectares</b> which was rehabilitated in 2012 and 2014.

### 3. OFFSET ACTION PLAN PROGRESS

№	Project name	Work tasks undertaken
1	Reduction of illegal hunting	Within the framework of reducing illegal hunting, a Memorandum of Understanding was signed between Wildlife Conservation Society, Environmental Department, Police Department, Inspection Agency, Intelligence Agency, Prosecutor's Office of South Gobi province, Small Gobi strictly protected area's Protection Administration, officials from Gashuun Sukhait border services on September 18 <sup>th</sup> , 2014 in Dalanzadgad city. As a result, 3 teams were established for multilateral cooperation within the same year. At soum and village levels, a mobile team against illegal poaching activities was established; trainings on enhancing the team members' knowledge and awareness were conducted, and tools and equipment such as satellite transmission, tent and compass were provided. Additionally, survey to detect illegal trafficking of poached goods was conducted and the illegal hunting information line (98900016) was initiated within the province. Regular patrolling and inspections are being performed to combat against illegal hunting.

2	Rangeland management plan and implementation	<ul style="list-style-type: none"> <li>• <i>Establish contacts with the local people and discuss about the rangeland monitoring plan:</i> In accordance to the Edict A184 by the governor of Khanbogd soum, D. Khurelbaatar was appointed as the chief, and 4 official and 6 non-official members were appointed.</li> <li>• <i>Outline a research plan:</i> The Khanbogd soum’s 2015 rangeland monitoring plan was developed on the basis of the 2014 rangeland monitoring collaboration results, OT scope of work and some recommendations by independent expert groups. The proposed research plan includes measuring: 1) winter grazing intensity, 2) mining infrastructures and roads near rangeland (improved road KhB-OT, paved road OT-GS), 3) sustainably managed rangeland areas such as the inside and outside the fence at OT site and along the river bank of Undai River.</li> <li>• <i>Develop training plans and programs:</i> The rangeland research training is planned to include both theoretical and practical programs to improve the group members’ skills in developing monitoring based rangeland management plans in full capacities.</li> </ul>																
3	Rehabilitating the destroyed saxaul tree forests along Gunii Khooloi	<p><b><u>In 2013:</u></b> 10677 Saxaul tree saplings were planted on 6.62 hectares area</p> <p><b><u>In spring of 2014:</u></b> Survival rate of 79.7 %</p> <p><b><u>In fall of 2014:</u></b> Replantation took place on 24.58 hectare area and the growth rate was 63-87%.</p> <p><b><u>In 2015:</u></b> The participation of local organizations were encouraged for the Saxaul offset action plan and the cooperative “Galba Daichin” and “Bayangobi” LLC have been selected to carry out the project and is currently in the agreement processes.</p>																
4	Offsetting the remaining negative impacts on migration of ungulates due to the road OT-GS route	The railway barbed wires connecting to Zamyn Uud were planned to be segmented off at two locations with 5 km lengths each due to the negative impacts and interference on the migration of the steppe and desert ungulates based on research results. Alas, the project has been delayed due to political reasons such as changes in the Ministers of authorized ministries and department heads.																
5	Additional measures to protect the environment	<p><b><u>Improving public ecological education:</u></b></p> <table border="1" data-bbox="540 1476 1469 1875"> <thead> <tr> <th colspan="2"><b><u>Organized activities</u></b></th> <th>Location</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>World Migratory Bird Day 2015 rotary</td> <td>Ulaanbaatar city</td> <td>May 1-2, 2015</td> </tr> <tr> <td>2</td> <td>National Tree Planting Day</td> <td>Mine site, Khanbogd soum</td> <td>April 17-18, 2015</td> </tr> <tr> <td>3</td> <td>Presenting OT rehabilitation and monitoring results</td> <td>Mongolian National University -</td> <td>March 26, 2015</td> </tr> </tbody> </table>	<b><u>Organized activities</u></b>		Location	Date	1	World Migratory Bird Day 2015 rotary	Ulaanbaatar city	May 1-2, 2015	2	National Tree Planting Day	Mine site, Khanbogd soum	April 17-18, 2015	3	Presenting OT rehabilitation and monitoring results	Mongolian National University -	March 26, 2015
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			Department of Natural Sciences	
	4	Presenting community-based animal monitoring results to the public	Khanbogd soum	September, 2015
	5	Renovating Khanbogd soum school's biology classroom	Khanbogd soum	Within 2015
<b><u>Making the results of Biodiversity research and analysis available to the public:</u></b>				
	1.	Forum on the monitoring results of major biodiversity in South Gobi by Oyu Tolgoi project	Ulaanbaatar city	March, 2015
	2.	Seminar on biodiversity offsetting	Ulaanbaatar city	June 2-3, 2015
	3.	Introduction to biological rehabilitation process and its' results	Manchester, England	August 23-27, 2015
	4.	Typesetting of the birds in South Gobi photobook	Ulaanbaatar city	2015
	5.	Upload the Environmental Reports on the company's website	<a href="http://www.ot.mn">www.ot.mn</a>	Annually

