

Summary of Oyu Tolgoi Environmental Management Plan for 2016 and Implementation

1. MITIGATION OF ADVERSE IMPACT

1.1 Potential Adverse Impact on Fauna and Mitigation Measures

№	Environmental Protection Plan	Implementation
1	Organize trainings on rare wild animals, especially endangered species listed in the Red Book of Mongolia, IUCN Red Lists at regional and international level, other legislations, treaties and conventions	Mandatory environmental awareness training is provided to all OT employees and contractors. The training content comprises of OT Biodiversity Protection Policy, rare animals around the project site, prevention from adverse impacts and response to any wild animal related incidents. Training materials are prepared in Mongolian and English languages. A total of 1116 employees attended the training: 987 in 2015 and 129 in 2016, respectively. <u>See 3.1.1 for details.</u>
2	Install short-circuit isolators on power transmission lines/poles to prevent the risk of electrocution of birds	Installation of short-circuit isolators on 119 poles of Gunii Khooloi 6 kV power transmission lines is reflected in next work plan. Wild animal monitoring is conducted monthly to prevent power related risks and the details can be seen in the chapter about animal loss along the infrastructure facilities. <u>See 12.7.5 for details.</u>
3	Identify the road crossing times and exact locations of Asiatic Wild Asses based on the data obtained from satellite transmitter collars. Limit traffic when required.	<ol style="list-style-type: none"> 1. Satellite transmitter collars were put on 20 Asiatic Wild Asses in 2013. Operability of the collars is 2 years. 2. Satellite transmitter collars were put on 21 Asiatic Wild Asses (13 mares and 8 stallions) in 2015. Operability of the collars is 2.5 years. <p><u>The findings obtained from study of the Asiatic Wild Asses with satellite transmitter collars:</u></p> <ul style="list-style-type: none"> • Habitat of the Asiatic Wild Asses with collars occupies 94,191 km², which is equivalent to 5.9% of the territory of Mongolia. • Asiatic Wild Asses are active for 24 hours a day; highest activity is observed from 7pm to 12 pm and 8am to 9am. • Southern part of Oyu Tolgoi, in particular, the expanse between the coal haul road and OT road, is an important migration route of Asiatic Wild Ass herds. <p>Asiatic Wild Asses with transmitter collars crossed the roads 382 times between September 2013 and October 2016; namely, 307 times across the OT-Gashuun Sukhait paved road and 75 times across the Tavan Tolgoi coal haul road. As of October 2016, eight Asiatic Wild Asses crossed the OT Road 178 times, while six crossed the Tavan Tolgoi road 11 times.</p> <p>No need has been identified to date to limit traffic. <u>Details are provided in clauses 12.7.8 and 12.7.11 of the report.</u></p>
4	Do inspection at the site entrance and airport to ensure implementation of the Procedure on Prohibition of Illegal Hunting and Natural Plant Collection and Transportation and Use of Animals and Plants Raw Material	<p>Procedure on Prohibition of Illegal Hunting and Natural Plant Collection and Transportation and Use of Animals and Plants Raw Material is observed since 2014 after it was developed by OT Environment and Biological Diversity Department.</p> <p>As of October 2016, 48084 vehicles were gone through inspection at Mine site exit and entry and no violation has been recorded.</p> <p><u>Details are provided in clause 3.1.2 of the report.</u></p>
5	Organize training on driving on approved roads only and adhering to speed limits to prevent from avoidance and direct loss of wild animals, and oversee implementation thereof	Mandatory environmental awareness training is provided to all OT employees and contractors. The training content comprises of OT Biodiversity Protection Policy, rare animals around the project site, prevention from adverse impacts and response to any wild animal related incidents. Training materials are prepared in Mongolian and English languages. A total of 1116 employees attended the training: 987 in 2015 and 129 in 2016, respectively. <u>See clause 3.1.1 for details.</u>

№	Environmental Protection Plan	Implementation
6	Carry out a study before issuing land disturbance permits (LDP) for a conclusion on protection of rare animals and their habitats, and refuse LDP issuance, as required	As of October 2016, 32 LDPs were issued; 24 were inside and 8 were outside the license area. Since the license area is fenced and operations are constant, rare animals and their habitats have been impacted to a certain degree. This year no cases of LDP rejection have been recorded. However, the recommendations and conclusions have been provided to be complied with during land disturbance. <u>Details are provided in clause 3.1.5.1 of the report.</u>
7	Oversee disposal and landfill of food leftovers, prevent open disposal of food leftovers, count number of omnivorous birds	Count of omnivorous birds near the Waste Management Center (WMC) in 2016 is recorded at 1111 birds of 6 species pertaining to 5 families, including 909 Ravens, 76 Black Kites, 45 Rock Doves, 45 Daurian Jackdaws, 29 Black-billed Magpies and 7 Cinereous Vultures. Of those 6 species, Black Kites are migratory species and spend summer laying eggs, Daurian Jackdaws stop over during migration, while remaining 4 are resident species. The number of birds was up in winter while it was reverse in spring and summer. <u>Details are provided in clause 3.1.3 of the report.</u>
8	Identify the points where wild animals are likely to be hit by vehicle, lower speed in identified areas, prepare and distribute warning to employees	Highly inhabited (by wild animals) areas inside the Project site were identified and suitable warning signs were erected along the roads. Cautious driving and speed limit for allowing wild animals to pass in those crowded areas are advised for compliance to supervisors or team leaders and when each LDP is issued. <u>Details are provided in clause 12.7.4 of the report.</u>
9	Assess the traffic on Oyu Tolgoi-Gashuun Sukhait paved road in order to monitor whether it restricts migration of rare mammals	According to the traffic control data, 199-242 vehicles drive through Oyu Tolgoi-Gashuun Sukhait paved road a day, which can be viewed relatively uncongested. Traffic of 400 vehicles per day causes a serious impact on wildlife and hinders migration. If vehicle number reaches 1000, the traffic becomes an impact, being a complete ecological isolator (Kaszensky 2011). OT Fauna Study Team, in cooperation with WCS Mongolia, conducts regular monitoring over the relevance of migration of Asiatic Wild Asses and Oyu Tolgoi-Gashuun Sukhait paved road. <u>Details are provided in clause 12.7.8 of the report.</u>
10	Remove and bury carrions around the Project site and along the infrastructure lines	If carrions are found around the Project site and along the infrastructure lines, they are buried in the landfill site. <u>Details are provided in clause 3.1.3 of the report.</u>
11	Build two animal passes at the road level on Tsagaan Khad- Border point part of OT-Gashuun Sukhait road	The DEIA report for 18.5 km Tsagaan Khad – Border point part of OT-Gashuun Sukhait road was approved in 2015 and building of two animal passes are specified in the report. Construction, including 2 passes, is expected to finish in August 2017. <u>Details are provided in clauses 3.1.3 and 12.7.8 of the report.</u>

1.2. Potential adverse impact on flora and mitigation measures

№	Environmental Protection Plan	Implementation
1	Conduct pre-LDP baseline study on each requested area to identify hierarchical impact mitigation measures for rare and endangered plants and make conclusions and recommendations. If required, reject LDP applications.	Out of 45 land plots where LDPs were requested in 2016, 25 were inside and 20 were outside the license area. <ul style="list-style-type: none"> Avoidance is recommended on 3 land plots. 3133 individual plants pertaining to 8 plant species were transplanted. <u>Details are provided in clause 3.1.5.2 of the report.</u>
2	Organize trainings on rare plants, especially endangered species, listed in the Red Book of Mongolia, IUCN Red Lists at regional and international level, other legislations, treaties and conventions	Mandatory environmental awareness training is provided to all OT employees and contractors. The training content comprises of OT Biodiversity Protection Policy, rare animals around the project site, prevention from adverse impacts and response to any wild animal related incidents. Training materials are prepared in Mongolian and English languages. A total of 1116 employees attended the training: 987 in 2015 and 129 in 2016, respectively.
3	Organize training and advocacy on OT policy on prohibition of natural plant collection and conduct monitoring thereon	
4	Provide support to conduct soum-wide pastureland health monitoring in order to improve pasture management	WCS Mongolia started pasture monitoring in 2015 under a contract. Field monitoring is conducted by the team of researchers from the Institute of Botany of Academy of Sciences, NUM, Institute of Geocology, MSUA and WCS. They listed 77 species in 2015 and 114 species in 2016 during the field studies. The latter is relevant to abundant rainfall in summer 2016. The monitoring is underway now.
5	Ban offroad driving to prevent negative impact on pasture carrying capacity in order not to shrink the pasture by removal of certain parts	All OT vehicles are equipped with GPSs and are under regular monitoring. All employees attended the environmental awareness training.

1.3. Water Resource Scarcity and Water Quality

№	Environmental Protection Plan	Implementation
1	Take measures to reduce overall water consumption and increase water reuse for the Project operations, study additional opportunities, conduct training on effective use of water	Industrial water reuse was 85.62% in 2015 which was increased to 86.36% in 2016. The water used for household purposes is reused 100%. Environmental awareness training includes the topic of effective use of water and all employees attended the training. Training materials are prepared in Mongolian and English languages. A total of 1116 employees attended the training: 987 in 2015 and 129 in 2016, respectively. <u>See clause 3.2.2 for details.</u>
2	Study and identify international best practices and suitable methodology on increase and restoration of groundwater resources	The Water Resource Council discussed the final result of hydrological exploration and resource estimation on 'Upgrade of Gunii Khooloi Groundwater Reserve' at its meeting on July 6, 2015 and made a decision to accept the water reserve of Gunii Khooloi, which had been approved at 870 l/s under Resolution #22, 2009 by the Minister for Environment and Tourism, as 918 l/s. The reserve was confirmed by the Council Resolution #2015/03 dated November 2, 2015. As the wells are under constant utilization, dynamic water level of the wells is regularly measured in order to not exceed the permissible limit. <u>Details are provided in clause 3.2.2 of the report.</u>
3	Ensure implementation of Water Management Plan, that contains the issues of Tailings Storage Facility (TSF), acid rock drainage, Wastewater Treatment Plant (WWTP), Open-pit seepage water and mine water drainage system	The Water Management Plan was developed in 2013 and updated 3 times in the course of implementation, upon identification of needs for improvement. It covers the issues of Tailings Storage Facility (TSF), acid rock drainage, Wastewater Treatment Plant (WWTP), Open-pit seepage water and mine water drainage system. Twenty-four procedures and guidelines were developed to facilitate implementation of the Water Management Plan.
4	Dewater the Open-pit regularly, collect pit water in designated sump and use treated and collected water to reduce dust around the waste rock stockpiles and shaft sinking	As of September 2016, 31102 m ³ seepage water was drained and used for dust suppression of the roads. Seepage is constant in several points of west and northwest walls of the open pit. <u>Details are provided in clause 3.2.2 of the report.</u>
5	Monitor operation of industrial effluent and domestic wastewater lines and equipment on regular basis, and repair	Regular monitoring was conducted to ensure normal operation of industrial effluent and domestic wastewater lines and equipment. No damage was recorded in 2016.

