REPORT OF THE:

INDEPENDENT ENVIRONMENTAL & SOCIAL CONSULTANT

OYU TOLGOI MINE PROJECT

MONGOLIA

Interim Report: April 2015

Prepared by:
D'AppoloniaS.p.A.

Prepared for:
OyuTolgoi LLC

D'APPOLONIA

consulting, design, operation & maintenance engineering

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INDEPENDENT ENVIRONMENTAL & SOCIAL CONSULTANT

ENVIRONMENTAL & SOCIAL COMPLIANCE MONITORING

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ACRONYMS

AEMP	Atmospheric Emissions Management Plan
AQMP	Air Quality Monitoring Plan
BAP	Biodiversity Action Plan
BMEP	Biodiversity Monitoring and Evaluation Programme
BMP	Biodiversity Management Plan
BOMP	Biodiversity Offsets Management Plan
CAO	Compliance Advisor Ombudsman
CBMP	Core Biodiversity Monitoring Plan
CH	Cultural Heritage
CHMP	Cultural Heritage Management Plan
CHP	Central Heating Plant
CHSSMP	Community Health, Safety & Security Management Plan
COS	Coarse Ore Stockpile
CSETS	Community and Stakeholder Engagement Tracking System
CSP	Communities and Social Performance
CSP MS	Communities and Social Performance Management System
CWG	Compensation Working Group
EBRD	European Bank for Reconstruction and Development
EC	Electrical Conductivity
ECAs	Export Credit Agencies
EDC	Export Development Canada
EFIC	Export Finance and Insurance Corporation
EHT	Elected Herder Team
EPRP	Emergency Preparedness and Response Plan
ER	Employee relation
ERM	Environmental Resources Management
ERP	Emergency Response Plan
ERT	Emergency Response Team
ESAP	Environment and Social Action Plan
ESIA	Environmental and Social Impact Assessment
FFI	Fauna & Flora International
GHGs	Greenhouse Gas Emissions
GIIP	Good International Industry Practice
HR	Human Resources
HSE	Health, Safety and Environment
HSE MS	Health, Safety and Environment Management System
IA	Investment Agreement
IESC	Independent Environmental and Social Consultant
IEP	Independent Expert Panel
IFC	International Finance Corporation
IFIs	International Financial Institutions
IMP	Influx Management Plan
IOM	International Organisation for Migration
ITRB	Independent Technical Review Board
IWRC	Interim Waste Recycling Center
KCB	KlohnCrippen Berger, Ltd.
KPI	Key Performance Indicator
LBAP	Lender Biodiversity Action Plan
LDP	Land Disturbance Permit
LMP	Labour Management Plan
LTI	Lost Time Injury
LTIFR	LTI Frequency Rate
LUIP	Land Use Implementation Plan
LUMP	Land Use Management Plan

MAPU	Mobile Anti-Poaching Units
MAT	Multi-Agency Team
MEGD	Ministry of Environment and Green Development
MIGA	Multi-lateral Guarantee Agency
MLA	Mine License Area
MoC	Management of Change
MoH	Ministry of Health
MUST	Mongolian University of Science and Technology
MWMP	Mineral Waste Management Plan
NAF	Non-acid forming
NAMEM	National Agency of Meterological and Environmental Monitoring
NPI	Net Positive Impact
OMP	Operational Management Plan
OT	Oyu Tolgoi
OT-GS	Oyu Tolgoi – Gashuun-Sukhait
OT-KB	Oyu Tolgoi – Khanbogd
PAF	Potentially acid forming
PEM	Participatory Environmental Monitoring
PR	Performance Requirement
PS	Performance Standard
RAP	Resettlement Action Plan
RECB	Research and Experiment Center for Boilers
RFDS	Royal Flying Doctor Service
RT	Rio Tinto
RTBS	Rio Tinto Business Solutions
SC	Standard Chartered Bank
SEA	Sustainability East Asia LLC
SEP	Stakeholder Engagement Plan
SHCF	Stakeholder Coordination Function
SOW	Scope of Work
TBC	The Biodiversity Consultancy
TDS	Total Dissolved Solid
TMP	Transport Management Plan
TPD	Tonnes per day
TSF	Tailings Storage Facility
UG	Underground
US EXIM	Export-Import Bank of the United States
WCS	Wildlife Conservation Society
WMC	Waste Management Centre
WMP	Water Monitoring Plan
WRD	Waste Rock Dump
WRMP	Water Resources Management Plan

EXECUTIVE SUMMARY

The Oyu Tolgoi Project ("the Project" or "OT Project") is a world-scale copper/gold mine located in the South Gobi region of Mongolia, approximately 600 km south of the capital city, Ulaanbaatar, and 80 km north of the Mongolia-China border. The mineral resources consist of a series of deposits containing copper, gold, silver and minor amounts of molybdenum. The project is being developed by Oyu Tolgoi LLC (the "Project Company" or OT), a joint venture between Turquoise Hill Resources (66 per cent) and Erdenes Oyu Tolgoi (34 per cent), a company wholly owned by the Government of Mongolia. Rio Tinto (RT) is a major shareholder in Turquoise Hill Resources and since 2010 is formally managing the Project on behalf of all shareholders.

Since September 2013, D'Appolonia S.p.A. (D'Appolonia), located in Genoa, Italy, has been appointed to act as the Independent Environmental and Social Consultant (IESC) on behalf of the Senior Lenders[1] group planning to provide financing for the OT Project.

This report details the findings of the IESC during the April/May 2015 audit conducted as a desk-top review of the documentation provided and teleconferences with OT site personnel held between the 13th and 23rd April, 2015. The scope was to review the most recent environmental, social, health and safety documentation/data associated with Project operation, to highlight any impacts/incidents reported by the Project since the last IESC site visit and to identify whether the Project mitigation measures are being implemented as required.

The audit has not covered topics for which it would be necessary to observe performance through "standard" site visit. However, the report provides follow-up on the status of non-conformances (see Issues Table in Section 3) with respect to the Project commitments as included in the Operational Phase Management Plans (OMPs), the Environmental and Social Impact Assessment (ESIA), the Environmental and Social Action Plan (ESAP), and other reference documents.

Topics not covered in this report will be addressed during the next site visit expected to take place in September 2015 when the entire IESC team will be mobilized in the field.

The main observations of this desk-top exercise are summarized as follows.

Environmental and Social Management System

The Environmental and Social Management System provides for administering the project and meeting the Project Standards, the laws and regulations of Mongolia, permit conditions, Investment Agreement of 6 October 2009, as well as the environmental, health & safety and social policies, standards and requirements of the IFC and EBRD. The management system includes planning, operations, reporting checks, and review elements with a focus on continual improvement. Specific operating plans define the project commitments, key performance indicators and monitoring parameters, and reference specific implementation documents. Also included in the system is a Management of Change (MoC) process, which has been implemented by the Project to address modifications of project plans and commitments, as discussed in associated sections of the report. Some of these have been accepted by the Lenders, while others that have not been accepted are the subject of workshops and ongoing review and monitoring.

Water and Wastewater Management

OT has implemented the Undai River Partial Adjustment and Protection project as a result of being unable to implement the full Undai Diversion as described in the ESIA. The delay in issuing a Land Use Permit currently prohibits OT from constructing aspects of the Undai River Diversion project that were to take place outside of the fenced Mine License Area (MLA). A detailed water review was undertaken in November 2014 to assess available hydrogeological data related to system performance of the Undai River Partial Adjustment and Protection project. Summary findings from the workshop are presented in this report. In general, additional monitoring efforts were recommended, but no risk of significant impact to groundwater resources was identified. Final configuration of the Undai River Diversion is pending outcome of discussion within a newly formed Community Consultative Committee. This committee includes 15 representatives from the Elected herder Team (EHT), Khanbogd (KB) government and OT.

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1 *The Senior Lenders group includes: the International Finance Corporation (IFC), the European Bank for Reconstruction and Development (EBRD), Export Development Canada (EDC), Export-Import Bank of the United States (US EXIM), Export Finance and Insurance Corporation (EFIC), the Multi-lateral Guarantee Agency (MIGA), Standard Chartered Bank (SC) and BNP-Paribas.*

Evidence exists of exploration bores interconnecting hydrogeological units within the Gunii Hooloi borefield and within the Mine License Area. Sealing of five known interconnecting bores outside of the MLA is currently under evaluation by a workgroup established with the Khanbogd soum. Best efforts are being made by the project to progress the sealing interconnecting bores within and outside of the MLA. The Water Monitoring Plan (WMP) and the Water Resources Management Plan (WRMP) discuss additional studies and efforts that will be undertaken by OT to address commitments made in these plans. Erosion monitoring now takes place, and a general hydrogeologic consulting assistance contract has been issued to assist in review of monitoring results, QA/QC assurance, and the oversight of supplementary monitoring bore installation. However, the drilling and installation of supplementary monitoring bores, as discussed in the WMP, has not yet taken place as the identified contractor did not meet OT safety standards. A more suitable contractor has been identified and OT anticipates that supplementary monitoring bores including those identified in the November 2014 detailed water review, will be installed in the 2015 field season beginning in May. The Project has not been able to install all 10 regional rain gauges due to issues with their security in remote locations. A total of 5 rain gauges have been successfully installed, and 4 other secure sites have been identified for near-term installation of additional gauges.

Mineral Waste Management

Mineral waste management associated with the Open Pit, Waste Rock Dump (WRD), and Tailings Storage Facility (TSF) is continuing under the Project strategy. Waste rock stockpiled or placed in dumps is subject to segregation of potentially acid forming (PAF) materials from non-acid forming materials, and monitoring under the geotechnical ExPit program and WMP.

Cell 1 of the TSF continues to be operated, with construction of embankments resuming to provide for projected tailings deposition in 2015 and maintain the design freeboard. Tailings slurry density and beach slope within the TSF remain improved as a result of improved thickener operation. Composite sampling and testing of tailings in the fall of 2014 have indicated that the tailings exhibit NAF properties. Reclaim water management within the TSF has been hindered due to ingress of tailings into the reclaim area over the winter, and operating restrictions on the barge pump station, resulting in water extending beyond the reclaim pond. Seepage emanating from the toe areas in the northeast section of the TSF is being monitored and the source and pathway should be investigated with continued development of the TSF. The Open Pit and TSF Risk Assessment was updated at the beginning of 2015, and the TSF feasibility study is being updated, further design completed, and technical reviews performed in response to the improved performance of the tailings thickeners and observed beach slopes. Engineering evaluations are being performed to demonstrate that PAF materials designated for use in downstream zones of the TSF embankment will be protected from contact with tailings seepage water.

Non-Mineral Waste Management

The Project continues to implement the waste management strategy defined in the management plans and related operating procedures. The effort to identify off-site recyclable options continues and viable solutions have been identified for selected waste categories including plastics, scrap metal and barrels, waste oil/coolants, and waste timber either through local vendors or local communities. Bidding processes for the selection of additional recycling contractors are ongoing. The use of the Interim Waste Recycling Center (IWRC) has been discontinued and the residual waste accumulated is being progressively either recycled (plastic bottles, waste oil, etc.) or transferred to the new Waste Management Center (WMC). The development of the IWRC decommissioning, rehabilitation and remediation plan to identify the actions needed to rehabilitate/decontaminate the site is ongoing and data collection/survey activities to characterize the historic landfill area have been started.

Since June 2014 the new permanent WMC is in operation. From the material provided by the Project, the facility is properly operated with waste either incinerated or buried in the disposal pits.

Air Quality

There has historically been significant dust generation at the coarse ore stockpile (COS) facility. A foam dust suppressant system was completed in November 2014 but operations were stopped shortly thereafter due to freezing issues. When operable the system is effective at reducing particulate generation. OT has recently assessed performance of the system resulting in identification of multiple opportunities for improvement. The IESC recommends that ambient monitoring coverage be expanded to provide a more fulsome representation of the efficacy of the foam suppressant system.

The ambient air monitoring network available on site requires improvement to meet commitments made in the AQMP, and to monitor ambient air quality relative to Project Standards. An equipment specification list has been developed by a third-party contractor to ensure purchased materials are capable of meeting AQMP requirements. A capital expenditure request to purchase this equipment was denied in March 2015. It is now estimated that this equipment will be procured and installed in 2016.

The Central Heating Plant (CHP) currently lacks monitoring equipment to allow direct sampling of stack emissions in conformance with the monthly periodicity identified in the AEMP. To address this OT has executed a contract for a third party vendor to perform monthly stack testing at the CHP, incinerator, and coal-fired boilers at the Khanbumbat (OT) airport. Sampling at the CHP show persistent exceedences of Project Standards for NOx, SO2, and particulate matter. There have been difficulties procuring a reliable limestone supply; however additional engineering works planned for the summer 2015 shutdown are anticipated to improve emissions quality.

Emergency Preparedness & Response

The Emergency Response Team operating under the Emergency Preparedness and Response Plan (EPRP) is involved in the updating of the Business Resilience Management Plan, after an internal review focusing on sixteen Project areas/departments where high and critical risks exist, to ensure the potential incident scenarios are identified and procedures developed or updated. Upon finalizing this plan, an update of the Emergency Response Plan Procedures is anticipated. A separate draft TSF Emergency Response Plan has been prepared and is under review. When completed, it should address downstream impacts and emergency response coverage area beyond the mine, including detection, notification, response steps, communication and community awareness, training and exercises, and plan administration.

The Underground Emergency Response Plan was updated in February 2015 and submitted to the Ministry of Mines, incorporating care and maintenance activities, including inspection, equipment maintenance, and ground control.

Transport Management

Control over transport vehicles is effectively managed as shipments have declined since mid-2014 levels with reduction of inventory and in response to production. Traffic monitoring and reporting has been implemented in support of evaluation of wildlife road crossing evaluations. Induction and Environment Awareness training programs are being maintained for contractors and OT personnel.

Ecological Management and Biodiversity

OT's Biodiversity Management Plan (BMP) and a set of associated management plans form the basis for implementing the project's mitigation actions for biodiversity and ecosystems. A comprehensive review of the updated BMP was undertaken by the IESC in November 2014. Notices of Change 2014-006 and 2014-007 were agreed in April 2015 subject to further revisions to the BMP and its supporting documentation. OT and Lenders agreed revised, mutually acceptable timelines and the final revised BMP is expected to be available for review in advance of the next IESC audit.

Significant progress has been made in compiling and interpreting monitoring data from OT's pilot "Core Biodiversity Monitoring Programme" which was undertaken during 2013 and 2014. OT held a meeting with Government and other stakeholders in March 2015 to review these data and discuss their implications for future monitoring and achievement of NPI in the South Gobi Region. Accordingly, indicators and thresholds have been finalised that will underpin adaptive management for the next five years of monitoring. OT's monitoring surveys have combined inputs from many Mongolian and international specialists and are providing a strong evidence base for the Project's efforts to achieve a Net Positive Impact (NPI). This is exemplified by initial promising results from OT's "Anti-poaching Offset Pilot Programme", both in terms of strengthening working relationships between the relevant regulatory authorities and in terms of quantifying potential improvements in protection of conservation priority species. Ongoing collaborative review of the monitoring strategy will be needed to ensure that OT's impacts on species of conservation concern continue to be detected and managed with an appropriate survey frequency, particularly for those with critical habitat affected.

Since the last IESC visit, OT has worked in partnership with its partners and consultants to progress several other key areas of work on biodiversity but these are still in progress and will therefore be reviewed more comprehensively in the next IESC visit, when relevant reports are available and it is possible to review implementation success. They include:

- developing alternative options for mitigating impacts of power lines on birds (especially Houbara bustard and saker falcon), given the challenges associated with reinstating fully functioning bird flight diverters;
- revising and updating the Project's Net Positive Impact (NPI) forecast in the light of improved monitoring data and developing an interim Biodiversity Offsets Management Plan;
- developing the new Land Disturbance and Rehabilitation Plan and associated Biological Rehabilitation Procedure and integrating it with others associated with land disturbance and rehabilitation;
- development of a biodiversity-related stakeholder engagement plan by the Ecosystem Services Group and the implementation of this plan to ensure that essential internal and external negotiations take place regarding critical biodiversity and ecosystem services and the achievement of NPI in the South Gobi Region;
- installation of insulators on medium-voltage power line poles and dead ends; and
- progress with efforts towards restoration of "spring vegetation" of the type lost when the Bor Ovoo Spring was re-located.

There are further issues for which OT's planned approach remains unclear, notably the development of a programme of actions to address traffic-related disturbance and potential barrier effects caused by linear infrastructure in the South Gobi region. A one-day meeting in November 2014 between OT and lender representatives resulted in an agreement for OT to work with Lenders to develop a coordinated approach to engagement with the Government of Mongolia and developers in the region concerning feasible mitigation approaches. It was agreed that construction of underpasses/overpasses could not be "definitively justified in the near term, given their high cost and uncertainty surrounding their effectiveness" and that more cost-effective solutions might be available. Potential technical solutions were discussed, but progress has been hampered by changes in government and ongoing uncertainty around the implications of Mongolia's biodiversity offset policy. Monitoring data show that the Oyu-Tolgoi – Gashuun Sukhait Road is frequently crossed at current road traffic volumes, whilst also suggesting the possibility of some avoidance behaviour. While there is some uncertainty about future mine-related traffic volumes, it remains important to develop a mitigation/offset strategy. Likewise, OT's plans for managing and monitoring impacts on critical ecosystem services need to be finalised, building on results of pilot activities.

As indicated in the previous IESC report, some biodiversity-related roles have not been replaced and others have been combined. As a commitment to maintain a dedicated technical biodiversity advisory position under the Lender BAP, OT appointed a full time Biodiversity Offset advisor in response to the challenges of demonstrating NPI for biodiversity affected by its operations. This role has now been merged with the role of "Manager, Environment and Biodiversity", reducing available capacity. This is a source of concern, given the considerable challenge faced by OT in its efforts to demonstrate NPI in the South Gobi Region for ungulate populations and other priority species requiring resources and capacity to negotiate with a wide range of stakeholders and implement partnership programmes over extensive areas, as well as carrying out on-site monitoring, biodiversity research and interpretation and meeting requirements of operational policies and procedures.

Labour & Working Conditions

As of the 31 March 2015 there were 6,587 workers at the OT operation including those employed by OT LLC and contractor companies. The total workforce comprises 95% Mongolian nationals. Employment numbers from Umnugobi *aimag* remain steady with 387 OT LLC employees on site in March 2015. Preferential local employment policies continue to be effectively implemented with a total of 703 workers from Khanbogd working at the operation in March 2015; comprising 216 OT LLC workers and 487 contractors. Good progress has been made recently on disclosure of local recruitment, training and employment information and metrics to local communities.

The planned roster and shift changes were implemented as intended at the end of 2014. No specific worker concerns are reported to have been raised on these in the past 6 months. A similar level of employee grievances were raised through Speak Out from January to April 2015 compared to other quarters (15 complaints were received, 3 are under investigation while the others have been closed). Overall levels are low for the size of workforce.

A strong contractor pre-qualification process is in place with support from an external provider. This includes detailed checks on HR/ER management capacity prior to approval. It also includes training and

follow up measures where weaknesses are identified. However, the ongoing auditing of contractor HR/ER performance once contractors are on board is not as good. An audit process is implemented but with few HR checks. Since a strong system is in place it should be easily modified to include additional HR/ER performance criteria. An audit schedule with the initial focus on major and/or higher risk contractors should be developed.

Whilst no formal report has been made available on the final outcome of the 2014 redundancy process, the IESC is satisfied that it was implemented without any major issues being identified. There are still areas for improvement in how OT reports on collective redundancies particularly for contractors.

There are no significant updates or changes to worker accommodation for this audit. OT intends to sell the South Camp. The company will need to ensure the relevant obligations for rehabilitation of the site are still met. Seepage issues at Manlai camp have been addressed and there are no known odour or noise issues. Further effort has been made to investigate conditions at the Jiayou managed accommodation facilities in China. OT intends to include additional requirements for accommodation standards when it renews their contract. Audits of this facility will start in 2015 and extend to other facilities as appropriate.

Resettlement, Compensation and Livelihoods Improvement

An action plan to implement corrective actions from the Completion Audit has been prepared as suggested. it is recommended that this is improved to ensure actions are specific and well defined, but it will help to ensure the program for resettled herders is effectively closed out. An EOI for the multi-disciplinary study of herders in Khanbogd has been announced to interested companies. The outcome evaluation for affected herders is still being planned as part of this study. Although progress is slow, the IESC recognizes that to proceed with a separate study at this time would be counterproductive to the progress made with herders/EHT. The IESC will review the status at the next site visit.

The permanent well for the herder family resettled in 2013 has been completed. Further efforts have been made by OT to ensure all Khanbogd herder families are provided with greater livelihood improvement opportunities. These include encouraging herder participation in cooperatives, facilitating new cooperatives with herder membership and providing spent tyres to herders to build animal shelters. It is evident that resources have been directed to this effort in the past 6 months which is positive. These and other activities such as the camel shearing project, fodder program, animal health project, and access to credit under the Cooperation Agreement, will all contribute to achieving the goal of a sustainable pastureland and livelihood improvement program.

No complaints about resettlement or compensation have been received since the previous audit. There remains an outstanding group complaint from herders about inadequate or no compensation for impacts from as yet unpaved roads.[2] The Tripartite Council[3] may be most appropriate to investigate these issues (once established) in absence of the Compensation Working Group being reconvened.

The first year of participatory vegetation (rangeland) monitoring by Nutaag Partners has been completed and shared with the *aimag*, *soum*, and herders who have all accepted the report. Positive feedback was received and herders commented that they can see how environmental factors are having an impact on rangelands (as well as mining and other activities). The next step is for OT to define how they intend to support the *soums* to implement the recommendations. Good progress has been made on animal health by the local authorities with support from OT. The IESC is pleased to hear that OT and the EHT have agreed to implement a local animal health project in Khanbogd (e.g., mobile dipping).

The draft vulnerable households' assistance action plan has been enhanced. It includes a series of customized household assistance measures for each vulnerable family. Some improvements are needed to finalize it but it is a good start that will help to ensure the program is well designed and implemented.

The RAP is being updated and finalized by OT and will be submitted to the Lenders, along with the Notice of Change in May, 2015. The RAP update was due by 31 December 2014; therefore the revision of this OMP to the required standard needs to be expedited.

[2] *This complaint is understood to be from the unpaved section of the OT-GS road as well as the OT-KB road. This complaint is one of those being addressed by the CAO.*

[3] *The Tripartite Council will comprise representatives from OT, the EHT and Khanbogd soum administration.*

Stakeholder Engagement

No major issues or concerns were reported with stakeholders for this desk-top audit. The CSP team has drafted an updated SEP but it still needs to be finalized. Engagement with the EHT has continued successfully and good progress has been made on transitioning the EHT-CAO-OT process towards a long-term consultation body which will be called a Tripartite Council. This has been agreed by all parties and would eliminate the need for the CAO. An MOU and Charter have been developed and these appear comprehensive. The MOU is expected to be signed in April/May. This approach should pave the way for the CAO complaints to be withdrawn imminently. The relevant parties are reported to agree that should the complaint to the EBRD PCM be eligible, this group would be the vehicle for negotiation, provided that other stakeholders agree.

The Independent Expert Panel (IEP) study was finalized enabling the Undai River specific engagement plan to be drafted. If some more detail and an action plan are included it should satisfy the requirement for a topic-specific engagement plan for the Undai. Engagement on the Undai is otherwise ongoing.

Community consultations have been held on the OT-GSK and Khanbogd-OT-coal road as part of the DEIA process. Participation in local cultural events (e.g. camel festivals, Tsagaan Sar), OT site tours, and collaborations with the Khanbogd Elders Association and monthly "Show and Tell" sessions at the Khanbogd high school continue. A Town Hall meeting is planned for Khanbogd next month which will be a "Local Procurement and Contractors Job Fair". The depth of information disclosed to communities continues to expand with regular reporting now on health and safety, human resources, and environment.

A total of 16 community grievances were received between November 2014 and March 2015 and 13 of these are resolved. The most common types of complaints continue to be environmental (dust, water, pollution) and human resources complaints. No complaints about herder livelihoods or compensation were received in this period. There has been consistent improvement by OT in community grievance management. The CSP department held refresher training on the revised procedure in January 2015.

Regional and Community Development

Works were completed at the interim waste management facility and the detailed design of drainage facilities in Khanbogd *soum* centre was also finalized. The "Galba" public park in Khanbogd was recognised as the best construction project in the Umnogovi *aimag* in 2014. The Community Interaction Centre is now complete and commissioned in January 2015. The CSP team and some of the Khanbogd government will move in by mid-year. One popular idea for the community hall/public space is a Tourism Information Centre which is being investigated. It is positive that the Interim Agreement commitments are now mostly complete.

The Cooperation Agreement was signed in April 2015 by OT and *aimag* and *soum* authorities. This is a considerable achievement and one of the first of its kind in Mongolia. The term of the agreement is the same OT's mining license and there are seven thematic areas for cooperation. The agreement will be funded through a Development Support Fund (DSF). OT will make a financial contribution to the DSF each year (which will be indexed). Many of the future social programs will be funded under the DSF.

There are now 17 cooperatives with herder members across 7 business types.[4] Assistance provided to cooperatives by OT includes micro-loans, training, consulting and study tours to similar factories. The next phase camel shearing project is being designed and a mobile shearing team is planned. A range of tourism-related support activities were also implemented by OT recently. Fifteen cooperatives implemented the fodder distribution program this winter; a significant achievement given the number involved. A micro-credit loan scheme has been incorporated into the Cooperation Agreement; a total of 5% of the DSF will be allocated for this each year. This should help to improve access to credit for Khanbogd herders and other residents. The access criteria will need to be appropriate for herders. Supplier development in the South Gobi is ongoing by OT and has reportedly created more than 1,225 indirect jobs and micro credit loans worth 1,3 billion MNT have been disbursed to 132 businesses.

4 *Across Khanbogd, Bayan Ovoo and Manlai.*

Worker Health and Safety

The Health Team is a centralized entity under the HSE Department, and includes the main SOS clinic. Periodical health assessments and screenings are performed under the continuing occupational health program.

The Critical Risk Management program, focusing on 17 critical activities and conducting critical risk control verification, has been initiated with training nearing completion for over 50% of the workforce and locations.

Workplace health and safety incidents are tracked within the RTBS system, reviewed and evaluated by management, and reported in monthly or quarterly reports.

Community Health and Safety

Recent health program contributions include participation in discussions with the Umnugobi *Aimag* on the Health Systems Strengthening Strategy 2015-2017, English language training for 40 health care workers in Dalanzadgad and upgrade of the Manlai hospital training room. OT also facilitated the preparation of a funding submission by Umnogovi *Aimag*, the WHO and Australian Royal Flying Doctor Service (RFDS) to the Australia-Mongolia Extractives Programme (AMEP) for a pilot scheme in the South Gobi.

Oyu Tolgoi continued to support the International Organisation for Migration (IOM) on human security and human trafficking issues. Four proposals for economic support for migrant women in Khanbogd have been approved for funding by OT and implementation is expected mid-2015. A total of 300 copies of the human security and human trafficking prevention manual for peer educators and 1,200 pieces of the IOM handbook for border officers have been disseminated. A co-financing agreement was signed on in March by OT and the UNFPA on the planned Youth Development Centre (YDC) in Khanbogd (it will be in the OT Trade Training Centre). There will be two Khanbogd citizens to staff the centre.

Cultural Heritage Management

No cultural heritage incidents have been recorded so far in 2015 and 6 land disturbance permits have been approved. As construction has not started on the planned new roads no further work has been required on cultural heritage.[5] Monthly monitoring of cultural sites is continuing at 19 locations by 8 CH assistants (including a number of herders). Cultural heritage and community relations inductions have been given to 228 workers and 81 workers have been trained in the Chance Finds Procedure year to date.

A total of 439 OT site workers have visited the Culture *Ger* this year. OT recently helped the Khanbogd Elderly Association create a Facebook page which includes short videos on different Gobi cultural topics.[6] The planned national conference on cultural heritage was held in November 2014 and supported by OT. The conference had around 100 participants and raised awareness of OT's work to protect and preserve cultural heritage in Umnogovi *aimag*. Another key outcome was agreement by the Mongolian Academy of Sciences on establishment of the Centre for Gobi region cultural heritage and development studies.

Leading archaeologists and palaeontologists from overseas are due to travel to Mongolia in mid-2015 to work on preparation of the CHMP for the *Shar Tsav* paleontological site and *Khurdet* cave (regional sites).

[5] *Zone 3 of the OT-GS road*[5] *and the Khanbogd-OT-Javkhlant bagh road.*

[6] *https://www.facebook.com/pages/%D0%A5%D0%B0%D0%BD%D0%B1%D0%BE%D0%B3%D0%B4-%D1%81%D1%83%D0%BC%D1%8B%D0%BD-%D0%B0%D1%85%D0%BC%D0%B0%D0%B4%D1%8B%D0%BD-%D1%85%D0%BE%D1%80%D0%BE%D0%BE/823982694304585?fref=ts*

1 INTRODUCTION

The Oyu Tolgoi copper/gold mining Project ("the Project" or "OT Project") is located in the aimag of Umnogovi, in the South Gobi region of Mongolia, approximately 600 km south of the capital city, Ulaanbaatar, and 80 km north of the Mongolia-China border. The mineral resources were discovered in 2001 and consist of a series of deposits containing copper, gold, silver and minor amounts of molybdenum. The project involves a combination of open pit and underground operations, with ore processed through a 100,000 tons per day concentrator and with an expected concentrate production in excess of 500,000 tons per year. Shipment of product to customers commenced in July 2013.

In September 2013, D'Appolonia S.p.A. (D'Appolonia), located in Genoa, Italy, was retained by Oyu Tolgoi LLC to act as the Independent Environmental and Social Consultant (IESC)[7] for the OT Project being developed by Oyu Tolgoi LLC (the "Project Company" or OT), a strategic partnership between the Government of Mongolia, Rio Tinto (RT) and Turquoise Hill Resources. Since 2012 RT has also been appointed as the manager of the project on behalf of the shareholders.

D'Appolonia's role as the IESC is to support the Senior Lenders by providing an external/independent monitoring evaluation of OT mine project activities with focus on (Health, Safety and Environment) HSE and social aspects during project operation that began on 1 September 2013. Within this role, the IESC reports periodically to the Lenders group on conformance with the environmental and social provisions contained within the Operational Management Plans (OMPs) which define how OT will implement the mitigation strategies set out in the ESIA and in the other relevant project documents. These include the Project's Environmental and Social Impact Assessment ESIA, an Environment and Social Action Plan (ESAP) which included a list of time-bound future commitments and the Operations Phase ESMPs that represent the reference documents used by the IESC to monitor the Project Environment, Social, Health and Safety (ESHS) performances throughout operation.

This report details the findings of the IESC during the April/May 2015 audit conducted as a desk-top review of the documentation provided and teleconferences with OT site personnel. Most of the findings identified in this report are primarily based on written information made available by the Project through existing reports, disclosed studies and ad-hoc presentations, as well as from interviews via conference calls with OT employees. The report provides an update on the Project status limited to some key topics as well as a follow-up of the status of the non-conformances with respect to the Project commitments as included in the OMPs, the ESIA, the ESAP and other reference documents.