## 6. RELOCATION AND COMPENSATION ACTION PLAN PROGRESS

№	Project, program name	Work tasks undertaken
1	Update of the “ <b>Relocation management plan</b> ”	Consolidated and updated the 2004 relocation and the 2011 compensation programs, corresponded with international financial company. Tripartite agreements have been established between herder families, the Governor of the soum and the Company.
2	Number of households that participated in the relocation and compensation plan	10 herder families were involved in the relocation program and 89 households were involved the compensation program, where 7 herder families who have been relocated in 2004 is overlapping in the compensation program.
3	School supplies	17 children from herder families received school supplies totaling 3,655,000 MNT during the reporting period.
4	Student Scholarship	3 students received scholarships worth 4,256,203 Tugriks
5	Assistant staff	As of August, 2015, 34,696,515 MNT has been spent on assistant staff to carry out their duties established in the Compensation contract with Oyu Tolgoi" LLC.

6	Monitoring the implementation of the tripartite agreement	The contract implementation was monitored in accordance to the schedule, and meetings with the soum authorities and the herder households were arranged. The monitoring results concluded the contract implementation as 100 percent.
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## 7. HISTORICAL AND CULTURAL HERITAGE PROTECTION ACTION PLAN PROGRESS

№	Project name	Work tasks undertaken
1	Cultural heritage management system	<ul style="list-style-type: none"> <li>• Instructions for cultural heritage,</li> <li>• Monitoring and observation of sites with historical and cultural monuments,</li> <li>• Organization of exploration and rescue measures for cultural heritages during the land disturbance works implemented through new OT investments</li> </ul>
2	Implementation of cultural heritage program	<ul style="list-style-type: none"> <li>• Ovoo ritual activities - Khanbogd, Manlai and Bayan-Ovoo soums (provided support)</li> <li>• The three games of men (Naadam) – (celebrated with) KhB soum</li> <li>• The Cultural Ger – in collaboration with the elders of Khanbogd soum. Received 1521 guests.</li> <li>• The joint team of Mongolian and foreign scientists “From dinosaur tracks to tea track” wrote the management plan for areas, including the Shartsav’s dinosaur tracks in Manlai soum and the Khurdet cave located in Khanbogd soum, and successfully got it approved by South Gobi Citizens' Representative Khural.</li> </ul>
	Expenditure	The company funded a total of <b>177,300,000</b> Tugriks towards the implementation of the above projects.

## 8. CHEMICAL RISK MANAGEMENT PLAN PROGRESS

№	Project name	Specifications
1	Chemical storage	<ul style="list-style-type: none"> <li>• Number of units used as storage for chemicals - 9</li> <li>• The number of chemical substances used in 2015 (From January, 2015 to October, 2015) - 237</li> </ul>
2	Recycling chemical waste	Chemical risk assessments were conducted on all the chemicals stored at the waste disposal site. The numerous amount of leftover paints and adhesives that were clustering at the waste disposal site, are being recycled. The paints are used in painting sectors, and the adhesives are used through drying up and condensing. These tasks are carried out in accordance with the applicable laws and regulations
3	Registration of chemicals and the use of ChemAlert System	An easy-to-use integrated system, MSDS is in Mongolian and in English