№	Environmental Protection Plan	Implementation
	immediately in case of damage	
6	Dispose WWTP effluent and sludge to a designated point	From January 1 to November 30, 2016, a total of 3088 m ³ sludge was transported to the designated point for disposal. <u>Details are provided in clause 3.2.5 of the report.</u>
7	Ensure that there is no stagnant water covering a large part of TSF	As TSF design ensured one percent slope and water is collected in one side before recycling, water will not be accumulated covering a large part. Since 4 cells are used in turn, water will not be accumulated for long.
8	Carry out regular monitoring if diverted flow joins the original waterbody in order to maintain the surface and groundwater flows unchanged. Do water monitoring at New Bor Ovoo spring.	Discharge rate of New Bor Ovoo spring is measured by overflowing and water flow area is measured by hand GPS on a monthly basis. As observed, New Bor Ovoo spring is covered with ice in winter and accordingly the area gets larger, while it is opposite in warm season. The origin of the spring did not freeze in winter for the last few years. <u>Details are provided in clause 12.1.1.2 of the report.</u>
9	Carry out groundwater monitoring near WWTP	As of 2016, water monitoring was conducted at 127 points within the license area. It covered 2 monitoring wells downstream of WWTP.
10	Control chemical composition of water in Gunii Khooloi aquifer and prevent water level drawdown exceeding the recommended limit	Monitoring covered 117 boreholes, 54 hand wells and 4 springs located within the Gunii Khooloi water deposit and its catchment area. Water level and water quality are monitored regularly at those points. <u>Details are provided in clause 12.1.2 of the report.</u>
11	Do regular monitoring of wastewater to and effluent from the WWTP	Wastewater treatment was monitored independently and monthly sampling was done for analysis of chemicals and micro organisms by an accredited laboratory. According to the test results of 2016, no gastrointestinal bacteria was found in treated wastewater. <u>Details are provided in clause 3.2.10 of the report.</u>
12	Take water samples from TSF every month for laboratory analysis and if any change occurs, identify the reason	Monitoring is carried out by analyzing water samples every month and developing quarterly internal reports. <u>Details are provided in clause 12.1.1.3 of the report.</u>
13	Analyze drinking water on regular basis to prevent leakage of chemicals to drinking water sources. Check sealing and safety/integrity of containers regularly during transportation of chemicals. Control over the operation of the existing warehouses as per standard and use spill kits in case of leakage.	As part of the independent monitoring, water samples are taken from Gunii Khooloi raw water and drinking water, and analysis of chemicals and micro organism is done once a month. Professional organization's conclusion and relevant license were obtained for the chemicals storage part of the Site Warehouse, by meeting the requirements of MNS 6458:2014 standard on "Warehouse for Toxic and Hazardous Chemical Substances and Products". Sufficient number of spill kits is placed in workplaces where chemicals are handled. Workplace inspection is carried out and spill kits are replenished. <u>Details are provided in clause 9.1 of the report.</u>
14	Fully prevent leakage of fuel and lubricants, and in cases of leakage, clean by designated material.	Sufficient number of spill kits is placed in workplaces where fuel and lubricants are handled. Workplace inspection is carried out and spill kits are replenished. <u>Details are provided in clause 9.4 of the report.</u>
15	Ensure that chemically contaminated materials are not kept open and disposed of immediately at designated point	Contaminated absorbent substance, rolls, pads and pillows are sorted and put in labeled waste bins and burned in waste incinerator. Soil contaminated by diesel and petroleum is removed to designated point. <u>Details are provided in clause 10.1 of the report.</u>
16	Involve the specialists in charge of water in the Council of Galba-Uush Doloodyn Basin to launch cooperation on OT water monitoring and get advice in respect of protection and rehabilitation of water resources	The letter #401 dated February 19, 2016 by Galba-Uush Doloodyn Basin Council informed to involve N.Erdenebayar, Manager Environment, and S.Otgonbaatar, Senior Officer Water Management, in the Basin Council. We worked with and got advice from the Council in respect of sealing of cascading wells, drilling of wells to expand Gunii Khooloi monitoring program and handover of exploration wells.
17	Have independent audit over water utilization and consumption of the Project in 2016 as set forth in the Investment Agreement of Oyu Tolgoi LLC	Water auditing was undertaken in 2016, the fifth year of water utilization, by 'Unu Munkh Suvarga' Center. Final report of the audit was received on December 30, 2016. As set forth in the Investment Agreement, water audit report must be submitted to the Government of Mongolia and Project investors within 3 months.
18	Drill 15 new monitoring wells to expand the water monitoring program	New monitoring wells were drilled and equipped in 2015-2016 in two phases.
19	Continue participatory water monitoring program	In 2016, 31 herders measured water level of 45 hand wells as part of the participatory water monitoring program. Herders measure the well water table on weekly basis, 4 times a month, starting from last year.

№	Environmental Protection Plan	Implementation
20	Continue study on increased reuse of industrial process water. Reduce evaporation of water in TSF by increased settling rates at the tailings thickener	Tailings thickening rate was 50 percent in 2014-2015. It reached 60 percent in 2016 as part of the study.

1.4. Land Use Management

1.4.1. Land Disturbance Control

№	Environmental Protection Plan	Implementation
1	Obtain or issue a land disturbance permit (LDP) prior to any land disturbing tasks	The company complies with the Procedure for Land Disturbance Permit since 2010 to maintain land disturbance as minimum as possible. It was updated significantly, which is reported in detail in the section about the reforms introduced in land management system. <u>Details are provided in clause 3.3 of the report.</u>
2	Oversee implementation of LDP requirements through in-situ inspections in order to ensure that land disturbance is limited to authorized areas	LDPs contain the requirements for conducting progress inspections to verify whether the land is disturbed for the purposes set out in LDP and on authorized land plot. <u>Details are provided in clause 3.3.3 of the report.</u>
3	Record LDPs	In 2016, 89 LDP were requested; 65 LDPs were issued upon completion of environment, legal, cultural heritage and communities inspections and conclusions, 3 were rejected. Issuance of 2 LDPs was ongoing during development of the report. Some of the remaining requests were registered in the GSI system as already-disturbed lands, so no LDP was required. On the other hand, some projects were not likely to be realized, LDP requests were rejected. <u>Details are provided in clause 3.3.3 of the report.</u>
4	Record and report on the disturbed lands	Oyu Tolgoi LLC registers all disturbed lands in the GSI system from inception of its operations. As of the end of 2016, 5406.01 ha were disturbed by incremented total; out of which, 3200.94 ha are inside and 2205.07 ha are outside the license site. <u>Details are provided in clause 3.3 of the report.</u>
5	If land is disturbed without permit, record it as an environmental violation and take required measures	No unpermitted land disturbance was recorded in 2016.
6	Commence construction of Oyu Tolgoi-Khanbogd paved road project	The Construction and Engineering Department has decided to buy common minerals, required for construction of OT-Khanbogd road, from several companies. The DEIA report of the project was approved on July 5, 2016 by Professional Assessment Council. Road construction is expected to finish in August 2017. Necessary LDPs were issued as per internal regulations in order to commence the project.
7	Complete the construction of 18 km Tsagaan Khad-Gashuun Sukhait part of OT-Gashuun Sukhait paved road	The DEIA of 18 km Tsagaan Khad-Gashuun Sukhait part of the OT-Gashuun Sukhait paved road was approved in 2015. Construction continued in 2016. It is expected to finish in August 2017. Necessary LDPs were issued as per internal regulations in order to commence the project.
8	The project on control of vehicle number and use was implemented successfully. Total vehicle number, which was 500, was reduced by 20 percent and accordingly driving inside and outside the project site was decreased or limited. Continue the control of vehicle number and where necessary, reduce the number.	20 percent of total vehicles (fleet) was made out of permanent use in 2015. However, in connection with resumption of underground mine development, the number of vehicles used by the company and contractors has been up.
9	Travel Management Procedure was improved to ensure that OT suppliers and contractors drive on authorized roads only and comply with speed limit. Inspect implementation of the procedure in 2016.	GPSs were installed in all vehicles owned by Oyu Tolgoi LLC to keep them under regular monitoring. The employees attended environmental awareness training. Inspection was conducted upon reported offroad driving on 2 occasions and it was found in one case (May 5, 2016) that the trucks drove onroad near the crossing of TT road turning to OT direction and did not stop temporarily for a repair or maintenance. As for the second case (October 13, 2016), it was found that multiple roads have been created in parallel with the authorized earth road at the crossing of Tulugiin Tal, Manlai and Khanbogd
10	GPS was installed in all OT vehicles in 2015 and travel route and speed are monitored. Install GPSs in vehicles of	

№	Environmental Protection Plan	Implementation
11	<p>contractors working under long term agreement.</p> <p>Carry out regular monitoring by Security Officers whether OT vehicles travel on authorized roads only</p>	<p>soums. The report is being checked by the relevant officers.</p>

1.4.2. Management of Topsoil

#	Environmental Protection Plan	Implementation
1	Strip the topsoil to the appropriate depth prior to any land disturbance and store properly	The Internal Procedure on Topsoil Removal and Storage, developed in 2011 and updated twice, is being implemented effectively. According to this procedure, topsoils that meet quality requirements, are stripped to the appropriate depth and stored separately from infertile soils and used in rehabilitation of the area upon completion of the work. <u>Details are provided in clause 3.3.7.1 of the report.</u>
2	Identify suitable areas to store topsoil and control stockpiling properly (height of stockpiles must be 3 m at maximum, 8 m wide path should be made in every 60 m)	As of 2016, there are ten long term topsoil stockpiles at Mine site. They contain 1,722,182.2 m ³ soils that occupy 86.3 hectares. Average height is 2.5 m. According to the requirements of MNS 5916:2008 standard, 8 m wide paths are made in every 60 m wide topsoil stockpile in order to allow technical condition to vegetate the surface of long term stockpiles to protect from wind erosion. <u>Details are provided in clause 3.3.7.2 of the report.</u>
3	Record and label long term topsoil stockpiles	Recording and labeling of long term topsoil stockpiles are undertaken continuously and it is shown in Table 25 of the report. <u>Also details are provided in clause 3.3.7.1 of the report.</u>
4	Continue the pilot protection of topsoil stockpiles from wind erosion by greening the surface	Greening pilot test was undertaken successfully in 2015 on 2.76 ha of the topsoil stockpile #5 of the Open Pit in order to maintain the quality of long term topsoil stockpiles. As a result of the pilot test, annual plant species started to sprout. It was planned to hire a contractor in 2016 and selection process of a contractor was completed. <u>Details are provided in clause 3.3.7.3 of the report.</u>
5	Undertake quality control analysis over topsoil stockpiles (quarterly)	Chapter 4 of the Procedure on Topsoil Removal and Storage describes about monitoring of fertility, degradation, erosion and quality deterioration of long term topsoil stockpiles and protection measures. Monitoring is carried out as set forth in the procedure. The Procedure on Quality Control Analysis of Long Term Topsoil Stockpiles (OT0244-00-SWPO-0010) was developed in 2016 as a sub-procedure of the former. In 2016, the soil samples, taken from 52 points of 9 long term topsoil stockpiles on the Project site, 6 points of a new topsoil stockpile and 7 points of monitoring sites, were analyzed at the Soil Analysis Laboratory, Institute of Geography, Academy of Sciences. The remaining topsoil stockpile #9 was started to be piled after April, the annual soil sampling period. Thus, it is not included in the report of quality control. <u>Details are provided in clause 3.3.7.4 of the report.</u>
6	Oversee utilization of topsoil	Records of topsoil utilization are carried out regularly. <u>Details are provided in clause 3.3.7.1, Tables 25 and 26 and Attachment Table 4 of the report.</u>