Topics not covered in this report will be addressed during the next site visit expected to take place in September 2015 when the entire IESC team will be mobilized.

Specific activities conducted included the following:

- desk review of the EHS and social documentation and other project-related reports provided by OT in advance or during the desk-top exercise;
- conference calls with the project teams responsible for HSE and social compliance monitoring and review of relevant plans and procedures, scheduled between the 13th and the 23rd of April 2015;
- evaluation of implementation of the commitments contained within the OMPs and the ESAP;
- identification of deviations and/or gaps with respect to the OMPs and ESAP commitments, including recommendation for possible EHS improvements based on Good International Industry Practice (GIIP);
- follow-up and closure of findings and observations identified in the November 2014 IESC Audit Report [8], and
- drafting of an IESC report (this report) to be publicly disclosed.

The information, observations, and opinions presented in this report are those of D'Appolonia and are independent of those of the Project and/or the Senior Lenders. Where topics are not referred to, no risks to the project have been identified.

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7 *IESC Team members: Giovanni Battista De Franchi (Project Manager and Team Leader – EHS Specialist), Robert Snow (Senior Reviewer - HS and Mining Specialist), Dana Strength (Environmental / Hydrologist Specialist), Angela Reeman (Social / Community Specialist), Jo Treweek (Biodiversity Specialist).*

8 *D'Appolonia, "Independent Environmental & Social Compliance Monitoring Report – site Visit November 2014", dated February 2015.*

2 PROJECT OVERVIEW

2.1 CONSTRUCTION AND OPERATIONS STATUS

The project consists of a series of mineral deposits containing copper, gold, silver, and molybdenum to be mined by a combination of open pit and underground mining techniques through a 60^{+} years foreseen mine life. Ore deposits are referred to as the Southern Oyu deposit and the Hugo Dummett deposit which together contain a currently identified resource of almost 25.4 million tons of copper, 81,600 tons of Molybdenum, about 5,150 tons of Silver, and 1,000 tons of gold. The development of the mine involves the construction of an open pit copper-gold mining operation at the Southern Oyu deposit, supplemented by production from the underground (Hugo Dummett deposit). The initial concentrator design is based on processing raw ore at a rate of 35 million tons per year (nominal capacity of 100,000 tons per day) with an expected concentrate production in excess of 500,000 tons per year.

The open pit mine started during Q2 2012 as a conventional truck and shovel operation operating 24 hours per day. The pit includes a series of 'benches' cut and blasted into the rock that act to stabilize the slopes within the open pit and also serve as the haul roads to enable ore and waste rock to be removed by trucks.

The underground mine is being planned as a block cave operation which involves the excavation of material that provides natural support from beneath the ore, causing it to fracture and collapse into the excavated void under the force of gravity. In addition to being a cost-effective underground mining technique, this process allows for the greatest proportion of ore body to be extracted relative to waste rock.

The process design to convert the ore into concentrate is based on conventional milling and flotation technology and proven equipment. The process includes primary crushing with coarse ore stockpiling. Crushed ore from the primary crusher is transferred via a 2.7 km overland conveyor to a stockpile near the concentrator and from here into the grinding circuit where a series of large diameter mills reduce the ore to small particles before either flotation and further processing or recycling to the grinding circuit. The flotation system separates valuable ore from less desirable minerals in large floatation cells where the Copper-containing materials are skimmed off for the next stage of the process while the sludge (tailings) are thickened to 60% solids in two thickeners and pumped to the Tailings Storage Facility (TSF) for disposal. Water from the tailings thickeners and TSF are recycled back to the concentrator. The final concentrate containing copper and gold is then thickened and filtered before storage in sealed bags for transport via trucks to the Gashuun Sukhait/Ganqimaodao border crossing with China.

Ancillary facilities that allow operation of the mine include a regional airport, main power supply currently via a dedicated 220 kilovolt (kV) overhead power line from the Inner Mongolian electricity grid in northern China, coal-fired central heating plant (CHP), water supply and treatment systems, maintenance facilities and warehouses, administration buildings, waste disposal facilities, fuel storage depots, administration facilities and accommodations camps, roads and transport facilities.

The project achieved the operation phase in 2013 with open pit mining ongoing, the concentrator production rates progressively increasing, and the concentrate exported to China. During 2014, nearly 29 million tonnes of ore were treated with about 148,000 tonnes of copper concentrate produced. Through March 2015, approximately 7.5 million tonnes of ore were treated with about 34,000 tonnes of copper concentrate produced; production levels are expected to increase in the second half of the year, ultimately resulting in production distribution in 2015 being similar to 2014. Underground mine production has yet to start. Sales and shipping of concentrate accelerated throughout 2014 to work down accumulated inventory.

The situation regarding underground mine is unchanged since the IESC March 2014 visit. The underground mine continues under care & maintenance by OT with activities limited to ongoing inspection and maintenance of equipment and structures, pending resolution of shareholder issues and progressing of financing. Interim plans are to optimize ore recovery from the open pit. No further decisions have been made regarding the potential development of a coal-fired project Power Plant and the expansion of the concentrator's capacity above 100 ktpd, both items subject to further environmental and social impact assessment as established in the ESAP.

2.2 REPORT ORGANIZATION

Subsequent sections of this report are organized as follows:

- Section 3.0– Issues Table;
- Section 4.0 – Environmental and Social Management;
- Section 5.0 – Environment;
- Section 6.0 – Social;
- Section 7.0 – Health and Safety; and
- Section 8.0 – Cultural Heritage.

The basic findings of the IESC review are presented in the form of observations, comments and recommendations that are generally described within this report. Throughout the text of each section, two types of recommendations are reported:

- findings, which identify issues non-conformance with Project commitments included in the OMPs and/or GIIP; and
- observations, which are suggestions for the proper implementation of required actions and closure of open issues and which are based on the collective experience and expertise of the IESC team members.

IESC's "observation" are not considered mandatory and therefore their implementation is not critical. However, the IESC encourages the Project to consider the usefulness of all these recommendations and incorporate them, as appropriate and if technically/economically feasible, into new management activities. The action items throughout the report are also presented in the Issues Table provided in Section 3.0.

3 ISSUES TABLE

This chapter tabulates a summary of key non-conformances raised in this report based on observations made during the site visit, interviews with OT staff, as well as review of documentation provided during and after the site visit and consistent with our scope of work.

The table has been structured to provide a color-coding for strict non-conformances referenced with respect to Project commitments as included in the OMPs, in the ESAP and in the underlying OT monitoring documents and procedures which all together define how the OT operations comply with applicable Lenders' Environmental and Social Standards. The nomenclature of the color-coded categorizations is assigned based on the same non-conformance levels defined in the OT ESMP[9] which reflects the RT HSEQ Management System classification.

The following descriptions are provided:

- **Class IV** - A critical non-conformance, materially inconsistent with the Project Standards or Management Plans, resulting in or reasonably likely to result in irreversible impacts to sensitive receptors or important resources or significant damage or irreversible harm or damage to an ecologically or socially sensitive resource or has the potential for an extreme health and safety incident.
- **Class III**- A material non-conformance, materially inconsistent with the Project Standards or Management Plans, that has not resulted in clearly identified impacts to sensitive receptors or important resources or material damage or irreversible harm or damage to an ecologically or socially sensitive resource or have the potential for an extreme health and safety incident, but it is reasonably likely to have such effects.
- **Class II** - A material non-conformance with the Project Standards or Management Plans, but not reasonably likely to result in impacts to sensitive receptors or important resources or material damage or irreversible harm or damage to an ecologically or socially sensitive resource or have the potential for an extreme health and safety incident.
- **Class I** - An incident not materially consistent with the Project Standards or Management Plans and not reasonably likely to present a threat to the environment, community or worker health and safety.

Action items are identified by the number of the mission (MX.Y), where X is the mission number and Y is the related action item number. It should be noted that the text description of the recommendations could be revised from one visit to the next to better reflect current field conditions; however the original item numbers are retained until closed as they refer to the same main issue.

Each non-conformance identified in the table will require actions from OT and will be followed-up by the IESC in subsequent site visits. The table includes a description of the finding, the level of non-conformance assigned, the reference to the Project commitments and/or relevant project document as well as recommendations for improvement based on the collective experience and expertise of the IESC. Please also note that non-conformances not sufficiently addressed, according to IESC opinion, could result in a level increase, independent from the actual material consequences due to the conditions, unless an explanation is provided to justify the decision to avoid any corrective action.

Overall, results of the audit are as follows:

- No Class IV non-conformances have been identified;
- Two Class III non-conformance identified;
- Thirteen Class II non-conformances identified;
- Seven Class I non conformances identified; and
- One non-conformance against ESAP commitment identified.

Starting from the October 2013 IESC site visit, eight non-conformances were closed during the March/April 2014 site visit, two during the August 2014 Desktop audit, ten during the November 2014 site visit and three during this audit.

9 *Environmental and Social Management Plan (ESMP) - Doc. No. OT-10-PLN-0003 dated 01.09.2013.*

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environment – Water and Wastewater Management							
M1.1	Oct.13 April 14 Desktop Audit Aug. 14 Nov. 14 Desktop Audit April 15		The Undai River Diversion has not been completed in accordance with the ESIA due to a delay in issuance of a Land Use Permit. A temporary approach (the Undai River Partial Adjustment and Protection Project) has been completed to divert surface flow and to capture and re-route groundwater flow from the Undai River and around the zone of influence of the open pit. The current Undai River Partial Adjustment and Protection Project does not fully meet the design requirements as specified in the ESIA.	II	IESC - April 2013 Audit Water Resources Management Plan (WR12)	Open	See Sections 5.1.2 and Issue M1.18. Planned Undai River Diversion works outside of the Mine License Area (MLA) are pending regulatory approval (a requisite Land Use Permit). Some inconsistencies exist in design criteria for the Undai River Diversion as presented in the ESIA. The ESIA MoC procedure, as identified in the ESMP, was implemented by the Project on May 20, 2014. The submitted Notice of Change (2014-001) was not accepted by the Lenders as a detailed technical review of available hydrogeological information was pending. This reflected a precautionary approach in assessment of potential impacts to the Undai River groundwater system. A November 2014 detailed hydrogeology review was undertaken to assess potential impacts of the current system to the groundwater flow regime. The detailed water review did not identify a risk of significant impact to groundwater resources as a result of the current Undai River Partial Adjustment and Protection Project There has not been a re-submission of the 2014 Notice of Change. Final configuration of the Undai River Diversion is pending outcome of discussion within a newly formed Community Consultative Committee. This Committee includes a total of 15 representatives from the Elected Herder Team (EHT), Khan Bogd (KB) government and OT. The Committee is considering potential modification to the existing Undai River Partial Adjustment and Protection Project. This item is maintained as a Level II Non-conformance due to the current non-conformance of the Undai River Partial Adjustment and Protection Project with the Undai River Diversion design criteria specified in the ESIA, including works to occur outside of the MLA.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M1.5	Oct.13 April 14 Desktop Audit Aug. 14 Nov.14 Desktop Audit April 15		Mitigations are required in the event of interconnection of hydrogeological units. These mitigations have not yet been implemented in all instances. OT is progressing efforts to abandon or convert to productive use these interconnecting bores.	II	IESC - April 2013 Audit Water Resources Management Plan (WR04, 14)	Open	See Section 5.1.2.7. Evidence exists of exploration bores interconnecting hydrogeological units within the GuniiHooloi borefield, in the Galbyn Gobi region, and within the MLA. Future disposition of these wells is currently under evaluation by a workgroup established with the Khanbogd soum. There are some requests for conversion of the wells for community use; this request has been forward to the communities team. Best efforts are being made by OT to progress the sealing of interconnecting bores within and outside of the MLA, however the issue is outstanding. Per request from the workgroup OT has provided boring logs for all interconnecting bores.
M2.3	April 14 Desktop Audit Aug. 14 Nov.14		The drilling and installation of supplementary monitoring bores, as discussed in the WMP, has not yet been implemented.	II	Water Monitoring Plan, Section 3.2.6, 3.3.5 Water Resources Management Plan (WR14, WRm06)	Open	See Section 5.1.2.8. The drilling and installation of supplementary monitoring bores, as discussed in the WMP, has not yet been completed. The work was previously delayed due to a contractor safety review. This review subsequently identified a more suitable contactor that could meet OT safety standards. This drilling contractor is now engaged in well rehabilitation efforts and will soon move to the installation of new monitoring points. OT anticipates that the supplementary monitoring bores will be installed beginning in May, 2015.
M4.1	Nov. 14 Desktop Audit April 15		Not all rain gauges have been installed at the locations described in the WMP.	I	Water Monitoring Plan, Section 3.8 Figure 11	Open	Section 5.1.2.6. The project has not been able to install all 10 regional rain gauges due to issues with their security in remote locations. A total of five rain gauges are currently installed and monitored. Four additional secure sites have been identified and rain gauges will soon be installed. OT has agreed to purchase four weather stations for installation at WMP monitoring locations.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environment – Air Quality							
M1.11	Oct.13 April 14 Desktop Audit Aug. 14 Nov. 14 Desktop Audit April 15		Significant dust (particulate) emissions are generated intermittently at the coarse ore stockpile. A foam dust suppressant system has been installed with overall good efficacy when operational.	II	Atmospheric Emissions Management Plan (AQ05)	Open	See Section 5.5.2.1. There has historically been significant dust generation at the coarse ore stockpile (COS) facility. A foam dust suppressant system was completed in November 2014 but operations were stopped shortly thereafter due to freezing issues. The system remained out of use through mid-March 2015. When operable the system is effective at reducing particulate generation. OT has recently assessed performance of the system resulting in identification of multiple opportunities for improvement. These include correct operation of the metering pump to administer reagent into the water line, maintenance of the appropriate reagent/water ratio, and re-locating of regent totes to improve access. These recommendations should be implemented.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M1.12	Oct.13 April 14 Desktop Audit Aug. 14 Nov. 14 Desktop Audit April 15		There are limitations to the existing ambient air monitoring network. The revised AQMP describes additional necessary equipment to monitor ambient air conditions relative to Project Standards.	III	Atmospheric Emissions Management Plan (Section 1.5; Air Quality Monitoring Plan – Appendix A; AQ-KPI02)	Open	See Section 5.5.2.1. As noted in prior audits the ambient air monitoring network available requires improvement to meet commitments made in the revised AQMP, and to monitor ambient air quality relative to Project Standards. Information from the August 2014 Audit suggested that this equipment would be available on site and ready for installation by November 2014. November 2014 estimates for installation were 6 – 12 months into the future (i.e. by the end of 2015). However a March 2015 capital expenditure authorization for the equipment has been denied. It is now anticipated that the equipment will be procured in 2016. This has been upgraded to a Level III non-conformance due to the lack of timely corrective action. It is noted that the project is currently capital constrained; however lack of an ambient monitoring network that complies with Project Standards has been a consistent non-conformance since the first operations phase audit. It is noted that there are plans to include the necessary capital expenditure request in the 2016 budget, and approval is expected at that time.
M1.13	Oct.13 April 14 Desktop Audit Aug. 14 Nov. 14 Desktop Audit April 15		Stack emission sampling results from boilers at the Central Heating Plant (CHP) and KB airport do not meet Project Standards.	II	Atmospheric Emissions Management Plan (AM03) Air Quality Monitoring Plan – Appendix B)	Open	See Section 5.5.2.2. A third party contractor has been retained to conduct stack emissions testing. Sampling from the CHP reflect persistent exceedences of Project Standards for NO_x, SO_2 and particulate matter. There have been difficulties procuring a reliable limestone supply. Additional engineering works planned for the summer 2015 shutdown are anticipated to improve emissions quality.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M2.4	April 14 Desktop Audit Aug. 14 Nov.14 Desktop Audit April 15		Stack emission sampling results from the incinerator do not meet Project Standards.	II	Atmospheric Emissions Management Plan (AM06) Air Quality Monitoring Plan – Appendix C	Open	See Section 5.5.2.2. An October 2014 site visit by the manufacturer of the project incinerator noted inappropriate after-market modifications and operational practices at the unit. Recent monitoring results indicate emissions are not meeting the Project Standards, which the incinerator has been designed to meet. At the time of this audit the manufacturer is investigating the cause of emission quality exceeences and this will be reported on in the next audit report. An emissions workshop has been proposed to further training for incinerator staff on use of the unit. This has been maintained as a Level II non-conformance due to near-term plans to achieve successful operation of the incinerator. However it is noted that there are long-standing issues with incinerator operations and resultant non-compliance with emission Project Standards. This item has the potential to be escalated to a Level III non-conformance if current operational practices continue.
Environment – Emergency Preparedness & Response							
M4.2	Nov. 14 Desktop Audit April 15		The tailings dam breach analysis has not been performed to establish the potential extent and impact of failure on mine facilities, infrastructure, communities, and the environment. An Emergency Action Plan for the potential of a tailings dam failure has not been prepared.	I	Emergency Preparedness and Response Plan (ERP02, 02b, 02c)	Open	See Section 5.7.2. A draft TSF Emergency Response Plan has been developed, that establishes an emergency response coverage area extending downstream of the tailings dam, and includes a listing of key contacts (OT, community and government representatives) and a five step process of condition detection, severity classification, notification and communication, emergency actions, and termination of the emergency. The final plan must be available for implementation, and administration, training/exercise, and resource requirements defined and documented within the Business Resilience and Recovery Plan (BRRP), Site Emergency Response Plan, or other document.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environment – Biodiversity and Ecological Management							
M1.16	Oct.13 April 14 Desktop Audit Aug. 14 Nov.14 Desktop Audit April 15		Bird Flight Diverters must be "maintained as necessary to minimize wildlife mortality throughout operations".	III	Biodiversity Management Plan (B08, B09) Lender Biodiversity Action Plan (ID1) Core Biodiversity Monitoring Plan (CBMP)	Open	Section 5.9.2.1. There are ongoing problems with functioning of alternating flapper-type bird flight diverters that were installed to manage risks of birds colliding with power lines. There are incidences of mortality of species of conservation concern within critical habitat, notably Houbara Bustard, and the scale of undetected collisions remains unknown. Interpreting the significance of collisions is further compounded by lack of reliable information on the size and distribution of the affected populations. More intensive monitoring is challenging due to the low density of these species and it is not considered feasible to take corrective action (to re-fit functioning diverters) during operation. OT is therefore working with specialist consultants to develop a "Powerline Options Paper". This is expected to describe a suite of potential offset interventions to improve the resilience of affected populations or reduce collision rates on other powerlines in the region, but was not available for review in this audit. Because it is not currently possible to demonstrate with strong evidence that impacts are not significant and because impacts are continuing in critical habitat, there is considered to be a Level III non-conformance. Possible plans to discontinue monitoring should be reconsidered while impacts continue and until there is a robust strategy in place to implement offsets, together with sufficient evidence of their likely effectiveness.
M1.18	Oct.13 Apr. 14 Nov.14 Desktop Audit April 15		Ecological equivalence of Replacement BorOvoo Spring.	I	ESIA Ch B7a Table 7.1	Open	Section 5.9.3 of IESC Doc. No. 13-391-H2, Section 5.1.2.1, and issue No. M1.1. The replacement BorOvoo spring should "mimic" the characteristics of the BorOvoo spring as closely as practicable - taking into consideration the extent of inundation and catchment size, establishing vegetation and rocky outcrop habitats" (ESIA Ch B7a Table 7.1). At the time of the previous IESC audit, OT had initiated steps to define the target plant community for

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
							the replacement spring and implement field trials to research the ecological requirements of these plants. However expected progress has not been made due to further negotiations with communities regarding the final location of the replacement spring. The expected field trials have been placed on hold until a final location for the replacement spring has been confirmed. However the existing temporary spring provides good opportunities to test rehabilitation techniques in advance and to ensure that these are well established in time for implementation in the final planned location. Delaying this activity creates a potential risk that key ecological requirements of target species will not be reflected in the final design of the Spring.
M2.5	Apr. 14 Desktop Audit Aug. 14 Nov.14 Desktop Audit April 15		Installation of underpasses. Measures to maintain habitat connectivity for wide-ranging wildlife species with critical habitat affected by the Project.	II	BMP ID B16 and Annex C, ID 5	Open	Section 5.9.2.2. OT undertook to develop a workplan for installation of underpasses to include activities and timelines for stakeholder consultation, design, locations, engineering and environmental assessment consistent with expert advice. The initial workplan was due to be agreed with the Lenders by Q4 2013 (BMP Annex C, ID 5) and the proposed approach remains uncertain. Increased traffic volumes in future could make the OT-GS and other roads a functional barrier to movement of species such as Khulan and Goitered Gazelle. Current levels of traffic are not considered to create a complete barrier, but monitoring results do indicate a degree of avoidance behaviour even at these levels. Although future traffic levels may not be as high as originally envisaged, OT has committed to demonstrate best practice to manage its residual impacts on critical habitat for ungulates and other species vulnerable to barrier and disturbance effects. A meeting on this issue was held in November 2014, with a view to identifying practical measures that OT could take to ensure that habitat connectivity is maintained throughout its operations. It was agreed that under or overpasses may

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
							not be the best or most cost-effective solution and other potential solution were discussed, including carefully timed road closures. At the time of this audit, recommendations are still being developed. While it is acknowledged that OT will find it challenging to achieve NPI without collaboration with Government and other developers, potential alternative options must be developed as a matter of urgency, as impacts on affected species populations could already be occurring to a degree. Meanwhile OT has undertaken to appraise lenders of any changes in its transport strategy, particularly where there are implications for sensitive species. Monitoring of traffic levels and wildlife movements should also continue so that any emerging trends in barrier effects, or the lack thereof, can be detected.
M2.6	Apr. 14 Desktop Audit Aug. 14 Nov.14 Desktop Audit April 15		Stakeholder Engagement Plan for biodiversity and ecosystem services.	II	Biodiversity Management Plan (B05) LBAP ID 24, (BMP Annex C)	Open	Section 5.9.2.3. Stakeholder engagement underpins many biodiversity commitments and OT has committed to "substantial stakeholder engagement and consultation to ensure that its biodiversity offset programme is consistent with national conservation priorities and stakeholders' interests". OT has committed to develop a "targeted Stakeholder Engagement Plan" to ensure effective integration of biodiversity-related stakeholder engagement requirements with OT's systems. There have been ongoing delays in addressing this issue. OT has charged its Ecosystem Services Group to produce a biodiversity-related stakeholder engagement plan but this was not available for review in this audit. As recommended in previous IESC reports, in addition to producing the Stakeholder Engagement Plan, it would be advisable to complete an associated stakeholder mapping process and identify any actions needed to mainstream biodiversity commitments and requirements into the OT's internal stakeholder engagement planning systems e.g. through the SHCF or an alternative suitable mechanism (BMP B05; LBAP

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
							ID 24, BMP Annex C).
M2.7	Apr. 14 Desktop Audit Aug. 14 Nov.14 Desktop Audit April 15		Land Use Implementation Plan or equivalent.	II	LBAP ID 18c (BMP Annex C)	Open	Section 5.9.2.4. OT committed to submit a LUIP or equivalent plan to the Lenders by Q1 of 2014, with a view to presenting a clear indication of OT's proposed commitment in terms of vegetation or habitat rehabilitation. This is required to provide a framework to monitor OT's success in meeting PS 6 requirements with respect to "no net loss" of natural habitat and also OT's Biodiversity Strategy regarding net positive outcomes for priority species, including plant species. Production of the LUIP is no longer a Rio Tinto requirement and lenders approved OT's request to remove this requirement from the BMP. Discussions during the November 2014 audit resulted in a revised proposal for OT to incorporate its commitments relating to equivalence of restored vegetation into a new Land Disturbance and Rehabilitation Plan and Biological Rehabilitation Procedure. A revised timeline was agreed with lenders. Work has commenced on this, but no documents were available for review in this audit.
M2.8	Apr. 14 Desktop Audit Aug. 14 Nov. 14	Desktop Audit April 15	Procedures to implement the Illegal Wild Plants and Animal Products Policy (OT-10-E9-PLC-1001) in draft and suggested replacement Illegal Wild Plant and Animal Procedure (OT-10-E9-PRC-0005-E).	I	LBAP ID 18d (BMP Annex C)	Close	Section 5.9.2.5. The Illegal Wild Plants and Animal Products Policy (OT-10-E9-PLC-1001) included prohibition of illegal hunting, to be communicated through induction and training to all personnel, whether employees or contractors. OT submitted a request to Lenders in a formal Notice of Change (2014-006) to replace the Policy with procedures (OT-10-E9-PRC-0005-E), which identify OT's approach to management of this issue. The IESC Review of the BMP confirmed the need for OT to specify the expected frequency of checks and record the actual frequency of checks that takes place, so that the significance of any findings can be interpreted. The Notice of Change is agreed subject to required amendment. The revised procedure needs to be re-submitted for review with a revised time line of Q2 2015 as agreed with lenders in November 2014.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
							This item has been downgraded to an observation (N.33 in Section 5.9.3).
M4.3	Nov.14 Desktop Audit April 15		Measures to control disturbance of animals caused by off-road driving and any associated increases in mortality from hunting and collecting.	II	LBAP ID6 (BMP) Transport Management Plan (OT-10-C3-PLN-0001) OT Site Wide Traffic Management Plan (OT-10-C3-PRC-0005-E).	Open	Section 5.9.2.2. The ESIA identified risks to wildlife from induced increases in levels of hunting and disturbance caused away from roads by vehicles driven off-road. Lenders approved the removal of road barriers (as a solution to prevent vehicles from leaving the road), but the need for alternative recommendations to manage this issue has not been resolved. As part of its Notice of Change submitted July 2014, OT suggested the development and distribution of communication materials on the impacts of off-road driving, to be used "internally and externally with communities". OT has already carried out some initial awareness-raising in Khanbogd Soum on this basis and it is recommended that such efforts should continue as part of a targeted programme of interventions to be implemented through the Stakeholder Engagement Plan. Monitoring of the disturbance footprint caused by vehicles driven off road over time, for example as indicated by density and extent of off-road tracks detected from aerial photographs or satellite imagery remains a strong recommendation so that impacts can be appropriately attributed to the Project or other causes. The fact that off-road driving is considered to be a "cultural" practice lends further weight to the need for solutions to be found, as it increases the risk that background levels of off-road driving might escalate in the region.
M4.4	Nov.14 Desktop Audit April 15		OT undertook to develop a Biodiversity Offsets Management Plan and submit it for lender review, identifying proposed offsets and implementation mechanisms.	I	LBAP 13	Open	Section 5.9.2.6. OT undertook to develop and implement a Biodiversity Offset Management Plan, identifying options for sustainable financing, that mitigates the significant adverse impacts of the Project on critical and is sufficient to have a net positive impact over the life of the mine. A revised timeline for submission of the BOMP of Q1 2015 was agreed with

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
							lenders in November 2014. Submission of a draft is behind this schedule, but the updated "NPI forecast" is needed to allow the viability of alternative offset options to be reviewed. It is recognized that Government Policy is developing in this area and that monitoring results are needed to develop suitable interventions. However the challenge of identifying offsets that will deliver tangible biodiversity gains and the long lead-times that are likely to be required to implement them, makes it important to develop recommendations for review and discussion as soon as possible. In the previous IESC audit, OT indicated that it might re-consider establishment of an independent body or "Offsets Steering Committee" to assist with stakeholder engagement on this issue, with input from Mongolian and international biodiversity specialists. This may be particularly valuable given reduced levels of internal capacity in OT.
M4.5	Nov.14 Desktop Audit April 15		Monitoring of critical Ecosystem Services	II	LBAP 17 ESAP Item 7; Pastureland and Livelihood Improvement Strategy; RAP Entitlements Matrix	Open	Section 5.9.2.7. "Through the Ecosystem Services Group, OT undertook to implement a multi-disciplinary Monitoring and Evaluation Program for critical ecosystem services, to be designed in a collaborative manner with environmental and social specialists and integrated with social monitoring. This was to include relevant metrics and threshold values, provide a basis for adaptive management and be statistically relevant. Whilst further studies and dialogue have been completed since the last audit and progress has been made with implementation of a participatory rangeland monitoring programme, the proposed metrics and thresholds for critical services are not yet clearly established. OT should clarify how it intends to synthesise all of the pasture management, biodiversity conservation and livelihood improvement activities to ensure that these are in place for critical ecosystem services. Building on its recent biodiversity workshops and the stakeholder engagement activities envisaged through the Cooperation Agreement, OT should

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
							prepare a "road map" or similar to describe the proposed governance arrangements and timeframe for this programme and clarify responsibilities for its implementation".
Social - Labor& Working Conditions							
M2.10	April 14 Desktop Audit Aug. 14 Nov. 14	Desktop Audit April 15	Regular reporting on local content to communities is an important part of demonstrating that preferential recruitment, training and other processes are being effectively implemented. Prioritising local content is also a key mitigation measure for managing influx and therefore performance against this measure should be reported.	I	Labour Management Plan Section 5.1.2 Influx Management Plan IMPm21	Closed	Section 6.2.2. The IESC confirmed that a range of both quantitative and qualitative information has been provided in monthly community newsletter on local recruitment, training and employment.
M4.6	Nov. 14		Monitoring and auditing of contractor HR and Employee Relations (ER) performance is the responsibility of the Procurement department. A robust prequalification and audit process is in place with contractors, however, the audit process does not include sufficient HR/ER scope to assess compliance against all relevant OT requirements.	I	Labour Management Plan Sections 5.1.8 and 9.2	Open	Section 6.2.2. Revise the audit protocols for assessing contractor performance to include additional checks on HR/ER performance. Develop an audit schedule to demonstrate when these enhanced audits will be implemented with contractors. Start on Category 1 contractors and progressively implement with other contractors as relevant. Provide to Lenders/IESC for review. Ensure HR staff are involved developing the enhanced audit protocols and the audit process.
M4.7	Nov. 14	Desktop Audit April 15	The final outcomes of the mid-2014 redundancy process for OT LLC and contractors have not been adequately documented for IESC/Lenders. This makes it difficult to understand the full extent of the impacts of the collective redundancies or to assess if the HR management plan for the process was effectively implemented.	I	Labour Management Plan Sections 5.1.3, 9.1 and L04	Closed	Section 6.2.2. Whilst no formal report has been made available on the final outcomes of this redundancy process, the IESC is satisfied that it was implemented without any major issues being identified. Key data on the number of workers affected by location has been provided and a review of employee grievances do not appear to indicate any complaints related to the redundancy process.
Social –Resettlement, Compensation and Livelihoods Improvement							

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M1.23	Oct.13 April 14 Desktop Audit Aug. 14 Nov. 14 Desktop Audit April 15		An Outcome Evaluation of affected herders is a specific commitment in the Resettlement Action Plan and is due to be conducted for economically displaced and other affected herders in Khanbogd *soum*.	I	Resettlement Action Plan (Sections 10.1, 10.2 and 10.4)	Open	Section 6.3.2. An EOI for a Multi-Disciplinary Team (MDT) to conduct a study on the 2011 compensation program has now been announced by OT (the Outcome Evaluation of the 2011 compensation program is part of this study). The selection of the MDT will be discussed through the Tripartite Council and financing of the work is still being finalised. Continued persistence is required by OT with the EHT and soum to ensure this study is implemented as soon as feasible.
M3.1	Desktop Audit Aug. 14 Nov.14 Desktop Audit April 15		Assistance to vulnerable people affected by economic displacement as a result of the mining operation is a key component of the RAP. Some support measures have been provided by OT to vulnerable herder households, however, a more comprehensive vulnerable people program is yet to be implemented.	II	Resettlement Action Plan (Section 6, Table 25 -R05, R11) Stakeholder Engagement Plan (SEP14)	Open	Section 6.3.2.4. Finalise the vulnerable people assistance action plan based on suggestions made by the IESC. Ensure that the OT contributions proposed are specific and focused on facilitating income generation and diversification opportunities for the households. Implement the vulnerable people program and initiate regular monitoring of vulnerable herder households.
M3.2	Desktop Audit Aug. 14 Nov. 14 Desktop Audit April 15		The well rehabilitation program, supplemental fodder distribution, grazing access inside OT fence and others have contributed towards OT's commitment to implement a sustainable pastureland management program.[10] However, a review of these projects and participation by herders has identified the need for additional small scale enterprise development and income diversification opportunities for Khanbogd *soum* herders.	I	Resettlement Action Plan (Section 5)	Open	Section 6.3.2.3. Continue to implement the opportunities for small scale enterprise development and income diversification and other livelihood assistance for Khanbogd soum herders. Implementation of the planned access to credit, second phase camel shearing project, animal health project and cooperative support for herder families will be appropriate to fulfil OT's commitments to a sustainable pastureland management program.