## 9. WASTE MANAGEMENT PLAN PROGRESS

№	Activities	Specifications
1	Waste management guidelines	<p><b>Waste management:</b> Reduce – Reuse - Recover - Recycle - Dispose</p> <p><b>Sorting and storing:</b></p> <ul style="list-style-type: none"> <li>• Recyclable - 9</li> <li>• Inactive - 3</li> <li>• Non-Hazardous – 13</li> <li>• Hazardous – 8</li> </ul> <p>Wastes that have unidentified recycling technologies and no legal regulations, is stored at the Waste Management Center.</p>
2	Treating contaminated soil using biological methods	<ul style="list-style-type: none"> <li>• The Enretech absorbent is used as bioremediation product</li> <li>• PID – Photo IPon Detector is used to determine the level of contamination</li> <li>• The contaminated soils accumulated from previous years was declared as free of contamination through laboratory results, and started being used as the burial area for Waste Management Center’s landfill</li> </ul>
3	Processing food wastes	<p>The product Bokashi has been used as fermentation tool to produce compost since 2013</p> <p>Research work on recycling food waste has been initiated in collaboration with “Sustainability Asia” environmental and consulting company in 2015.</p>
4	Waste Management Center/ Waste Center	<ul style="list-style-type: none"> <li>• Landfill – with 21000m<sup>2</sup> area, and 190 000m<sup>3</sup> volume</li> <li>• Incinerator – with the capacity to burn about 0.6 tons of waste per day</li> </ul>

## 10. IMPLEMENTATION PROGRESS OF THE ANNUAL ENVIRONMENTAL MANAGEMENT PLAN

**Structural changes:** Structural changes have been performed within the organization to ensure better interrelatedness between environmental implementation and interactions with local residents, these management departments have been merged together. The legal team responsible for the implementation has been integrated with the risk management and management systems team.

**Updates on documents:** Internal control standards have been designed to maintain the health, safety and environmental managements in a more coordinated and integrated system. Regular scheduled checkups, and updates on improving the standards are organized at management levels and upgrades on these standards have been performed in 2014-2015.

- E10 - Water use and quality control standard has been updated to E11 - Water quality protection and water management standard.
- E2 - Air quality control standard has been updated to E12 – Air quality protection standard.
- E3 – Acid rock drainage prediction and control standard and E8 - Mineral waste management have been merged and updated into E13 – Chemical reactive mineral waste control standard.
- E9 - Land use stewardship standard has been updated to E14 - Land disturbance control and rehabilitation standard.

- E5 - Hazardous materials and contamination control standard and E7 - Non-mineral waste management standard have been merged and updated into E15 - Hazardous materials and non-mineral waste control and minimization standard.

## 11. IMPLEMENTATION PROGRESS OF THE ENVIRONMENTAL MONITORING PROGRAM

### 11.1. Implementation of water monitoring program

**Area:** Oyu Tolgoi mine site, Undai River, Gunii Khooloi, Galba gobi.

Area	2015		
	Borehole	Hand pump	Springs
Oyu Tolgoi	142	6	
Gunii Khooloi	103	50	4
Road Galba gobi – Gashuun Sukhait	6	9	0
Undai River	27	19	7
	292	86	11
<b>Total</b>	<b>389</b>		

**Frequency:** The frequencies are every 14 days, monthly and seasonally.

**Indicator:** Decrease in water level, pH, temperature, electrical conductivity and chemical composition of water, bacteriology etc.

**Equipment required:** hand tools, power tools, automatic level meters (Solinst 101 Water level meter, Levelogger Gold, In situ leveltroll 300) and sampling containers, bags etc.

**Software:** The program Datasight Enterprise 2.9.5 is being used.

Water database is being compiled to manage the underground water deposit uses more effectively and to mitigate the negative effects. As the water use from GH deposit has stabilized, the water levels at the monitoring wells drilled into the main aquifer have become stable as well compared to the beginning. This summer months had more precipitation than the average marginal rain of numerous years. Hence, water gushing down many riverbeds could be observed and water level measurements from the hand wells indicated a rise in water levels starting in July.