1.4.3 Soil Impact Mitigation

№	Environmental Protection Plan	Implementation
1	Carry out study on the changes to soil, flora and landscape of Gunii Khooloi groundwater deposit area (it was conducted in 2014-2015 and will continue in 2016)	Gunii Khooloi landscape map was developed according to the methodology of A.G.Isachenko, Russian scientist (1980) and using the geomorphological, soil and vegetation maps of the area. Although Gunii Khooloi is characterized with various landscapes, infrastructure lines cross over 7 different landscapes. The study found that the 2011 rehabilitation of the areas, disturbed by Gunii Khooloi water pipelines, was undertaken efficiently and soil degradation rate has decreased with improved vegetation. The study was carried out by SEC LLC, an environmental impact assessment and consultancy service provider, in 2014-2016. <u>Details are provided in clause 12.5.1 of the report.</u>
2	Focus on maintaining land degradation/disturbance as low as possible by driving on authorized roads only, not expanding the areas of construction in inessential cases and implementing rehabilitation measures	Land disturbances are controlled through LDPS. In 2016, 89 LDP requests were received, out of which 65 were issued, 3 were rejected and 2 are under approval process. 16 requests were not needed and 3 projects were cancelled. 3 LDP requests were rejected in order to protect rare plants. GPSs were installed in all vehicles owned by Oyu Tolgoi LLC to keep them under regular monitoring and it ensures the compulsory requirement on driving on authorized roads only. Interim inspections ensure non-expansion of land disturbance in cases of insignificant needs.
3	Rehabilitate and vegetate the areas affected by mine operations and infrastructure facilities as per the Rehabilitation Plans of mine production and closure phases	When implementation of the 2016 technical rehabilitation plan (43.04 ha) is assessed, the areas to be reused (13.24 ha) due to operational needs are subtracted from the total planned areas whereas additionally rehabilitated areas (13.47 ha) are added. Thus, implementation of the 2016 technical rehabilitation plan is 106 percent. Biological rehabilitation was undertaken over 93.32 ha and improvement was applied over 2.89 ha. <u>Details are provided in Chapter 6 of the report.</u>

№	Environmental Protection Plan	Implementation
4	Cover soft-paved areas with screened gravel	The areas planned for new facilities and crowded by people and equipment are covered by gravel in order to reduce dust emissions at the mine site. It is recommended when LDPs are issued.
5	Shape open-pit walls and surfaces ensuring long term stability. Carry out regular monitoring and reshape unstable excavations and walls of TSF that may lead to danger.	Pit walls and benches are measured in every minute and each motion is automatically recorded in special equipment. No motion causing a dangerous collapse or slide was detected in 2016.
6	Remove topsoil of open pit and prior to any other land disturbances and store in heaps	As of 2016, there are ten long term topsoil stockpiles at Mine site. They contain 1,722,182.2 m ³ soils that occupy 86.3 hectares. <u>Details are provided in clause 3.3.7.1 of the report.</u>
7	Waste rock dump (WRD) and TSF management plan is developed and implemented to prevent soil contamination due to acid rock drainage from WRD and TSF, other toxic substances generated in the course of operations and acid generation from soluble-substance containing solutions and mine wastes.	Samples are taken from the rocks generated by pit excavations and analyzed at laboratory to find out potential acid generation. Waste rock dumps are planned based on the result of laboratory analyses. OT Risk Management Plan advises to apply a heap technology by capsuling with non-acid forming material.
8	Prevent soil contamination by wastes. Clean employees' accommodation and dining room on regular basis	SSM LLC performs cleaning of employee accommodations, plant offices, kitchen and outside areas.
9	Prevent soil contamination by monitoring the concentration of NO _x , SO _x , dust and heavy metals in fuel storage	Environmental monitoring is carried out near the petrol station and fuel storage tanks, respectively. No excess concentration of heavy metals was recorded in the soils at the monitoring points in 2016.
10	Prevent loss or leakage of fuel and lubricants, build protective base in potential spill areas, in particular, install vertical steel fuel tanks (VST) with double layer, install impermeable film in the trench of VST-to-generator pipelines, put absorbent substances and materials in required places, place signs and marks, and check them regularly	All vertical steel fuel tanks were installed inside the concrete enclosure and have double walls as specified in the standard. As per OT internal regulations, fuel pipes are installed above ground to prevent from underground spill. Spill kits are provided in sufficient number at potential workplaces and replenished regularly, as required.
11	Prevent soil contamination by leakage of chemicals used at Explosives Plant and Concentrator, provide absorbent materials sufficiently, make available MSDSs at workplaces	Workplace safety conclusion was obtained for chemicals storage part of OT warehouse as per MNS6458:2014 standard. Obtainment of fire safety and workplace conclusions for the chemicals storage site of the Concentrator is underway. MSDSs are placed in sufficient number.
12	Prevent wastewater loss to soil due to a failure of WWTP – check safety and integrity of equipment on regular basis and take immediate action in case of damage	Khaanzaa LLC is fully responsible for operations of 4 wastewater treatment plants (WWTP) at Mine site. WWTPs were built in accordance with the technology of Czech Republic. Regular inspection is conducted in pipelines. Maintenance is undertaken, where required.
13	Prevent overflow of leachate by measuring the level on regular basis and by lining the leachate evaporation pond with impermeable material (clay sand)	Leachate evaporation pond of the WMC was lined with 600 mm solidified clay and 1.5 mm thick HDPE geomembrane layer (impermeable).
14	Rehabilitate the quarries and unused roads along OT-Gashuun Sukhait road	When implementation of the 2016 technical rehabilitation plan (43.04 ha) is assessed, the areas to be reused (13.24 ha) due to operational needs are subtracted from the total planned areas whereas additionally rehabilitated areas (13.47 ha) are added. Thus, implementation of the 2016 technical rehabilitation plan is 106 percent. The quarries will be utilized for construction of Tsagaan Khad-Gashuun Sukhait road.
15	Prevent soil contamination along OT-Gashuun Sukhait road by driving on improved and authorized roads only	GPSs were installed in all vehicles owned by Oyu Tolgoi LLC to keep them under regular monitoring. Inspection was conducted upon reported offroad driving on 2 occasions and it was found that i) the project trucks driving from UB stopped temporarily and ii) multiple roads have been created in parallel with the authorized earth road in Tulugiin Tal, which were documented and informed to management team.
16	Continue pasture monitoring and develop a program	Participatory pasture monitoring was carried out with herders and meeting was organized in respect of pasture management. 'Khonich Bankhar' program was implemented to support wildlife-friendly pastoralism. Vegetation study was undertaken on offsetting site and 60 000 km ² rangeland by the team of researchers from WCS, Institute of Botany of Academy of Sciences, NUM, Institute of Geoecology and MSUA.

1.5 Air Quality Management

№	Environmental Protection Plan	Implementation
1	Sprinkle water on roads to reduce dust	Mine site internal roads and the road between the site and Khanbumbat airport are watered every day in warm season and in warm days in cold season to reduce dust emission. Temporary improved roads and the roads between sand and gravel quarries were watered regularly during construction of OT-Gashuun Sukhait road and parts 3 and 5 of OT-Gashuun Sukhait road.
2	Undertake road maintenance	Maintenance of mine site and offsite dirt roads is discussed and resolved at the meeting of the standing committee established in accordance with the Internal Standard C3-Vehicles and Driving.
3	Place road signs for speed limit and oversee GPS data of vehicles	Travel Management Procedure is implemented as part of the Internal Standard C3-Vehicles and Driving. Based on GPS data, the Travel team controls whether the drivers adhere to speed limit and drive offroad.
4	Involve all vehicles and heavy duty machineries and equipment in technical inspection to maintain smoke emission at the standard level and carry out repairs on regular basis	All site vehicles are subject to annual technical inspection and regular maintenance and repairs (in every 5000 km and quarterly inspection) in accordance with the schedule.
5	Stop soil stripping and loading/unloading during strong wind	Internal procedure on measures to be taken in cases of natural disaster is implemented and it includes the limitations for external works due to wind speed.
6	Keep the surface of slurry always moisty	TSF is comprised of four cells. Thickened tailings with 64% hardness discharged by the Concentrator is collected and accumulated in the cells separated by dams, which ensure permanent moisture of the surface of tailings.
7	Carry solid waste and sludge in sealed containers to dispose of at landfill site and cover by dirt in order to reduce unfavorable odour of WWTP	Surplus sludge of the WWTP is automatically pumped from the reactor to tanks for disposal in every cleaning cycle. The sludge is absorbed from the tanks by wastewater trucks with proper seals and disposed of in sludge removal site. As of November 2016, 3088 m ³ sludge was carried to the disposal site.
8	Replace filters of the incinerator regularly to prevent air and environmental pollution by toxic gas emission	Daily thorough inspection is carried out in the incinerator of the Waste Processing Center (WPC). At early 2016, filters were cleaned and required parts were replaced.
9	Identify measures to reduce concentration of pollutants in smoke emissions	Pollutants and dust concentration in smoke emitted by 7MW and 29MW boilers of the Central Heating Station, boiler of the Khanbumbat airport and incinerator of WPC are measured by the professional organization (Boiler Testing and Study Center at the School of Energy, MUST) on monthly basis. On the basis of measurements, the cases of exceeding the permissible level are rectified as recommended in the relevant report.
10	Continue experience sharing in order to reduce potential dust emission by TSF	Installation of the fixed air quality monitoring stations has been started on four locations within the license area. One of them will be in east of the TSF. Regular measurements will be done at this station in order to define whether dust is emitted by strong wind/storm or TSF operations.
11	Ensure stable operation of the foam system to control dust	The test was undertaken in September 2016 to identify the highest efficiency (dose) of the foam system installed at the primary crusher. Although final report of the test has not been issued yet, primary data processing indicates that raising a dose of foam per unit of ore decreases dust emission correlatively ($p < 0.05$) near the ore stockpile. Most importantly, when foam was sprayed in a dose over 5 g/t, efficiency of the foam system was at its highest and the dust emission was 18.2 times lower when the foam system is operated.
12	Cover by dirt or apply eco-friendly smell suppressing product if unfavorable odour is emitted from landfill site	Element LLC is in charge of WMC operations. It lays dirt over wastes every day.

2. REHABILITATION PLAN

2.1. Technical Rehabilitation

Plan			Implementation	
#	Areas	Area size (ha)	Remark	Area size
1. Inside license site		8.55		
1.1	JDCC office and parking	5.67		5.67
1.2	Closed road in northern part of Shaft 1	1.66	Will be used again as it is inside the underground development site	1.66
1.3	Sand quarry	1.22	Technical and human resources	0
2. Outside license site		25.99		
2.1	Temporary camp A	3.80	Budget	0
2.2	Temporary camp (Manlai road maintenance)	0.92	Letter was sent to Manlai soum to hand over	0.92
2.3	Pit BP-ML01 (Manlai road maintenance)	5.74	Letter was sent to Manlai soum to hand over	5.74
2.4	Pit BP-ML02 (Manlai road maintenance)	0.25	Letter was sent to Manlai soum to hand over	0.25
2.5	Pit BP-ML03 (Manlai road maintenance)	1.58	Letter was sent to Manlai soum to hand over	1.58
2.6	Pit BP-ML04 (Manlai road maintenance)	1.16	Letter was sent to Manlai soum to hand over	1.16
2.7	Pit BP-ML05 (Manlai road maintenance)	0.98	Technical and human resources	0
2.8	Pit BP-KB01 (Manlai road maintenance)	2.52	Reuse for Khanbogd-OT paved road construction	2.52
2.9	Pit BP-KB02 (Manlai road maintenance)	0.62	Letter was sent to Khanbogd soum to hand over	0.62
2.10	Pit BP-R38	0.48	Reuse for OT-Gashuun Sukhait paved road construction	0.48
2.11	Pit BP-R39A	2.91		2.91
2.12	Old road for drilling site near Khar Khad well	5.03	Technical and human resources	0
3. Drilling sites		8.50		
3.1	Inspect the rehabilitation of 34 drilling sites	8.50	Rehabilitation was undertaken in 2015 and was handed over as subsidence of the sump was complete and no additional improvement was required	8.50
Total		43.04		
Rehabilitation of unplanned areas				
			Pit BP-Och01	4.84
			Additional 11 drilling sites	2.75
			Expansion of water monitoring wells (outside license)	1.25
			Temporary road of thermal power plant	0.51
			Pipeline area between thermal power plant and power plant camp	2.12
			Expansion of water monitoring wells (inside license)	2.00
Total				13.47
Grant total				

Planned 43.04:	Rehabilitated	18.77
	Not rehabilitated	11.03
	To be reused	13.24
Unplanned areas that have been rehabilitated:	Rehabilitated	13.47
Total rehabilitated area (ha)		32.24
Implementation (%)		107%

Realization of tasks assigned by Environment and Tourism Department, Umnugobi aimag

#	Task	Performance
1	Identify the roads created by OT project operations and find out the areas that are no longer used and to be rehabilitated;	It was completed under RTBS #100860202. A total of 6 roads were identified and Environment Department was asked about the possibility of rehabilitation for 5 of them.
2	Rehabilitate the roads outside the license that are no longer used;	As the Technical Rehabilitation Plan for 2016 and budget had already been approved, there was no technical and financial resources for additional technical rehabilitation.