[10] *As described in Section 5.4 of the Resettlement Action Plan.*

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Social – Stakeholder Engagement							
M2.11	April 14 Nov. 14 Desktop Audit April 15		A general Undai River community consultation plan was developed for the ESIA and included in the Stakeholder Engagement Plan (Annex E). Given the highly sensitive nature of the Undai River diversion project and the complex range of stakeholders, studies and issues, it is essential the community and other engagement on this topic is well coordinated.	II	Stakeholder Engagement Plan Annex E, SEP05	Open	Section 6.4.2. An Undai River specific engagement plan has now been drafted by OT. The Independent Expert Panel (IEP) study commissioned by the EHT-CAO-OT process has been finalized and this forms the basis of the draft plan. The draft is a good start and if some further information and an action plan are included it should satisfy the requirement for a topic-specific engagement plan for the Undai. The IESC will review the final version for the next audit.

4 HEALTH, SAFETY, ENVIRONMENT AND SOCIAL PERFORMANCE MANAGEMENT SYSTEMS

Environmental and social management for the OT Project has been defined through a series of interlinked processes and documents. The first tier of these is the Framework Document – Environmental and Social Management Plan[11] (ESMP), Biodiversity Management Plan (BMP), and associated Operational Management Plans (OMPs). Additionally, the Pastureland and Livelihood Development Strategy document also provides commitments for the Communities and Social Performance team. These documents have been developed, reviewed and approved by the Project, Lenders and independent consultant. These management plans integrate the results of the Project ESIA and the Lenders' requirements, as well as cite relevant Mongolian laws and standards.

Specific measures to comply with the operational management plans have also been summarized in the ESAP, which has been prepared by the Project.

The OT Project has reviewed and updated its Biodiversity Management Plan and it is now fully integrated with the OT HSE Management System. It articulates all of the Project's biodiversity mitigation and offset objectives, actions and targets. In addition to the management controls specified in its Operations BMP, OT has committed to a number of biodiversity management activities specifically required to meet Lender Standards. Final amendments to timelines and deliverables related to these activities are being made, based on IESC recommendations following review of the updated BMP in November 2014. Results from the Project's pilot monitoring phase have been used to design a further 5 year monitoring programme. The Biodiversity Offset Management Plan is still under development. In support of the OMPs, other specific implementation plans, procedures, guidelines and policy documents have been prepared for implementation of management controls.

4.1 PROJECT STRATEGY

The Health, Safety and Environment Management System (HSE MS) framework for the OT Project is governed by the RT HSEQ MS, which is a mature system aligned with ISO 9001, ISO 14001, and OSHAS 18001 requirements and which is applied across the RT group. The Communities and Social Performance Management System (CSP MS) shares some elements with the HSE MS but is governed by the RT Communities Standards. These Management Systems were developed to manage the Project in compliance with RT, Mongolian and Lender requirements. OT's Management Systems document key components of how OT manages HSE including key management controls, performance indicators, and monitoring measures.

The OT ESMP is consistent with the RT standards, and reflects the identification and assessment of impacts and risks detailed in the integrated OT ESIA. The ESMP describes how the mitigation measures that have been identified to minimize the significant residual environmental and social impacts and risks have been incorporated into the HSE MS and CSP MS.

The Operations Management Plans (IESC March-April 2014 site visit report, Doc. No. 13-391-H2, Table 4.1) are based on the ESIA incorporating Lender requirements (mainly Performance Standards from the IFC, and Performance Requirements from the EBRD) as well as Mongolian laws and standards. The OMPs reference key implementation documents that provide additional guidance and procedures for management control, system performance or monitoring. The Pastureland and Livelihood Improvement Strategy is a key guidance document for the Communities and Social Performance (CSP) department[12], and addresses how interactions and competing interests with wildlife conservation of the same land areas as rangeland will be coordinated and resolved.

In April 2015 OT signed a Cooperation Agreement with the *Umnugobi* and *Khanbogd* authorities. The Cooperation Agreement defines the long-term[13] contribution from the OT operation to the people of *Umnugobi* and *Khanbogd*. There are seven thematic areas for cooperation and these will be funded through a Development Support Fund (DSF) which OT will make a financial contribution to each year.

11 *Environmental and Social Management Plan – Doc. No.OT-10-PLN-0003 dated01.09.2013.*

12 *Formerly known as the Regional Development and Social Performance department.*

13 *The Cooperation Agreement term is the same as the OT mining license (until 2033) and is extendable.*

4.2 OBSERVATIONS

4.2.1 Status of OMPs

There have been several updates to OMPs and as relevant these have been accompanied with a "Notice of Change" notification to Lenders (see also Section 0). Specific revisions to OMPs are discussed in the corresponding sections of this report. One OMP is currently under revision, the Resettlement Action Plan, and the notice of change is being considered by Lenders. The Stakeholder Engagement Plan is also understood to have been revised by the CSP department, and it is understood that this will be submitted to Lenders/IESC for formal review around July 2015.

4.2.2 Development of Contractor Management Plans

The Contractor Management Framework document is part of the suite of OMPs to ensure contractors and suppliers involved in the project's operations implement OT standards and other requirements. Observations regarding contractor management and coordination are addressed in the associated sections of this report. The supplier prequalification and audit process is designed to ensure that contractors can meet the Project standards. OT classifies contractors into exposure/risk and qualification levels, with audits scheduled annually for contractors engaged in medium to high risk activities. Qualifications questions focus on core criteria critical to OT's operations, resources, and performance history.

Contractor monitoring is performed as part of the Manage the Work process documented in the Contractor Management Framework, and includes conformance with Contractor HSE Management plans and OT General Conditions, preparing a monthly Performance Scorecard, and medical examinations as required. The Contractor Performance Scorecard and Improvement Plan is prepared by the OT supervisor and covers areas of health, safety, environment, management compliance and KPIs using an established scoring system which is shared with the contractor representative. Contractor Safety Forums are periodically conducted to reinforce safety initiatives and make presentations to leadership and safety officers for contractors. The October 2014 forum included information on the OT Critical Risk Management Program, including listings of critical risks and verification forms.

4.2.3 Organization and Staffing

The HSE department includes three key manager positions under the general manager which are fully staffed by personnel with experience in: HSE Risk and Management Systems; a Health and Safety; Environmental and Biodiversity. Each key manager position is supported by a team of professionals at a size appropriate to the team responsibilities. In addition to the structured leadership skills programs, personnel capabilities are regularly evaluated and cultivated under coaching and mentoring programs. The team is also supported by a number of high capacity consultants including Sustainability East Asia for environmental support and Groundwater Management Solutions for hydrogeological support.

The CSP department includes two key manager positions under the general manager. These positions are still staffed by personnel with experience in Community Assistance and Partnership, and Compliance and Governance. The Community Assistance and Partnership stream incorporates community relations and all local level programs in target communities including cultural heritage, community health and safety, local business and economic development, herder livelihoods and pastureland improvement. The Compliance and Governance work stream covers monitoring and evaluation, social strategy, cooperation agreement and social investment. Each manager position is supported by a number of staff and the total CSP team currently comprises 39 members. In early 2015 further restructuring at OT resulted in the CSP department now reporting directly to the Chief Operating Officer (COO), rather than the Vice President of Communications. This is a reflection of the importance of the role of the CSP team in preparation and implementation of the Cooperation Agreement, as well as the management of the Compliance Advisor Ombudsman (CAO) process.

A key role for implementing the BMP is the role of Manager Environment and Biodiversity. The role of "Principal Advisor, Biodiversity Offsets" has been merged with this role. The team is supported by external consultants and partners including: The Biodiversity Consultancy (TBC) and the Wildlife Conservation Society. Key interfaces are clearly identified in the OT BMP as well as responsibilities of all employees and contractors.

4.2.4 Management of Change

An internal OT Management of Change (MoC) process is described in the ESMP and is applicable for instances of significant changes in Project operations. To determine if an internal MoC is required OT evaluates a proposed change using an internal Change Assessment and Management Guideline. The results of this internal evaluation determine if implementation of a formal internal MoC is required, or if the proposed modification represents normal and/or minor modifications expected during routine operations. All employees and contractors are trained to identify what constitutes a change and how to initiate the internal MoC process.

For instances in which a material change to the ESIA is required, including modification to Project Standards or Management Plans, the Project Lenders will be notified and consulted in accordance with the requirements of Table 3 of the ESMP. This external communication is referred to in this audit report as the ESIA MoC process. Although the two described processes (i.e. OT MoC process and the ESIA MoC process) have similar terminology they are distinct in that the internal MoC process is internal to OT, whereas the ESIA MoC process includes notification and consultation with external stakeholders.

The ESIA MoC procedure has been implemented by the Project, including the requisite Lender Group change notification requirement. Each "Notice of Change" submitted by OT to the Lenders outlines the description of the proposed change, reason for change, assessments undertaken and any mitigation required. Per clause 30.18 of Common Terms of Agreement if no objection notice is received by OT within 20 days from the date of submission of a Notice of Change the MoC process is completed and the ESIA updated accordingly.

The Notice of Change requests submitted to the Lenders, to date, and their current approval status are listed in the table below.

Table 4.1: Project Notice of Change

Notice of Change No.	Notice of Change Title	Date of Submission to Senior E&S Representative	Status
2014-001	Update Descriptions for the Undai River Diversion Project	20 May 2014	Rejected. Undai River Workshop performed on November 2014 to address
2014-002	Update Water Quality Testing Parameters of Water Monitoring Plan	24 June 2014	Accepted
2014-003	Update Shaft 1 Waste Rock Dump Disposition	30 June 2014	Accepted
2014-004	Update Ongoing Underground Mine Waste Rock Dump Disposition	30 June 2014	Accepted
2014-005	Update Spill Response Procedure	11 August 2014	Accepted
2014-006	Update to Biodiversity Management Plan and Annex C Biodiversity Action Plan ESIA Chapter C6	19 July 2014	Approved subject to minor amendments. Timeframes have been discussed and agreed with Lenders but the updated BMP has not yet been issued.
2014-007	Update Lender BAP Commitment Regarding Barriers along OT Roads (Biodiversity Management Plan Annex C id 6 Off road traffic)	06 July 2014	Lenders approved removal of the measure to install barriers and alternative solutions are still under discussion.

Notice of Change No.	Notice of Change Title	Date of Submission to Senior E&S Representative	Status
2014-008	Update of Water Monitoring Plan	12 November 2014	Accepted
2014-008	Update to Air Quality Monitoring Plan	16 January 2015	Accepted
2015-01	Update of Resettlement Action Plan	13 May 2015	Under review. Objection notice raised and OT preparing a response.
2015-02	Update to Supplementary Memorandum: Oyu Tolgoi to Gashuun Sukhait Road	20 May 2015	Accepted

Additional information on the submitted MoCs is contained in relevant sections of this report.

4.2.5 Monitoring and Reporting

Annual reports are prepared for submittal to the Mongolian government, and the 2014 report is nearing completion for submittal. Quarterly Environmental and Social Updates have been prepared as quarterly reports on the Project which summarize activities and progress on initiatives in each OMP. The Q1 2015 quarterly report is under preparation. These reports provide a valuable record on the focus of activities and will be useful for advance review in future audits. Additionally, the HSE Monthly Report summarizes incidents, including classification and descriptions, and addresses health, safety, environment, biodiversity, and risk management activities completed in the previous month and planned for the succeeding month. The March 2015 monthly report has been submitted by OT to the ESIA as part of documents for review. .

4.3 FINDINGS AND OBSERVATIONS

Findings – HSE and CSP Management Systems

Nil

Observations– HSE and CSP Management Systems

1. Complete the revision of the RAP in accordance with Lender and IESC responses in this report and to the notice of change;
2. Finalize the Stakeholder Engagement Plan of the CSP department as intended and submit to Lenders/IESC for formal review through the MoC process;
3. Ensure levels of expertise and capacity to implement the OMPs commitments are maintained when key expats leave the Project;
4. The merging of biodiversity-related technical and leadership roles could have implications for implementation of the BMP and contravenes Lender commitments.

5 ENVIRONMENT

5.1 WATER AND WASTEWATER MANAGEMENT

5.1.1 Project Strategy

Chapter C5 of the OT ESIA describes the potential environmental and social impacts related to surface and groundwater resources which could result from the construction and operation of the project. The general strategy for management of water resources, including the management of effluent streams, is described in the Operations Phase Water Resources Management Plan[14] (WRMP). This management plan cross-links with other management plans that have water resources implications. Water resource related aspects of these associated management plans are briefly summarized below:

- the Community Health Safety and Security Management Plan, in relation to potential impacts on surface and groundwater resources used by herders or the local communities;
- the Emergency Preparedness Response Plan, in relation to accidental contamination of surface and groundwater resources;
- the Mineral Waste Management Plan, in relation to waste rock management and the protection of surface and groundwater;
- the Stakeholder Engagement Plan, in relation to potential impacts on surface and groundwater resources used by herders or the local communities;
- Hazardous Materials Management Plan, in relation to control of potential contamination of surface and ground waters;
- Biodiversity Management Plan, in relation to potential impacts on springs and shallow water resources utilized by wildlife and flora; and
- Influx Management Plan, in relation to water requirements for Khanbogd, and OT's support in the identification of a suitable groundwater supply for this community.

The intent of the WRMP is to ensure efficient, safe and sustainable management and protection of limited water resources by OT departments and their contractors. The WRMP encompasses all water used by OT from the point of abstraction through its loss from the system, either within the tailings management facility or elsewhere, and emphasises the need to maximize the recycling of water to minimize volumes abstracted from local aquifers. The principal implementation procedure of the WRMP is the OT Water Monitoring Plan[15] (WMP). This WMP outlines the protocol for gathering and interpretation of data related to potential surface and groundwater impacts, as well as geomorphology impacts associated with erosion. Both the WRMP and WMP include information on the monitoring of potential impacts to the Undai River system. The WMP presents methodologies for data assessment, including criteria to be used for development of any necessary mitigations or adaptive management changes.

The ESIA MoC procedure, as identified in the ESMP, was implemented by the Project on May 20, 2014 (Notice of Change 2014-001), including the Lender Group change notification requirement. The submitted Notice of Change 2014-001 was not accepted by the Lenders as a detailed technical review of available information was pending. This detailed technical water review took place in November, 2014 resulting in more thorough understanding of the current Undai River Partial Adjustment and Protection Project. More information on the detailed technical water review is contained in Section 5.1.2.3. Notice of Change 2014-008 was executed in December 2014, authorizing changes to the Water Monitoring Plan as a result of an annual efficiency review.

5.1.2 Observations

Findings in this section are based on a review of information provided in an electronic data room and correspondence with Environment department staff. No site visit was undertaken. Monitoring data related to water resources are compiled in internal quarterly Environmental Management Reports that are intended to inform management of any developing trends in environmental performance of the project, and help guide any resultant initiatives. Data from the quarterly Environmental Management reports are

14 *Water Resources Management Plan - Doc. No. OT-10-E10-PLN-0001 dated 01.09.2013.*

15 *OyuTolgoi Water Monitoring Plan – Doc. No. U25Z\015e dated 09.09.2013.*

consolidated in an Annual Report on the Implementation of the Environmental Protection Plan. This latter report is submitted to the Mongolian Ministry for Environment, Green Development and Tourism. Results of the Annual report, in conjunction with the environmental protection and monitoring requirements derived from the DEIAs and ESIA, are used to guide the following year's Environmental Protection Plan and Monitoring Program.

5.1.2.1 Undai River Partial Adjustment and Protection Project

Of foremost concern to OT are impacts to the Undai River system, including those to both surface water and groundwater resources. Commitments from construction phase management plans include implementation of mitigation measures in the event impacts to Undai River subsurface alluvial flows are realized. Historic water level data reflect localized impacts to the Undai River system, partially as a result of open pit development and usage of construction camp water supply wells (now no longer in use). Potential impacts of open pit development were evaluated in the Project ESIA and an Undai River Diversion Project was developed to re-route both ephemeral surface flow and continuous subsurface flow around the zone of influence of the open pit. Final engineering details of the Undai River Diversion Project are presented in the 2011 OT Project River Diversion Detailed Design Report – Final, as referenced in the ESIA. However there are some existing contradictions within the ESIA regarding the ultimate final design of the Undai River Diversion Project, as described later in this section.

OT has been unable to implement the entirety of the planned Undai River Diversion Project, which has been indefinitely delayed due to lack of a required Land Use Permit. The lack of the requisite Land Use Permit prohibits construction activity from taking place outside of the Mine License Area (MLA). Due to this constraint OT has completed construction activities within the MLA, including modifications to the Undai River Diversion Project to allow routing of surface and subsurface river flows around the open pit zone of influence (Phase 1 activities). OT plans to complete components of the Undai River Diversion Project outside of the MLA (Phase 2 activities) when the necessary Land Use Permit is issued, and upon finalization of on-going consultations with local herders. To address this division of works OT has to date implemented a new "Undai River Partial Adjustment and Protection Project", which consists of the Undai River Diversion project separated into Phase 1 and Phase 2 activities. The Undai River Partial Adjustment and Protection Project was undertaken as an interim measure until such time as the full Undai River Diversion can be completed in its entirety.

Phase 1 of the Undai River Partial Adjustment and Protection Project was completed in September 2013. Components of Phase 1 include completion of upstream (northern) and downstream (southern) Undai River channel cut-off dams. These dams are designed to prevent groundwater and occasional flood waters from entering the open pit, and to help prevent any off-site migration of contamination. A surface flood diversion channel has been constructed to convey flood waters from the upgradient (northern) cut-off dam to an adjacent "Western Channel" alluvial system. From the Western Channel flood waters merge with the Brown Hill River which eventually rejoins the Undai River approximately 4 km downstream of the OT mine site. No significant flood events have occurred in the Undai River since the construction of the surface flood diversion channel, although a limited flood event was retained behind the northern cut-off dam during construction (June 2013).

In addition to the surface water diversion a groundwater diversion system has been constructed to capture groundwater flow upgradient of the northern cut-off dam, and to convey these waters via a buried pipeline to a location in the Undai River alluvial channel just within the MLA. When and if the requisite Land Use Permit is issued, and upon finalization of on-going consultations with local herders, OT plans to complete the outstanding components of Undai River Diversion Project including discharge of diverted groundwater flow to a location approximately 400 meters south of the MLA.

The two groundwater intake bores upgradient of the north cut-off dam are functioning as anticipated. There has been no ponding of groundwater upstream of the northern cut-off dam which would suggest that groundwater is successfully captured for diversion. The discharge location of diverted groundwater is to outfall bores located just within the southern fence line of the MLA. The 2011 OT Project River Diversion Detailed Design report describes the routing of subsurface flow to a "splitter box", from which flow would surface during the summer months to create an artificial spring. This spring was designed to have features that replicate the original BorOvoo spring. During the winter months the artificial spring was designed to freeze, forcing diverted subsurface flow to infiltrate Undai River sands and gravel at a lower level and below the depth of freezing (i.e., without surface expression).

It should be noted that the ESIA describes conflicting criteria for both the intake and outfall designs of the groundwater diversion system. Specifically, Chapter C5, Section 5.4.4 of the ESIA describes:

- "*a perforated section of pipe extending across the width of the river at both the upstream and downstream ends of the [groundwater diversion] pipeline. The pipeline incorporates a self-flushing system, and the perforations comprise a series of 50 mm diameter inlets instead of slots to provide adequate hydraulic capacity";* and
- *"a gravel zone with a cobble core (nominal 150 mm) surrounding the perforated section of pipe; the zone would have a permeability substantially greater than the 10^{-4} m/s of the alluvium*".

However, the same section also describes the aforementioned "splitter box" design, which consists of a vertical outfall bore instead of the horizontal configuration described above.

Similar contradictory language is provided in Section A4.11.2 of the ESIA which describes:

- "*The inflows and outflows [of the groundwater diversion pipeline] will be through a perforated pipe extending across the width of the river with 50 mm diameter inlets. This will have a gravel packer with a higher hydraulic conductivity than the alluvial sediments and the inlet will be set into the base of the sediments to ensure it captures all flow in the sediment. The gravel pack will be encased in a filter to minimise sediment load in the pipe*."

It is important to note that the ESIA and the *OT Project River Diversion Detailed Design Report* were both completed in 2011, prior to development of a full understanding of the nature of the Undai River alluvial system and in particular the behaviour of the groundwater flow regime. A more precise understanding of the system was presented in a 2013 report entitled *Oyu Tolgoi: Hydrogeological Conditions Near the Mine Site.* Two key findings from this report are as follows:

- prior to completion of any Undai River Diversion works alluvial groundwater flow between the upstream (northern) and downstream (southern) Undai River channel cut-off dams naturally "leaked" or recharged the weathered bedrock unit that underlies the Undai River shallow alluvium unit. This connectivity between units is principally constrained to an area of the Undai River channel located near the active open pit, between the mapped Western BAT and Solongo Faults; and
- the thickness of the Undai River channel alluvial unit decreases from approximately 5 – 6 meters at the location of the northern cut-off dam location to approximately 2 meters immediately below the southern cut-off dam location. This effectively decreases the capacity of the alluvial unit below the southern cut-off dam to receive diverted groundwater and return it to the subsurface, as described in the ESIA.

Within the MLA much of the groundwater flow in the Undai River system historically "leaked" into the underlying weathered bedrock unit in the vicinity of the open pit, and therefore did not continue to flow down gradient in alluvial sediments. Current seepage to the open pit, estimated at approximately 5 L/s, is derived primarily from remnant storage in the underlying weathered bedrock unit. Leakage from alluvial sediments, estimated at less than 1 l/s, will continue to diminish as the alluvial sediments from the reach of the river between the northern and southern cut-off dam locations have been isolated in the overall Undai River system and therefore do not receive recharge. The Undai River Diversion Partial Adjustment and Protection Project should theoretically result in an increase in the volume of alluvial flow available south of the MLA, as this flow is now not subject to leakage in the vicinity of Western BAT and Solongo Faults.

5.1.2.2 Current Undai River Partial Adjustment and Protection Project System Performance

Regardless of the specifics of design criteria the current outfall bores are not performing as anticipated. The two outfall bores consist of the intended injection well (the "Undai Diversion Discharge Well") and an adjacent well used for dewatering purposes during construction of the southern cut-off dam. The Undai Diversion Discharge Well was intended to be the sole source of recharge of diverted groundwater back to the subsurface. Instead some flow from the subsurface diversion pipeline is travelling up the gravel packs of Undai Diversion Discharge Well and adjacent dewatering well and then flowing at the surface. This is likely due to a combination of several factors:

- the presence of a thin unsaturated zone immediately below the southern cut-off dam, ranging from only 0.96 to 1.2 m below ground surface (reflecting a limited storage capacity);

- permeability of receiving alluvial sediments downgradient of the MLA; and
- the possibility that the current rate of diverted groundwater flow at the outfall location exceeds the historical rate of groundwater flow in the alluvial channel of the Undai River at this same location.

An in-line flow meter was installed in the groundwater diversion pipeline in May 2014. Data obtained since that time is provided in Figure 5.1. Data collected to date provide an average diverted groundwater flow rate, as shown in the blue trend, of approximately 0.91 l/s. There has been a recent declining trend in diverted groundwater flow, which has gradually approached 0.5 l/s during the winter months.

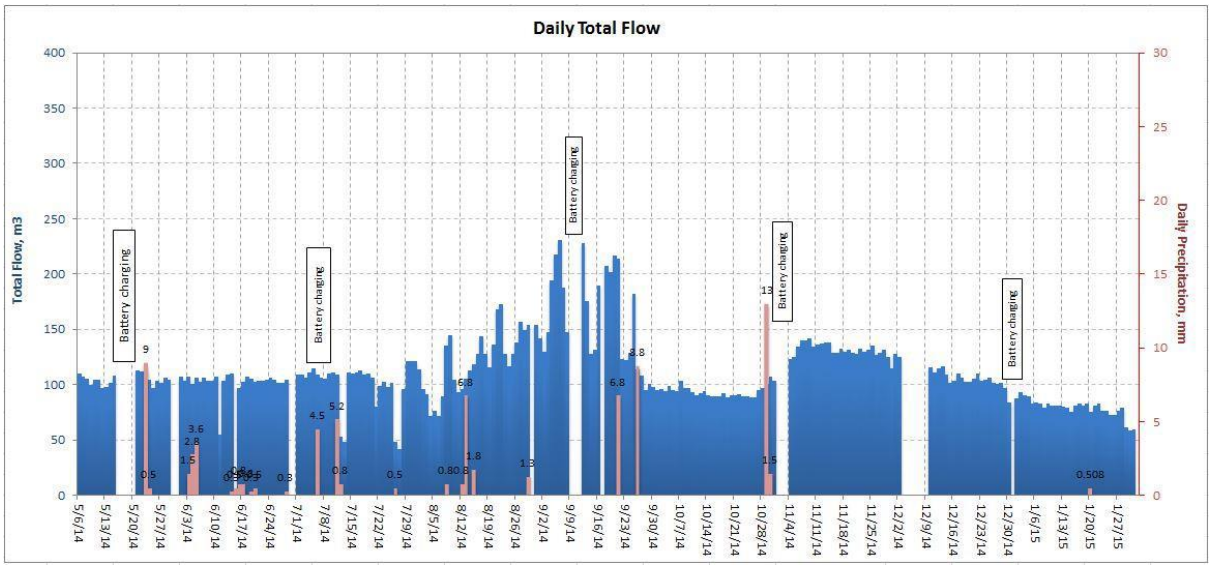

Figure 5.1: Surface Flow Measurements as Recorded at Constructed V-Notch 1 and V-Notch 2

Since September 2013 OT has monitored surface flow rate via a constructed V-notch at the outfall bore location This rate has historically been as high as 1.2 l/s; however recent data show a stabilizing trend at approximately 0.35 l/s (Figure 5.2). This is consistent with past observations that some percentage of diverted groundwater flow is returned to the subsurface as originally intended, with the balance of diverted groundwater manifesting as surface flow. During winter months water discharged to the ground surface and freezes, forming an expanding ice sheet.

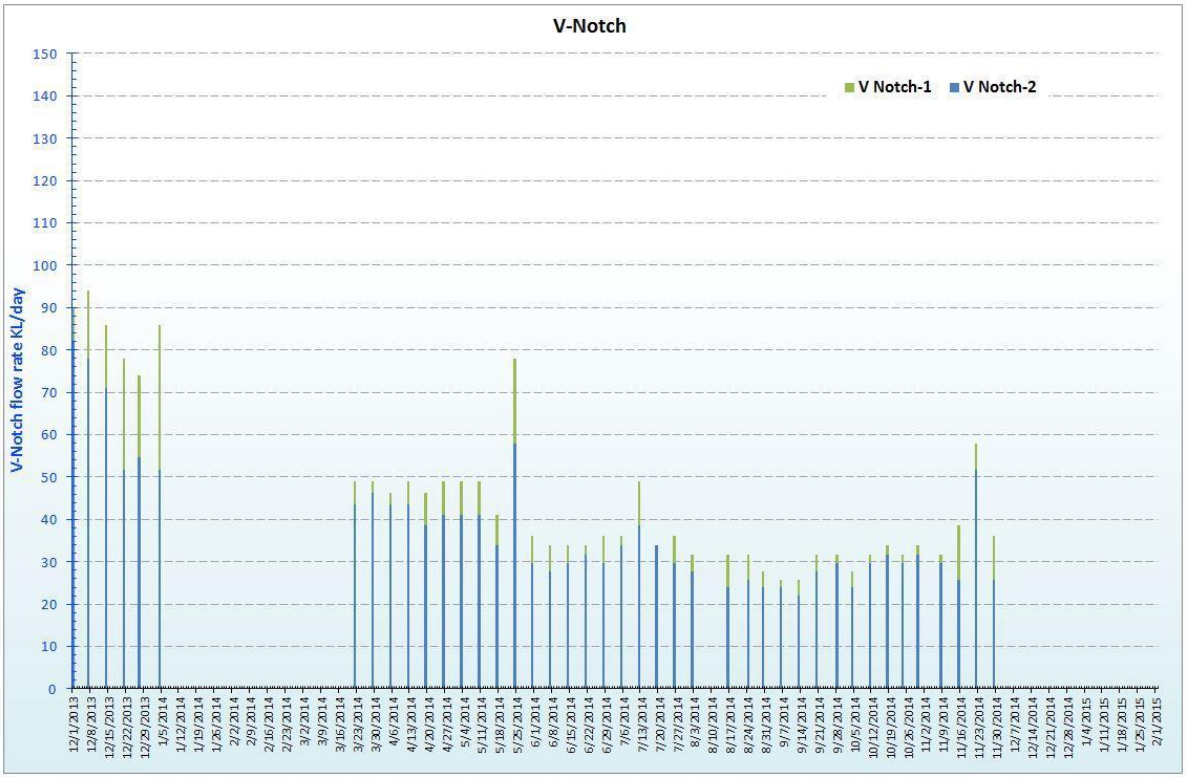

Figure 5.2: Surface Flow Measurements as Recorded at the Constructed V-Notch

A picture of the V-notch inundation that occurs during winter months, as a result of the expanding ice sheet, is shown as Figure 5.3.

Figure 5.3: Inundation of Surface Flow Measurement Point by Ice Sheet

Although not intended the surface flow at the MLA fence line has created an artificial spring that is used by wildlife as well as herders and their livestock. As of March 2015 an ice sheet has formed of approximately 6,700 m^2 in surface area (Figures 5.4 and 5.5). The formation of an ice sheet is consistent with the system behaviour observed during the winter of 2014. However, the absolute size of this year's ice sheet is

approximately 1/3rd that of 2014, which may correspond to the decreased flow rates observed in the groundwater diversion pipeline.

The 2011 *OT Project River Diversion Detailed Design Report – Final* estimated the surface area of the historic BorOvoo Spring at approximately 40 m^2. The surface area and morphology of the newly created spring is variable dependent on climatic factors and principally freezing and thawing cycles. Groundwater diverted during winter months "perches" on the frozen ground during winter months, with this water gradually freezing and creating an expanding ice sheet. In the spring this accumulated ice thaws resulting in a slug of water entering the system which in turn causes a temporary rise in water levels.