### 11.2. Implementation of air quality monitoring program

No	Monitoring activities	Number of stations
1	Monitoring dust emissions	<b>33 stations</b>
2	Monitoring GHG emissions	<b>40 stations</b>
3	Monitoring the exhaust levels from the boiler and diesel generator	inside and outside
4	Monitoring noise levels	<b>20 stations</b>

5	Vibration analysis	<b>8 stations</b>
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**Weather:** Weather conditions are estimated using the initial 11 months’ average within the annual report period. The key indicators like air temperature (7.5<sup>0</sup>C), precipitation (92.0mm), evaporation (2679mm) and wind speed (5.3m /s) had similar values as the long-term average.

**Dust emission:** In the framework of Oyu Tolgoi projects’ air pollutants management plan, seasonal fluctuations of dust concentrations in air can be observed from the dust monitoring results along the project area and its infrastructures. About 60 percent of the cases, where it exceeds the Mongolian National Air Quality Standards, occurred during dry, high speed windy spring months II-V. Although seasonal fluctuations can be observed from the total measurements, a few cases of exceeding the permissible amounts were registered at some areas such as the tailings storage facility dam, open pit mine and concentrator - ore warehouse and the concentrate storage. This proves that dust emission is caused due to strong winds in the area. Although methods to reduce dust emissions are applied like watering the road, installing foam dust suppressors on primary crushers, additional mitigation measures for dust suppression are needed in these areas due to continual registration of cases exceeding the standards.

**Air contaminants:** The monthly monitoring results measured along the project area and its infrastructures indicate the compliance with the Mongolian National Air Quality Standard MNS4585: 2007 as there were no trace of some pollutants in ambient air (up to 2m). In August, nitrogen dioxide (NO<sub>2</sub>) was detected in the air near Station LA01 and the waste water treatment plant (WWTP) area with amounts ranging between 1.12-1.62mg/m<sup>3</sup>. This exceeds the maximum acceptable level specified in the standards by 14-19 times.

**Discharges from exhaust pipes:** The exhaust discharged from the 7MW, 29MW boilers at the Central Thermal Station, steam boiler at the Khanbumbat airport and incinerator at the WWTP are monitored monthly by specialized organizations to determine the concentrations of pollutants and dust emissions, and on the basis of the monitoring results, mitigation steps are undertaken following the recommendations stated in the reports in cases of exceeding the permissible levels specified in the standards.

### **11.3. Implementation of noise and vibration monitoring program**

The noise levels at Oyu Tolgoi Project area day and nightshifts, airports and the area near OT – Gashuun Sukhait road are always in accordance to the specified levels in Mongolian National Air Quality Standards. The Peak Particle Velocity (PPV) of the ground vibration generated from blasting operations by Oyu Tolgoi open pit is 100 times less than the acceptable limit 10mm/sec specified in the internationally recognized standard “Technical basis for guidelines to minimize annoyance due to blasting overpressure and ground vibration” that was established on September, 1990 by Australian and New Zealand Environmental Council. Hence, the ground vibration is within the norm.

### **11.4. Soil quality monitoring program**

Soil monitoring is carried out on a total of 56 stations.

**Monitoring soil morphology, chemical and physical properties, and heavy metals:**

The soils near the project area and its surroundings have high contents of Fluorine (F) and Arsenic (As) than the permitted amounts stated in the standards. This pollution is not caused through any activities, the



areas have naturally high concentrations. Additionally, Copper (Cu) content near the fuel storage facility, Molybdenum (Mo) concentration near the stations LA04 south of the project area, WWTP and Khanbumbat airport contained higher concentrations of Cu and Mo in the soil than the permissible amounts. These cases have exceeded the maximum levels of permitted heavy metals; however, it is less than the standards categorized as toxic and dangerous levels. The Fluoride and Arsenic concentrations in the soil near Oyu Tolgoi - Gashuun Sukhait infrastructure was always higher than the permissible levels.

**Monitoring soil bacteriology:** As for soil health and bacteriology, the soil is healthy, clean and has very low contamination.