2.2 Biological Rehabilitation

№	Plan		Implementation	
	Action	Area size (ha)	Completion	Area size (ha)
1	The area of biological rehabilitation (BR)	97.2	As part of Phase I of biological rehabilitation, dry seeding was undertaken using the equipment, such as tractor Kubota and seeder John Deere 450, on Ray 3, 4 and 5 of Gunii Khooloi water transmission line and outside the old airport fences.	93.32
2	Take additional measures on rehabilitated areas (BR-2)	33.6	Additional planting of seedlings was undertaken around New Bor Ovoo spring, inside the old airport fences, Khaliv sand quarry and North Camp (1.88 ha).	2.89
3	Re-vegetate topsoil stockpiles	5.0	Topsoil stockpiles were revegetated in 2.76 ha in 2015 on topsoil stockpile #5 of the Open Pit. As a result, annual plants started growing.	0
	Total	138.8		96.21

2.2.2 Re-vegetation

№	Plan			Completion		
	Actions	Number of seedlings (pcs)	Area size (ha)	Worsk undertaken	Number of seedlings (pcs)	Area size (ha)
1	Belt conveyor (west side)	120	0.07	250 elm seedlings and 250 silverberry seedlings were planted in cooperation with the Concentrator Team near the primary crusher.	500	0.4
2	Undai River (fenced)	240	0.19	Tree planting was undertaken along Undai River bank in previous years and replanting was undertaken on the same area on May 30.	425	0.19
3	Wastewater lines	900	0.3	Tamarisk seedlings were planted in southern part of Manlai camp.	450	0.2
	Total	1260	0.56		1375	0.8

3. OFFSETTING PLAN

№	Plan		Implementation
	Goal	Actions	
1	Align the company's offsetting policy and approach with national counterparts	Review the approach developed by MEGDT and TNC, identify planning approach aligned with the former and submit it to Aimag Environment and Tourism Department for implementation	Oyu Tolgoi LLC contracted with the independent professional organization for re-development of its Offsetting Plan in accordance with the offsetting measures approach approved in 2014 under Appendix 2, Resolution A-117 by the Minister for Environment and Green Development. <u>Details are provided in Chapter 4 of the report.</u>
2	Oyu Tolgoi LLC's Offsetting Plan	<p>"Eco- and Wildlife-friendly Cashmere" project:</p> <ul style="list-style-type: none"> - Support livestock herding consistent to pasture carrying capacity in order to maintain habitat quality and availability for wild ungulates - Develop eco-friendly and wildlife-friendly criteria of pastoral grazing at international level and support herders, who meet the criteria, to sell cashmere on overseas market for higher price - Strengthen capacity of herders and herder cooperatives 	<ol style="list-style-type: none"> 1. Pasture management and monitoring: <ul style="list-style-type: none"> - Started pasture monitoring on 50 plots. - 21 members of herder cooperatives joined the participatory pasture monitoring on voluntary basis. - Pasture use agreements were made between the soum governor and herder cooperatives. 2. Improved livestock health for increased livestock raw material: <ul style="list-style-type: none"> - Training was organized for vets and herders in respect of veterinary service. - Livestock medications which meet international standards and their proper application and benefits were introduced. 3. Support wildlife-friendly pastoralism or livestock herding and ensure the access to international certification: <ul style="list-style-type: none"> - Special camera was provided to three herders as a test. - Three herder households were given shepherd mustiffs. 4. Strengthening of herder cooperatives: <ul style="list-style-type: none"> - Funding was provided for completion of the herder cooperative building. - 15 young herders participated in Young Herder Program of Nutag Academy. 5. Value added cashmere preparation: <ul style="list-style-type: none"> - Training was organized on proper preparation of cashmere and storage in designated bags. - About 3000 kg cashmere was exported.
3	Program on poaching control	<p>Continue WCS poaching control which was commenced in 2014. Organize additional training for Anti-Poaching Units and Sections and do regular patrolling and inspection under schedule.</p> <p>Location: Nomgon, Bayan-Ovoo, Manlai and Khanbogd soums of Umnugobi aimag, and Khatanbulag and Khuvsgul soums of Dornogobi aimag</p> <p>Action: 24-hour hotline for receipt of information about illegal hunting</p> <p>Patrolling in winter from October</p>	<p>Patrolling and inspection: Multilateral Cooperation Team and Mobile Anti-Poaching Team carried out patrolling and inspection 15 times from February to May 2016 as specified in the agreement and registered 15 carcasses of wild animals hunted illegally, including 13 Asiatic Wild Asses, 1 Snow Leopard and 1 Goitered gazelle. On top of them, about 1000 kg of Songaria Cynomorium was detected pertaining to two groups of people. Legal proceedings have been instigated at Police Division for all 6 violations registered by patrolling and inspection.</p> <p>Training:</p> <p>1. Refresher training was organized on April 4-5, 2016 in Ulaanbaatar for the members of Joint Team that combats illegal hunting and sale of wild animals and wild animal products. The training was joined by 27 people from Multilateral Cooperation Team in aimag center, Western Mobile Anti-Poaching Team of Nomgon and Bayan-Ovoo soums and Small Gobi 'A' strictly protected area (SPA), Central Mobile Anti-Poaching Team in charge of Khanbogd and Manlai soums, Eastern Mobile Anti-Poaching Team in charge of Khatanbulag, Khuvsgul and Mandakh soums of Dornogobi aimag and Small Gobi 'B'</p>

№	Plan		Implementation
	Goal	Actions	
			SPA, and head and officers of Small Gobi SPA Administration. 2. Two-section special training was organized on September 13-21 in Khanbogd soum center, in connection with a launch of Spatial Monitoring and Reporting Tool (SMART), with the aim of upgrading Great Gobi SPA inspection and prohibiting illegal hunting. Certificate was given to the participants. The training facilitator was Tony Lynam, Asia Consultant at WCS. The first section “Data Collection through Rangers” was organized on September 13-16 for rangers, while the second section – basic training on SMART was designed to rangers and officers of Great and Small Gobi SPAs Administrations. <u>Details are provided in 4.2.4 of the report.</u>
4	Replant saxaul forest along Gunii Khooloi groundwater pipeline	Undertake offsetting and reforestation work on 10 ha in Khanbogd soum, sowing at least 20’000 seedlings and giving a priority to choose naturally degraded areas or not affected by OT operations. Location: Javkhlant and Nomgon baghs of Khanbogd soum Action: Sow seedlings in spring and autumn to expand saxaul forest and offset the affected forest.	22.74 ha out of the affected saxaul forest in Nariin are under the infrastructure facilities. As part of the Offsetting Program, the company planned to plant saxaul seedlings over 15 ha initially, in order to reduce residual impacts on the the saxaul forest. Target areas were chosen to expand Ukhaa Zag and increase density of saxaul forest Daichin. 9008 saxaul seedlings were sown over 15.6 hectares. <u>Details are provided in 4.2.2 of the report.</u>
5	Vegetate New Bor Ovoo spring	Undertake offsetting measures by sowing the plant species that are favorable in moist condition on 1 ha in New Bor Ovoo spring. Sow two-year-old seedlings grown at Native Plant Propagation Center in Khanbogd soum. Location: Javkhlant bagh of Khanbogd soum Action: Choose a plantation area with Tripartite Council members in January 2016, followed by fencing, transplanting of seedlings, watering, nurturing and monitoring	Vegetation and Rehabilitation Plan for New Bor Ovoo spring was developed in 2014. Meeting was held on March 17, 2016 at New Bor Ovoo spring and joined by 16 people, including Khanbogd soum herders, members of government and non-government organizations, soum rangers and OT representatives. 2.3 hectares were fenced near New Bor Ovoo spring and 1862 seedlings were transplanted. <u>Details are provided in 4.2.3 of the report.</u>
Unplanned actions completed			
6	Offset the residual impacts of OT power transmission line by mitigating the impacts of non-OT power transmission lines	Reduce the electrocution of birds, in particular, Falco Cherrug, caused by impact of power transmission lines	<ul style="list-style-type: none"> - Isolators were installed on 50 km 15 kV power transmission line between Bayan-Ovoo and Galuut soums of Bayankhongor aimag. - OT representative has joined the working group which develops a bird-friendly power line standard.
7	Offset the impacts of infrastructure lines that hinder migration of wild ungulates (Asiatic wild ass, Goitered gazelle, Ovis ammon)	Remove the fences along UB-Beijing railway	<ul style="list-style-type: none"> - Started identifying legal grounds for partial removal of railway fences through review of railway related laws, rules and standards. - Established a working group for development of standard, with representation of Ministry of Environment, Ministry of Road Transportation and Development, Agency for Standardization and Metrology, Academy of Sciences, WCS and OT LLC.

3.1. Additional Environmental Protection Measures

№	Plan		Implementation
	Target	Action	
1	Improve community ecological awareness and education in Umnugobi aimag	* World Migratory Bird Day	Classroom training and field observation was organized under the name “What is a migration of birds? and Observation and Recognition of Birds” on World Migratory Bird Day. Eco-club students of 7-10th grades and teachers of Khanbogd soum school participated in the event. Presentations on “Observation of Birds” and “Migratory Birds and Migration” were made for the students during the classroom training. The photo album “Galba Gobi Ezed” and the book “Minii nutag” were presented to the participants. The students observed birds in Ikh Bulag Am to the south of the soum center. They were provided with guidance on using binoculars and periscope.
		* National Tree Planting Day Organize training on tree planting and care	Oyu Tolgoi LLC celebrates National Tree Planting Day for 6 consecutive years since 2011. In 2016, 8769 seedlings were supplied to 81 citizens and 23 companies of Dalanzadgad and other soums and over 100 sacks of biohumus was used for planting. 1345 seedlings of the desert shrubs were sown on 0.8 ha. Survival rate of the seedlings was 81.6% in last autumn. <u>Details are provided in 4.3.2 and 5.2 of the report.</u>
		* World Soil Day	B.Uuganbayar, Agronomist and Tree Nursery Coordinator, Oyu Tolgoi LLC, made a presentation on Quality Control of Long Term Topsoil Stockpiles in Gobi Region at the research conference held on December 15, 2016 on World Soil Day. He introduced about OT topsoil management and quality control. <u>Details are provided in 5.3 of the report.</u>
2	Disclose biological diversity study results to public (throughout country, in Khanbogd, Manlai and Bayan-Ovoo soums)	Disseminate information through mass media and publish articles on local newspaper in respect of biological diversity	“Voice of the Employees” video series were prepared on biological diversity protection and desertification control in June 2016 on the World Day to Combat Desertification and posted on social network. Several articles were published on “OT Sonin” in 2016, including “Tree Planting Day” in OT Sonin No 07 and “Not to Feed Wild Animals” in OT Sonin No 08 in April, “Together against Desertification” and “World Migratory Bird Day 2016” in OT Sonin No 11 in May, and “Learning from American Doctor” in OT Sonin No 12 in June.
Unplanned actions			
3	International Day for Biological Diversity		Dr.James Murdock, Professor, University of Vermont, USA, organized training in Khanbogd soum on the themes What is Biological Diversity?, Urgent Issues and How to Protect Them? May was named as a Biological Diversity Protection Month at mine site and relevant information was disseminated to and several activities were organized among the employees.