A monitoring point in the Undai River channel is located approximately 400 meters to the south of the southern cut-off dam (OTMB11-45). The alluvium immediately below the southern cut-off dam is relatively thin (2 – 3 m), although there is a limited data set with which to make conclusive determinations on the overall thickness of alluvial sediments for a broad reach below the MLA. Available information for alluvium thickness below the MLA consists of data retrieved from boring logs at one location within the alluvial channel (at OTMB 11-22/23/45).

Figure 5.4: February 2015 Extent of Artificial Spring (ice sheet) below the MLA.

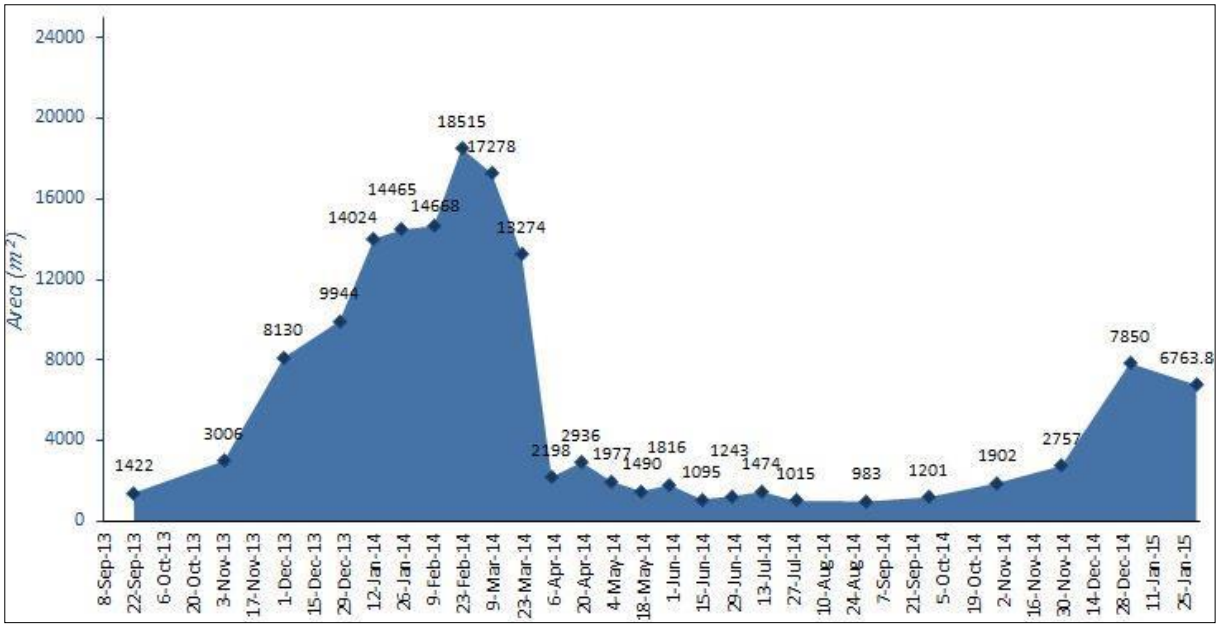

Figure 5.5: Surface Area over Time of Spring created below the MLA. Note decreased Surface Area of 2015 Ice Sheet

Quarterly reviews are undertaken by the Environmental department to evaluate the monthly monitoring data collected with respect to the Undai River Partial Adjustment and Protection Project. Available monitoring data from OTMB 11-45 is presented in Figure 5.6 (from May 2012 – current). A sharp increase in water level is observed beginning in April 2013 at the initiation of construction works. At that time subsurface flow from the Undai River alluvial channel was diverted up-gradient of the northern cut-off dam, routed through a subterranean pipeline, and ultimately discharged through an overland hose to the Undai River alluvial surface at a location just south of the MLA. Initial dewatering discharge rates during construction were approximately 6 l/s, peaking at approximately 54 l/s in May, 2013. There were also multiple precipitation events during the summer/autumn construction season.

A spring 2014 increase in OTMB 11-45 water levels likely reflects thawing of surface ice which created a temporary slug of additional recharge to the alluvial aquifer. Data from summer of 2014 through present reflect stabilization of groundwater levels at approximately 1 meter below ground surface. It is expected that spring thaw will result in a slug of recharge to the system.

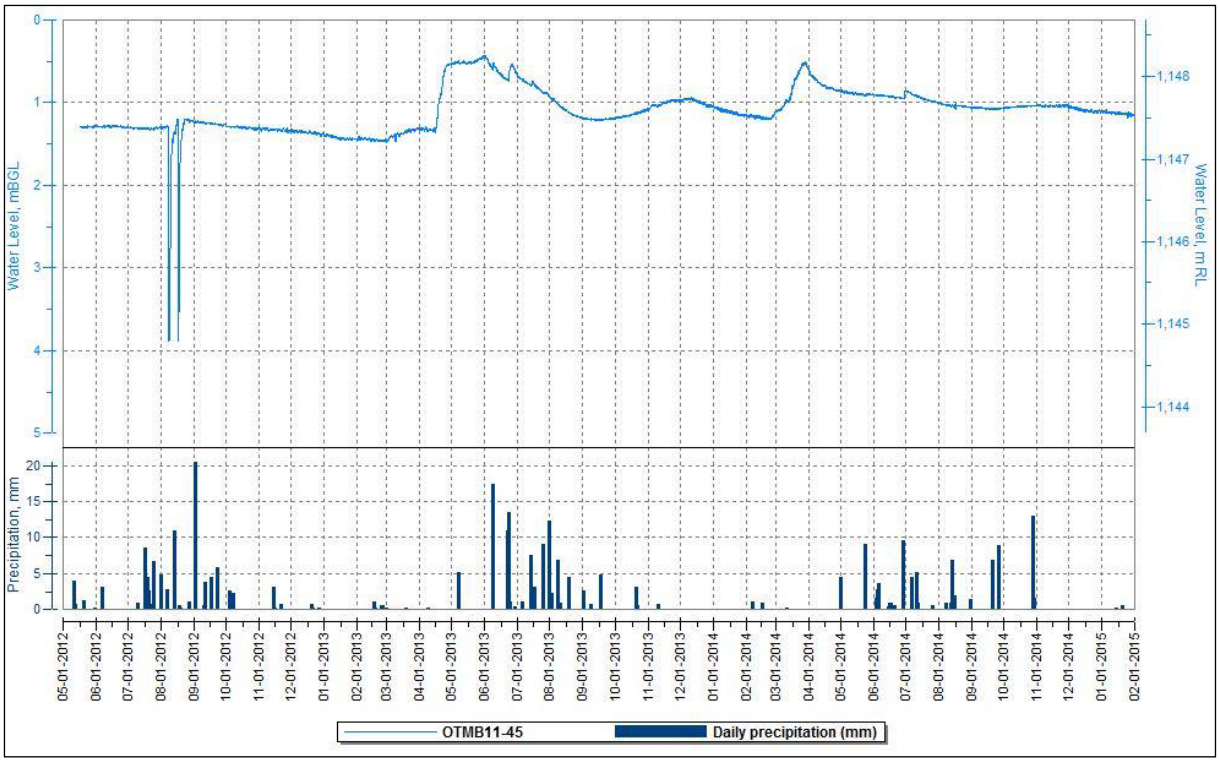

Figure 5.6: OMB11-45 - Water Level Data (May, 2012 – January, 2015)

The next established monitoring point down gradient of OMB 11-45 is the Khuhk Khad herder well, which is about 1.4 deep and located approximately 4 km south of the MLA. Available water level depth data for this spring are shown in Figure 5.7. The data set is somewhat limited and variable due to herder usage, gaps in record keeping, and the difficulty in obtaining valid measurements during the winter months due to freezing conditions. A picture of the herder well is shown as Figure 5.8.

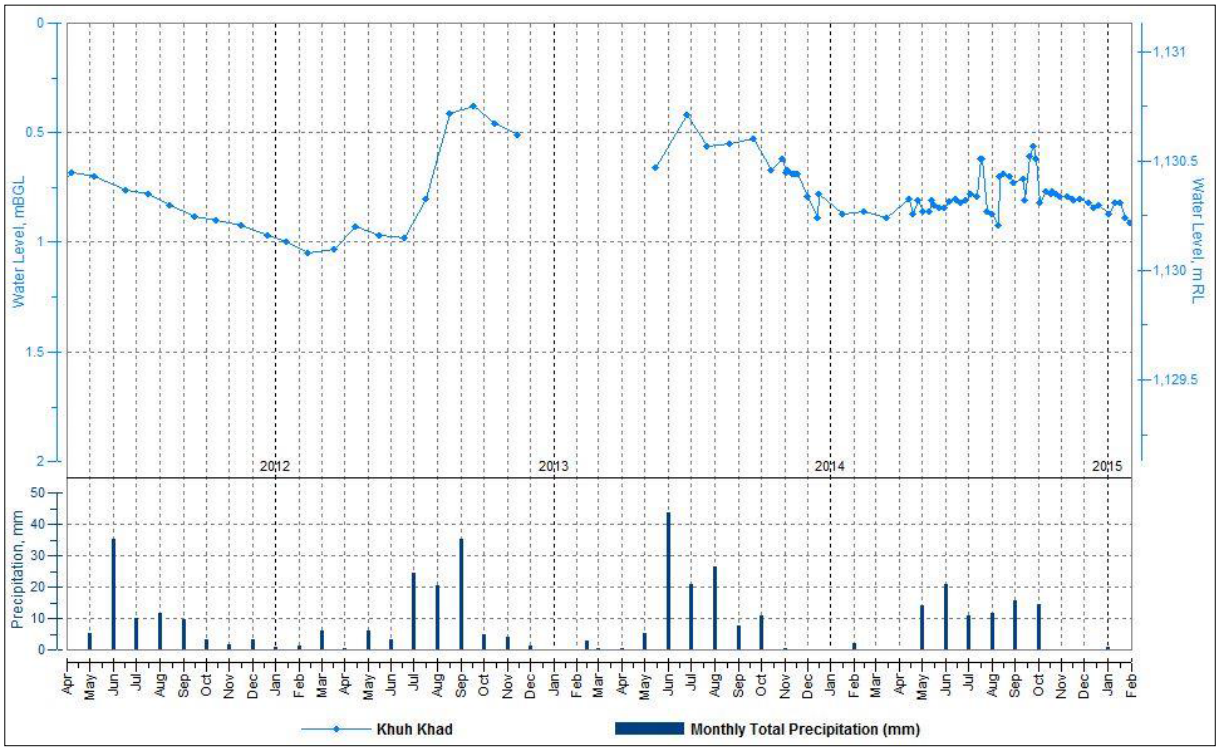

Figure 5.7: Water Level Data from KhuhKhad (May, 2012 – February, 2015)

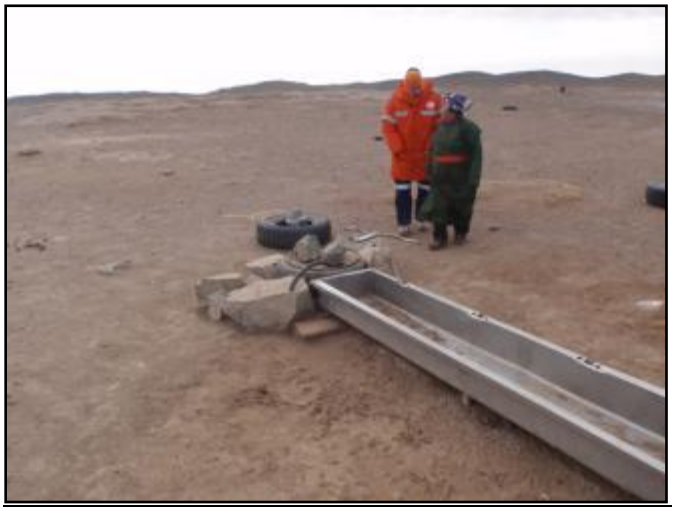

Figure 5.8: OT Staff with Herder at the Khuhk Khad (Autumn, 2015)

Beyond the Khuh Khad herder well the next shallow alluvial monitoring points in the Undai River channel are OTMB 11-22/OTMB 11-23, both located approximately 5 km south of the MLA. These data points are located below the confluence of the Undai River with the Brown Hill River, and are therefore subject to recharge from regional flood events. Data from the OTMB11-22 well, which exhibits a similar response trend to OTMB11-23, are shown on Figure 5.9.

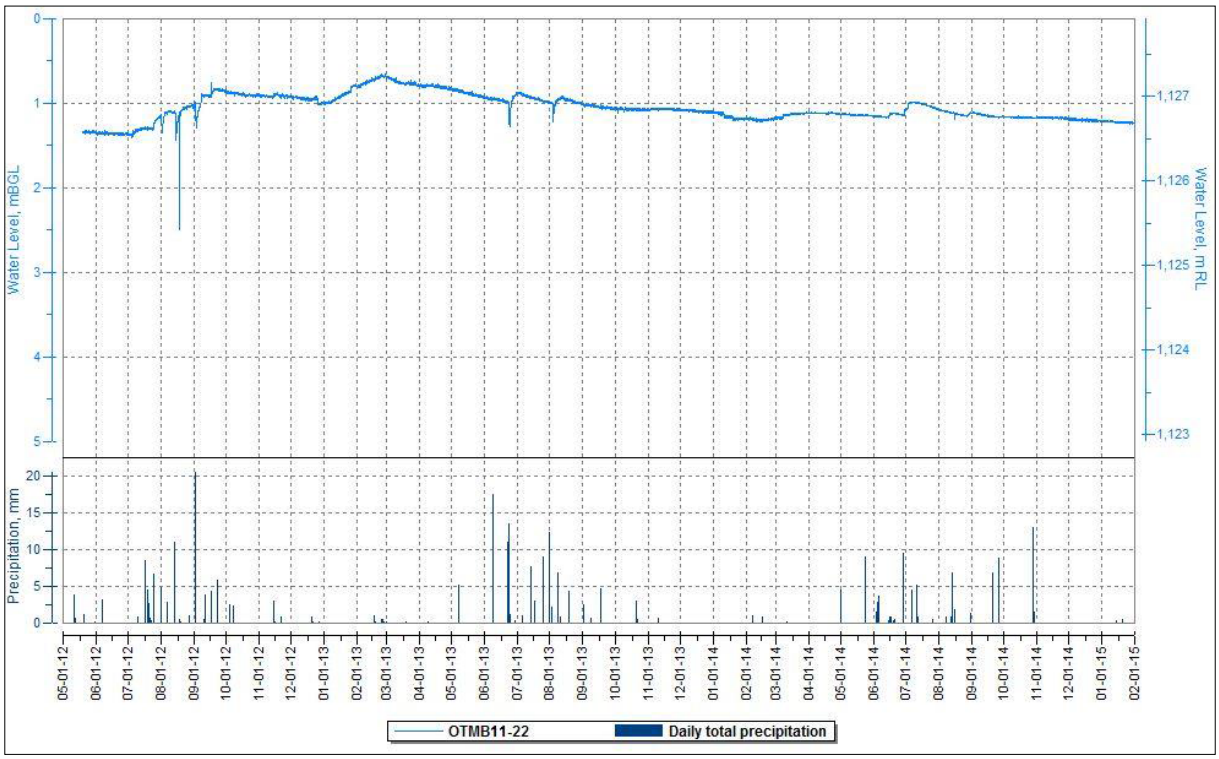

Figure 5.9: Water Level Data from OTMB 11-22 (May, 2012 – February, 2015)

OT has implemented monthly water quality monitoring at the surface spring created south of the MLA. Sampling results demonstrate general conformance with the Mongolian Drinking Water Standards (MNS 900-2005), with the exception of lead (0.1 mg/L relatives to regulatory limit of 0.01 mg/L). Table 5.1 shows Total Dissolved Solid (TDS) and Electrical Conductivity (EC) values that are lower than those associated with the original Bor Ovoo spring, suggesting overall improvement in surface water quality.

Table 5.1: General WaterQuality of Original BorOvoo Spring Relative to Current Interim Spring

Parameter	Original BorOvoo spring	Current Interim Spring South of the MLA (1)
Total Disolved Solids (TDS) – in mg/L	470 (2)	246
Electrical Conductivity (EC) – in mS/cm	1.5	0.379

(1) *from January, 2015 sampling*

(2) *Based on two laboratory results; possibly historically higher based on typical TDS/EC correlation factors in mine site groundwater and surface waters.*

The pH of the current spring can vary down gradient to the point of infiltration. 2014 sampling of pH values showed an increase from 8.16 at the discharge point to 9.74 at the point of infiltration. Total Dissolved Solid and EC values also showed an increase of approximately 10 percent. This geochemical behavior likely reflects significant use of the spring by livestock, especially Bactrian camel, as well as endemic species. In addition although evaporative losses during summer months are relatively low (~ 0.5 l/s) this does lead to some increase in salinity. However water quality is still higher than that of the original Bor Ovoo spring and within Mongolian Drinking Water Standards.

5.1.2.3 Current Undai River Partial Adjustment and Protection Project Impact Analysis

Chapter C5, Section 5.4.2 of the ESIA contains the following language:

- *"The overall objective of the design of the diversion is to minimise and manage the impact of the diversion by ensuring that the diverted flows are returned efficiently to the river bed downstream so as to maintain surface and subsurface water flows within the local ephemeral watercourse network. In particular the design of the subsurface flow ensures that there are no groundwater losses through evaporation caused by the diversion between the inlet and replacement spring."*

The Undai River Diversion Partial Adjustment and Protection Project has been in operation for approximately 1.5 years (and one summer cycle). Due to the prolonged time of the pending Land Use Permit the MoC procedure, as set out in the Environmental and Social Management Plan of the ESIA, was implemented by OT on May 20, 2014 (Notice of Change 2014-001). The MoC procedure was initiated by OT to (a) address inconsistencies in the ESIA with respect to design and construction of the full Undai River Diversion; and (b) address non-conformance of the Undai River Partial Adjustment and Protection and Protection Project with commitments in the ESIA (relating to works described to occur outside of the MLA).

In response on June 6, 2014 the Lenders issued a Category 1 Objection Notice to the Notice of Change 2014-001 based on technical concerns related to conformance of the existing Undai River Partial Adjustment and Protection Project with commitments of the ESIA and associated Operational Management Plans.

In November 2014 a workshop was held at site for a detailed review of water monitoring information. Technical representatives were present from OT, the Lenders, and the IESC. In particular information related to the volume of groundwater currently available in the Undai River system relative to pre-OT construction activities was critically reviewed, in recognition of the fact that the Undai River groundwater system is a very sensitive environmental resource.

The following conclusions were established following the detailed water review:

- the groundwater diversion pipeline has consistently delivered approximately 1L/s to the outfall bore, with ~2/3 of this flow being recharged to alluvial river sediments and ~1/3 of the flow discharged to the surface;
- the Undai alluvial aquifer is being recharged at and immediately down gradient from the outfall bore (>400m to date). Depth to water measurements immediately down gradient of the outfall bore demonstrates that sediments are saturated from ground surface to within 1m across the active river channel;
- to date the surface area of the created spring is generally larger and more consistent than the original Bor Ovoo spring, is indicated by historical records (available since Jan 2008); and

– the created spring has lower salinity than the original Bor Ovoo spring, with minimal evapo-concentration occurring along the surface flow path.

In addition to these derived conclusions additional monitoring efforts were recommended to allow more detailed assessment of the Undai River Partial Adjustment and Protection Project performance. The recommendations and their respective status of implementation are provided in Table 5.2.

Table 5.2: November 2014 Detailed Water Review Recommendations and Status

Recommendation	Status
Open or In-Progress	
Install new water level monitoring points, covering the full width of the profile of the alluvial strip aquifer immediately down-gradient of the outfall bore and in the vicinity of monitoring bore OTMB11-45. Depth to bedrock to be established at each monitoring point across the profile to enable definition of alluvial thickness.	Drive point piezometers have been identified for installation. This effort is in the procurement stage of implementation.
Install and monitor two additional alluvial monitoring bores between the southern cut-off dam and Khukh Khad spring.	These items included in the Scope of Work for additional monitoring bore installation, as described in Section 5.1.2.8. Work scheduled to begin in May 2015.
Installation of drive point or equivalent water level monitoring bores immediately above the confluence of the Undai and Brown Hill Rivers (one each on each braid of the Undai River at this location).	.
Completed	
Include Budagt Spring in the spring monitoring program. In addition the spring monitoring procedure to be modified to include depth to water when surface water not visibly present.	Completed. Updated Standard Work Procedure including monitoring of Budagt spring.
Continue monthly water quality laboratory analysis at the outfall bore, and monthly field water quality tests to include the outfall bore location and the end point of infiltration when not frozen.	Completed. Next quarterly Undai River Diversion Report scheduled for May 2015.
Quarterly water quality laboratory analysis of OTMB11-45 and new monitoring points as described above.	Completed. Information provided in quarterly Undai River Diversion Reports.
Quarterly field parameters and annual laboratory analysis of water quality at Budagt, Khukh Khad spring, and Khukh Khad herder well.	Modifications incorporated into the updated Water Quality Monitoring Plan, and will be reported on in the next Undai River Diversion Report.

The ultimate success of the Undai River Diversion Partial Adjustment and Protection Project (and the ultimate fully-constructed Undai River Diversion) will be assessed based on the long-term viability of springs located down gradient of the OT site (Kkukh Khad, Budagt, Buural and Maanit), and long-term depth to groundwater data provided from Undai River monitoring points.

The monitoring improvements identified above are intended to ensure protection of Undai River groundwater resources down gradient from the OT site. In particular the monitoring improvements will allow better assessment of the 4 km stretch of the Undai River south of the MLA that no longer receives flood recharge (i.e., between the MLA and the confluence of the Undai River channel and Brown Hill River). Due to the low groundwater velocities south of the MLA (estimated at approximately 30 m/year) it would likely take decades for impact, if any, to be realized at a down gradient environmental receptor. The most likely impacted receptor, Budagt Spring, is located above the confluence with the Brown Hill River and therefore does not receive any surface recharge with the exception of direct precipitation.

In December 2014 OT and the Elected Herder Team (EHT) agreed to transition the IFC's Compliance Advisory Ombudsman (CAO) facilitated meetings into a permanent dialogue including local stakeholders. These include OT, the EHT, and the KB government. This Tripartite Committee, consisting of 15 members, officially met at the site of the current Bor Ovoo in February 2015. Meeting minutes identify the possibility that the current location of the Bor Ovoo spring may change and/or that the surface water diversion channel may be re-routed to discharge to a point closer to the MLA than the current location.

A geodetic survey will be undertaken to establish the feasibility of re-routing the surface water diversion. An assessment on the appropriate final location for the Bor Ovoo spring replacement is under evaluation by local community representatives. These analyses are in progress and may result in future modification to the existing Undai River Diversion Partial Adjustment and Protection Project.

See also Section 5.9.3 for discussion of biodiversity and ecosystem services implications of the artificial spring, and Section 6.4.2.1 for discussion regarding engagement with stakeholders in relation to Undai River diversion works.

5.1.2.4 Water Use in the South Gobi

OT has committed to working with the Government of Mongolia, non-governmental organizations, and other public and private water users in the South Gobi region to assist in the development of a sustainable model for water use in the region. OT participates in a number of initiatives to further this objective and most recent undertakings are briefly described below:

- *2030 Water Resources Group*. OT is a member of the 2030 Water Resources Group Steering Committee and by direction of the Mongolian Ministry of Environment and Green Development (MEGD) is supporting the 2030 Water Resources Group effort on several identified regional initiatives.
- OT currently participates in a Sustainable Water Development working group that is focused on the Nyala – Shivee Ovoo, Ulannbaatar and Tavantologoi regions. Hydrologic and economic analyses are currently being arranged within the committee;
- Annual Environmental Performance Review. In January 2015 OT held an annual environmental performance review meeting in Dalanzadgad with officials of the Province of South Gobi province in DZ;
- Cooperation Agreement. OT has actively participated in negotiation meetings for the recently formalized Cooperation Agreement with the Province of South Gobi and local soums (publicly announced April 22, 2015);
- *IFC South Gobi Water, Mining and Communities Industry Roundtable*. OT participated in the South Gobi Water, Mining and Communities Industry Roundtable March 2015 event, including a March 24 – 28th site visit to OT;
- *Mongolia Ministry of Environment and Green Development.* OT hosted both the deputy Prime Minister and deputy Environmental Minister among other government officials at a meeting held at the OT site on March 26, 2015;
- Tripartite Committee. As mentioned above in February 2015 OT participated in the first meeting of the Tripartite Committee, held at the current location of the groundwater diversion discharge.

5.1.2.5 OT Water Usage and Conservation

The OT Project is permitted to withdrawal water from 28 production wells installed in the regional Gunii Hooloi aquifer, which is brackish, at a rate of 870 L/s (approximately 75,000 m^3/day). Total raw groundwater extraction by OT in year 2014 was 13,386,016 m^3, or approximately 36,674 m^3/day. Almost all of this water is sourced from the Gunii Hooloi aquifer. Target raw water usage rate is 696 L/s and the project has consistently achieved this target rate since the beginning of open pit operations. Average monthly raw water consumption rate in 2014 was 427 L/s although consumption rates vary throughout the year primarily due to freezing and thawing cycles at the TSF. By far the biggest use of water by the Project is within the concentrator circuit at which water recovery efforts are undertaken to recycle a large percentage of water used.

In 2014 OT achieved an 84.73% water recycling efficiency rate which is slightly higher than the 2013 recycling efficiency rate of 83.53%. Both of these values are above the 80% threshold minimum criteria recycling rate included as a key performance indicator (WR-KPI-03). Ongoing success has been realized in optimizing water management at the TSF, with improvement in tailings solids density from 55% to approximately 61%, and an increase in tailings beach slope from 0.3 to 0.6 percent. Relative to production OT site-wide water consumption is currently 480 L/ton of ore produced, lower than the 561 L/ton of ore realized in 2013. The 2014 value of 480 L/ton of ore produced is below the target of 547 L/ton-ore (WR-KPI-04), and less than half of the global average usage rate of 1,220 L/ton-ore. Recent improvements are

related to the lack of a substantial 2014 – 2015 ice sheet, more effective beaching inside the TSF, and modifications in the process recycling circuit.

5.1.2.6 Water Monitoring

In December 2014 the project Water Monitoring Plan was updated via implementation of Notice of Change 2014-008. The changes were the result of an annual review undertaken by OT to increase the efficiency of the overall program. Currently the water monitoring program encompasses a total of 478 points, including 292 boreholes, 91 surface water measurement locations, 84 herder wells, and 11 natural springs. These monitoring points include locations in the Khanbogd, Manlai and Tsogttsetsii soums of Umnugobi aimag, and the Ulzii soum of Dundgobi aimag.

No direct or indirect OT Project impacts to herder wells or natural springs have been identified in current Environment department analysis, although the department is continuously monitoring water level data to identify any possible correlation. Any prolonged water level decrease or change to water quality at a herder well triggers an OT Hydrogeological Assessment, including a physical investigation and organization of a meeting with the well owner. OT has committed to taking corrective actions should any project impacts to a herder well be realized. OT has recently completed three hydrological assessments for locations included in the 15 km potential impact/buffer zone around the Gunii Hooloi deep aquifer (Orion Buuts herder well, exploration bore GH 1x1, and Ovoo Tsav deep well). These assessments were used in the community well restoration program to ensure no negative project impacts to existing water users, and to consider best final disposition for relic exploration bores.

Beginning in 2013 some herders have expressed concern over the condition of three shallow herder wells installed in the ephemeral Khaliv River alluvial system, which passes through the south western corner of the Gunii Hooloi aquifer. Herder wells in the Khaliv River alluvium are located upgradient of the portion of the Khaliv River that crosses the GuniiHooloi borefield. These herder wells are highly susceptible to climatic variation as the alluvial sediments in the upper Khaliv River are thin and the drainage basin much more limited in aerial extent than other systems such as the Undai River drainage basin. After a hydrogeologic assessment of the data associated with the the Dund Khaliv herder well it was determined that observed water level variation is a factor of herder well use and recent dry conditions in the region. Wells in this area historically been sensitive to even moderately dry climactic conditions. As a form of assistance OT has historically delivered water to herders in this region.

The concern has been investigated by the CSR team and a deeper more reliable well was selected by the herders as a preferred long-term solution. This well has recently been completed under the Herder Well Restoration Program (Figure 5.10). Depth to water is approximately 14 m below ground level, and overall quantity and quality are adequate and provide a stable supply to local herder families. The Dund Khaliv deep well installation is located 1.4 km from the nearest existing hand dug well; this location was identified as the most likely to have water based on a geophysical survey.

Figure 5.10: OT Staff with Herder at the recently completed Dund Khaliv Deep Well (winter, 2015)

Currently 23 herder families are involved in the Participatory Monitoring Program encompassing a total of 31 wells. Data collected through this program is evaluated in conjunction with data collected by the project, and meetings are arranged with participating herders to review and discuss the joint OT and Participatory Monitoring Program sampling results. Over the past three years the project has rehabilitated approximately 60 herder wells with plans to rehabilitate an additional 29 wells identified as priority locations in community meetings. These include wells in the Khanbogd, Bayan-Ovoo and Manlai soums. Results of the rehabilitation efforts are communicated to the public in written disclosure materials, and IESC Audit Team discussions with herders and government officials indicate positive stakeholder feedback (see Section 6.3.2.3 for more details).

The monitoring of flood events, to the extent possible, is an important part of the Water Monitoring Plan. The OT Project has installed eight flood gauge posts with automated water level measurement equipment within the MLA, outside of the MLA along the Undai River channel, and in the GunniHooloi region. Fixed concrete flood monitoring reference points have been installed at these locations. A Standard Work Procedure has been developed to ensure consistent measurements across flood events. The Standard Work Procedure includes methodologies for the recording of flood velocities via use of floats tethered to ropes, and corresponding measurement of distance travelled over time. The Open Pit Survey Team has provided survey information for the cross-section morphology of each flood monitoring location. This information will be used to estimate the overall discharge of flood events. Since completion of the Undai River Partial Adjustment and Protection Project (summer 2013) there has not been a flood event of sufficient magnitude in the Undai River to cause use of the surface water diversion to the Western Channel.

Section 3.4.3 of the WMP describes the procedures that will be used to monitor natural springs that occur along the Undai River channel, and down gradient of the MLA. In June 2014 OT began implementation of a "Conduct Spring Photograph" Standard Work Procedure, stipulating monthly photographs from a fixed reference point. The Standard Work Procedure was updated in January, 2015 and now includes the Budagt Spring down gradient of the new Bor Ovoo spring and Undai River Partial Adjustment and Protection Project.

Within the springs deepest water level depths are measured using a linear ruler as the installation of a fixed reference within a spring has been discouraged by community members. On a monthly basis OT collects an estimation of spring surface area by measuring maximum length and width, as the morphology and presence of standing water and saturated sediments is highly variable. This in turn makes precise measurements difficult; however the collected data, including monthly photographs, does allow interpretation as to if a spring over time is growing or diminishing.