**GKh landscape research:** Due to possible changes to the surface and landscapes of the area near GKh as a result of using the underground water of GKh, landscape surveying research was initiated in 2014 and in 2015, the Sustainability Environmental Consulting company conducted the research. A total of 17 subtypes of landscape were identified through the landscape alteration research, which was conducted over the entire subsurface area of GKh.

### 11.5. Wildlife monitoring compliance

№	Monitoring	
1	Reptiles	11 species of reptiles inhabit the area. There was no indication of decline in the number of reptiles; however, there may be negative impacts on the population densities of reptiles due to the increasing number of herder families and livestock in the summer around the mine site compared to previous years.
2	Birds	5 new species of birds are recorded in 2015, and currently 228 species of birds belonging to 126 Genus, 42 Families and 17 Orders have been recorded near Oyu Tolgoi. 17 баг, 42 овог, 126 төрөлд хамаарах 228 зүйлийн
3	Research on small rodents	A total of 88 individuals belonging to 9 species of 6 Genus small rodents were newly recorded. From the monitoring results since 2011, population sizes and densities of small rodents vary yearly. Hence, the rise and fall in the number of rodents cannot be labeled as alteration. The population size and average population density for small rodents in desert regions is within the normal range (5-9 individual/ha).
4	Monitoring wildlife at the project site	The high number of black tailed gazelle, within the site fence along the Undai River during the winters of 2014 and 2015, may be due to the newly established Bor Owoo spring. The fenced off pasture area at the minesite may be creating favorable habitat conditions for the gazelle herds to pass the harsh cold winter without any forage competition with livestock, without predators and illegal poachers. This may increase the risk of collision with vehicles. However, there were no accidents and deaths registered in 2015, which are implementation results of the management plans for mitigating negative impacts on wildlife such as decreasing the speed limits from 60km/h to 40km/h in most areas at the site and trainings for employees to raise awareness and to inform them about biodiversity conservation policies and procedures.
5	Monitoring wildlife near project infrastructures	Since 2010, researches on regionally and internationally threatened ungulates like Khulan and the black tailed gazelle, are being conducted in areas such as Galba Gobi, GKh. From the gathered data for this study, OT mine operations and its' infrastructures show relatively low level of impacts on these ungulates who are heavily dependent on accessibility of food and locations.

6	Wildlife accidents and casualties near project infrastructures	Regular monitoring on wildlife injuries and deaths are conducted along the mine site, buildings, roads, 35 kW and 6 kW power lines of GKh, Gashuun Sukhait road, 220 kW power lines and other infrastructures every month since 2011. 83 wild animal accidents and deaths have been registered until October, 2015, which is 28 percent lower than the previous year (110). 67.4% of all incidents occurred within the site, which can be linked to successfully training all staff in environmental awareness programs, and informing each incident promptly in accordance to the company regulations on protection of biological diversity.
7	Participatory animal monitoring research program	Community-based animal monitoring program has been successfully implemented for the 4 <sup>th</sup> year, and data are gathered to establish an information database for local wildlife and to evaluate population status and the changes. As of first of September, 2015, participants travelled over a total of 9186 km, and 2624 mammals from 7 species, 66 common and rare birds of 12 species were recorded through 123 observational studies.
8	Traffic control	A permanent automatic counting instrument Marksman M680 was installed and monitored to assess the number of vehicles, speed and traffic intensity since December, 2014 to determine and monitor potential impacts on wildlife from OT-GS paved roads. Traffic intensity of 112-239 cars/day does not pose serious issues for wildlife migration; and currently stopping all traffic activities at nights has had positive impacts on wildlife migration.
9	Research on nesting behaviors of raptors	An extended research and nesting behaviors of raptors have been conducted twice in 2015 from 10 <sup>th</sup> of May to 2 <sup>nd</sup> of June and 14 <sup>th</sup> of July to 10 <sup>th</sup> of August covering areas from KB mountain, KB soum and 20 km radius from the center of Oyu Tolgoi.  Every elm tree, cliffs and other possible nesting grounds for raptors have been checked around the research area for raptor nests, and 115 nests of 11 species of raptors were recorded during the first survey, while additional 53 active nests have been recorded during the second exploration.
10	The number and distribution of ungulates	Research on numbers of ungulates and their distribution have been completed in total 4 times. Research objectives were to estimate the population density and abundance of wild asses, black tailed and white gazelles, to determine the factors affecting their spread and location, to implement a long-term monitoring program, and to collect baseline data to formulate mitigation and protection plans. During the spring, 2015 studies, a total of 3040 Khulan wild asses from 205 herds, 1058 black-tailed from 251 herds, 1467 white gazelles from 51 herds, 47 wild sheep from 11 herds and 8 ibexes from 1 herd have been observed and counted.
11	Survey and concensus on carcasses of Khulan	Field survey of counting the dead carcasses of Khulan around the stable population grounds have been completed in 2015 to assess illegal poaching of this hoofed species.
12	Migration and movements of black-tailed gazelle	The research using the satellite data transmission collars on establishing the migration patterns, habitat areas and spatial locations of black tailed gazelles, and determining the effects of mining, roads, and natural factors (vegetation, temperature and snow etc.) on this ungulates determined the habitat area of black tailed gazelles collared near Oyu Tolgoi mine site is smaller than black tailed gazelles collared at a distance from the site.
13	Migration and movements of Khulan	In collaboration with Wildlife Conservation Society, Austrian scientists a total of 20 Khulan wild asses, 10 near Oyu Tolgoi mine site, 10 from Khatanbulag soum in Dornogobi province, was collared with satellite transmitters in September, 2013 to