4. RESETTLEMENT AND COMPENSATION PLAN

№	Plan			Implementation
	Environmental protection measures	Scope	Deliverable	
1	Monitoring of agreements made with resettled and compensated herder households	Khanbogd soum, Umnugobi	Annual monitoring report	Oyu Tolgoi LLC made resettlement agreements with the Governor and 10 herder households of Khanbogd soum in 2004 and compensation agreements with 89 herder households in 2011-2012. The company realized the obligations under the agreements completely. Now it has been providing training and other relevant support, including priority entitlement of affected herders to various projects and programs, involving their children in trainings, hiring eligible family members at permanent positions at OT and involving in local and external study teams. <u>Details are provided in 7.1 of the report.</u>

5. HISTORICAL AND CULTURAL HERITAGE PROTECTION PLAN

№	Program	Type of work	Action	Implementation
1	Cultural heritage management system ...	Guidance on cultural heritage	Provide training and instructions on the Procedure for Community Relations and Cultural Heritage Discovery to OT employees and contractors who work outside the mine site and do earthwork	As of October 27, 2016, Communities Department specialists and employees provided special training and instructions on community relations and protection of cultural heritage sites to 1008 OT employees and contractors engaging in earthwork. Nineteen articles about cultural heritage and tradition were prepared and published under the headline Tradition on “OT Sonin” newspaper which is issued twice a month (2700 copies). Some activities of the Cultural Heritage Team were published on “Local News” issued monthly by the Community team from April to August 2016. <u>Details are provided in Chapter 8 of the report.</u>
		Observation and monitoring of historical and cultural heritage sites	Continue observation and monitoring, in cooperation with local community, in 19 sites around OT Mine that are frequently visited	Cultural Heritage Team continued the cleaning and control at 19 historical and cultural sites twice a week, in cooperation with 8 local assistant workers. No breaches have been registered. Travelers or visitors to Bayajikh Agui, Demchog Temple and Umai Khad litters a lot.
		Carry out cultural heritage survey and salvage on new land disturbing areas of OT	Check whether cultural heritage survey and excavation were carried out on the areas where LDP is requested as per Law on Cultural Heritage Protection in order to ensure compliance of the law: <ul style="list-style-type: none"> • Continue a paleontological monitoring in Khanbogd soum, around the area where the water treatment facility is to be built in 2016 • Continue the laboratory work on removal of paleontological artifacts, that were discovered in 2012 during Gunii Khooloi pipelines construction, from the sediment • Relocate and protect Bor Ovoo spring on the Open Pit area, with local community 	<ul style="list-style-type: none"> • Research team of the Paleontological Center, Academy of Sciences, carried out monitoring on construction site of the water treatment facility in Khanbogd for 10 days in 2015-2016 and discovered no paleontological artifacts. • The laboratory work on removal of sediments from 186 pieces of vertebrate remains in various shapes and sizes wrapped by plaster and over 100 bags of bones, found in late cretaceous Urulbu basin in 2012 during Gunii Khooloi pipelines construction, was completed.
2	Implementation of Cultural Heritage Program	-	Continue operating the Culture Ger with senior citizens of Khanbogd soum. In relation to protection management plans for Shartsav, a dinosaur footprint area located in Manlai soum, and Khurdet cave in Khanbogd soum, several projects proposed by the local and professional organizations were submitted to the Relations Committee.	<ul style="list-style-type: none"> • Culture Ger has been operating for 3 years at Mine site with Elders’ Committee of Khanbogd soum with the aim of introducing the Gobi community traditions and customs to young Mongolians and foreigners. In 2016, about 900 people visited the Culture Ger. • Implementation of the projects for maintaining and protecting Shartsav dinosaur footprints and inscription of Khurdet cave (worth MNT413 million) and Manlai soum’s museum building (MNT34 million) has been started. MNT34 million has been budgeted for the project ‘Training to Transfer National Culture and Tradition to Young Generation’ and DSF Board’s decision is being waited.

6. CHEMICALS RISK MANAGEMENT PLAN

6.1. Chemicals Risk Management Plan

№	Environmental Protection Plan	Implementation
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№	Environmental Protection Plan	Implementation
1	Keep chemical waste as low as possible or use through	ChemAlert system is operated to control purchase and utilization of chemicals. It ensures complete consumption of chemicals.
2	Ensure that incompatible chemicals are not stored and used together	Incompatible chemicals are stored separately. Toxic and hazardous chemicals are stored in a chemicals warehouse in a condition set forth in MSDSs.
3	Check sealing and safety of containers at all times during storage, use and transportation of chemicals	OT-10-H04-PRC-0001-M Procedure on Toxic and Hazardous Substances and Materials is complied.
4	Ensure that no chemically contaminated water is drained open	Chemically contaminated water is managed as per Guidance on Wastewater Reuse and Handover to prevent from draining to the environment.
5	Burn uniforms or clothing contaminated by fuel or lubricants, which can be burned in high temperature, in the incinerator without delay and ensure that they are not kept open beforehand	In 2016, the uniforms or clothing contaminated by fuel or lubricants, which can be burned in high temperature, were burned in the incinerator.
6	Store, transport, use and dispose the toxic chemicals in accordance with the relevant requirements	OT-10-H04-PRC-0001-M Procedure on Toxic and Hazardous Substances and Materials is complied.
7	Store toxic and hazardous chemicals in chemicals warehouse in a condition set forth in MSDSs and control the storage and use on regular basis	As of October 15, 2016, 360 kinds of chemicals were being stored in 9 places. Utilization and consumption of chemicals is recorded in SAP system.
8	Dispose the chemical wastes according to the relevant laws	Chemical wastes are being stored safe in designated area and some substances including paints were reused.
9	Ensure that no chemicals are stored and supplied in an amount over the demand	ChemAlert is operated to control purchase and utilization of chemicals.
<u>Details are provided in Chapter 9 of the report.</u>		

7. WASTE MANAGEMENT PLAN

№	Environmental Protection Plan	Implementation
1	Carry wastes to the temporary waste segregation site and chemical wastes to new Waste Management Center	In 2016, the wastes such as batteries and chemicals containers were carried. A study is being carried out in respect of transporting waste chemicals to new Waste Management Center.
2	Reuse or recycle all metal and plastic wastes	<ul style="list-style-type: none"> • Scrap metal – Uur Teel LLC, • Waste plastic – Element LLC. They work under a contract.
3	Continue soil contamination measurement using the laboratory method	Soil contamination is measured by the photo ionization detector (PID). Contaminated soils are carried to a designated site for disposal.
4	Carry out a pilot test produce fertilizers from food waste	The study on food waste processing was carried out. As a result of the study, a food waste sorting and drying equipment is planned to be installed in the new kitchen.
5	Prepare information and report on waste and deliver to Khanbogd soum government in due times	As specified in 4.1.3 of the Procedure on State Registration and Reporting of Wastes, approved under Resolution A-116 dated April 9, 2014 by the Minister for Environment and Green Development, OT Mine waste data is prepared on quarterly basis in accordance with the classification and template of the Coded List of Wastes Generated by Sources, approved by National Statistics Office, and delivered to Khanbogd soum Governor.
6	Transport hazardous waste separately from other wastes and store in designated warehouse	17 kinds of hazardous wastes are stored safely upon segregation.
7	Maintain waste record as per approved template and Coded List of Wastes Generated by Sources and deliver it to Khanbogd soum governor in due times	As specified in 4.1.3 of the Procedure on State Registration and Reporting of Wastes, approved under Resolution A-116 dated April 9, 2014 by the Minister for Environment and Green Development, OT Mine waste data is prepared quarterly in accordance with the classification and template of the Coded List of Wastes Generated by Sources, approved by National Statistics Office, and delivered to Khanbogd soum Governor.
8	Cooperate with domestic waste recycling companies and provide recommendations on aligning their operations with OT and international standards	<p>Scrap metal: Scrap metals generated at the Mine site are collected and delivered to scrap metal processing plants in Darkhan and UB by a contractor. Uur-Teel LLC has been working as a contractor this year.</p> <p>Waste oil and grease: Waste oil and grease are delivered to the waste oil processing plant of Altan Orshikhui LLC. The company carries them by its own vehicle.</p> <p>Waste plastic: Element LLC has been working as a contractor since 2014.</p>
<u>Details are provided in Chapter 10 of the report.</u>		

8. ADMINISTRATIVE MEASURES FOR IMPLEMENTATION OF ANNUAL ENVIRONMENTAL MANAGEMENT PLAN

№	Actions	Remark	Implementation
1	Environmental audit	Oyu Tolgoi LLC carried out environmental audit in 2014 as set forth in Article 10 ¹ .1, Law on Environmental Protection. As recommended in the audit report, the company submitted a progress report to MEGDT in 2015. It will carry out environmental audit in 2016 as set forth in the above-mentioned article.	Environmental audit was carried out from October 20 to December 15, 2016 in accordance with the Environmental Audit Agreement PR#0023231438 entered into by and between Oyu Tolgoi LLC and BOAD LLC and as stated in the Article 101, Law on Environmental Protection and the General Methodology for Environmental Audit, approved under Resolution A-126 dated April 24, 2013 by the Minister for Environment and Green Development. The audit report, along with 2016 EMP report, will be submitted to Ministry of Environment and Tourism as per the laws. <u>Details are provided in Chapter 11 and Table 47 of the report.</u>
2	Environmental assessment	In connection with the amendment to the Feasibility Study of Oyu Tolgoi Copper and Gold Project, an amendment to the DEIA of the project is being planned. MNT 80 000 000 (eighty million) is budgeted for overall management and organizational measures to implement the EMP.	The Mineral Resources Council at MRAM accepted the updated feasibility study in 2015 upon change of the resource estimate of Oyu Tolgoi project. In relation to this, the DEIA, carried out in 2012, was amended in 2016 and discussed and approved in June by the Professional Environmental Assessment Council, Ministry of Environment and Tourism.
3	Introduction of environmental protection measures to government authority	The company plans to invite the relevant specialists of government organizations (MEGDT) to mine site in 2016 to introduce its environmental protection measures on the site and get methodological guidance.	The team of 40 people, including western aimag government officials and environmental specialists who participated in Workshop and Training on Offsetting, organized jointly by Ministry of Environment and Tourism and UN, was received at the Mine site to introduce OT offsetting projects and programs.