5.1.2.7 Shallow and Deep Aquifer Interconnection

The implementation of mitigation measures in the event of aquifer interconnectivity is a requirement of the Water Resources Management Plan (WR-04). Due to degradation over time of installed steel stack pipes and gravel packs there is recognized cascading behaviour at a collection of exploration boreholes located in mainly in the vicinity of the Gunii Hooloi regional aquifer. Following extensive community consultation regarding the method of abandonment to be employed three of the known six cascading boreholes were successfully sealed in 2013 (sealed boreholes include GHW5x1, GHW6x1, and GHEB-02). Boreholes that exhibit cascading behaviour and which remain to be sealed include GHW14x1, GHEB-08, andCGHW4x6.

In August 2014 OT contracted a camera survey to investigate the possibility of additional hydrogeologic communication in Gunii Hooloi region exploration bores. This effort was undertaken at the request of a formal Working Group established by the Khanbogd soum Governor. There are approximately 300 exploration bores in the Gunii Hooloi region, 37 of which have similar construction specifications as the recognized cascading boreholes. These 37 bores with similar construction specifications were included in the camera survey. As a result two additional cascading bores were identified, bringing the total to five outside of the MLA. These two wells include GGW 6 (cascading at 34.9 m below ground surface (bgs), water level at 35.03 m) and GGW 19 (cascading at 12 m, water level at 35.03 m).

Results of this study were submitted to the Khanbogd soum Governor in September 2014. As discussed below a Scope of Work has been developed by the project to abandon all potentially interconnecting bores both within and outside of the MLA, or otherwise convert them to productive use (e.g. for herder usage or use as piezometers). In December 2014 a request was made to OT for the boring logs of all wells included in the SOW. The boring logs were then provided by OT and conversion of the bores is pending Working Group and governmental approval.

5.1.2.8 Hydrogeology Studies

A 2013 groundwater model update for the Gunii Hooloi borefield was completed in May, 2014 (*Gunii Hooloi Aquifer Update Assessment*). The model predicts long-term aquifer impacts over a 40-year period. Early drawdown data are roughly equal to or better than model predictions, with approximately 8 m of drawdown in the high-transmissivity northeastern section of the aquifer, and approximately 2 m of drawdown in the lower-transmissivity southwestern section. In June 2014 an *Open Pit Hydrogeology and Pit Slope Depressurization Update* was completed as follow on to the 2011 report: *Open Pit Hydrogeology and Pit Depressurization Feasibility Study*. The more recent study updates the conceptual model for the open pit and describes planned in-pit vibrating wire and piezometer installation that are intended to refine understanding of pit inflows.

Regarding development of a sustainable water supply for Khanbogd soum - in December 2013 the *Groundwater Model and Borefield Development Scenarios – Khanbogd Basin* report was finalized. This report provided the hydrogeology data and a groundwater model to be used to guide borefield installation. Following this work four production wells were installed by OT. The water reserve report and application have now been submitted to the state government and the application is pending State Water Reserve Council approval for usage. Following this approval distribution infrastructure will require completion under a separate work stream (i.e., construction of the Khanbogd potable water distribution network will not be undertaken by OT). Groundwater in the area is naturally elevated in molybdenum, boron and arsenic. Mixing or some other form of abatement may be necessary to render provided water suitable for long-term potable consumption.

In May 2014 OT issued a SOW for an over-arching *Hydrogeology Consultancy Services* which was awarded in November 2014. The contract encompasses a number of distinct tasks including:

- general hydrogeological support and assistance, as requested;
- upgrading of the OT regional hydrogeological model;
- assistance in implementation of the WRMP, including database management, QA/QC, training and reporting requirements;
- supervision of supplementary monitoring bore installation; and
- annual review of hydogeologic monitoring results.

Also in May 2014 a separate *Additional Water Monitoring Bore Installation – Gunii Hooloi and Oyu Tolgoi* SOW was developed for the drilling and installation of supplementary monitoring bores at locations described in the WRMP. It is estimated that a total of 37 monitoring points will be installed in the Gunii Hooloi region, within the MLA, and within the OT active mining operations footprint (i.e., at the open pit, in drainage channels, and upstream/downstream of the TSF). The SOW also describes the sealing of interconnecting bores in the Gunii Hooloi region and sealing of interconnecting bores along the Undai River, as discussed in Section 5.1.2.7. Following issuance of the SOW a technical review of received proposals was completed in July 2014 and a contractor was selected to perform the work. Supplementary monitoring bore installation is scheduled to begin in May 2015.

An internal *Erosion Monitoring Report* was prepared by OT in June 2014 to address WRMP erosion and sedimentation monitoring requirements. The report describes erosion/sedimentation monitoring at the following locations:

- Undai River including the Western channel;
- Undai River springs located downgradient of the MLA including Khukhkhad, Bural and Maanit;
- road crossings of drainage channels located within the MLA; and
- road crossings of drainage channels located outside of the MLA including the road to KB (OT – KB road), along the water supply pipeline road from GuniiHooloi, and the OT – GS road.

Over 470 photographs were taken a 100 m intervals along the Undai River channel, beginning at the point at which the Undai River channel enters the OT site, and ending at the confluence of the Western channel with the Undai riverbed. Over 200 photographs were taken at road crossings of drainage channels located outside of the MLA (9, 46 and 4 crossings along the OT – KB, OT – GS, and GuniiHooloi water supply pipeline roads, respectively). As these are the first photographs taken for the purpose of documenting erosion and sedimentation over time they will be considered baseline information to track any future erosion impacts. The *Erosion Monitoring Report* will be updated during the 2015 field season and on annual basis thereafter.

5.1.2.9 Potable Water and Treated Effluent

OT has committed to meeting Project Standards for both potable water and for treated effluent. These Project Standards are identified in Tables A1 and A2, respectively, of Annex A of the Water Management Plan. An ESIA MoC was submitted on June 24, 2014 to update the water quality testing parameters of the WRMP based on capabilities of Mongolian laboratories (Notice of Change 2014-002). The parameters that are not currently sampled for are not considered key indicators and the MoC was approved.

Most recent potable water and treated effluent sampling results indicate general conformance with identified Mongolian standards. No pathogenic bacteria were detected in scheduled effluent testing. Improvements have recently been made at the wastewater treatment plant system to allow conformance with Australian Class A treatment standards (e.g., installation of new chlorine dosage equipment). OT recycles treated effluent in the process circuit, and a limited quantity of treated effluent is used for dust suppression in warmer months. Additional chlorine dosage equipment has been installed at the concentrator plant to ensure sanitary conditions.

Sampling of bottled water demonstrates general compliance with Project Standards, although measured Boron concentrations of 1.0 – 1.5 mg/L are above the Project Standard of 0.5 mg/L.

5.1.3 Findings and Observations

Findings- Water and Wastewater Management

M1.1 Planned Undai River Diversion works outside of the Mine License Area (MLA) are pending regulatory approval (a requisite Land Use Permit). Some inconsistencies exist in design criteria for the Undai River Diversion as presented in the ESIA.

The ESIA MoC procedure, as identified in the ESMP, was implemented by the Project on May 20, 2014. The submitted Notice of Change (2014-001) was not accepted by the Lenders as a detailed technical review of available hydrogeological information was pending. This reflected a precautionary approach in assessment of potential impacts to the Undai River groundwater system

	A November 2014 detailed hydrogeology review was undertaken to assess potential impacts to the groundwater flow regime. The detailed water review did not identify a risk of significant impact to groundwater resources as a result of the current Undai River Partial Adjustment and Protection Project. There has not been a re-submission of the 2014 Notice of Change. Final configuration of the Undai River Diversion is pending outcome of discussion within a newly formed Community Consultative Committee. This Committee includes a total of 15 representatives from the Elected Herder Team (EHT), Khan Bogd (KB) government and OT. The Committee is considering potential modification to the existing Undai River Partial Adjustment and Protection Project. The item is maintained as a Level II Non-conformance due to the current non-conformance of the Undai River Partial Adjustment and Protection Project with the Undai River Diversion design criteria specified in the ESIA, including works to occur outside of the MLA (IESC April 2013 Audit; WR12).
M1.5	Evidence exists of exploration bores interconnecting hydrogeological units within the GuniiHooloi borefield, in the Galbyn Gobi region, and within the MLA. Future disposition of these wells is currently under evaluation by a workgroup established with the Khanbogd soum. There are some requests for conversion of the wells for community use; this request has been forward to the communities team. Best efforts are being made by OT to progress the sealing of interconnecting bores within and outside of the MLA, however the issue is outstanding. Per request from the workgroup OT has provided boring logs for all interconnecting bores (IESC April 2013 Audit; WR04, WR14).
M2.3	The drilling and installation of supplementary monitoring bores, as discussed in the WMP, has not yet been completed. The work was previously delayed due to a contractor safety review. This review subsequently identified a more suitable contactor that could meet OT safety standards. This drilling contractor is now engaged in well rehabilitation efforts and will soon move to the installation of new monitoring points. OT anticipates that the supplementary monitoring bores will be installed beginning in May, 2015. (WMP 5.2, WR14, WRm06, WRm11).
M4.1	The project has not been able to install all 10 regional rain gauges due to issues with their security in remote locations. A total of five rain gauges are currently installed and monitored. Four additional secure sites have been identified and rain gauges will soon be installed. OT has agreed to purchase four weather stations for installation at WMP monitoring locations. (WMP 3.8, WMP Figure 11).

Observations–Water and Wastewater Management

5. It is recommended that annual reporting contain a specific subsection that discusses any identified potential impacts to herder wells, and that describes efforts undertaken to investigate any observed downward trends. These efforts are currently captured in hydrogeological assessments;

6. It is recommended that quarterly reviews of Undai River Partial Adjustment and Protection Project performance include evaluation of rates of diverted groundwater measured as surface flow relative to the rate presumed to be returned to the subsurface. Causes of seasonal variation in the surface area of the created surface spring should also be discussed. For example the ice sheet is smaller for the winter of 2014 relative to the winter of 2013;

7. It is recommended that the "coal road" and "railroad extraction well" (both located in the Undai River channel north of the MLA) be included in project monitoring efforts, as much as information on their potential impacts to the Undai River system can be ascertained. These features are not part of the project area of influence, but do have the potential to impact surface and subsurface flow in the Undai River system.

5.2 MINERAL WASTE MANAGEMENT

5.2.1 Project Strategy

The Mineral Waste Management Plan[16] (MWMP) addresses environmental conditions associated with the waste rock, overburden, tailings and combustion ash. Key elements of the Project strategy are documented in previous IESC audit reports. Two Management of Change (MoC) notices dated 26 June, 2014 have been received relating to mineral waste management and implemented without Lender comment: MoC 2014-003 Update Shaft 1 Waste Rock Dump Disposition; and MoC 2014-004 Update Ongoing Underground Mine Waste Rock Dump Disposition. MoC 2014-003 cites that Shaft 1 development rock will be managed in conformance with the design and monitoring requirements of a Potentially Acid Forming (PAF) mineral waste. During the course of underground mine development, the rock material in the Shaft 1 stockpile will be transferred to established open pit PAF waste rock dump or will be used in designated PAF zones of the Tailings Storage Facility (TSF). Key Management Control MW05 contained in the MWMP has been changed to reflect this action.

MoC 2014-004 provides recognition that the waste rock encountered during development of Shaft 2, 3, 4, and 5, as well as access incline CS2, will be segregated to establish temporary non-acid forming (NAF) rock stockpiles for reuse as construction / closure materials, and PAF rock placed in an integrated (servicing all shafts and inclines), permanent rock dump that is managed and monitored in accordance with PAF standards. The permanent rock dump will be established in the vicinity of the current Shaft 2 waste rock dump. Management and monitoring standards are contained in the OT Integrated Mineral Waste, Acid Rock Drainage and Dump Management Implementation Plan (portions of which make up the OT Dump and Stockpile Management Plan). Key Management Control MW06 contained in the MWMP has been changed to reflect this action.

The TSF design and MWMP are consistent with the IFC Environmental, Health and Safety Guidelines for Mining (2007), as summarized in the following paragraphs. In the absence of specific Mongolian design criteria, Canadian standards (CDA, 2007) were adopted for guidance in selecting design criteria for the TSF. The TSF design as documented in the Klohn Crippen Berger, Ltd (KCB) 2010 TSF Design report, is undergoing modification to address observed tailings deposition conditions. The following design changes were prepared by Golder Associates for the TSF embankment dam, as documented in their 21 May 2014 report: (1) elimination of upstream and centerline embankment raising along the north, west and south perimeters of Cell 1, and employment of downstream embankment raising along all sides (similar to the original design for the east perimeter along the reclaim pond); and (2) designation of multiple filter zones within the upstream portion of the TSF embankment dam along all perimeters.

The OT Open Pit and TSF Geotechnical Risk Assessment was updated in January 2015. Threats that could impact the mine planning, open pit operations, dump and stockpile operations, and TSF are cataloged in the assessment, along with existing controls and action items. Mine plan implementation difficulties, pit wall instability, and inundation were among the threats evaluated for the Open Pit, and identified actions to supplement existing controls include operational controls, engineering studies, and emergency response plans. Dump and stockpile operations threats include instability and erosion from precipitation and flooding; with identified actions for the stockpiles to include geotechnical analysis and controls, and rehabilitation design. TSF operations include multiple controls for tailings and process water release threats from leakage, instability, and overtopping; with the identified action to prepare a TSF emergency response plan.

The Site Emergency Response Plan identifies the tailings dam failure scenario among the types of incidents for preparation of procedures. Emergency Response Procedures for this failure scenario have been prepared based on an assumption of very limited tailings release (approximately 500 meters) should a breach occur. Cell 1 of the TSF is expected to be constructed to a height of more than 70 meters over the next 5 years, which could represent an inundation hazard to conditions downstream. OT has prepared a separate, draft TSF Emergency Response Plan (January 2015) that considers potential for a greater release of tailings and reclaim water, provides an estimate of potential downstream inundation (including a map of the emergency response cover area), and addresses the emergency response steps.

16 *Mineral Waste Management Plan- Doc. No.OT-10-E8-PLN-0001 dated 01.09.2013*

The Mine Closure Plan was updated (April 2014) to reflect ore processing rate adjustments and mine life, and includes measures to implement reclamation upon permanent closure and in response to temporary closure, post closure monitoring, and financial feasibility with updated closure cost estimates. The Mine Closure Plan is designed for future public health and safety protection, post-closure beneficial use and sustainability, and socio-economic impact mitigation with objectives of demonstrating financial feasibility and physical, chemical and ecological habitat integrity. The plan is assessed by OT on an annual basis as part of closure cost estimate reporting, and reviewed and updated once every five years in order to reflect changes in mine planning or closure strategies, and changes in costs.

5.2.2 Observations

With the underground mine status in Care and Maintenance, no materials are being added to the waste rock stockpiles for the shafts and underground mine development. MoC 2014-003 incorporates planned disposition of Shaft 1 stockpile rock which contain PAF materials, and changes Management Control MW05. Timing for implementation is aligned with re-commencement of the underground mine development. In the interim, Management Control MW05 indicates that it will be managed as a PAF stockpile until final disposition, which includes monitoring plans for rock spillage, stability, erosion, and drainage. PAF standards include containment of drainage and monitoring, and surface water and groundwater monitoring for Waste Rock Disposal are addressed within the Water Monitoring Plan (WMP). MoC 2014-004 incorporates planned disposition of other shaft and incline development rock, including the current Shaft 2 waste rock dump, creating an integrated permanent waste rock dump in accordance with PAF management and monitoring requirements. The change to Mineral Waste Management Control MW06 indicates that underground development rock will be segregated between NAF and PAF rock, and PAF rock will be placed in an integrated (servicing all shafts/inclines) underground rock dump, managed and monitored in accordance with PAF standards. The Proposed Change states that NAF rock may be placed in temporary stockpiles for other use or placed in the proposed integrated underground mine rock. Timing for implementation is aligned with re-commencement of the underground mine development. PAF standards include containment of drainage and monitoring, such that the groundwater monitoring under the Water Monitoring Plan for the integrated permanent underground development PAF rock dump should be reviewed and updated as necessary.

Waste rock (PAF and NAF), unconsolidated overburden and low grade ore are segregated during open pit mining, and placed in prescribed dumps or stockpiles in accordance with the Integrated Mineral Waste Management Implementation Plan, and tracked in the quarterly mineral waste inventory. The open pit management system integrates classification of ore grades, overburden and waste rock material based on sampling of cores from the blast drill holes, with a real-time tacking system for disposition of materials to stockpiles and rock dumps. Analyses on the 2014 samples (50 samples) supports the material segregation criteria established for the site based on total sulphur, total carbon and acid neutralization potential. In addition to waste rock samples, tailings samples (three monthly composite samples between September and November 2014) were also analysed indicating moderate sulphur concentrations and moderate acid neutralization values, indicating that these materials are expected to be NAF. Kinetic net acid generation testing suggest that the rate of pyrite oxidation in the tailings samples is slow and is matched by the rate of carbonate dissolution. The Integrated Mineral Waste Management Implementation Plan cites the need to continue geochemical testing on a suite of 50 waste rock samples per year to ensure that representative lithologies, alteration types and locations are represented in the geochemical database established for segregation and monitoring, along with quarterly composite or grab samples of tailings.

Monitoring of stockpiles and mineral waste rock dumps is managed under the Geotech Open Pit Key Performance Indicator Program. Should drainage be detected from stockpiles or rock dumps, the checklist includes contact of the Environment Department for sampling and testing. Monitoring of the stockpiles and rock dumps is documented in the Quarterly Ex-Pit Monitoring Report; no drainage has been observed for testing.

Tentative concepts for reclamation of the Waste Rock Dumps (WRDs) is addressed in the Integrated Mineral Waste, Acid Rock Drainage and Dump Management Implementation Plan. The establishment of trial cover plots to evaluate cover materials and thickness is cited in the plan, and while recognized has not advanced beyond recognition of the commitment. Monitoring of the trial plot over several years will be necessary to obtain guidance in establishing reclamation procedures, and thus warrants implementation at an early stage. The timing for reclamation of completed surfaces of the WRD would be dependent on

establishment of final dump limits, although some final interior slopes along the open pit will represent areas for early trial cover plots.

Cell 1 of the TSF is being raised to accommodate continuing tailings disposal under a quality control inspection and testing program conducted by Golder Associates, and subject to quarterly quality assurance review and reporting by KCB. The April 2015 KCB review resolved 12 of 24 open QC and QA issues from the November 2014 site visit (with defined actions to resolve the open issues), and identified 5 new items. Previous issues that required evaluation by the Engineer of Record (Golder Associates) to establish acceptance criteria, and to address acceptability of materials placed in embankment zones (Item QA-R-02 and 03) received attention in revised specifications and a draft construction record; however, KCB has identified aspects that require further attention before closure. The recommended consolidated "Issued for Construction" package that includes all current specifications and QC requirements necessary to construct the embankments consistent with the design intent has not been prepared and distributed to the construction team (QA-R-12). Similarly, development of threshold values for piezometer monitoring (QA-R-09) is yet to be implemented. To complement geochemical testing of blast hole samples, additional quarterly confirmatory sampling of the NAF embankment fills was implemented in January 2015. In March, the confirmatory NAF sampling program indicated a high percentage of the samples from the east and west embankments were classified as PAF. This is a new issue (QA-R-21) cited by KCB, to be addressed along with follow-up actions; initial review by the Geology and Ore Control team has been able to track excavation records and identify the likely cause. Additionally, the NAF/PAF characterization is recommended to be incorporated into QC records and reports (QA-R-23). Another new issue (QA-R-22) is the review of foundation preparation procedures and specifications to ensure that they are appropriate for wet seepage areas, and if necessary update specifications (include update in QA-R-12). Suggestions for improvement (SFI) are also identified within the KCB report which would aid in facility operation and management, including dam safety. While KCB interprets the scope of their responsibility to be short of facility operations and management, Golder as the Engineer of Record and QC Engineer does monitoring TSF operations and report on results associated with freeboard and instrumentation.

Monitoring and reporting of tailings deposition in the TSF is continuing, and tailings slurry density has been maintained above 60-percent solids since November 2014. The April 5, 2015 TSF Weekly Report cite beach slopes between 0.52 (cell 1C) and 0.67-percent (cell 1D). The tailings density will affect the TSF capacity requirements, and the beach slope will affect the drainage from the tailings and freeboard and dike raising requirements of the perimeter embankment dam. The freeboard reported in April 2015 within the subcells exceeded 7 meters, and at the reclaim pond exceeded 8 meters, significantly greater than the design requirement of 3.5 meters. The TSF Feasibility Study is being updated and the 2015 Design Report prepared to address TSF Embankment Construction through this year.

KCB in their April 2015 Quarterly QA Review Report indicate that operational issues with the pumping barge in the reclaim pond, and tailings ingress into the reclaim area over the winter, have resulted in impounded water extending further into the tailings deposition area than anticipated. KCB recommends lowering of the water level, and modifications to the infrastructure connection for the pumping barge.

The TSF Operations, Maintenance and Surveillance Manual provides guidance for monitoring, and is in the process of being updated. In addition to incorporating recommendations that KCB provide in the April 2015 QC Engineer Report, the manual should reflect design modification by Golder that are being implemented as well as Operations (Section 9) hydrologic and freeboard criteria, Table 9 Triggers and Actions under Adaptive Management for Tailings Management, and thresholds levels for piezometers and underdrains/seepage flow measurement based on design analyses. In mid-2014, seepage was observed emanating from the toe of the TSF in the northeast corner, in the vicinity of the reclaim pond, and these conditions are being monitored and reported under a quarterly program, including flow rate, water quality and approximate extent of area impacted. Quarterly Monitoring Report No. 2 (February 4, 2015) reports conditions relatively similar to the previous report. The V-notch weir for monitoring flow was demolished over the winter, and with the freezing temperatures no recent flow rates have been measured, although observations report very low flow. Control of seepage and restoration of weirs is planned when conditions permit. Monitoring including seepage rates and water quality along with piezometer levels within the TSF embankment must be continued to support interpretation of the seepage sources and pathways and protection of PAF embankment zones.

As the Engineer of Record, Golder prepared design modifications to the TSF to accommodate lower density and flatter beach slopes observed at start-up and into 2014, by employing downstream construction

in embankment areas which were previously planned for upstream or centreline construction, as documented in their 23 May 2014 report. These design modifications maintain established freeboard requirements to meet the design flood, and employ embankment zoning generally consistent with the original design to control seepage water from the tailings into downstream TSF embankment zones. Seepage analyses were conducted to determine piezometric levels and support the slope stability evaluations, but the report does not address the seepage analyses, computed rates, and performance of upstream embankment zones to isolate the planned use of PAF material in downstream zones (Zone 3C and 3D). Current design efforts have addressed 2015 interim stage requirements; additionally, the TSF Feasibility Study is being updated. The 2015 design report (currently in draft form) will address interim stage construction, and with finalizing the update on the TSF Feasibility Study, the final profile of the TSF Cell 1 will be established, seepage analyses are to be completed to confirm isolation of PAF zones within the embankment. The update is anticipated in August 2015.

The Independent Technical Review Team (ITRT) was briefed on the Open Pit and TSF design, construction and operation in February 2015, and as indicated above will participate in the update of the TSF Feasibility Study (the ITRT expanded its charter to include the TSF, and added a tailings specialist to the team, who previously served on the Independent Tailings Review Board for OT). The ITRT meeting and report identified design criteria and planning to be further evaluated (e.g., foundation clay saturation and shear strength, filter design and optimization, seepage control). A workshop will be held in May to confirm decisions and criteria for analysis, and will support the update of the TSF Feasibility Study.

5.2.3 Findings and Observations

Findings – Mineral Waste Management
Nil.

Observations– Mineral Waste Management

8. Groundwater monitoring requirements within the Water Monitoring Plan for the proposed integrated, permanent PAF underground development rock dump associated with MoC 2014-004 should be reviewed and updated as necessary (MW04, MW13, MWM5). Timing for implementation is aligned with re-commencement of the underground mine development;
9. Develop implementation strategy, as part of the plan for implementation of a trial reclamation plot, for progressive reclamation of rock dumps, establishing final slopes and cover in response to drainage and seepage conditions when observed. The strategy should address the basis for determining the timing and tentative procedures for reclaiming areas of the WRD during operations to protect water runoff quality, minimize infiltration, control wind erosion and allow vegetation establishment (MW12). Early establishment of trial reclamation plots are necessary, considering the period of monitoring required to yield input to the reclamation process; final interior slopes along the Open Pit will represent early opportunities for trial plots;
10. TSF construction QA issues raised in quarterly reports need to be addressed, in support of meeting design criteria (MW14). OT, the QC Engineer and the QA Engineer have identified actions to address the issues, and outlined a process for timely resolution in advance of the next QA review scheduled for July 2015;
11. The impounded water level in the TSF has apparently increased, and extends further into the tailings deposition subcells than anticipated, due to tailings ingress into the reclaim area over the winter, and the infrastructure connection with the pumping barge at the reclaim pond. The QA Engineer has recommended that this situation be resolved to lower the water level in the TSF consistent with the design intent (MW14);
12. TSF tailings density and deposition beach slope have become better aligned with the original design criteria (MW14). Changes in the design for raising of the TSF dam and in the construction schedule have been prepared, and plans for construction in 2015 developed. In addition to demonstrating integrity and stability of the TSF under the design modifications, engineering evaluations should also demonstrate that PAF materials used in downstream zones (Zones 3C and 3B as presented in the Golder Associates 23 May 2014 report) of the TSF embankment will be isolated from contact with tailings seepage water and potential of

acid rock drainage generation (MW14). Golder has initiated the seepage analyses which are expected to be available by August 2015;

13. Implement planned actions from the updated Open Pit and TSF Geotechnical Risk Assessment, including completion and finalization of the draft TSF Emergency Response Plan (see Section 5.7). Consider observed tailings density and deposition conditions, along with any TSF design modifications being considered relative to safety and environmental protection systems during risk assessment reviews. (MWMP Section 5.3 with reference to Element 3 - OT Hazard Identification and Risk Management; MWMP Section 4.4 – Reference to IFC Environmental, Health, and Safety Guidelines for Mining, Section 1.1 Tailings);
14. Complete the updating of the TSF Operations, Maintenance and Surveillance Manual with respect to design modifications which are being implemented, as well as Operations (Section 9) hydrologic and freeboard criteria, and Table 9 Triggers and Actions under Adaptive Management for Tailings Management (clarify or insert parameter values) (MWMP Section 5.3). Develop threshold levels for piezometers and underdrain/seepage flow measurements based on design analyses and tied to response actions (MWM2, MWM3);
15. Implement ITRT technical review input on the design modifications for the TSF (MWMP Section 4.4; Section 5.3 with reference to OT Integrated, Mineral Waste, Acid Rock Drainage and Dump Management Implementation Plan);
16. Complete review of draft TSF Emergency Response Plan, consider refining downstream coverage area based on empirical data or breach analysis;
17. Continue TSF seepage monitoring program and resume flow measurements, incorporating new seepage areas as they develop, and interpret the sources and pathways of observed seepage.

5.3 NON-MINERAL WASTE MANAGEMENT

5.3.1 Project Strategy

The overall Project strategy for the management and disposal of non-mineral waste generated by the Project is outlined in the Non-Mineral Waste Management Plan[17] developed by OT, which sits under the overarching OT ESMP Framework and outlines the general strategy to ensure the effective management of non-mineral waste generated throughout the OT Project operation lifecycle.

The Plan has been developed to comply with the Project Standards, including applicable Mongolian Laws and Standards, RT Standards as well as relevant Lenders' standards and guidelines. The document defines the general requirements for the management of waste to ensure the effective management of non-mineral waste at OT in compliance with international standards.

The Waste Management Plan has been supplemented by a General Waste Collection and Transfer Procedure and a Waste Management Center (WMC) Operating Procedure which provides details on specific aspects of the day-to-day waste management activities at OT including indications on how waste should be managed from initial collection, segregation, and temporary storage up to final disposal.

5.3.2 Observations

The Project continues to work towards the implementation of the waste management strategy defined in the Non-Mineral Waste Management Plan. Despite the challenges such as the remote location of project areas and the limited recycling options throughout Mongolia, the effort to identify reliable recyclers for specific waste (batteries, grease, etc.) continues. Selected waste categories including plastic bottles, scrap metal and barrels, waste oil/coolants, waste timber and used light vehicles tires are recycled/reused either through local vendors or reused as construction material by local communities (Khanbogd, Bayan Ovoo, Manlai *soums*). Used tires from heavy mining vehicles are stored pending a final disposal solution. According to the information provided, in Q1 2015 about 218,000 liters of waste oil have been sent to an authorized recycler in UB and 199.5 tons of waste metal have been removed from the Interim Waste Recycling Center

17 *Non-Mineral Waste Management Plan - Doc. No. OT-10-E7-PLN-0001 dated 01.09.2013.*

(IWRC) and transferred to the Darkhan iron facility. Progresses in the segregation and removal of plastic bottles are continuing with plastic bottles regularly sent to UB for recycling. Evidences of a significant reduction of the volume of plastic bottles stored at the IWRC have been provided. In addition and in order to reduce the costs for transportation of hydrocarbon waste to recycle, OT has recently announced an open tender to select a waste oil recycling contractor, which will be responsible of all related costs, including those associated to transportation. The contractor will also be in charge for recycling activities of grease and waste coolants. The selection process will be based on the results of HSE audits and commercial evaluations. The first HSE audit was conducted in January 2015 with support from Sustainability East Asia LLC (SEA). Subsequent audits will be lead by the OT teams with support from SEA, where requested. The selection of the waste oil recycling contractor/contractors is foreseen within May. While waiting for the new contractor, the waste oil is accumulated in the oil storage tank.

Since June 2014 the new permanent WMC is in operation. The facility includes an engineered landfill designed to comply with US EPA CFR 258 standards with one cell for waste disposal, two evaporation lagoons to collect leachate from the cells, a hazardous waste incinerator, and different segregation areas for specific waste categories. With the operation of the new facility, the use of the IWRC has been discontinued and waste accumulated will be either recycled/treated or transferred to the new WMC.

The development of the IWRC decommissioning, decontamination and rehabilitation plan is under development. An electromagnetic/geophysical survey to determine the extent of the landfilled waste was conducted in February 2015 whose results will be used to identify the best in situ remediation option. OT and SEA are currently evaluating locations of possible trenches and pits to carry out digging tests. Once the extent of contamination is determined, a site-specific strategy by means of a risk-based approach will be used to identify the actions needed to rehabilitate/decontaminate the site.

5.3.3 Findings and Observations

Findings – Non-mineral Waste Management
Nil

5.4 HAZARDOUS MATERIALS MANAGEMENT AND POLLUTION PREVENTION

5.4.1 Project Strategy

The general Project strategy for the management of hazardous material throughout the Project is outlined in the Hazardous Materials Management Plan[18] developed by OT, which sits under the overarching OT ESMP Framework. The plan provides general instructions to OT personnel and contractors (through the Contractor Management Framework) on the management of bulk hazardous materials to prevent/contain spillages and environmental contamination, and to ensure secure materials temporary storage and transport. The plan is supported by a number of procedures which provide specific details regarding the day-to-day hazardous materials management activities at OT. These include a Hazardous Materials Management Procedure to guide handling, transport, and storage of hazardous materials and a Spill Response Procedure which focuses on response actions to properly manage spills of hazardous material.