	<p>study the seasonal migration, migration patterns and negative impacts of mine infrastructures on Khulan.</p> <p>The total habitat area of Khulan is 73,830 km<sup>2</sup> according to the data gathered between the months I-VI, 2015.</p>
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## 12. THE IMPLEMENTATION PROGRESS ON APPLYING THE RECOMMENDATIONS IN THE REVIEW OF THE ENVIRONMENTAL MANAGEMENT PLAN SUMMARY - 2014

№	Recommendations provided in the summary review	Implementation
1	Finish the rehabilitation of incomplete areas of 2014	<p>Technical rehabilitation was completed on 124.46 hectares area (proposed amount 140.34 hectares) during the reporting period, where 53.84 hectares are within the mining licensing area and 70.62 hectares are outside the licensing area. Following areas that were scheduled to be rehabilitated in 2014, have been completed in 2015 and handed over to the community.</p> <ul style="list-style-type: none"> <li>- Temporary roads and strips at the mine site</li> <li>- Khaliv sand deposit</li> <li>- Disturbed lands due to facilities and infrastructures</li> <li>- Ouyt Airport</li> <li>- Exploration drilling sites</li> </ul>
2	Mitigation measures for dust caused from the tailings dam	In 2015, the construction for the Tailings dam was completed, and dust emission from operation and construction works could decrease. A 30 ton – Komatsu and two 25 ton – Terex vehicles are used for watering to reduce dust emission levels, using the treated water from WWTP in accordance to the standard “MNS 4943-2011 Treated wastewater to be discharged into the Environment Treated water”.
3	Achieve perfect resolution for reducing dust emission from the 26km road /watering and covering/	A 30 ton – Komatsu and two 25 ton – Terex vehicles are used for watering the roads to reduce dust emission levels, using the treated water from WWTP in accordance to the standard “MNS 4943-2011 Treated wastewater to be discharged into the Environment Treated water”.
4	Neutralize fuel and lubricant contaminated soil /use for rehabilitation/	The Enretech absorbent is tested as bioremediation product for soil. Enretech has 2 properties: to absorb oil/ fuel and to use on the spill to neutralize the contaminated soil. This product contains natural bacteria common in oil plants and soil. When there are sufficient hydrocarbons and moisture, these bacteria break down the pollutants