9. ENVIRONMENTAL MONITORING PROGRAM

9.1 Air Quality Monitoring

№	Monitoring item	Frequency & location	Implementation
1	Climate (air temperature, wind speed and direction, relative humidity, air pressure, precipitation, evaporation, solar radiation)	Monitoring plots at mine site	Main climate indicators, including air temperature (6.76°C), precipitation (101.95 mm), evaporation (2370 mm) and wind speed (5.23 cm) were around or similar to multi-year average for the reporting period. Total precipitation was higher by ~5 mm than multi-year average. Rainfall was 2-3 times more in May and June than multi-year average, which was the most unusual weather phenomenon of the year.
2	Dust (PM 2.5, PM 10, TSP, heavy metals)	51 points at mine site and along the infrastructure lines	Monitoring result shows that the dust concentration in the air is changes by seasons. Few cases of excess over the permissible limit were registered near the Concentrator, Ore stockpile, petrol station and fuel warehouse. Thus, additional measures are required to be taken on these areas.
3	Pollutant gases in the ambient air (NOx, SOx, CO)	31 points at mine site and along the infrastructure lines	According to the monthly measurements around mine site and along the infrastructure lines, some pollutants were not detected in the ambient air (up to 2 m) and it satisfies the requirements of Mongolian Air Quality Standard MNS4585:2007.
4	Noise (external area, blasting)	8 points at mine site and other areas	Daytime noise level was within the permissible limit of Mongolian Air Quality Standard at Mine site (day and night), airport and along OT-GSH road.
5	Vibration	8 points near the Open Pit, mine camp, nearby winter camps, and Khanbogd soum	Peak particle velocity of ground vibration generated by blasting works of the Open Pit is 100 times lower, or normal, than 10 mm/s, the rate specified in the guidance which was developed on the basis of Technical Guideline to Minimize Blasting Overpressure and Ground Vibration Impact, released by the Environment Council of Australia and New Zealand. It is measured by the Earthquake Monitoring Team of the Research Institute of Astronomy and Geophysics, Academy of Sciences, since 2010.
6	Smoke emissions	7MW and 29MW boilers of the Central Heating Station, airport boiler, incinerator of WMC	Pollutant gases and dust particles in the smoke emitted by these sources are measured by the professional contractor on a monthly basis. Corrective measures have been taken to reduce the excess over the permissible limit as per the recommendations provided in the relevant report.

9.2. Soil Monitoring

№	Monitoring item	Frequency & location	Implementation
1	Soil quality (pH, moisture, total nitrogen, total phosphorus, minerals, bacteria or pathogen per cubic centimeter)	14 points (5 points near Gunii Khooloi, 5 points near Gashuun Sukhait, 1 point near airport)	The soils are healthy and bacteriologically clean. Concentration of arsenic was higher on all points than the permissible limit of the standard. However, it is an inherent high concentration. In other words, it is not caused by any generators.
2	Soil contamination (petroleum, lead)	4 points at Mine site, monitoring points near Gunii Khooloi	Fourteen spills were registered in 2016. Required measures were taken to remove and clean the spills and contamination. Soil samples were taken by Photo Ion Detector, a device for identifying hydrocarbon contamination, to prove the complete cleaning or removal of soil contamination. No excess of lead over the standard amount was registered.
3	Land surface (changes to landscape)		According to the study on landscape change, carried out over Gunii Khooloi groundwater basin, 17 sub-types of landscapes were identified. The study found that the rehabilitation of the areas disturbed by Gunii Khooloi water transmission pipeline was undertaken well and vegetation was restored, leading to decrease of intensity of soil erosion and degradation.

9.3. Flora and Fauna Monitoring

No	Monitoring item	Frequency & location	Implementation
1	Soil quality monitoring (topsoil stockpiles, vegetation monitoring plots, rehabilitated areas)	8 topsoil stockpiles, 32 vegetation monitoring plots, 10 rehabilitated areas	According to the result of samples taken from 52 points of 9 topsoil stockpiles, 6 points of new fertile soil stockpiles and 7 monitoring points, chemical properties are normal; amounts of humus, quality of nitrate, soil salinization, electrical conductivity, mechanical components and physical properties or mechanical texture have not been lost.
2	Study of seed bank in soil	Species and quantity of seeds in the soil, germination and survivability of seeds	It was shifted to next year due to the project funding issue.
3	Study on soil ecology	Determination of total microbial biomass and microflora population in the soil	The samples taken from 52 points of 8 topsoil stockpiles, 6 points of one new fertile soil stockpile and 7 monitoring points were analyzed at the Soil Analysis Laboratory of the Institute of Geography, Academy of Sciences, for determination of total microorganisms; number and ratio of bacteria, actinomycetes, mould and fungi; and the microorganisms in the colonies prevalent in the samples.
4	Vegetation monitoring	Flora, growth of vegetation cover, species, yield samples, moisture, temperature, pH and salinization of soil, soil stability	<ul style="list-style-type: none"> • Pasture monitoring and • Priority rare plants study is carried out by WCS in Khanbogd soum.
5	Quality monitoring of biological rehabilitation	Monitoring as same as above over the rehabilitated areas where wet and dry methods were applied in previous years	As of July 2016, survival and regenerative rate of the seedlings planted in 2013-2014 was 48-88.1% on an average along the central lines, 72.7-93.1% along the Ray no.1 and 53-81% along the Ray no.2.
6	Monitoring of the seedlings planted for greening	Winterization and survival rate of the seedlings planted in previous years	Oyu Tolgoi LLC has been supplying the seedlings to Khanbogd, Manlai, Bayan-Ovoo, Tsogt-Ovoo, Tsogtsetsii, Khurmen, Gurvantes and Dalanzadgad soums since 2011. In 2016, a total of 8769 seedlings of 8 tree species were provided to 81 citizens and 23 entities and organizations. The seedlings were 2-3 years old.
7	Plant phenology	Dominant plant community dynamics and growth, seed fall and yield	WCS has been conducting the study and monitoring of direct and indirect impacts on the pasture and pasture health.
	Community-based vegetation monitoring	Monitoring of tree growth by photos	WCS has been conducting the study and assessment of elm trees health and changes thereto.
		Observation by community-based pasture monitoring team for reflecting the findings in annual pasture management plan	The following two works were performed to improve pasture management: - <i>Participatory pasture observation</i> : 21 members of the herder cooperatives that engage with the company, have been doing the pasture observation on a voluntary basis. They attended the training on the US methodology for calculating pasture carrying capacity and pasture rotation during flowering of rangeland vegetation which was organized by the Agency of Meteorology and Environment Monitoring, Mongolia. - <i>Pasture management meeting</i> : 50 sampling plots in similar sizes, representing the unique rangeland properties of the region, were chosen in Manlai, Bayan-Ovoo and Nomgon soums in August 2016 and study was carried out using the ESD approach. Purpose of the study was to collect baseline data and material of the regional pasture, so that it will be possible to determine changes to pastureland condition on the basis of regular observation and study.
8	Reptiles	Species composition, density and abundance of population	The distance sampling was performed in the summer of 2016 on 6 plots near OT mine site and 2 plots in Gunii Khooloi. Density of the reptiles decreased a little on monitoring plots, compared to previous years. It indicates that there may be an inverse correlation between the abundance and diurnal activity of reptiles and the total annual precipitation and vegetation biomass.

No	Monitoring item	Frequency & location	Implementation
			On the basis of this study, the student at NUM defended his master's degree thesis. <u>Details are provided in 12.7.1 of the report.</u>
9	Birds	Species composition, period of migration, spread and location of rare birds	Currently, 229 bird species have been registered in Khanbogd soum where Oyu Tolgoi project is implemented. Every year a certain number of species is registered newly as a result of the study and observation and it tends to increase in the future. More bird species and number in autumn and spring indicates that the region is an important stopover location of birds during migration. <u>Details are provided in 12.7.2 of the report.</u>
10	Small mammals	Species composition and population dynamics	According to the study findings and data collected since 2011, population and density of rodents are varied in every year, however, it is not the change which can be deemed a growth or decrease of their number. Species number and average density of the rodents in desert region were normal (4-19 individuals/ha). A change of dominant species every year is explained by the fact that the number and density of rodents are dependent directly on vegetation biomass or feed abundance, which is relevant to total annual precipitation in the study area and its distribution. <u>Details are provided in 12.7.3 of the report.</u>
11	Observation of animals on project site	Species composition, number and location	Density of Goitered Gazelle per square kilometer was 0.24 individuals in January, 0.7 in February, 1.2 in March, 0.4 in April, 0.2 in May, 0.35 in June, 0.18 in July, 0.29 in August and 0.49 individuals in November. <u>Details are provided in 12.7.4 of the report.</u>
12	Monitoring of animals inhabiting along the project infrastructure	Impact on birds such as electrocution, collision with power lines, and car hit	In 2016, 218 Goitered Gazelle individuals in 52 herds and 599 Asiatic wild ass individuals in 46 herds were registered by monthly monitoring along the project infrastructure. A total of 150 wildlife-related incidents were registered as of October 2016, which is higher by 44% compared to the registered data (83) of the year over year. Over 40% of total incidents is collision of Pallas's sandgrouse, inhabiting the Gobi desert and arid steppe regions of Mongolia, with electricity lines during their migration to change their habitat due to weather, water and annual yield and food availability. <u>Details are provided in 12.7.5 of the report.</u>
13	Community-based wildlife monitoring	Number, distribution and location of ungulates, birds and reptiles	As of September 15, 2016, the participants drove 4844 km and registered 3157 individuals of 8 mammal species and 148 individuals of 18 rare and common bird species during 74 surveys and observations. <u>Details are provided in 12.7.7 of the report.</u>
14	Migration of Asiatic wild ass	Migration of Asiatic wild asses with satellite transmitters and impact of infrastructure	Asiatic wild asses with satellite transmitters collar crossed the roads 193 times from September 2013 to December 2015; namely, 129 times across the OT-Gashuun Sukhait paved road and 64 times across the Tavan Tolgoi coal haul road. <u>Details are provided in 12.7.11 of the report.</u>
15	Migration of Goitered gazelle	Migration of Goitered gazelle with satellite transmitters and impact of infrastructure	Satellite transmitter collars were put on 10 Goitered gazelle in October 2014 in order to study their migration. As of now, data has been received from one satellite transmitter. It is planned to put a satellite transmitter on another 10 individuals in 2018.
16	Traffic control	Road use intensity, vehicle type, and speed	All vehicles owned by Oyu Tolgoi LLC are controlled through GPSs. Out of 5,346 vehicles that exceeded the speed limit, only 3 (0.0005%) are owned by OT and its contractors. <u>Details are provided in 12.7.8 of the report.</u>
17	Study on death or loss of Asiatic wild ass	Identification of the number and location of Asiatic wild ass carrions, and reason of death	Summer investigation of Asiatic wild ass carrions was conducted on 17 transects throughout Galba and Eastern Gobi deserts. 260 carrions were found during the field investigation, namely 167 carrions inside study transects and 93 were found outside study transects. According to identification of causes of death, 71.9% was human-induced, 26.9% was unidentifiable and only 1.2% was natural loss. Human-induced loss rate was close to that of year over year (83%). <u>Details are provided in 12.7.10 of the report.</u>
18	Nest survey of Short-toed snake-eagle and other predators	Registration of all nests and observation of active nests	This year the scope of study on predators nesting was shrunk and nest survey of Short-toed snake-eagle only was carried out twice from May 25 to June 10 and from August 1-10 within 20 km radius from the center of Oyu Tolgoi and over the territory of Khanbogd soum, including Khanbogd Mount. Eight active nests of Short-toed snake-eagle were registered during the survey and offsprings grew well in 6 of them. Two of eight nests are within

No	Monitoring item	Frequency & location	Implementation
			20 km radius from Oyu Tolgoi project site. <u>Details are provided in 12.7.9 of the report.</u>