5.4.2 Observations

There are no substantial changes on this topic since the previous site visit in November 2014 and this subject will be updated in the next IESC report based on observation from the field.

The main hazardous materials used at the different project locations are fuel and lubricants for light and heavy vehicles and other related chemicals. According to photographic documentation provided, hazardous materials are generally managed adequately and stored in designated warehouses. No substantial changes in the contractors used for the management, storage and distribution of fuels used at the different project areas have been reported since November. In general, the IESC reiterates its observation to consider sheltering some of the areas where drums are likely to be stored for an extended period to reduce sun and rainfall exposure.

The Project continues to use the ChemAlert system that combines records of the chemicals and substances used throughout the project and relevant Material Safety Data Sheets. OT continues to implement the

18 *Hazardous Material Management Plan - Doc. No. OT-10-E5-PLN-0001 dated 01.09.2013.*

Chemical Risk Assessment to set criteria/thresholds and trigger the update of the Spill Response Procedure. All substances used at site have been rated by risk as per international standards and risk assessments are carry out for high risk chemicals and results uploaded in the ChemAlert system. Standard safety procedures and rules are posted on the OT's internal OTPORTAL network and specific training sessions are organized at the different workplaces. Compliance with relevant requirements and procedures is reportedly ensured through random inspections at the warehouses and workplaces.

5.4.3 Findings and Observations

Action Items – Hazardous Materials Management and Pollution Prevention
Nil.

Observations – Hazardous Materials Management and Pollution Prevention

18. Consider sheltering some of the areas where oils and chemicals drums are likely to be stored for long periods to reduce sun and rainfall exposure;
19. Ensure that the contractors and site supervisors routinely perform site inspections to review the location, distribution and adequateness of spill kits at the different locations where hazardous materials are temporarily stored.

5.5 AIR QUALITY

5.5.1 Project Strategy

Chapter C2 of the OT ESIA describes the potential environmental and social impacts related to air quality that could result from the construction and operation of the project. The general strategy for management of particulate and gaseous emissions is described in the Operations Phase Atmospheric Emissions Management Plan[19] (AEMP). This management plan cross-links with other management plans that have air quality implications such as the Community Health Safety and Security Management Plan, the Transport Management Plan and the Land Use Management Plan.

The intent of the AEMP is to outline applicable Project Standards, define commitments, define monitoring and reporting procedures, and state key performance indicators (KPIs). The principal implementation procedure of the AEMP is the OT Air Quality Monitoring Plan[20] (AQMP). The AQMP provide procedures for emission and ambient monitoring, including monitoring locations both within and outside of the Mine License Area. Reporting requirements are also described. The AQMP was updated in January 2015 via Notice of Change 2014-008.

5.5.2 Observations

Findings in this section are based on a review of information provided in an electronic data room and correspondence with Environment department staff. Monitoring data related to air quality are consolidated in an Annual Report on the Implementation of the Environmental Protection Plan. This report is submitted to the Mongolian Ministry of Nature, Environment and Green Development. Results of the Annual Report are used to guide the following year's Environmental Protection Plan and Monitoring Program.

5.5.2.1 Ambient Air Quality

The dry and barren conditions the project site are subject to dust storms during windy conditions, which impacts ambient air quality and especially particulate matter concentrations. An updated Atmospheric Dispersion Modeling Report was prepared by a third party contractor in September 2014. The purpose of the report was to evaluate ambient air quality monitoring results and their potential impacts to sensitive resources. Cumulative dust monitoring results at OT from 2013 are summarized in Table 5.3.

19 *Atmospheric Emissions Management Plan- Doc. No.OT-10-E2-PLN-0001 dated 01.09.2013.*

20 *Air Quality Monitoring Plan – Doc. No.OT-10-E2-PLN-0002.*

Table 5.3: 2013 Ambient Dust (PM10 Concentrations)

	Onsite	Offsite to within 10 km	Project Standard	% Exceedence Onsite	% Exceedence Offsite
Short Term Maximum (ug/m^3)	564	540	**50**	**1,129**	**1,076**
Long Term Average (ug/m^3)	135	81	**40**	**337**	**202**

As shown both on and offsite measurements exceed Project Standards for PM_{10}. Onsite mitigation of dust emissions include watering of all stockpile facilities with the exception of the TSF, and the watering of onsite roads. However the number of non-compliances exceeds the five per year threshold identified in key performance indicator AQ-KPI02 of the AEMP.

The Atmospheric Dispersion Modeling Report evaluated ground level concentrations of ambient pollutants at key environmental receptors including the construction camp, Manlai camp, and locations of Shaft 1 and 2. During normal operating conditions ground level concentrations of ambient pollutants were below the Project Standard (EU Ambient Air Quality Standard); however during use of diesel generators there is a short-term exceedence for NO_2 at/beyond the MLA and within the MLA at the Manlai camp. It should be noted that diesel generators would only be used during times of interruption to the existing transmission line service, and it predicted that ground level concentrations of gaseous pollutants would be less than the Project Standard for 99% of the five-year modeled time frame.

OT maintains a Monitoring Exceedance Action Plan that describes efforts undertaken to improve ambient air quality, in particular with respect to controlling particulates in the dry and windy environment. In general this plan does a good job of communicating these efforts, such as mitigations employed at the Coarse Ore Storage (COS) building and improved watering and speed limitations at particularly susceptible locations. The IESC continues to recommend that graphical representations be included for key monitoring locations, to allow better tracking of mitigation successes over time.

As noted in prior audits the ambient air monitoring network available on site requires improvement to meet commitments made in the AQMP, and to monitor ambient air quality relative to Project Standards. The AQMP was revised in February 2015 after an annual internal review of the program. The review resulted in refinement of monitoring locations, parameters and frequencies. In addition modifications were made to the required specifications of monitoring equipment, resulting in removal of High Volume Air Samplers. None of the changes to the AQMP resulted in material changes to the commitments or intent of the Atmospheric Emissions Management Plan original language.

An equipment list was prepared by a third-party contractor to ensure purchased materials are capable of meeting requirements of the revised AQMP. A Capital Expenditure Authorization (CEA) to purchase the ambient air quality monitoring equipment was initially presented to the OT Investment Committee (OTIC) in December 2014. The expenditure request was denied in March 2015 due to the very high costs of the equipment; these costs have since been reduced with revised AQMP specifications.

Once the CEA is approved procurement for the equipment can then be put to bid. Once equipment is available ambient monitoring can occur as described in the AQMP. Information provided during the August 2014 Audit suggested that necessary equipment would be available on site and ready for installation by November 2014. November 2014 estimates were for installation of the equipment by mid-2015. Current estimates are for 2016 procurement. As such this item remains a persistent non-conformance.

As noted in prior audits there has historically been significant dust (particulate) generation at the coarse ore stockpile (COS) facility. In June 2013 the Environment department prepared a summary report quantifying these conditions and suggesting possible causes. A detailed engineering study of mitigations was subsequently prepared, with the use of a dust foam suppressant identified as the best mitigation. The dust foam system was initially commissioned in November 2014 but stopped shortly thereafter due to freezing of the foam suppressant with wet ore. The system remained inoperable through mid-March 2015 when thawing temperatures allowed restart.

When operable the system is effective at reducing particulate generation, although this is based more on visible observation than in monitoring results. Monitoring is currently carried out at two locations (DMP-COS01 and DMP-COS2) and was most recently performed in November 2014 and March 2015. Results from March show concentrations in excess of Project Standards as shown in Table 5.4.

Table 5.4: Particulate Ambient Concentration Monitoring - COS

Parameter	DMP-COS1	DMP-COS2	Project Standard
TDS (g/m^3)	**3**	Not Available	2
$PM_{2.5}$ (mg/m^3)	**0.07**	**0.17**	0.05
PM_{10} (mg/m^3)	**0.14**	**0.29**	0.05

The OT Technical Services Department has prepared a March 2015 technical document that assessed performance of the system, resulting in identification of multiple areas for improvement. This include correct operation of the metering pump to administer reagent into the water line, maintenance of the appropriate reagent/water ratio, and re-locating regent totes to improve access. These recommendations should be implemented. The IESC also recommends that monitoring coverage be improved to provide a more fulsome representation of the efficacy of the foam suppressant system.

5.5.2.2 Stack Emission Quality

Since October of 2013 most generators in use on site have been turned off and are on stand-by. As a result most of the sources of gaseous emissions have been removed from use. There are two remaining boilers on the site – the most significant of these is at the Central Heating Plant (CHP) with a much smaller boiler used at the airport. OT has contracted the Mongolian University of Science and Technology (MUST) to perform monthly testing stack testing at the CHP, incinerator, and coal-fired boilers at the Khanbumbat (OT) airport. Monthly sampling is in accordance with the periodicity identified in the AQMP.

Most recent stack emission sampling at the CHP and the airport boiler was performed in March 2015 by the Research and Experiment Center for Boilers (RECB) of MUST. The CHP has two 29-MW and two 7-MW boilers, with a combined capacity of 72 MW. Data since initiation of monthly sampling are provided relative to Project Standards, as identified in Appendix B of the AQMP, in Table 5.5. These data show NO_x, SO_2, and TSP concentrations in exceedence of relative Project Standards. Boilers are operated at differing times based on demand.

Table 5.5: Stack Emission Sampling Results – CHP and KB Airport

Boiler	Parameter (in mg/m^3)	2014			2015			Project Standard
		Oct	Nov	Dec	Jan	Feb	Mar	
Boiler #1 (7 MW)	Particulates	**159.9**	-	-	-	-	-	20
	NO_x	**2609.5**	-	-	-	-	-	200
	SO_2	**2491.9**	-	-	-	-	-	200
Boiler #3 (29 MW)	Particulates	-	1.33	-	-	-	-	20
	NO_x	-	157.1	-	-	-	-	200
	SO_2	-	**1302.8**	-	-	-	-	200
Boiler #4 (29 MW)	Particulates	-	-	**269.9**	**676.8**	**717.0**	**775.3**	200
	NOx	-	-	**1044.6**	**798.2**	**433.3**	**517.4**	20
	SO_2	-	-	**581.5**	147	**1127.1**	**810.5**	200
KB Airport Boiler	Particulates	**754.32**	**247.9**	**1013**	**167.2**	**351.6**	**1220**	20
	NO_x	**995.03**	**832.06**	**1514**	**909.4**	**1115.6**	**1314**	200
	SO_2	**2318.8**	**1842.8**	**3302.9**	**1120**	**1828.5**	**1542**	200

Results demonstrate consistent exceedences. Boiler #4 at the CHP has been in operation since December 2014. In that month 2% limestone was added to the feed, resulting in lower SO_2 emissions. In January 2015 a 10% limestone mixture was added resulting in compliance with the Project Standard for SO_2. However in the followng month only 6% limestone was added. TSP concentrations at Boiler #4 are very high because of inefficient bag house operation.

In early 2014 extensive testing and study of water boiler performance at the CHP was undertaken by the National Agency of Meteorology and Environmental Monitoring (NAMEM). Recommendations of the study include coating of the bag at the bag house with limestone and addition of 6 – 7% limestone per unit weight of Hunnu coal. There have been difficulties in obtaining a reliable source of limestone at the site. Additional engineering works designed to increase cooling capacity at the 29MW boilers are scheduled for the summer shutdown of 2015. These improvements to the 29 MW boilers are anticipated to reduce NO_x and CO emissions.

5.5.2.3 Incinerator

An incinerator procured to Project Standard design criteria is operating at site. The manufacturer of the unit (Incinco) visited the site in January and October of 2014 to assess overall condition/performance of the unit. The January inspection found the overall condition of the incinerator to be very poor, with lack of general maintenance and servicing. The unit showed signs of frost damage to the air blast cooler and heat exchanger, and inappropriate after-market modifications. The manufacturer's assessment concluded that the incinerator was being used outside of its specification and that the quantities of hazardous materials produced on site and processed through the incinerator were greater than the machine could successfully handle.

During the October 2014 site visit the manufacturer noted that the continuance of inappropriate after-market modifications (e.g., removal of sealed maintenance access hatches and removal of the ash grate), as well as inappropriate operational practices (e.g., the covering of the gas filter house with tarpaulin and removal of electrical wiring from the damper motor). A number of repairs were made by Incinco to address these limiting aspects to successful incinerator performance. Upon completion of repairs a full system test was performed, with burn tests completed to ensure adequate operations. In addition OT operators were provided with training in how to correctly mix and load waste in the loading bins.

OT now diverts used oil filters to the lined waste management facility, which has resulted in a significant decrease in load at the incinerator. In the past the incinerator has been used in excess of its design capacity; however OT information suggests the current process rate is approximately 300 – 500 kg of material per day.

OT has retained a third party (MUST) to perform monthly stack emission sampling at the incinerator. Results of this sampling are provided in Table 5.6.

Table 5.6: Stack Emission Testing Results of Incinerator

Parameter (in mg/nm^3)	2014			2015			Project Standard
	Oct	Nov	Dec	Jan	Feb	Mar	
Particulates	3.1	1.4	0.8	3.6	**15.9**	6.6	10
NO_x	**677.9**	363.2	**1034.7**	**506.5**	**1030.5**	**514.4**	400
SO_2	**134.3**	0.9	**757.1**	16.84	**85.1**	**131**	50
CO	**1950**	**6531**	**303**	**2003**	**5272**	**1352**	200

In general emissions are to be assessed against the requirements of EU Directive 2000/76/EC on the Incineration of Waste). The sampling suite from the incinerator has been modified in the revised AQMP and now does not include dioxins and furans. The capacity to sample for heavy metals is under study but does not currently take place. This is due to lack of domestic laboratory capacity to sample these parameters; however it should be noted that the incinerator was designed to meet all applicable EU Directive 2000/76/EC standards when operable. As shown in Table 5.6 monitoring results often exceed Project Standards for the parameters that can be sampled. Poor emissions performance is likely due to system over-use, poor maintenance practices and limited operational familiarity. At the time of this audit Incinco (the unit manufacturer) was investigating the cause of emission quality exceedences, and this will be reported on in the next audit report. An emissions workshop has been proposed to further training for incinerator staff on the use of the unit.

5.5.2.4 Greenhouse Gas Accounting and Energy Efficiency

OT records greenhouse gas emissions (GHGs) and reports a total of 944,296 tonnes $CO_{2\ (eq)}$ generation through September 2014. Total GHG emissions in 2013 were 1,352,920 $CO_{2\ (eq)}$. GHG reduction and energy efficiency improvement opportunities have been identified in an internal 2014 memo. OT has has already implemented some measures including connection of various site facilities with the CHP. This provides for a single location at which to implement operational and engineering controls to improve emissions quality.

An internal proposal is under consideration to connect the permanent marshalling yard to the central power grid, thereby eliminating use of mobile diesel generators. Electrical heating is now provided to previously coal-heated gers. The Environment department does engage on the purchase of new equipment for the mine site to ensure emissions controls are included in design specifications. A recently completed third party report identifies major sources of GHG emission from the project site. OT is progressing identification of potential actions to reduce GHG emissions based on the findings of this third party report.

5.5.3 Findings and Observations

Findings – Air Quality

M1.11 There has historically been significant dust generation at the coarse ore stockpile (COS) facility. A foam dust suppressant system was completed in November 2014 but operations were stopped shortly thereafter due to freezing issues. The system remained out of use through mid-March 2015. When operable the system is effective at reducing particulate generation. OT has recently assessed performance of the system resulting in identification of multiple opportunities for improvement. These include correct operation of the metering pump to administer reagent into the water line, maintenance of the appropriate reagent/water ratio, and re-locating of regent totes to improve access. These recommendations should be implemented. (AQ05).

M1.12 As noted in prior audits the ambient air monitoring network available requires improvement to meet commitments made in the revised AQMP, and to monitor ambient air quality relative to Project Standards. Information from the August 2014 Audit suggested that this equipment would be available on site and ready for installation by November 2014. November 2014 estimates for installation were 6 – 12 months into the future (i.e. by the end of 2015). However a March 2015 capital expenditure authorization for the equipment has been denied. It is now anticipated that the equipment will be procured in 2016. This has been upgraded to a Level III non-conformance due to the lack of timely corrective action. It is noted that the project is currently capital constrained; however lack of an ambient monitoring network that complies with Project Standards has been a consistent non-conformance since the first operations phase audit. It is noted that there are plans to include the necessary capital expenditure request in the 2016 budget, and approval is expected at that time (AQMP Section 1.5; AQMP Appendix A; AQ-KPI02).

M1.13 A third party contractor has been retained to conduct stack emissions testing. Sampling from the CHP reflect persistent exceedences of Project Standards for NO_x, SO_2 and particulate matter. There have been difficulties procuring a reliable limestone supply. Additional engineering works planned for the summer 2015 shutdown are anticipated to improve emissions quality. (AM03, AQMP Appendix B)

M2.4 An October 2014 site visit by the manufacturer of the project incinerator noted inappropriate after-market modifications and operational practices at the unit. Recent monitoring results indicate emissions are not meeting the Project Standards, which the incinerator has been designed to meet. At the time of this audit the manufacturer is investigating the cause of emission quality exceedences and this will be reported on in the next audit report. An emissions workshop has been proposed to further training for incinerator staff on use of the unit. This has been maintained as a Level II non-conformance due to near-term plans to achieve successful operation of the incinerator. However it is noted that there are long-standing issues with incinerator operations and resultant non-compliance with emission Project Standards. This item has the potential

to be escalated to a Level III non-conformance if current operational practices continue. (AM06, AQMP Appendix C).

Observations – Air Quality

20. The IESC recommends that ambient monitoring coverage be expanded in the Coarse Ore Storage (COS) area to provide a more fulsome representation of the efficacy of the foam suppressant system.

5.6 NOISE AND VIBRATION

5.6.1 Project Strategy

There were no exceedances of Project Standards in Q4 2014 or Q1 2015 monitoring. Noise monitoring is conducted at 11 locations for both on-site and off-site receptors. The ground vibration survey was completed in December 2014 by the Mongolian Academy of Sciences Research Center of Astronomy and Geophysics, with no negative impacts identified.

5.6.2 Findings and Observations

Action Items – Noise and Vibrations
Nil.

5.7 EMERGENCY PREPAREDNESS & RESPONSE

5.7.1 Project Strategy

The general Project strategy to face and manage emergency situations during project operations is defined in the Operations-Phase Emergency Preparedness and Response Plan (EPRP)[21] that provides a high-level overview of the procedures and commitments to emergency response and preparedness in place at OT during the operations phase. The document is supplemented by response plans and procedures developed by OT which define specific response actions to be undertaken in the event of an emergency situation. In September 2014, an update of the Site Emergency Response Procedures was prepared.

5.7.2 Observations

The Site Emergency Response Procedures were updated in September 2014 (v1.2) to include all scenarios identified in the Site Emergency Response Plan (25 scenario events), based on potential hazards and identified incident scenarios that warrant emergency response procedures for the surface and underground mine conditions, airport, and operations that may impact the communities. These procedures describe the planned actions in response to the incident, considering reaction, containment, control, clean-up, and reporting. In addition to the general procedures contained in this document, a separate Underground Emergency Response Plan for care and maintenance activities is required for submittal to the Mongolian Ministry of Mines. This separate plan has been updated (February 2015) for ongoing inspection and maintenance of fixed and mobile equipment. Another site operation that warrants a separate emergency response plan is the Tailings Storage Facility (TSF), which as it is developed to significant height, a potential failure scenario could impact mine facilities, infrastructure, adjacent areas and communities. OT prepared a draft TSF Emergency Response Plan in January 2015, that includes scenarios up to an extreme and catastrophic breach of the TSF and release of water and tailings. Review and input is pending from the Emergency Preparedness and Response Team and the Communities Team. The draft plan includes a description of the scenarios' downstream inundation, map of emergency response plan coverage area (adjacent to the Budaa Stream and Undai River), population at risk (winter shelters of herders, extending beyond Javkhlant Bag), and impacted infrastructure (Seepage Collection Cut-Off Embankment on the MLA; road crossings over the Undai River). A listing of key contacts (OT, community and government representatives) has been compiled and five steps are identified in the emergency response plan process, including condition detection, severity classification, notification and communication, emergency actions, and termination of the emergency. As part of the review and refinement, the rationale for the breach severity and downstream inundation within the emergency response coverage area should be documented. Other aspects of the draft plan that should be considered include: roles and responsibilities with designation

21 *Emergency Preparedness and Response Plan- Doc. No. OT-12-PLN-0011 dated 01.09.2013.*

of position responsible for administration and maintenance of the plan; exercises/training activities and plan maintenance, establishing review and update requirements including public notices and interactions; and resource requirements and maintenance to ensure serviceability of communication and other equipment necessary to respond to an emergency. Sources for guidance and suggestions relative to emergency response plan components include the UN APELL Guidance (2001)[22] and Good Practice in Emergency Preparedness and Response (2005)[23] , as well as other dam safety organizations.

Following review of OT's Business Resilience and Recovery strategy, the Business Resilience Management Plan (BRMP) is being revised, with implementation and training scheduled over the coming months. This is leading to further updating of the existing Site Emergency Response Procedures (v1.2). Scenario incidents and procedures are being reviewed or established by ERT members and the manager for the identified work area locations, such as the Concentrator, Underground, Open Pit, etc. The updated procedures are expected to provide more focus on the identified work area and critical activities. A full scale Business Resilience Team exercise and training was performed in December 2014 that included the emergency response service responding to a fire incident at the Concentrator Cyclone as a result of welding activities. The ERT quickly responded to the incident, with isolation of energy sources, application of internal fire water system and mobile equipment, extinguishing the fire promptly. The BRT effectively addressed communications and reporting, and valuable lessons learned relate to communications requirements in adverse weather, security and limiting access, and fire hose requirements.

In the fall of 2014, the ERT initiated orientation and training on underground conditions and activities to support response in the case of an underground incident during the on-going care and maintenance condition. The training program presented to the 3 ERT shifts included: Underground Awareness; Mobile equipment and pedestrian interaction; emergency readiness; self rescuer, and refuge station. An underground emergency response exercise (Exercise DOWN UNDER 1) to evaluate underground casualty rescue was conducted in February 2015. Security and ISOS participated in the exercise, and the Underground operational staff worked well with the emergency responders to assess the injury, maintain communication with the hoist operator, and effect the rescue. Improvements in communicating, equipment, and tag-out procedures for the ERT were identified, and an action plan implemented.

The central ERT database for tracking and recording incidents is being used, and provides summary information on incidents/activities ranging from a truck accident to noise complaints. Call-outs and responses pertaining to fires and related incidents are the most common excluding false smoke and fire alarms. The database provides an effective tool to scan for incident types (e.g., copper concentrate truck accident), although inquires to the RTBS would be necessary to obtain details and follow-up action, or any trend analysis. After establishing an OT protocol for responding to incidents in the community, the ERT and the Communities Team visited Khanbodg to meet with government representatives and assess community capabilities and resources to respond to local emergencies. The Mongolian National Emergency Management Agency (NEMA) situated in Dalandzadgad have a role in support of local officials and responders; further dialog is envisioned to identify training that might provide capacity and support joint response capabilities. The ERT have also engaged with the NEMA in DZ to establish a liaison and discuss response, training and other emergency response concerns.

The surface emergency response team has 27 personnel/three teams working on rotation basis, and operates emergency trucks from a fire house which houses ERT support equipment, and at the airport. Leadership and technical training is being focused on ERT staff, to build capacity and ultimately manage the EPR department.

22 *APELL for Mining, Guidance for the Mining Industry in Raising Awareness and Preparedness for Emergencies at Local Level, Technical Report No. 41, United Nations Environment Programme, 2001.*

23 *Good Practice in Emergency Preparedness and Response, United Nations Environment Programme, 2005.*

5.7.3 Findings and Observations

Findings – Emergency Preparedness and Response

M4.2 A draft TSF Emergency Response Plan has been developed, that establishes an emergency response coverage area extending downstream of the tailings dam, and includes a listing of key contacts (OT, community and government representatives) and a five step process of condition detection, severity classification, notification and communication, emergency actions, and termination of the emergency. The final plan must be available for implementation if necessary, and administrative, training/exercise, and resource requirements defined and documented within the Business Resilience and Recovery Plan (BRRP), Site Emergency Response Plan, or other document (ERP02, 02b, 02c).

Observations – Emergency Preparedness and Response

21. With the finalization and implementation of the BRMP, update response procedures for scenarios identified, and review to confirm that they meet the associated management controls and intent of the Project Standards (EPRP Section 4.4 and 5.1; ERP02, ERP02b, ERP02c; Site Emergency Response Plan);

22. With review and finalizing of the TSF Emergency Response Plan, review the BRRP / Site ERP to ensure that administrative, training/exercise, and resource requirements are documented, and evaluate emergency response team and other department's capabilities and resources to fulfil responsibilities (Site Emergency Response Plan; EPRP Section 4.4 and 4.6, IFC Guidelines and EBRD Performance Requirements, and UNEP APELL Guidance). It is recommended that the rationale for inundation mapping and establishment of the emergency response coverage area be documented in accordance with industry practice and to allow periodic review and update if warranted (ERP02d).

5.8 TRANSPORT MANAGEMENT

5.8.1 Project Strategy

The Transport Management Plan[24] (TMP) addresses safety conditions associated with OT operations, including contractors, as applicable. Aviation safety is addressed in a separate document outside the scope of the plan. The TMP identifies management controls covering road design and safety, and include measures in support of wildlife protection. The following procedure documents are referenced within the TMP: Road Construction and Maintenance Procedures; Heavy Vehicle Operating Procedures; Light Vehicle Operating Procedures; Tyre and Rim Procedure; and OT Site Wide Traffic Management Plan. Generally, the OT Operations, Construction, and HSE departments have responsibility for exercising management control, with the involvement of the RDSP department in public area road safety programs. Contractors are also responsible for exercising some controls regarding road safety.

In addition to safe vehicle operation, the management controls are intended to address roadway dust and animal impact hazards (to both livestock and wildlife). Along the OT to Gashuun Sukhait, OT to Khanbogd, and OT to airport roads, herder crossings to allow safe livestock crossing have been installed. OT and lender representatives participated in a meeting on November 16, 2014 to discuss the range of options that can be implemented to mitigate wildlife habitat fragmentation and maintain landscape-level connectivity. These options are still under review.

A system of records, inspections and monitoring, and in some cases specific plans are or will be used to achieve the controls. Contractors are required to have Emergency Response Plan for off-site activities, and site specific dust management plans will be developed by OT to implement dust management strategies in the vicinity of sensitive areas (such as herder shelters) when problems are identified.

24 *Transport Management Plan - Doc. No. OT-10-C3-PLN-0001 dated 01.09.2013.*

5.8.2 Observations

Export of concentrate through 2014 achieved nearly 1,400 convoys, and through the first quarter of 2015 approximately 284 convoys. An average of approximately 22 convoys consisting of 16 trucks each were operating each week in 2015, embarking from the site at scheduled times in the morning on each day except Sunday.

There are four Transport Service Providers contracted for trucking of the concentrate, and the contractors supervise the drivers and are responsible for maintenance, HSE monitoring, customs brokerage, and other responsibilities. Outbound Logistics Training includes content on: truck condition and road worthiness; safe work procedures; load safety; convoy driving protocols; safe driving behaviours; legal obligations; and incident management and reporting. In addition to Induction, Health Safety and Environment training is provided. The Environment Awareness program includes: land management; biodiversity; water management; air, noise and vibration; and mineral and non-mineral waste management.

Traffic monitoring was implemented in November 2014 to track the amount, type (based on length of vehicle), hours, and speed of traffic on the OT-GS roadway. The monitoring station is approximately 32 km from OT, and can detect light (short) and heavy (long) vehicles based on electromagnetic coils embedded in the roadway. Based on reports for December 2014 through February 2015, large truck traffic predominates other size vehicles, and generally greatest in late morning and afternoon.

5.8.3 Findings and Observations

Findings – Transport Management

Nil.

Observations – Transport Management

23. Complete Communities Induction program for all drivers (TMP13). Implement participation of Communities Team in scheduled monthly meetings to ensure ongoing awareness of safety and community issues.

5.9 BIODIVERSITY AND ECOLOGICAL MANAGEMENT

5.9.1 Project Strategy

As described in previous audit reports, OT implements its biodiversity mitigation and monitoring measures through the Project's Operational Biodiversity Management Plan (BMP) and OT Environment Management System so that all biodiversity-related actions can be planned, implemented and tracked in an integrated manner. Several other management plans also include biodiversity-related commitments and requirements.

The BMP was comprehensively reviewed and updated during 2014 in a joint activity involving OT, Lenders and supporting biodiversity consultants. A comprehensive review of the new version was then carried out by the IESC as an associated activity in parallel with the November 2014 IESC audit. Notices of Change 2014-006 and 2014-007 were agreed in April 2015 subject to further revisions to the BMP and its supporting documentation. OT and lenders agreed revised, mutually acceptable timelines and the final revised BMP is expected to be available for review in advance of the next IESC audit.

Implementation of BMP actions is through a commitment register and associated tracking system with clear control descriptions. The Biodiversity Monitoring and Evaluation Plan (BMEP) is the main basis for assessing progress in implementation and achievement of required outcomes for biodiversity and ecosystems. OT's "Core Biodiversity Monitoring and Evaluation Plan" (CBMP) addresses specific commitments in relation to Critical Habitat and is now entering a second phase, following a two-year pilot. The same team of contractors has been retained for a five-year period and a revised set of indicators and thresholds to trigger corrective action by OT is in place. The next phase of monitoring is informed by a strategic plan based on results from the pilot monitoring undertaken in 2013 and 2014.

Based on monitoring results, OT's specialist advisors are updating the Project's Net Positive Impact Forecast and developing a provisional Biodiversity Offset Management Plan. These related deliverables should be available for review in the next IESC audit.

OT has assigned its Ecosystem Services Group to develop a draft biodiversity-related Stakeholder Engagement Plan but this is not currently in place. Associated with development of the plan is a requirement to map external stakeholders and embed biodiversity-related stakeholder engagement in internal procedures to underpin OT's Project-wide strategy towards NPI for biodiversity. These aspects still require action.

5.9.2 Observations

Findings in this section are based on observations made as a result of reviewing documentation provided by the Project and telephone interviews biodiversity and other staff. Aspects requiring observation in the field will be addressed in the next IESC visit.

5.9.2.1 Managing Impacts Associated with Power Lines

One of the BMP key management controls is the use of bird Flight Diverters on power lines to minimize mortality due to collisions with power transmission lines (B10 and LBAP). Diverters must be "maintained as necessary to minimize wildlife mortality throughout operations". There have been on-going problems with functioning of some of the "flapper" type bird flight diverters. As indicated in the previous IESC Report, OT's Biodiversity Team has estimated the proportion of diverters affected, carried out investigations into causes for malfunction and monitored decay rates of introduced chicken carcasses to help calibrate its monitoring results.

Given the challenge of correcting or re-fitting diverters, combined with the potential for on-going impacts of unknown significance on species of conservation concern and their critical habitat, OT agreed to work with its consultants to develop potential alternative approaches and options for implementing conservation measures to demonstrate a net positive impact. The relevant studies are underway, but the resulting recommendations are not yet available for review.