		<p>into harmless substances. This year, rehabilitated and neutralized the degraded, contaminated soil through thinning process. The thinning process is carried out monthly and involves letting the contaminated soil thin through evaporation.</p> <p>PID - Photo IPon Detector device was used at the end of the year to determine the accumulated soil hydrocarbon pollution in the past few years, and determined the level of hydrocarbon to be lower than the permissible level and it was used to bury waste at the Landfill - waste disposal center.</p>
5	To comply with the 2009 edict 51/47 by the Minister of Environment and Tourism and the Minister of Health “Special and ordinary protected zones for watershed, hygiene zones for the water supply sources” on well number 1135	Hygiene zones were established and signs have been placed at Gunii Khoooloi wells and the administrations have been formally informed.
6	Abide with the 51 resolution of 2013 by the Administration of Citizen’s Representative Khural, and prepare the water use assessment for 2015 by first quarter, include each designation for water consumption and estimate accurately the water consumption in the assessments.	<p>February, 2015 request for appraisal of water use was submitted to Mongol Us State Owned Enterprise (SOE) and they reviewed it in August, 2015; however, due to payment settlement issues, the review was not returned until this day. The Minister of Environment, Green Development and Tourism’s Annex to the edict A-323 on August 5, 2015 revised the “Fees for water use appraisal”. It rendered the water use charge between 360,000 – 845,000MNT for 3000 cubic meters of water per day; however, in cases of water usage more than 3000 cubic meters, the service charge for the appraisal is 1% of the total estimated water use, which is an increase in the tariff by more than 220 times than the previous rate.</p> <p>Oyu Tolgoi LLC’s management team is clarifying this issue with the administrations of Ministry of Environment, Green Development and Tourism.</p>
7	In 2015, focus on consuming water not exceeding the water use permit limit; in case of exceeding, get additional appraisal to use	Have not acquired the permits for water use due to not receiving the water use appraisal by experts.
8	Obtain general layouts for green facilities by first quarter, and starting in April increase green facilities around the damaged areas where the vegetation was destroyed due to construction and increase the green facilities around the exterior of buildings	<p>Although it is not possible to establish green facilities near every buildings due to plant operations;</p> <p>To establish green facilities, 1764 woody plant saplings have been planted on 8998 m<sup>2</sup> area with the survival rate of 63.5%.</p>
9	Rehabilitate and clean the temporary waste dump area, and remove all the waste stored at the old waste disposal site	The old waste disposal site/ landfill has been not operational since the second quarter of 2015 and currently the cleaning works are in progress.
10	Partner in provincial soil degradation and desertification level research, estimate the budget	No formal or verbal requests have been received.

11	<p>Determine and improve ways for reporting environmental protection and community-based works to the public and making it accessible</p>	<p>Oyu Tolgoi LLC is using every communications measures available to report all EMP works of OT to the neighbors and the state.</p> <p>The following works have been performed by October, 2015:</p> <ul style="list-style-type: none"> <li>- Community-based animal monitoring program has been successfully implemented since 2012 through Oyu Tolgoi LLC's Community Relations department and Environmental Department. In the methodological framework of the program, professional trainings have been organized for herder participants, and field instruments have been provided. In September, 2015, participants presented their works through wallpaper to the community at the local fair, and wildlife photographs taken by herders during the field survey have been presented as an exhibition.</li> <li>- In the framework of participatory environmental monitoring and assessment program by Oyu Tolgoi LLC, the company renovated Khanbogd Soum School's biology classroom to provide access to quality education in ecology and environmental awareness.</li> <li>- According to the study of rare long-term monitoring of biodiversity project in South Gobi. conference to present the results of 2013-2014 surveys in Ulaanbaatar, November 3, 2015, the mining environmental experts, non-governmental organization involved in environmental research and welfare state experts.</li> <li>- Oyu Tolgoi LLC's environmental department signed a contract with Wildlife Conservation Society and has been implementing a long-term monitoring research program of rare biodiversity in South Gobi since 2013. In March, 2015, a conference to present the monitoring results of 2013-2014 has been organized in Ulaanbaatar. Mining environmental specialists, governmental as well as non-governmental environmental researchers and specialists participated in the conference.</li> <li>- In order to make the results of Oyu Tolgoi LLC's Biodiversity research and analysis available to the public, OT presented their research projects and initial rehabilitation results in an oral presentation at the international 6th SER convention "Results of ESD application as a restoration roadmap in desert region, Mongolia", and a summary was published in the convention's journal</li> <li>- Uploaded all the Environmental Planning and Environmental Impact Assessment Reports on the company's website, which is easily accessible to read and download for anyone who is interested</li> </ul>
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