9.4. Water Level and Quality Monitoring

No	Indicator	Type and method	Location	Implementation
Environmental monitoring program for Shivee Tolgoi, Javkhlant and Oyu Tolgoi Mine site				
1	Water level	Water level, photo monitoring, longest and deepest runoffs	18 water points including New Bor Ovoo, Khukh Khad, Maanit, Burkhan Spring and Khukh Khad Khudag and 72 water monitoring wells	Water monitoring is performed on a regular basis in 18 wells in New Bor Ovoo, Khukh Khad, Maanit and Burkhan Springs and Khukh Khad well and 72 water monitoring wells. Photo monitoring is performed in the springs. <u>Details are provided in 12.1 of the report.</u>
2	Surface runoff	Flood runoff	6 points in Undai Riverbed	As of September 2016, precipitation was 95.95 mm, with more rain in May and June, compared to multi-year average. There was a small to large flood on 3 occasions during summer. <u>Details are provided in 12.1.1.2 of the report.</u>
3	Hygiene	Number of total microorganism, thermotolerant coliform and pathogenic microorganism per 100 ml water	Water sources that are under utilization, kitchen taps	Bacteriological analysis is carried out in the water from WTBP and treated water from WWTP. No cases of excess over the standard were registered in 2016. <u>Details are provided in 3.2.6 of the report.</u>
4	Field water quality monitoring	Common indicators of water quality: pH, temperature, TDS, electrical conductivity (EC)	Hand wells and springs	Surface water monitoring is carried out in 86 hand wells and 11 springs as part of OT groundwater monitoring program. pH, T ⁰ , TDS and EC is measured during field monitoring.
5	Chemical and physical properties	pH, temperature, TDS, EC, anionic, cationic, suspended solids, heavy metals, CaCO ₃ , Ca, Mg, Na, K, SO ₄ , NH ₄ , As, Cd, Cu, Hg, Pb, Zn, Cr, Fe, Ni	Water points in New Bor Ovoo, Khukh Khad, Maanit, Ekhen Burkhan and Khaliv River, industrial water supply borefield, and effluent of Concentrator	Water samples taken from 28 wells in Gunii Khoodoi and other wells including OTRC-1135, OTRC-1395, GGW32 and MRHB08 are delivered to the accredited laboratory for analysis of basic chemical properties and heavy metals. <u>Details are provided in 3.2.7 of the report.</u>
6	Chemical, physical and microbiological properties of treated water	pH, EC, TDS, chloride, ammonium, nitrite, nitrate, orthophosphate, sulfate, Ca, Mg, Na, K, Ag, Al, As, B, Ba, Be, Cd, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Sr, Zn, BOD, COD, T ⁰ , total microorganism and pathogen	Water to and from Wastewater Treatment Plant	External monitoring was conducted to check treatment level of wastewater. Sampling was done on a monthly basis for chemical and microbiological analyses at the accredited laboratories. According to the result of microbiological analysis, no bacterial intestinal pathogen was detected in 2016. <u>Details are provided in 3.2.10 of the report.</u>
7	Contamination by acid rock drainage	Laboratory analysis of acidity in the slurries of Concentrator	Slurries in the Concentrator	Samples are taken from slurries in the Concentrator on a monthly basis for analysis at domestic and foreign laboratories.
		Common indicators of water quality: pH, T ⁰ , TDS, EC, pH, TDS, (CaCO ₃), dissolved O ₂ , BOD, COD, Ca, Mg, Na, K, SO ₄ , NO ₂ , NO ₃ , NH ₄ , As, Cd, Cu, Hg, Pb, Zn, Cr, Fe, Ni, color, smell and taste	Monitoring wells of the landfill site (in wells drilled and equipped according to design and drawing)	Chemical properties are analyzed in the samples taken from 6 points, including 4 points near WMC and 2 points near the landfill site.
Environmental monitoring program to be implemented during operation of Gunii Khoodoi pipelines				

No	Indicator	Type and method	Location	Implementation
8	Surface and ground water	Water level	Water points such as Ulaan Del, Baruun Suu, Ergen Tovog, Shorvog Shand, Burkheestei, Sevkhul, Guchin Us and Khatsavchiin Us; 10 deep wells in Gunii Khooloi	Water level is measured in total of 175 points, including 117 boreholes, 54 hand wells and 4 springs around Gunii Khooloi and Khanbogd. <u>Details are provided in 12.1.2 of the report.</u>
		Common water quality indicators: pH, TDS, EC and T ⁰	All hand wells	Field measurement includes pH, T ⁰ , TDS and EC. <u>Details are provided in 12.1 of the report.</u>
		pH, TDS (total dissolved salt (by weight)), total hardness (CaCO ₃), Ca, Mg, Na, K, SO ₄ , NO ₂ , NO ₃ , As, Cd, Cu, Hg, Pb, Zn, Cr, Fe, Ni, logging and measurement in the springs, ephemeral flows and ponds near the water transmission pipelines	4 hand wells Khevtee Bor, Sukhai Us, Shavag and Ergiin Us; 12 points including the springs on and around the project site; 8-10 wells near Gunii Khooloi	Chemical properties are analyzed fully in the water. Gunii Khooloi groundwater is classified to be very hard. <u>Details are provided in 3.2.7 of the report.</u>
Environmental monitoring program to be implemented during construction and operation of Gashuun Sukhait infrastructure				
9	Surface and ground water	Water level	Bugtur Khuuvriin well, Dugat, Bor Khoshuu, Gashuun Sukhai, Khavtsal, Bulan Ders, Daravgain well	Monitoring is conducted in 6 boreholes and 7 hand wells near Galba Gobi-Gashuun Sukhait road to measure water level and pH, T ⁰ , TDS and EC. Variation of water level was little this year. Compared to the data of previous years, water level was up in shallow wells, while it was stable in deep wells. <u>Details are provided in 12.1.3 of the report.</u>
		Common water quality indicators: pH, T ⁰ , TDS and EC	Hand wells and springs	
		Common water quality indicators: pH, T ⁰ , TDS, EC, pH, (CaCO ₃), Ca, Mg, Na, K, SO ₄ , NO ₂ , NO ₃ , NH ₄ , As, Cd, Cu, Hg, Pb, Zn, Cr, Fe, Ni	Monitoring hand wells and the wells being utilized	
Environmental monitoring program for Undai River Protection and Diversion Project				
10	Hand well, surface flow	Field measurement of water table and water quality: pH, TDS, EC and T ⁰	11 springs and hand wells along Undai River: Khukh Khad, Zurkh Salaa, Bural, Ekhen Burkhan, Saglagar Sair Us, Khulsan and New Bor Ovoo	Khukh Khad, Maanit and Bural springs were mostly dry last year, however, this year they have water. Regular monitoring is conducted in the hand wells and springs along Undai River. <u>Details are provided in 12.1.4 of the report.</u>
12	Groundwater	Water table, pH, EC, HCO ₃ , TDS, Ca, Mg, Na, K, SO ₄ , NO ₂ , NH ₄ , As, Cd, Cu, Hg, Pb, Zn, Cr, Fe, Ni, taste, color and smell	Hand wells and 5 monitoring wells	According to observation, water table was up and groundwater has been fed by precipitation fallen abundantly in 2015-2016. Full chemical analysis is conducted in these water points. <u>Details are provided in 12.1c of the report.</u>
13	Contamination by acid rock drainage	Regular monitoring by sampling the sand and water accumulated through water closure and diversion dam to measure acidic runoff.	Water accumulation pond of the dam	Samples are taken regularly for analysis from the monitoring wells in back of the the southern dam.

10. WORK PLAN AS PER CONCLUSIONS OF JOINT INSPECTION OF RELEVANT AUTHORITY OF UMNUGOBI AIMAG

№	Plan		Implementation
	Recommendation	Actions implemented as recommended	
1	Involve the border patrol and voluntary rangers in monitoring and provide them with feasible equipment and daily observation guidance in order to change the method and form of anti-poaching control and enhance the outcomes	The Wildlife Conservation Society is in charge of implementation of this program. As the program is long-term, outcomes will not be generated so fast. Implementation approach of the program is science-based and the Project gives priority to long term stable and tangible outcomes. Clarification will be obtained to this recommendation from specialists of Environment and Tourism Department of Umnugobi aimag.	T.Samdanjigmed and L.Myagmarjav, Superintendents in charge of Biological Diversity and Offsetting, HSES Department, Oyu Tolgoi LLC, met B.Orgilmaa, Acting Head of Environment and Tourism Department, Umnugobi aimag in early June to discuss about the issue. The meeting was productive. They discussed about and agreed on mobilizing the border patrol and other environmental protection organizations in OT offsetting program, anti-poaching control and environmental protection projects. Oyu Tolgoi LLC developed the Offsetting Plan newly with support of a professional organization in accordance with the approach on identifying offsetting measures approved under Appendix II of Resolution A-117, 2014 by the Minister for Environment and Green Development. <u>Details are provided in Table 48 of the report.</u>
2	Plan for cooperation with community-based environment protection cooperatives, clubs and voluntary rangers	<ul style="list-style-type: none"> • Representatives of Umnugobi aimag law enforcement organizations, a specialists and rangers of Small Gobi SPA Administration, and soum environmental inspectors and rangers join the offsetting measures to control illegal hunting. Besides, community-based environmental monitoring is continued. • As part of 2016 offsetting measures, two local companies were selected for saxaul replantation. • Environmental monitoring program will be continued in cooperation with local community. • Opportunities to work with other local cooperatives and companies are being studied. 	<p>Bird observation trip and two kinds of training were organized:</p> <p>1. Two-day training on “What is biological diversity? Urgent issues and protection” was organized for the rangers of Khanbogd soum and Small Gobi SPA Administration, officer of soum Emergency Management Unit and OT local offices staff. The model on identifying the spread of animals was introduced at the second day training which was conducted at the Mine site. A model used for decision making was introduced to the local office employees and local community.</p> <p>2. The training on “What are migratory birds? How to distinguish them? What is a bird observation?” was organized on May 11 at the Community Interaction Center of Khanbogd soum. The training was joined by the 7-12th grade students and 2 teachers of soum secondary school. In the afternoon, the participants went to Ikh Bulag Valley to observe birds.</p> <p>OT biological diversity and offsetting projects were introduced in two editions of OT Sonin. The posters on biological diversity and offsetting measures were provided to the supervisors who circulated among the employees at toolbox meetings. They were posted on the information board of all departments.</p>
3	Establish dust and vegetation monitoring plots to the leewards of the tailings pond. Do regular monitoring and disclose result to public	<p>The following monitoring will be carried out in 2016 as part of EMP:</p> <ul style="list-style-type: none"> • Vegetation monitoring - 4 plots • Dust monitoring - 3 plots • Soil monitoring - 4 plots 	<p>Preliminary assessment of dust and soil monitoring was undertaken and the results are as follows. Location of the existing dust monitoring plot and frequency of dust monitoring are sufficient to identify TSF impacts on air quality. Large amount of dust emission by construction of TSF was identified through existing location and frequency of monitoring and it proves the efficiency of existing monitoring program. Three monitoring plots (DMP-TSF01, DMP-TSF02 and DMP-LA02) are located to the leewards of the TSF. Short term PM10 and PM2.5 concentrations in the air are measured on a monthly basis. Dust monitoring registered no excess of dust emission by TSF over the normal amount. However, dust emission by both construction and natural sand storms was registered. Dust fall is monitored around TSF on a monthly basis through dust fall sampling using the cylinders and soil sampling. No physical and chemical properties were detected in the samples to prove that dust is emitted by TSF when it is windy. If dust was emitted by TSF, visible changes must have been detected in the dust particles and chemical properties in dust fall samples.</p> <p>Oyu Tolgoi planned to improve the air quality monitoring throughout the mine site and has commenced installation of the air quality monitoring network at 4 points for real-</p>