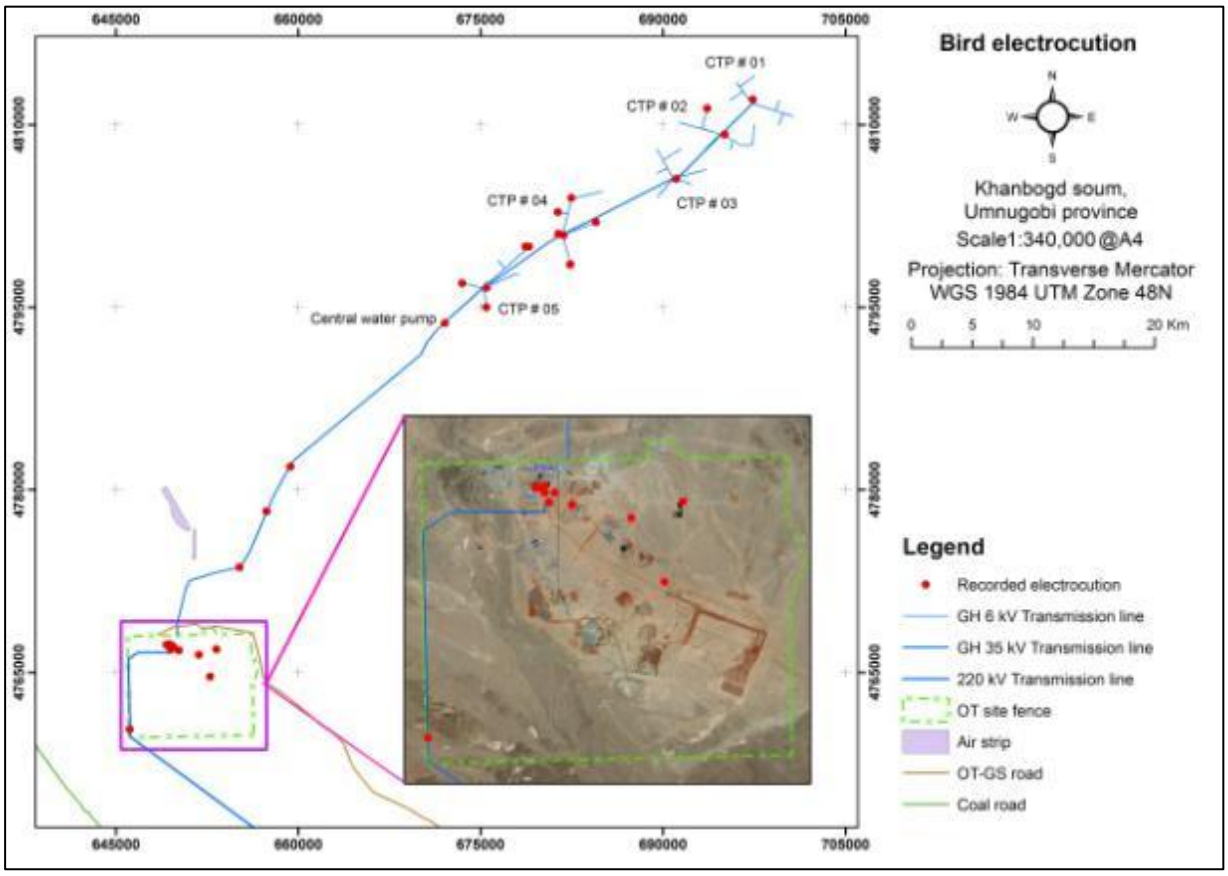

Figure 5.11: Locations where Electrocutions occurred, based on Monitoring between 2011 and 2014 carried out by OT's Biodiversity Team

Insulation of medium-voltage power line poles and dead ends is another measure required to minimise impacts of power lines on sensitive species. OT surveyed its power lines (GH 6kV, OT-GH 35kV and 220 kV distribution lines located in Khanbogd Soum) between 2011 and 2014, to determine whether there were any high-risk locations (see Figure 5.11).

66 carcasses of 4 species were documented between 2011 and 2014, including common raven (55 individuals), Daurian jackdaw (9 individuals) and common kestrel (1 individual). The highest number of electrocuted birds was found along the GH 6kV power lines and avian mortality also varied according to power line voltage and type of pole. OT's fauna team, in coordination with Global Biodiversity Conservation, drew on available evidence to prioritize transmission lines on which insulators should be fitted. This is an example of an effective, evidence-based adaptive management approach but impacts may continue until works are completed.

5.9.2.2 Managing Impacts related to Traffic and Transport

The ESIA identified potential impacts on *Khulan* and other ungulates due to the avoidance of the mine site and access roads, but also from induced increases in levels of hunting and disturbance caused away from roads by vehicles driven off-road.

As part of its NPI commitment, OT needs to make provision for wildlife to access habitat and cross roads in future if increased traffic levels mean that roads become a barrier to free movement through the landscape. Introduction of barriers to the regional landscape is increasing, both as a result of OT's infrastructure and activities and as a result of other development. This will inevitably reduce the availability of undisturbed and un-fragmented habitat over time.

OT now has some baseline monitoring data to support assessment of avoidance behaviour associated with roads and other infrastructure or sources of disturbance. The Core Biodiversity Monitoring Programme Report (March 2015) provided evidence from collaring studies that 60% of satellite-tracked *khulan* came within ≤10 km of the OT road and evidence of regular crossing was also obtained. However, a comparison between expected and observed crossing frequency suggests that crossing frequency of the OT road between the mine and the Mongolian-Chinese border crossing point is 41% of what would otherwise be expected based on *khulan* presence in the vicinity and this is at levels of traffic considerably lower than those projected in future. Furthermore, the timing of *khulan* crossings is largely restricted to periods of low traffic (for example at night), leading specialists to suggest that a degree or avoidance behaviour could potentially be occurring.

These results lend weight to the need for OT to develop a robust approach to management of fragmentation and barrier impacts. Accordingly, OT and lender representatives participated in a one-day meeting in November 2014 to discuss potential options for mitigating habitat fragmentation and maintaining landscape connectivity for ungulates in future. This was the second meeting focused on the development of a portfolio of mitigation measures to minimise impacts associated with the OT- Gashun Sukhait road and offset residual impacts associated with this and other linear infrastructure.

As IFC and EBRD were the only lender organizations represented at the meeting, further internal discussion within the broader lender group is required but there was broad agreement on several issues. OT's Transport Strategy is evolving and OT has undertaken to appraise lenders of any changes that could have implications for biodiversity affected by transport infrastructure and associated traffic. OT undertook to provide documentation to lenders on transport strategy, including road and rail options being considered by the project and to follow the Management of Change process for changes in existing strategy. Some of these changes could mean that traffic levels in future are lower than originally thought. OT and lenders also agreed to develop a coordinated approach to engagement with the Government of Mongolia regarding mitigation approaches for the rail route from Tsagaan Khad to the Gashuun Sukhait border. Options discussed included exploring the potential for barrier removal along non-OT linear infrastructure such as fences on the UB – Sainshand railroad.

Several potential mitigation solutions were discussed, including daily road closures for the OT - Gashuun Sukhait road; additional at-grade crossings and/or installation of enhancement measures to increase the potential use of natural crossing points or constructed crossings. It was agreed that construction of underpasses/overpasses may not be justifiable in the near term "given their high cost and uncertainty surrounding their effectiveness". There is also uncertainty about future road traffic volumes, particularly if future mine-related transport occurs on a new rail line. This means it may be preferable to consider more

cost-effective mitigation measures such as road closures before more costly and risky underpass/overpass strategies are considered.

The need for regional engagement focusing on mitigation of linear infrastructure in the South Gobi was acknowledged and OT and the lenders agreed to coordinate efforts to pursue opportunities to incorporate offsets in future rail construction projects.

This useful review of options notwithstanding, a clear way forward has not yet been identified. It is acknowledged that it is challenging for OT to finalise its approach without consultation with government and other developers in the region and that it will not be possible for OT to develop effective solutions in isolation, due to the large distances over which wild ungulates range and the escalation of development of linear infrastructure in Mongolia as a whole. However the development of potential alternatives to consider remains critical and ongoing delays could mean that potential opportunities to achieve gains through measures addressing impacts of other developments in the region could be lost. Clear thresholds or triggers for implementation of mitigation measures are needed based on traffic levels and data on animal crossings and this has implications for monitoring, with collaring of ungulates, ground-based surveys and aerial surveys all being required, though the frequency of aerial survey has not been agreed.

Impacts of off-road driving

The BMP requires measures to control disturbance of animals caused by off-road driving and any associated increases in mortality from hunting and collecting. As well as the BMP, references are made to this issue in the Transport Management Plan OT-10-C3-PLN-0001 and the OT Site Wide Traffic Management Plan OT-10-C3-PRC-0005-E, particularly in relation to road safety and wildlife.

In October 2013, in response to Notice of Change (2014-7), lenders approved the removal of a proposed measure to install structures or barriers at sensitive areas to prevent vehicles from leaving the OT-GS, OT-KB and OT-airport roads from the BMP (and the Lender BAP). The need for alternative plans for mitigation of impacts associated with off-road driving in sensitive areas continues to be discussed between the Lenders and OT. The need to identify sensitive areas where this issue might require specific management interventions has been raised in previous IESC reports, as has the need for credible measures to control disturbance and mortality of animals associated with off-road driving to the extent that this has been exacerbated by the presence of the Project. Establishing the contribution made by the Project requires OT to establish a baseline in the Project-affected area through some proxy for actual levels of off-road driving (not considered possible), for example by monitoring changes in the physical footprint of off-road tracks as interpreted from satellite imagery or aerial photographs. This is not included in the proposed Core Biodiversity Monitoring Plan for the next 5 years. Lack of such information will make it difficult to attribute impacts or establish thresholds for adaptive management in line with management of other impacts on critical habitat.

5.9.2.3 Stakeholder Engagement

Integration of biodiversity-related commitments and requirements with OT's stakeholder engagement planning process is a Lender requirement (BMP Annex C ID 24). OT committed to develop a "targeted Stakeholder Engagement Plan" to underpin critical engagement with external stakeholders regarding biodiversity offsets (BMP Annex C ID25) and regional-scale sustainable development (BMP Annex C ID26). There is an expectation of a high level of engagement with a range of external stakeholders, including other companies, all levels of government and organisations working towards sustainable development in the region. OT is meeting this commitment by regularly seeking opportunities to engage with Government and other organizations involved in biodiversity conservation and monitoring, environmental regulation and infrastructure development. A recent example is the workshop hosted by OT in Ulaanbaatar to share the results of its Pilot Core Biodiversity Monitoring Programme with officials and representatives from the Ministry of Environment, Green Development and Tourism, the Ministry of Transportation and other mining companies and scientific institutions. Papers were presented by OT personnel and, amongst others, Wildlife Conservation Society (WCS), the Mongolian Wildlife Research and Conservation Centre and the "Green Gold" project and the workshop provided opportunities to discuss strengths and weaknesses of the Programme, share results and launch the next 5-year phase. OT is just about to participate in a workshop organized by EBRD on biodiversity offsets, at which it will present a collaborative paper with Global Biodiversity Conservation on its work in this area.

Previous IESC Audit Reports have acknowledged OT's efforts to seek engagement with external stakeholders, but have also identified lack of progress in strategic planning of this engagement to maximise its effectiveness and minimise risk of stakeholder fatigue. Through its Notice of Change 2014-006, OT requested an extension of the timeframe for delivery of a biodiversity-related Stakeholder Engagement Plan to Q4 2014 and the plan is still not in place. OT has charged its Ecosystem Services Group with developing a biodiversity-related stakeholder engagement plan, but it is not yet in place. An initial stakeholder mapping process is suggested as a practical first step so that key internal and external stakeholders are clearly identified from the outset.

LBAP items 24, 25, 26 largely focus on consultation needed to develop effective biodiversity offset strategies, but also emphasise the need for good internal engagement to support mitigation actions. Embedding the plan in internal Project planning procedures is another aspect likely to require active management to ensure an effective, integrated approach to issues such as resolving uncertainty around biodiversity offset policy and to provide assurance that the necessary partnerships can be developed to achieve NPI.

5.9.2.4 Land Disturbance Control and Land Rehabilitation

OT has a Land Disturbance Permit Procedure (OT-10-E9-PRC-0003), which ensures that approval for land disturbance is underpinned by ecological reviews and assessments to check that damage to areas of environmental significance is avoided. There are two phases in land rehabilitation: technical and biological. As identified in previous IESC reports, biological rehabilitation requirements need to be defined more clearly, bringing them in line with technical rehabilitation procedures.

As Rio Tinto's Land Use Stewardship Standard no longer requires a Land Use Implementation Plan, Lenders agreed that it is acceptable for OT to retire this measure from the BMP and Lender BAP so long as biological targets and commitments are clearly stated in an alternative plan. Following discussion between the Biodiversity and Land Teams during the previous IESC visit, OT indicated that it proposed to incorporate relevant commitments and measures in a new Land Disturbance and Rehabilitation Plan, to be accompanied by a Biological Rehabilitation Procedure. When this has been developed and approved, the need to update the Land Use Management Plan (LUMP), Pasture Management Plan and Mine Closure Plan will be reviewed and amended as necessary. These were expected to be available for review by the time of this audit, but are not yet complete.

It remains important to make a clear distinction between rehabilitation to an acceptable end-use (e.g., vegetation consisting of typical pasture species) and targeted biological rehabilitation to specific plant community-types, some of which is needed to demonstrate NPI and might require explicit provision for endangered plant species, supported by research if needed.

Proposed approaches for establishing suitable "analogue" or reference vegetation communities (e.g., in terms of type, species composition and structure) were discussed in the previous IESC visit, at which time plans were being developed to develop field trials to research rehabilitation techniques for the target community for the replacement BorOvoo spring. This was needed to ensure that it would be possible to "mimic" the characteristics of the BorOvoo spring as closely as practicable - taking into consideration the extent of inundation and catchment size, establishing vegetation and rocky outcrop habitats" (ESIA Ch B7a Table 7.1). These activities have been stalled due to ongoing discussion with communities about the preferred location for the replacement spring but remain important to underpin design of a new spring.

However OT has procured and installed a wildlife camera so that use of the temporary spring by wildlife can be monitored while final design and location is confirmed (ESIA Ch B7a Table 7.1; see Section 5.1.2.1 and issue No. M1.1).

It is expected that OT's commitments to rehabilitation of specific vegetation types and NPI for endangered plant species will be revisited in the light of recent revisions to the Mongolian Red List when the BOMP is finalised. OT has given assurance is that privatisation of OT's nursery facility will not jeopardise its ability to carry out necessary research on plant species of conservation importance or to ensure that sufficient stocks of seed and other propagules are available when needed for biological rehabilitation purposes. These requirements are built into contractual arrangements for the privatised nursery.

5.9.2.5 Managing Illegal Hunting

A list of priority species was identified by OT in its Environmental and Social Impact Assessment and priority ungulate species were considered to be threatened by increases in poaching due to population influx, improved access, and increase in off-road driving. OT therefore committed to undertake research on effective actions to address illegal hunting and plant/animal collecting and, based on the results, to facilitate actions to reduce levels and impacts of illegal hunting and plant/animal collecting to baseline levels. Reduction in hunting impacts is seen as a potential measure for OT to deliver conservation gain towards NPI in the South Gobi Region and OT's initial NPI Forecast suggested that reducing poaching levels on ungulates could account for a large proportion of the gains needed. These estimates were not underpinned by robust baseline data, however. OT therefore commissioned WCS to carry out a Pilot Study of Wildlife Hunting and Trade: Umnogobi and Dornogobi in February 2014. Studies included carcass counts as a proxy for levels of hunting and household surveys as a basis for investigating levels of trade, amongst other mechanisms. This work revealed a lack of capacity for monitoring and enforcement, including in protected areas and emphasized the need for officials to receive training in monitoring and enforcement: "If rates of poaching and trade are to be relied on as measures of change over time, providing metrics of progress towards meeting NPI".

A pilot "Anti-Poaching Offset Programme" was established by Sustainability East Asia LLC (SEA) and the Wildlife Conservation Society (WCS) on behalf of OT, building on a successful history of implementing effective and coordinated law enforcement initiatives in other parts of Mongolia, and around the world, and working in partnership with local enforcement agencies.

To allow the effectiveness of this programme to be measured, pilot activities had to be planned for areas where baseline data were being collected for OT's Core Biodiversity Monitoring Plan, or where data on poaching rates were available from other sources.

The following activities were undertaken as part of the pilot programme:

- a Multi-Agency Team (MAT), and Mobile Anti-Poaching Units (MAPU) were organized and trained, and began patrolling;
- a market survey was done as part of an effort to develop a poaching baseline and to target law enforcement efforts; and
- an analysis of existing Khulan carcass data was done, to improve estimates of baseline rates of poaching and to look for evidence of trends in time and space.

The project team purchased and delivered equipment necessary to facilitate effective and safe conduct of patrols and prepared and delivered a series of training sessions to the MAT and MAPU. An MoU was signed by organisations involved in the programme: WCS, the Environmental Protection Agency, the Police Department, the Specialised Inspection Agency, the Intelligence Agency, the Prosecutors Office, the Small Gobi Strictly Protected Area (SPA) Administration and the Gashuun Sukhait Customs Officer. In parallel, market based surveys in the South Gobi were carried out to collect wildlife trade information and identify any organised trade structure for wildlife trade in the south Gobi. WCS and Sustainability East Asia LLC then set out to assess the effectiveness of anti-poaching activities and to establish realistic NPI gains.

Another important mechanism for controlling illegal hunting is inspection of vehicles and accommodation for illegal wildlife or wild plant products. The Lender BAP (18d, BMP Annex C) states that OT will develop procedures for the implementation of its Illegal Wild Plants and Animal Products Policy. OT's revised "Illegal Wild Plant and Animal Procedure" (OT-10-E9-PRC-0005-E) has been reviewed by Lenders and is expected to be approved subject to amendments regarding changes to its security and vehicle checking procedures to improve ability to intercept illegal products or interpret the significance of detection records. The amended procedure has not yet been provided for review, however OT communicates its policy on illegal activities related to wild plants and animals in its training for employees.

5.9.2.6 Planning for Biodiversity Offsets

The revised timeline for OT's Offset management plan and updated NPI forecast to be submitted to Lenders was Q1 2015. OT is currently revising its NPI forecast, based on monitoring data, but this is not yet complete and is needed to inform the "Biodiversity Offset Management Plan". The latter is expected to

focus initially on control of illegal hunting, rangeland management, work within Protected Areas, and removal of barriers on non OT linear infrastructure such as the Ulaanbaatar – Beijing railway.

Finalizing plans for delivery of offsets is challenging given the need for OT to align its proposals with government policy at a time of significant change in government. OT has carried out a number of preparatory studies through the Core Biodiversity Monitoring Programme and is field-testing anti-poaching measures as a basis for offsetting potential declines in ungulates due to illegal hunting. Partners and consultants have also recommended strengthening of conservation management capacity in the South Gobi Protected Area as this is a key wintering area for khulan. The challenge of identifying offset actions that can give demonstrable net gain in a context with escalating cumulative impacts from other sources is one of the key reasons why stakeholder engagement around biodiversity commitments is such a critical activity. As identified in previous IESC reports, it is possible that establishment of an independent body or "Offsets Steering Committee" with membership from Mongolian and international experts could assist with stakeholder engagement on this issue.

5.9.2.7 Ecosystem Services

Following training activities and workshops on ecosystem services held in mid to late 2014, OT has focused on improving the working relationship between the Environment and Social Performance Teams through the Ecosystem Services Group. The purpose and terms of reference of the Ecosystem Services Group have been re-framed to address the planning, implementation and monitoring of programs and actions related to ecosystem services benefits and other matters that cut across RDSP and environment. The Group is also seen as a necessary forum to identify areas of commonality and potential conflict. The frequency of meetings has been increased for 6 months to allow for shared work plans to be developed. Meetings are taking place on a fortnightly basis and are considered to be effective by participants. Regular participation and communication is seen as key and procedures have been put in place to ensure that members or representatives attend each meeting.

A draft 2015 workplan has been developed and further work is planned to identify overlapping or shared commitments between the Environment and Social Performance teams, soon to be integrated as HSEC. The Ecosystem Services Group has elected to focus initially on Pasturelands and Livelihoods Improvement, Water Resources Management and Biodiversity Offsets and to explore opportunities to facilitate improvement of livelihoods whilst also generating required biodiversity offset actions and rehabilitating lands disturbed by OT. The development of a Biodiversity Stakeholder Engagement plan is also now assigned to this group, to be led by the SP team.

OT had previously requested a revision of the timeframe for submitting a "Monitoring and Evaluation Programme" for critical ecosystem services from Q1 to Q4 2014 to allow time for preparatory training and capacity building among members of the Group. While it has been necessary to allow time to improve the group's working relationships and procedures, OT's proposed approach to adaptive management for the four critical services needs to be articulated as soon as the necessary shared commitments and responsibilities are agreed within the Group, as it remains unclear.

5.9.2.8 Monitoring

OT issued its final "Core biodiversity Monitoring Report" in March 2015 following completion of a pilot monitoring programme in 2013 and 2014. This was carried out by WCS and SEA, in collaboration with OT and OT's biodiversity advisors, Global Biodiversity Consultancy, together with national specialists and researchers and focused on collecting baseline data for rangeland quality in the southern Gobi, poaching rates in the region, and the status of priority biodiversity features identified in the ESIA. The results of these studies were interpreted and used to develop specific pressure, state and response indicators to monitor OT's impacts (pressure) on these features, the current state of the feature, and the effectiveness of OT's mitigation (response) measures. These indicators have associated thresholds that define acceptable natural variation of change for biodiversity indicators, beyond which adaptive management responses are triggered. This exemplifies good practice through an evidence-based approach, though it is important to ensure that there isn't an over-dependence on response indicators as the monitoring programme develops over time.

While some indicators were identified at an early stage and have been monitored for the past two years, others were identified as a result of refined monitoring methods, based on results of the pilot and have been incorporated into OT's monitoring programme for the coming five years. OT has developed its internal

monitoring and reporting procedures accordingly, for example by producing an indicators spreadsheet to summarize monitoring results and support analysis of data.

OT has contracted a consortium composed primarily of SEA and the WCS to implement the Oyu Tolgoi Core Biodiversity Monitoring Program for the period from 2015-2019.

Key objectives in the next phase of monitoring are to:

- assess, as much as possible, impacts (positive and negative) of development, mitigation, and offset actions in order to allow for adaptive management and to minimize biodiversity impacts; and
- in the longer-term demonstrate that the project results in a NPI on high biodiversity value species and habitats.

Based on the pilot phase, the decision has been made to drop some high priority biodiversity features from the next phase of monitoring, notably:

- Argali (*Ovis ammon*);
- Collisions of Houbara Bustard (*Chlamydotis undulata*) with power lines;
- Short-toed Snake-eagle (*Circaetus gallicus*), though the species will be included general monitoring of raptors;
- Granite outcrop floral communities;
- Ephemeral lakes and pools; and
- Health of Riverine Elms and *Populus euphratica Oliv* (previously *Populus diversifolia*).

For Houbara bustard, for example, specialists concluded that frequency of monitoring surveys should be reduced because of the low density of the population and the challenge of detecting trends in numbers over time or OT impacts. Due to the high risk of cumulative effects and induced development in the region and the conservation importance of affected species, it is important for ongoing discussion to take place regarding the appropriate frequency of monitoring for priority species and it is expected that this will continue to take place through reviews of OT's Monitoring Strategy with national and international specialists.

OT has installed some equipment to monitor traffic on the OT-GS Road and has carried out some preliminary investigations of characteristics of locations where ungulates do or do not cross roads. Further investigations of this type were recommended in the Core Biodiversity Monitoring Report, which suggested that analysis would benefit from the inclusion of other transportation corridors and mine sites within the study scope to increase the sample size and identify more general patterns of behavior as a basis for confirming actions towards NPI. The report also recommends additional capture and collaring of Goitered gazelle near the OT site, to better understand impacts of mining and paved roads on their distribution and habitat use. In addition, increased sample size will allow the Program to quantify survival rate, evaluate cause-specific mortality (e.g. predation, poaching, etc.), and identify differences in survival rate and mortality causes between impact (OT) and control areas.

5.9.2.9 Resources and Staffing

The OT Biodiversity Team has a fauna and flora team coordinated by the Biodiversity Manager, now also appointed as overall Manager of the Environment & Biodiversity Team. The BMP outlines key roles and responsibilities for implementation: the fauna team is responsible for a range of biodiversity monitoring activities as well as development of offset proposals while responsibility for biological rehabilitation and achieving NPI for conservation priority plant species lies with the flora team. The process of handing management of the nursery over to a local company is now underway and this will affect the composition of the flora team, with nursery staff transferring out of the OT flora team to be employed through the privatized nursery. A botanist has recently left OT and an agronomist has been recruited. Potential implications of these changes for capacity to undertake necessary research and restoration activities and to ensure that priority species are recognized in advance of land disturbance will be reviewed in the next IESC audit.

OT continues to work with several external organizations, partners and consultants. Recent changes include departure of FFI as a partner, but the WCS and its partners SEA have been reappointed by OT to manage ongoing monitoring activities in partnership with OT's biodiversity team and this is seen as entirely beneficial in terms of building a robust knowledge-base, developing capacity and expertise,

building on experience and maintaining continuity of input. Coordination of internal and external partnerships is also important as part of OT's NPI planning, for example the possibility of integrating *khulan* carcass surveys OT's community based wildlife monitoring has been suggested to enhance efficiency of monitoring. The Ecosystem Services Working Group has been identified as a platform for aligning and integrating work carried out by the Biodiversity and Social Performance Teams and is now entering into a new phase under chairmanship of the Manager Environment & Biodiversity. The Ecosystem Services Group has also been charged with developing OT's biodiversity-related stakeholder engagement plan. Ensuring that this plan is effective in underpinning a coordinated approach to NPI on biodiversity, as identified in the OT BMP, requires active management to ensure that the necessary internal and external interfaces are in place. Reduced staffing levels in the biodiversity team make this an even more pressing requirement.

Despite its commitments in the lender BAP, the role of full time Biodiversity Offset advisor with that of Manager Environment & Biodiversity. Achieving consensus on biodiversity offset requirements is challenging and there is a need to develop and implement partnership programmes over extensive areas, whilst also carrying out on-site monitoring, biodiversity research and interpretation and meeting requirements of operational policies and procedures. Review with Lenders is needed regarding adequacy of resources to respond to these needs.

The previous IESC report identified potential lack of capacity in OT in relation to interpretation of monitoring data, development of OT's NPI and offset strategy and development of targets for biological rehabilitation. Substantial efforts have been made by OT and its consultants to interpret and evaluate monitoring data in this quarter and a revised NPI forecast and offset strategy are being developed. Progress with designing, implementing and monitoring biological rehabilitation will be reviewed in the next visit when a site visit can be undertaken.

The Core Biodiversity Monitoring planning meeting discussed various possible approaches to further capacity building including training seminars, joint publications, and fostering collaboration between teams. It was agreed that the key capacity building for OT's personnel in the 2015 monitoring programme would include:

- active participation of OT staff in planned field monitoring activities;
- one-on-one learning experience for statistical data analysis for OT staff to be coordinated by WCS; and
- opportunities for OT staff to participate in development of scientific papers and publication of research findings.

These are very positive measures that should benefit technical capacity in OT as well as improving integration of biodiversity-related monitoring on and off-site.

5.9.3 Findings and Observations

Findings – Biodiversity and Ecological Management

M1.16 There are ongoing problems with functioning of alternating flapper-type bird flight diverters that were installed to manage risks of birds colliding with power lines. There are incidences of mortality of species of conservation concern within critical habitat, notably Houbara Bustard, and the scale of undetected collisions remains unknown. Interpreting the significance of collisions is further compounded by lack of reliable information on the size and distribution of the affected populations. More intensive monitoring is challenging due to the low density of these species and it is not considered feasible to take corrective action (to re-fit functioning diverters) during operation. OT is therefore working with specialist consultants to develop a "Powerline Options Paper". This is expected to describe a suite of potential offset interventions to improve the resilience of affected populations or reduce collision rates on other powerlines in the region, but was not available for review in this audit. Because it is not currently possible to demonstrate with strong evidence that impacts are not significant and because impacts are continuing in critical habitat, there is considered to be a Level III non-conformance. Possible plans to discontinue monitoring should be reconsidered while impacts continue and until there is a robust strategy in place to implement offsets, together with

sufficient evidence of their likely effectiveness. (B09, LBAP ID1, CBMP).

M1.18 The replacement BorOvoo spring should "mimic" the characteristics of the BorOvoo spring as closely as practicable - taking into consideration the extent of inundation and catchment size, establishing vegetation and rocky outcrop habitats" (ESIA Ch B7a Table 7.1). At the time of the previous IESC audit, OT had initiated steps to define the target plant community for the replacement spring and implement field trials to research the ecological requirements of these plants. However expected progress has not been made due to further negotiations with communities regarding the final location of the replacement spring. The expected field trials have been placed on hold until a final location for the replacement spring has been confirmed. However the existing temporary spring provides good opportunities to test rehabilitation techniques in advance and to ensure that these are well established in time for implementation in the final planned location. Delaying this activity creates a potential risk that key ecological requirements of target species will not be reflected in the final design of the Spring. (ESIA Ch B7a Table 7.1; see Section 5.1.2.1 and issue No. M1.1).

M2.5 OT undertook to develop a workplan for installation of underpasses to include activities and timelines for stakeholder consultation, design, locations, engineering and environmental assessment consistent with expert advice. The initial workplan was due to be agreed with the Lenders by Q4 2013 (BMP Annex C, ID 5) and the proposed approach remains uncertain.

Increased traffic volumes in future could make the OT-GS and other roads a functional barrier to movement of species such as Khulan and Goitered Gazelle. Current levels of traffic are not considered to create a complete barrier, but monitoring results do indicate a degree of avoidance behaviour even at these levels.

Although future traffic levels may not be as high as originally envisaged, OT has committed to demonstrate best practice to manage its residual impacts on critical habitat for ungulates and other species vulnerable to barrier and disturbance effects. A meeting on this issue was held in November 2014, with a view to identifying practical measures that OT could take to ensure that habitat connectivity is maintained throughout its operations. It was agreed that under or overpasses may not be the best or most cost-effective solution and other potential solution were discussed, including carefully timed road closures. At the time of this audit, recommendations are still being developed. While it is acknowledged that OT will find it challenging to achieve NPI without collaboration with Government and other developers, potential alternative options must be developed as a matter of urgency, as impacts on affected species populations could already be occurring to a degree. Meanwhile OT has undertaken to appraise lenders of any changes in its transport strategy, particularly where there are implications for sensitive species. Monitoring of traffic levels and wildlife movements should also continue so that any emerging trends in barrier effects, or the lack thereof, can be detected. (BMP ID B16 and Annex C, ID 5).

M2.6 Stakeholder engagement underpins many biodiversity commitments and OT has committed to "substantial stakeholder engagement and consultation to ensure that its biodiversity offset programme is consistent with national conservation priorities and stakeholders' interests". OT has committed to develop a "targeted Stakeholder Engagement Plan" to ensure effective integration of biodiversity-related stakeholder engagement requirements with OT's systems. There have been ongoing delays in addressing this issue. OT has charged its Ecosystem Services Group to produce a biodiversity-related stakeholder engagement plan but this was not available for review in this audit. As recommended in previous IESC reports, in addition to producing the Stakeholder Engagement Plan, it would be advisable to complete an associated stakeholder mapping process and identify any actions needed to mainstream biodiversity commitments and requirements into the OT's

internal stakeholder engagement planning systems e.g. through the SHCF or an alternative suitable mechanism (BMP B05; LBAP ID 24, BMP Annex C).