№	Plan		Implementation
	Recommendation	Actions implemented as recommended	
			time measurement of dust particles and gaseous components in the air. One of those four points is between TSF and southernmost edge of the license site. This additional monitoring will enable an identification of potential high concentration of dust which may be emitted due to weather or other reasons. Real-time measurement of dust composition at these 4 points will allow a thorough investigation of the local community complaint related to dust. If the measurements reveal that dust is emitted by OT operations, Mine Administration will take immediate actions. Sustainability East Asia LLC, a consultant of the project, carried out assessment over the TSF dust monitoring program and developed a report which was commented by OT. The report will be finalized in near future. Detailed information and conclusions of this measurement will be incorporated in the official report of Sustainability East Asia LLC.
4	Deliver reports and study results to relevant officers of local government (rangers, environmental policy officers) without delay. There was a failure of timely delivery of EMP reports, plans and DEIA of new projects	Oyu Tolgoi LLC delivered the 2014 EMP report and the 2015 EMP under a letter #1243 dated May 22, 2015 to the Environment and Tourism Department and Specialized Inspection Department of Umnugobi aimag and Governor's Office of Khanbogd soum immediately after they have been approved by MEGDT. The company delivers and will deliver the approved plans and reports to Governor's Office of Khanbogd soum in timely manner.	The DEIA, undertaken in 2012 and amended in 2016, was discussed and approved by the Professional Environmental Assessment Council, Ministry of Environment and Tourism in June. The approved version was delivered to the Environment and Tourism Department of Umnugobi aimag and Governor's Office of Khanbogd soum. The annual EMPs and EMP reports are delivered to the relevant local authority as soon as they are approved. Oyu Tolgoi had environmental audit in 2016. The audit result and conclusions confirm that Oyu Tolgoi sticks to timely reporting as specified in the relevant environmental laws and regulations.
5	OT employees at the site do not join the public area cleaning of the soum. Involve the employees in public area cleaning with local authority and community and implement other waste impact mitigation measures reflecting in EMP.	Environment team of Oyu Tolgoi organizes the spring and autumn cleaning in particular areas and sends the report to local authority. It will be continued in 2016 as follows: <ul style="list-style-type: none"> • Cleaning at water points of Khanbogd soum • Cleaning along OT coal haul road • Cleaning along OT-Khanbogd road It is more effective to organize long term or sustainable measures, such as improving ecological awareness of people, to prevent littering, instead of cleaning afterwards.	Oyu Tolgoi organizes cleaning at the most visited natural spots and water points of Khanbogd soum, including Ikh Bulag and Baga Bulag, every spring and autumn. We informed about this year's cleaning to the Environment and Tourism Department of Umnugobi aimag under letters #1355 dated May 9 and #3571 dated October 3.
6	Segregate wastes dispatched to WMC, deliver to recycling entities, reduce food wastes and supply to small farms	The following will be done to improve waste segregation: <ul style="list-style-type: none"> • Raise employees' knowledge in respect of waste segregation at toolbox meeting and take measures to improve waste segregation; • Study best practices of other mines in order to realize at OT. 	Training on waste segregation and waste types was organized in March 2016 for drivers of Gobi maintenance shop and SSM LLC.
7	As part of biological diversity offsetting program, identify the mine impacts and offsetting actions, implement offsetting measures in the areas approved under aimag CRM Resolution #55 dated April 2015	Studies on identifying potential and existing impacts of the project on biological diversity were and are being carried out as part of the environmental assessments and studies. Oyu Tolgoi has been implementing a long term Biodiversity Monitoring Programme, in cooperation with the Wildlife Conservation Society and national and foreign researchers since 2013. Monitoring of Asiatic wild ass and Goitered gazelle by satellite transmitter collars and census of ungulates are the actions performed within the	T.Samdanjigmed and L.Myagmarjav participated in the meeting on Biological Diversity Offsetting held in the aimag center on April 11, 2016. The Nature Conservancy representatives participated in the meeting and OT specialists learned the difference between offsetting approach of TNC and OT and why TNC approach is better in our operations. Oyu Tolgoi predicted the project residual impacts on biological diversity and started implementing the offsetting plan from 2012, when there were no legal framework in Mongolia in terms of offsetting. The company contracted with the independent professional organization for re-development of the Offsetting Plan, in accordance with

№	Plan		Implementation
	Recommendation	Actions implemented as recommended	
		framework of the project. Meeting and discussion will be held with the aimag Environment and Tourism Department on how to align OT biological diversity offsetting with the procedure adopted by aimag CRM in 2015.	the Offsetting Measures Approach approved under Appendix 2, Resolution A-117, 2014 by the Minister for Environment and Green Development. It is reported in the EMP of Oyu Tolgoi gold-copper project.
8	Make a mid-term plan as well as plant more elm trees along Undai River as part of the program “1 tonne of natural resource – 1 tree” approved under the aimag CRM Resolution #56 dated April 2015, including the measures to be implemented from 2016 through step by step planning, such as tree planting, establishment of windbreak and expanding vegetation in settlements.	Oyu Tolgoi is one of the pioneer mining companies to propagate natural plants, in particular, endemic desert species. The company created 21 jobs in this respect that are filled by local residents. The company distributed 53675 seedlings free of charge to aimag and soum residents and organizations. The 2-year-old seedlings of endemic plants were nurtured in greenhouses and open plots for one year respectively before distribution and they are the result of 2 years of efforts of the team of over 20 people. Thus, we assume that it will be proper to estimate survival rate of the seedlings in order to evaluate the work result. If it is not estimated, we are considering to discontinuing this work in the future. Tree planting areas will be identified with Khanbogd soum government and seedlings will be planted and nurtured. Study will be undertaken to identify feasible areas and plant elm trees along Undai River.	Oyu Tolgoi LLC celebrates National Tree Planting Day for 6 consecutive years since 2011 and works with contractors, soum residents and entities to expand and improve greeneries at the mine site and settlements. OT Communities and Environment departments developed a land use plan in 2016, in cooperation with environmental officers of Khanbogd soum and held National Tree Planting Day with Khanbogd soum on April 30 and May 1. As part of the day, OT Native Plant Propagation Center distributed 8005 seedlings of 7 woody species at age 2-3 to interested residents and organizations. The company supplied 61680 seedlings over 2012-2016 to the mine site and Khanbogd, Manlai, Bayan-Ovoo, Tsogt-Ovoo, Khurmen, Tsogtsetsii, Gurvantes and Dalanzadgad soums for expansion of greeneries. Although no cost is budgeted by the Environment Department to the programme “1 tonne of natural resource – 1 tree”, the company plans to work with NGOs in Manlai and Khanbogd soums in terms of implementing the program. As part of the cooperation, the project on planting elm trees along Undai River will be funded by the Gobi Oyu Development Support Fund and seedlings will be prepared by OT Native Plant Propagation Center for coming 3 years. Moreover, tree planting and vegetation project to be implemented in Manlai soum will be funded by the Gobi Oyu Development Support Fund and seedlings will be prepared by OT Native Plant Propagation Center.
9	Rehabilitate the coal haulage dirt road and Ikh Ger-OT dirt road, carry out regular dust monitoring on existing dirt roads, implement dust control actions until construction of paved road	Identify the road network used for Oyu Tolgoi operations and the roads that are no longer in use and undertake rehabilitation in potential parts. Choose a suitable road dust measurement approach and measurement points in cooperation with a consultant, as existing measurement approach is not appropriate. Carry out dust monitoring according to the selected approach.	Three roads outside the mine site which were used for OT operations were identified and the relevant maps and materials were prepared and delivered to Environment Department for a decision on the rehabilitation requirements and feasibility. In total, 6 roads outside the mine site which were used for OT operations were identified and two out of the above-mentioned three roads are included in the 2016 Rehabilitation Plan. Remaining roads will be discussed by the department internally and rehabilitated by reflecting in the next plans. As part of the actions to be implemented as recommended by Environment and Tourism Department of Umnugobi aimag in respect of the 2015 report, rehabilitation of Central Heating Station-Tavan Tolgoi dirt road is indicated on pages 7-8 of the 2016 Rehabilitation Plan, which was approved by the line ministry and posted on OT website in Mongolian and English languages. However, it was decided to be shifted to next year due to budget constraints at management meeting joined by Environment and Biological Diversity managers and TSF consultant. As recommended to improve dust monitoring, a draft procedure on dust mitigation of dirt roads outside the license site has been developed and will be finalized in the due time for a review and approval by Environment Manager and other relevant managers.
10	Pave the coal haulage dirt road and OT-Khanbogd dirt road	Construction of Khanbogd-OT-Javkhlant paved road is planned in 2016 and baseline environmental study and DEIA are being undertaken by SEC LLC.	Construction & Engineering Department of Oyu Tolgoi LLC has decided to buy common minerals to be utilized for construction of Khanbogd-OT road from several authorized companies. The DEIA of this road construction project was approved by the Professional Assessment Council on July 5, 2016. The road construction is expected to

№	Plan		Implementation
	Recommendation	Actions implemented as recommended	
			finish in August 2017.
11	Direct and shape the excavation of Khaliv sand quarry to the road culvert. Establish a pond once a joint decision is made by local community and Galba-Uush Doloodyn Basin Administration	It will be discussed by Tri-partite Council (TPC) and accomplished in cooperation with the Basin Administration as per TPC decision. Once utilization of the sand quarry is over, closure will be undertaken as per the relevant laws.	Rehabilitation of outside area of the license site of Khaliv sand quarry was discussed at TPC meeting, joined by representation of Galba-Uush Doloodyn Basin Administration and it was decided to form a pond as a water source for domestic and wild animals, considering the fact that there is natural water. The letter was sent in this respect to the aimag Environment and Tourism Department. Rehabilitation work will be handed over.
12	Monitor Undai River flows on regular basis. It interrupted in June 2015. It is a water source where domestic and wild animals water.	Current monitoring will be continued on Undai Riverbed to assess the result and report to MEGDT.	Undai River monitoring program is performed normally and reports are delivered to relevant stakeholders. They were also introduced at TPC meeting which is joined by representation of the Basin Administration, Khanbogd soum government and herders.
13	Introduce the measurements to be made in accordance with EMP at soum and bagh meetings, prepare and disseminate easy-to-understand handouts to community	Environment team of OT HSE Department will apply optimal means and forms to inform or publicise environmental protection measures, in particular, importance and outcomes of environmental monitoring program to/among soum and bagh residents in clear and accessible manner, upon consultation with the relevant local departments.	Dust monitoring results pertaining to arease outside the mine site are published on local newspaper to disclose to local community. Local citizens and herders involved in field measurement and monitoring and they are made known of methodologies of measurements, results of daily measurement and the standards adhered thereto. They were published on local newspaper in January, March, May, June and September editions. On Oyu Tolgoi Open Day held in Khanbogd soum, monitoring tools and materials were introduced and measurements were showcased to the participants. In addition, presentations were posted on information boards and participants got response to their questions.
14	Relocation of old Bor Ovoo spring led to ungrowth of some species, including needlegrass and hawthorn. Pay special attention to the meaning of offsetting.	Vegetation monitoring was conducted around old Bor Ovoo spring in 2010-2012, based on which the vegetation project was developed in 2014 to vegetate New Bor Ovoo spring area and introduced to local community at the meeting. Since land related issue of the new spring has not been resolved at that time, plantation work was lingering. It was finally resolved at the end of 2015 to keep the current spring area as it is. Flora team updated the vegetation plan for 2016 and introduced at the TPC meeting on December 11, 2015. Thus, the company will focus on this issue.	Revegetation plan for New Bor Ovoo spring was updated twice and introduced at the TPC meeting on December 11, 2015. It was decided at the meeting to visit the spring with herders to choose a vegetation area. Accordingly, 16 people including soum government representatives, herders and OT officers organized meeting at the New Bor Ovoo spring on March 17, 2016 and chose 2.3 ha for vegetation and agreed on the species to be planted. This plantation work is included in the Native Plant Growth Plan, a second phase of OT Rehabilitation. Great Green Partners LLC was selected and accomplished the vegetation work as per the plan.