M2.7 OT committed to submit a LUIP or equivalent plan to the Lenders by Q1 of 2014, with a view to presenting a clear indication of OT's proposed commitment in terms of vegetation or habitat rehabilitation. This is required to provide a framework to monitor OT's success in meeting PS 6 requirements with respect to "no net loss" of natural habitat and also OT's Biodiversity Strategy regarding net positive outcomes for priority species, including plant species.

Production of the LUIP is no longer a Rio Tinto requirement and lenders approved OT's request to remove this requirement from the BMP. Discussions during the November 2014 audit resulted in a revised proposal for OT to incorporate its commitments relating to equivalence of restored vegetation into a new Land Disturbance and Rehabilitation Plan and Biological Rehabilitation Procedure. A revised timeline was agreed with lenders. Work has commenced on this, but no documents were available for review in this audit. (LBAP ID 18c, BMP Annex C).

M4.3 The ESIA identified risks to wildlife from induced increases in levels of hunting and disturbance caused away from roads by vehicles driven off-road. Lenders approved the removal of road barriers (as a solution to prevent vehicles from leaving the road), but the need for alternative recommendations to manage this issue has not been resolved.

As part of its Notice of Change submitted July 2014, OT suggested the development and distribution of communication materials on the impacts of off-road driving, to be used "internally and externally with communities". OT has already carried out some initial awareness-raising in Khanbogd Soum on this basis and it is recommended that such efforts should continue as part of a targeted programme of interventions to be implemented through the Stakeholder Engagement Plan.

Monitoring of the disturbance footprint caused by vehicles driven off road over time, for example as indicated by density and extent of off-road tracks detected from aerial photographs or satellite imagery remains a strong recommendation so that impacts can be appropriately attributed to the Project or other causes. The fact that off-road driving is considered to be a "cultural" practice lends further weight to the need for solutions to be found, as it increases the risk that background levels of off-road driving might escalate in the region. (LBAP ID6).

M4.4 OT undertook to develop and implement a Biodiversity Offset Management Plan, identifying options for sustainable financing, that mitigates the significant adverse impacts of the Project on critical and is sufficient to have a net positive impact over the life of the mine. A revised timeline for submission of the BOMP of Q1 2015 was agreed with lenders in November 2014. Submission of a draft is behind this schedule, but the updated "NPI forecast" is needed to allow the viability of alternative offset options to be reviewed. It is recognized that Government Policy is developing in this area and that monitoring results are needed to develop suitable interventions. However the challenge of identifying offsets that will deliver tangible biodiversity gains and the long lead-times that are likely to be required to implement them, makes it important to develop recommendations for review and discussion as soon as possible. In the previous IESC audit, OT indicated that it might re-consider establishment of an independent body or "Offsets Steering Committee" to assist with stakeholder engagement on this issue, with input from Mongolian and international biodiversity specialists. This may be particularly valuable given reduced levels of internal capacity in OT. (LBAP ID13).

M4.5 "Through the Ecosystem Services Group, OT undertook to implement a multi-disciplinary Monitoring and Evaluation Program for critical ecosystem services, to be designed in a collaborative manner with environmental and social specialists and integrated with social monitoring. This was to include relevant metrics and

threshold values, provide a basis for adaptive management and be statistically relevant. Whilst further studies and dialogue have been completed since the last audit, the proposed metrics and thresholds for critical services are not yet clearly established. OT should clarify how it intends to synthesise all of the pasture management, biodiversity conservation and livelihood improvement activities to develop these as part of its programme for critical ecosystem services. Building on its recent biodiversity workshops and the stakeholder engagement activities envisaged through the Cooperation Agreement, OT should prepare a "road map" or similar to describe the proposed governance arrangements and timeframe for this programme and clarify responsibilities for its implementation". (LBAP ID17; ESAP Item 7; Pastureland and Livelihood Improvement Strategy; RAP Entitlements Matrix).

Observations–Biodiversity and Ecological Management

24. It was not possible to review biological rehabilitation progress "on the ground" as part of this audit. The possibility of integrating "reference" samples along transects across proposed land disturbance areas at the Land Disturbance Permitting stage was discussed in the previous IESC report, as one possible means of improving subsequent evaluation of biological rehabilitation or restoration success. OT has been reviewing its survey protocols as part of its efforts to produce a new Biological Rehabilitation Procedure and these are expected to make provision for collection of control or reference data when pre-disturbance surveys are carried out;

25. The Core Biodiversity Monitoring planning meeting discussed various possible approaches to capacity building for biodiversity monitoring including training seminars, joint publications, and fostering collaboration between teams. Measures discussed included shared activities involving WCS and OT teams, as well as provision of training in statistical data analysis for OT staff. These are very positive measures that should benefit technical capacity in OT as well as improving integration of biodiversity-related monitoring on and off-site;

26. The previous IESC report referred to challenges of data interpretation in relation to levels of hunting. OT's consultants and partners have carried out a comprehensive review of these challenges and have made recommendations for future monitoring accordingly. These are presented in a Monitoring Strategy that will inform monitoring survey design for the coming 5 years. However some specialist recommendations have not been fully incorporated in this strategy for cost reasons and it is important that ongoing, independent review of data interpretation effectiveness takes place as part of the monitoring programme, so that its scope can be amended in future if necessary;

27. The pilot Core Biodiversity Monitoring Programme has provided a valuable evidence base to support quantified estimates of potential gains for conservation priority species. However ability to achieve positive impacts is challenging and long lead-times can be needed to build necessary capacity. Recommendations in the final report of the Core Biodiversity Monitoring Programme include capacity building to strengthen the ability of protected area staff to apprehend poachers and keep herders from grazing within park boundaries in the Gobi. Building on the promising anti-poaching activities currently being piloted, further preparatory efforts could be made towards developing conservation management capacity in protected areas, particularly where these are key to maintaining viable populations of conservation priority species. The Core Biodiversity Monitoring Report identifies several areas as being important for khulan at different times of year, including the South Gobi Protected Area and parts of the border zone between Mongolia and China for khulan. There is much groundwork that could be laid in advance of NPI forecasts and Biodiversity Offset Plans being finalized, to ensure that necessary skills and resources are in place to improve conservation management;

28. The Khulan Study (Appendix C to CBM 3rd Progress Report) suggested that physical characteristics of road crossing points should be mapped so that reasons for use versus random crossing / nonuse can be investigated. The previous IESC report observed that more detailed investigation of the potential factors favouring or preventing road crossings would facilitate planning for effective measures to maintain habitat connectivity throughout the

khulan range. Inclusion of other mining roads such as the ER and TT roads was suggested to provide deeper insight into the barrier effects of transportation corridors. This is borne out by recommendations in the Final Core Biodiversity Monitoring Report, which suggests that "A better understanding of *khulan* behaviour near roads and other infrastructure is needed and all analysis would benefit from the inclusion of other transportation corridors and mine sites within the study scope to increase the sample size and identify more general patterns of behavior";

29. Water availability has been identified as a key factor that influences ungulate movement patterns. Several specific water points receive heavy and repeated use and the Core Biodiversity Monitoring Report recommends protection of strategic water points as a key contribution that OT could make to *khulan* welfare. Potential location of new water points in conservation priority areas could be considered in partnership with OT hydrologists as a potential offset measure;

30. LBAP item 18b required IESC review of the BMP and biodiversity commitments register to verify that all of the ESIA commitments have been incorporated in the OESMPs. A comprehensive review was required for Lender approval of the revised BMP. This was carried out in parallel with the November 2014 IESC visit, at which time the IESC confirmed that, with some relatively minor adjustments, OT's proposed new BMP could be considered to address OT's ESIA commitments. The BMP has not yet been re-issued but the necessary changes and adjustments to timelines have all been agreed between OT and lenders;

31. The Illegal Wild Plants and Animal Products Policy (OT-10-E9-PLC-1001) included prohibition of illegal hunting, to be communicated through induction and training to all personnel, whether employees or contractors. OT submitted a request to Lenders in a formal Notice of Change (2014-006) to replace the Policy with procedures (OT-10-E9-PRC-0005-E), which identify OT's approach to management of this issue. The IESC review of the BMP confirmed the need for OT to specify the expected frequency of checks and record the actual frequency of checks that takes place, so that the significance of any findings can be interpreted. The Notice of Change is agreed subject to required amendment. The revised procedure needs to be re-submitted for review with a revised time line of Q2 2015 as agreed with lenders in November 2014;

32. As a commitment in the Lender BAP (LBAP 19), OT undertook to ensure that its biodiversity management programme, including on-site mitigation, offset management and biodiversity monitoring, would be adequately resourced and financed to meet the requirements of lender performance standards and ESIA commitments and obtain net positive gain of biodiversity values. OT further committed (LBAP 20) to engage a full time senior level specialist with demonstrated experience in international best practices to provide support, capability and leadership to OT's biodiversity team in their implementation of biodiversity commitments. This position was to be in place for the period necessary to achieve sufficient capacity within OT's national biodiversity team to implement and manage the project's biodiversity commitments. The progress of capacity development was to be subject to an annual review process with lender involvement. Some biodiversity-related roles have not been replaced and others have been combined. In line with its LBAP commitment (20) OT appointed a full time Biodiversity Offset advisor, but this role has been merged with that of Manager - Environment and Biodiversity, so there is no longer a full time specialist in place within OT. The annual review process with lenders did not take place. The original LBAP commitment will be further discussed to reach an agreement with all parties during the next site visit planned for September 2015.

6 SOCIAL

6.1 SCOPE OF SOCIAL REVIEW FOR THIS AUDIT

The April 2015 audit was conducted as a desktop exercise. The focus was on document review and discussions with OT personnel from relevant departments. There were no interactions with stakeholders external to the operation as part of this review. The focus of the desk-top audit was on OT progress against existing non-conformances, as well as auditing of contractor HR/labour performance, worker accommodation, herder livelihoods and livelihood restoration projects, support for vulnerable herder households, Undai river engagement and the Cooperation Agreement. To a lesser extent evaluation of community health and safety, cultural heritage and stakeholder engagement were also discussed as part of this desk-top review.

6.2 LABOUR & WORKING CONDITIONS

6.2.1 Project Strategy

As of the 31 March 2015, according to the OT workforce ratio report there were 6,587 workers at the OT operation, including those employed by OT LLC and contractor companies. These include workers at the mine site and in the various offices in Ulaanbaatar, Dalanzadgad and Khanbogd[25]. A total of 2,568 workers are OT LLC employees with the remainder of workers employed by contractors and sub-contractors. The total workforce comprises 95% Mongolian nationals.

A Labour Management Plan[26] (LMP) is in place for operations which sets out the general requirements for recruitment, labour relations and working conditions at the mining operation (as well as for any ongoing construction or expansion works), in accordance with the Mongolian Labour Law and international standards including IFC PS2 and EBRD PR2. This plan is applicable to OT LLC and contractors. A range of HR policies and procedures are in place to operationalise this plan. The OT Investment Agreement (IA) also contains a number of commitments related to national content, training and health and safety of the workforce during operations. OT monitors against the requirements of the IA.

A two-year collective agreement is in place until early 2016 for OT LLC employees as agreed with the Oyu Tolgoi Trade Union Committee. The Procurement department manages contractor pre-qualification and auditing of contractor performance. A Contractor Engagement team was established in 2014 to oversee the relationship with contractors in terms of on-boarding workers to the operation and relevant training, HSE and other provisions.

6.2.2 Observations

6.2.2.1 Recruitment and Manpower

The OT workforce continues to be focused on open pit mining, production and transport of concentrate and activities supporting this. The construction of the underground (UG) mine remains on suspension with a limited number of workers on care and maintenance duties.

With a national content ratio of 95% the key metrics set out in the IA continue to be met. Since the mine is in a steady state of operations the total workforce figures are very similar to the previous audit. Local employment numbers remain steady with 387 employees from Umnogovi recorded in March 2015 compared with 385 in October 2014.[27] This means that almost 22% of the workforce comes from the South Gobi. There are a total of 703 workers from Khanbogd *soum* as of 31 March 2015, comprising 216 OT LLC employees and 487 contractors. This is the highest number of workers from any South Gobi *soum* and is in line with the preferential employment policies for Khanbogd and other target *soums*. Dalanzadgad *soum* provides the next highest number of local workers with a total of 481 personnel from the *aimag* centre working at the operation. These figures provide good evidence that the preferential local employment policies continue to be effectively implemented by OT and contractors.

25 *The satellite offices in Bayan Ovoo and Manlai soum centres were closed in mid-2014.*
26 *Labour Management Plan– Doc. No. OT-10-PLN-0005 dated 01.09.2013.*
27 *This includes apprentices under training schemes.*

Good progress has been made in the past 6 months on disclosing local recruitment, training and employment metrics and information to local communities. Relevant information and data has been disclosed in the December 2014 and January, February and March 2015 community newsletters. The IESC is pleased to see that quantitative and qualitative data has been included on a range of topics, e.g. employment, training and other areas of interest. We encourage OT to continue this reporting to local communities and suggest they would be particularly interested in the actual numbers of workers from Khanbogd, Dalanzadgad and Umnogovi *aimag* working with the operation.

6.2.2.2 Management of Worker Relationship

The planned roster and shift changes were implemented as intended for relevant workers by end 2014. All national workers have now transitioned from a 28 days on/14 days off roster to a 14 days on/7 days off roster. No specific worker concerns are reported to have been raised by the union or others to OT in the previous 6 months. The IESC will check on this at the next site visit and the previous concerns raised by some national workers about having to travel significant distances on their week off. It will be useful for OT to keep a watching brief on this issue and also the topic of long-term worker housing in Khanbogd.

In the period from 1 January to 14 April 2015 a total of 15 employee complaints have been raised through the Speak Out system. Three of these are under investigation and resolution whilst the others have been closed. This is a similar level to previous periods and overall levels are low for the size of the workforce.

Further information was obtained from the Procurement department about their pre-qualification process for contractors as well as their periodic monitoring and auditing of contractor performance. It is evident that a strong pre-qualification process is in place with provision to check in detail the capabilities of contractors in a number of areas including HR and Employee Relations (ER). The Procurement team together with an external service provider, Achilles, conduct detailed pre-qualifications checks on contractors which include a series of questions on HR/ER management capacity such as "*Is there a formal process / procedure that demonstrates how a worker can make a formal complaint in confidence?*", "*Can the company demonstrate and understanding of the relevant laws regarding the employment of workers who are not from the country of operation?*" and "*Do company processes prohibit discrimination?*". This appears to be a robust process and a database of results is maintained including tracking of any training and follow-up measures provided to improve contractor capacity in the areas where weaknesses are identified.

However, ongoing auditing of contractor HR/ER performance once they are on board is not as strong. An audit process is in place and administered with the help of Achilles, however, the process includes limited relevant HR/ER performance checks. In other words, after the pre-qualification assessment a number of the important HR/ER performance criteria are not monitored with contractors. Since a strong a system is available it should be easily modified to include additional HR/ER performance checks. We suggest that the Procurement department works with HR to define the types of questions and site assessment activities that should be included in the audit process. An audit schedule should be developed for these enhanced audit with the initial focus on major and/or higher risk contractors and then progressively with others as relevant. As mentioned previously, this type of compliance verification would typically include assessment of recruitment and selection processes, payroll, employment agreements, employee assistance/grievance systems, and worker mobilization/logistics. We also suggest that preferential local recruitment procedures are assessed because this is a key commitment of OT to the Government of Mongolia. The IESC look forward to seeing the improved HR/ER audit process with contractors at the next site visit.

Collective Redundancies and Demobilisation

The final number of OT LLC employees and contractors retrenched in the 2014 workforce reduction were 216[28] and 114 respectively. Three (3) employees[29] are known to have been redeployed; bringing the total retrenched to 327. The final number of local workers made redundant was generally low: 39 in Umnogovi including only 3 from Dalanzadgad and 11 from Khanbogd.

Whilst no formal report has been made available on the final outcomes of this redundancy process, the IESC is satisfied that it was implemented without any major issues being identified. Furthermore, key data

[28] *The total number of employees retrenched has changed since the last report because this includes all FTE employees working on Oyu Tolgoi, including OT LLC and other FTE workers.*

[29] *Those workers redeployed are from Umnogovi aimag.*

on the number of workers affected by location has been provided. Review of the employee grievances for the past 9 months does not appear to show complaints related to the redundancy process. There are still areas for improvement in how OT reports on collective redundancies; particularly in terms of demonstrating how the company and contractors extend assistance to retrenched workers, e.g. tracking the level of EAP assistance and other support provided, e.g., resume preparation, references etc.

6.2.2.3 Worker Accommodation

There are no significant updates or changes to worker accommodation for this audit. It was reported by OT that they intend to sell the South camp that was closed last August. It is understood that the rehabilitation of the site will then be up to the purchaser. OT will need to ensure that its relevant obligations for rehabilitation of the site are still met.

The program to replace pipes at several accommodation blocks in Manlai camp has now been completed. This has reportedly addressed the seepage issues at the camp. No complaints are understood to have been reported to OT about odour or noise issues at Manlai camp since the last IESC site visit. This suggests that efforts to improve operation of the wastewater treatment plants, replace pipes and sound-proof the accommodation blocks have been successful. The IESC will check on this at the next site visit. As stated previously, it is important for OT to continue to monitor accommodation conditions and worker attitudes at OT site and ensure employees are kept informed of current and longer-term housing plans.

The camp in Khanbogd[30] was reportedly closed as planned in late November 2014 and is now on care and maintenance with only Bambai security present to guard the facilities. Although the site is on care and maintenance there are no-near term plans to reopen the facility. As and when there are any future accommodation requirements in Khanbogd *soum* or elsewhere outside the site e.g., for road construction, OT understands that it is important to advise Lenders/IESC in advance of implementing these plans.

The company has made an effort to further investigate conditions at the Jiayou managed warehouse and accommodation facilities in Huafang, China. The contract with Jiayou is about to be renewed and OT intends to include some additional clauses to require the contractor to meet relevant standards for accommodation[31] and for OT to be allowed to periodically audit the facilities. This is positive progress and encouraged by the IESC; it should be extended to other transport and logistics contractors wherever needed. During checks of these accommodation facilities, attention should be paid to the number of beds per room[32], the ratio of ablutions per person, privacy provisions, and other key requirements. The IESC looks forward to seeing the audit schedule, protocol and any reports from audits in 2015 when available.

6.2.3 Findings and Observations

Findings – Labour and Working Conditions

M4.6 Revise the audit protocols for assessing contractor performance to include additional checks on HR/ER performance. Develop an audit schedule to demonstrate when these enhanced audits will be implemented with contractors. Start on Category 1 contractors and progressively implement with other contractors as relevant. Provide to Lenders/IESC for review. Ensure HR staff are involved developing the enhanced audit protocols and the audit process (LMP Sections 5.1.8 and 9.2).

Observations– Labour and Working Conditions

33. continue to monitor local employment and ensure that contractors also maintain preferential employment policies for Khanbogd and Umnogovi *aimag* (LMP Section 5.1.2, L02);

34. continue to report quantitative and qualitative information to local communities and other stakeholders on recruitment, employment and training (LMP Section 5.1.2, IMPm21);

30 *This camp is also known as "Summer Camp". It is not the same as the former CIS camp which is closed.*

31 *These include OT internal standards and the IFC/EBRD Guidance Note on "Worker Accommodation: Processes and Standards" as per LMP, Key Management Control, L08.*

32 *Currently there are understood to be 8 beds per room which is higher than the recommended number.*

35. keep a watching brief on potential labour relations issues around the roster change for national employees living outside of major centres and for long-term workers who have relocated to Khanbogd before they potentially arise as grievances;
36. strengthen processes to capture data and report on the implementation of retrenchment plans for any future collective redundancies, including tracking the level of assistance provided to redundant workers (LMP Sections 5.1.3 and 9.1, L04);
37. work with the Environmental department to ensure that relevant obligations are still met for rehabilitation of the South Camp in the event of sale to a third party as planned;
38. advise Lenders in advance of any new accommodation plans as they arise, e.g., for OT to Khanbogd to Javkhlant *bagh* road construction;
39. continue to monitor accommodation conditions and worker attitudes at OT site and ensure staff are kept informed of current and longer-term housing plans. Engage workers about long-term housing plans and explain uncertainties that exist while the UG construction is on hold (LMP Section 5.1.5, IMP, Table 2, IMP15);
40. develop an audit schedule and protocol for checking HR practices including accommodation conditions at transport and logistics facilities (L03, L08);
41. conduct periodic audits of the Huafang contractor camp and any other relevant transport and logistics camps to ensure compliance with relevant standards (L03, L08).

6.3 RESETTLEMENT, COMPENSATION AND LIVELIHOODS IMPROVEMENT

6.3.1 Project Strategy

A Resettlement Action Plan[33] (RAP) has been in place since 2012 to manage physical and economic displacement and this was updated once in 2013 to reflect the start of the operations phase activities. Now that operations are in a steady state and compensation and livelihood restoration for affected herders are advanced, OT intends to update the RAP again in 2015. Significant work has been done with Khanbogd herders in the previous 2 years and an update is scheduled as part of the ESAP commitments to Lenders. The RAP update will enable OT to give a progress report on the results achieved to date and define the targeted actions still required to fulfil any commitments that remain. It will also continue to act as the framework for any future displacement that might occur due to new activities or associated facilities.

The focus of activities remains on implementing livelihood restoration activities including those delivered through the Pastureland and Livelihood Improvement Strategy[34] with Khanbogd *soum* herders. This strategy is designed to define a sustainable pastureland management program that is open to all herders in Khanbogd *soum* potentially affected by loss of or changes to grazing lands. The Completion Audit for herders resettled in 2004 has now been finalised and some corrective actions are being implemented by OT. The Outcome Evaluation of households economically displaced in 2011 is yet to be implemented.

The Land Use Management Plan[35] (LUMP) and Land Disturbance Permit (LDP) continue to be implemented where required, to minimise disturbance to land and ensure that local permits and approvals are acquired. The Grazing Access Protocol has been revised with herders and is being implemented to allow herders to graze at certain times each year in the OT mine licence area.

An Undai River specific engagement plan has been drafted by OT. This is intended to be finalised by mid-2015 and will guide all engagement activities with herders and *soum* authorities on the Undai.

33 *Resettlement Action Plan - Doc. No. OT-10-PLN-0006 dated 01.09.2013.*
34 *Pastureland and Livelihood Improvement Strategy - Doc. No. OT-10-E2-PLN-0001 dated 01.09.2013.*
35 *Land Use Management Plan - OT-10-E9-PLN-0001-E dated 01.09.2013.*

6.3.2 Observations

6.3.2.1 Resettlement

An action plan to implement recommendations from the Completion Audit for resettled herders has been prepared by OT as suggested. It is good to see that a structured process has been established to ensure these recommendations will be implemented. The plan describes how OT intends to implement common recommendations for all families and specific activities suggested for individual households.[36] It could do with some improvements to ensure the actions are specific and well defined (e.g., some of the actions such as "explain about relocation agreement terms" or "clarify involvement in PEM" are not clear). The results of the Completion Audit were reportedly discussed with herders to develop the corrective action plan. The IESC will check on implementation of this plan with herders at the next site visit.

6.3.2.2 Economically Displaced Herders

The outcome evaluation of herders from the 2011 program has progressed since the previous audit. It is still planned as part of the multi-disciplinary study agreed by all three parties (EHT, OT, Khanbogd government). An Expression of Interest (EOI) was publicly announced for a Multi-Disciplinary Team (MDT) to conduct the study on the CAO and OT websites.[37] The selection of the MDT will be discussed through the Tripartite Council and financing of the work is still being finalised (e.g., under Cooperation Agreement or CSP team budget or both). Whilst this is slower progress than hoped, the IESC understands that it would be counter-productive at this point to launch a separate outcome evaluation exercise as it would complicate this process and duplicate costs in a time of economic uncertainty around the UG mine. We encourage OT to continue to expedite the study as much as possible. The IESC will revisit this issue further at the next site visit and expects that work will have commenced well before then.

The permanent well construction for the herder family who were resettled in 2013 has now been completed and this brings to a close the delivery of entitlements for this household (Figure 6.1).

Figure 6.1: New Well for Herder Household Resettled in 2013

Work has progressed on the transition strategy from entitlement to economic independence for displaced herder families. This involved the compilation of socio-economic data obtained from various studies for each household and up to date GIS mapping as well. A household survey was also conducted with herder families about their interest and capacity to participate in small-scale enterprise development. This was designed to see how they could be incorporated into the support being provided by OT to establish herder cooperatives. Encouragement of displaced herders to be involved to OT's community programs is one of main goals of the transitioning to economic independence strategy. All displaced households (93) have been involved in OT training activities and donations. A total of 65 households are actively engaged in other kinds of programs such as cooperatives, PEM, cultural heritage monitoring (with 3 households involved in 4 programs; 6 households involved in 3 programs; 30 households involved in 2 programs; and 26 households involved in 1 program). A total of 5 out of 13 pension age road maintenance workers have

36 *Most of the recommendations revolve around further engagement with families although some relate to support for vulnerable households (See Section 6.3.2.4).*

37 *http://www.cao-ombudsman.org/documents/MDTEOI_ENGandMON.pdf*

http://ot.mn/mn/procurement/active-tenders/20150402

now voluntarily converted their remaining salary equivalent into a once off cash payment. A further 29 out of 80 road maintenance workers started assistance duties for OT community development programs. This demonstrates OT's commitment to continued support for displaced families.

No complaints from herders about resettlement or compensation have been received since the previous audit. There remains an outstanding group complaint from herders (approximately 13 herders) about inadequate or no compensation for impacts from as yet unpaved roads.[38] It has been agreed with the EHT that the Compensation Working Group (CWG) will be re-established to investigate and address this issue; but this group has still not been reconvened. Since the *soum*, OT and the EHT have agreed to establish a Tripartite Council for engagement on all herder-related topics, it may be most appropriate for this group to revisit this issue once established (See Section 6.4.2.4).

6.3.2.3 Pastureland and Livelihood Improvement

The first year of the participatory vegetation monitoring (rangeland monitoring) has been completed by Nutaag Partners. The final report has been issued and discussed by a number of stakeholders including the *aimag* and *soum* authorities and the EHT who have all accepted the report. OT reported to the IESC that there had been positive feedback from local stakeholders on the report and that herders commented that they can see that environmental factors are having an impact on rangelands (as well as mining and other activities). The experience from OT/Nutaag Partners was also shared with rangeland professionals at an international conference organized by the Society for Rangeland Management. The IESC reviewed the English summary of the report. There were a number of findings in terms of vegetation variables but limited information on the specific *soum* and *bagh* rangeland management strategies recommended in the report. The next step is for OT to define how they intend to support the *soums* to implement the recommendations; ensuring there is a clear division of responsibilities between the *soum*, other stakeholders and OT.

Additional progress has been made in the area of animal health as a result of the OT study in Khanbogd, Bayan Ovoo and Manlai *soums.* Three authorized veterinarians have been assigned by local authorities in each *soum* to implement preventative actions on animal infectious diseases. This follows the training organized by OT in 2014. In addition, the *Aimag* Agricultural Department announced 2015 as the year of "Combating Animal Diseases Caused by Parasites", which is likely to have been influenced by the animal health promotion efforts by OT and their partners. The Khanbogd budget for animal health was increased by 60% by the *aimag* in 2015. The animal health study report was discussed with the EHT in late 2014 as planned. One highly positive outcome was the agreement between OT and the EHT to implement a local animal health project in Khanbogd (such as mobile dipping, etc.). An open tender will be announced for all cooperatives once the design of the project is finalized.

The Grazing Access Protocol is being implemented and *bagh* authorities are managing the process of allowing specific herder families access to the grazing area (around 1,600 hectares) within the mine licence. Families have to attend a brief safety and induction session before being allowed access.

Further efforts have been made by OT to ensure all Khanbogd herder families are provided with greater small scale enterprise development, income diversification and other livelihood support opportunities. These include encouraging herder participation in cooperatives, facilitating new cooperatives with herder membership and providing spent tyres to herders which they have used to build animal shelters. The next phase of the camel shearing project is also being actively pursued by OT. At the same time, further information has been made available to the IESC which better demonstrates the level of training and ongoing support provided by OT to cooperatives through their cooperative training partner (See Section 6.5.2.3). These activities, together with the planned local animal health project in Khanbogd, the improved supplemental fodder program,[39] and planned access to credit scheme to be funded under the Cooperation Agreement, will also contribute to achieving the goal of a sustainable pastureland and livelihood improvement program.[40] It is evident that resources have been directed to this effort in the past 6 months

38 *This complaint is understood to be from the unpaved section of the OT-GS road as well as the OT-KB road. This complaint is one of those being addressed by the CAO.*

39 *The supplemental fodder program is discussed in Section 6.5.2.3 in this report as it is was implemented through local cooperatives this year.*

40 *As described in Section 5.4 of the Resettlement Action Plan.*

which is highly positive. The IESC looks forward to verifying the progress on these activities at the next site visit and expects that the existing non-conformance should be able to be closed at that time.

6.3.2.4 Vulnerable Displaced People

The vulnerable households' assistance action plan has been further drafted by OT. This plan outlines the profile of vulnerable herder households in Khanbogd *soum* and a common set of activities to be implemented with all of the identified vulnerable herder households. The action plan also includes a series of customized household assistance measures proposed for each family. Whilst still in draft format, it is positive progress and a good start to ensuring that the vulnerable assistance program will be well designed and implemented. This latest draft action plan is positive progress and when finalised should provide a good basis for implementation of a vulnerable herder assistance program.

There are some enhancements that can be made to finalise the action plan and these include providing more specific detail on the activities that OT and others will implement. It is important that the contributions intended by OT are tangible and detailed. A comprehensive and costed action plan with time-bound activities is required. Regular monitoring of vulnerable herder households should be incorporated into the vulnerable people assistance plan. The IESC looks forward to seeing the final action plan for the next site visit and will review the progress of implementation at that time. One area where the IESC will focus attention is on ensuring that all vulnerable herder households in Khanbogd have been adequately incorporated into the action plan (including relevant recent herder households that may now reside in the *soum*).

6.3.2.5 Update of the Resettlement Action Plan

A draft update of the RAP is being prepared by OT. This will be submitted to Lenders and the IESC with a Notice of Change in May 2015. The RAP update was due by 31 December 2014 and therefore the update of this OMP to the required standard now needs to be expedited.

As stated previously, the IESC recommends OT consider external help[41] to finalize the RAP update to ensure it aligns with the commitments already made in the OMP to Lenders and the above comments.

6.3.3 Findings and Observations

Findings –Resettlement, Compensation and Livelihoods Improvement

M1.23 An EOI for a Multi-Disciplinary Team (MDT) to conduct a study on the 2011 compensation program has now been announced by OT (the Outcome Evaluation of the 2011 compensation program is part of this study). The selection of the MDT will be discussed through the Tripartite Council and financing of the work is still being finalized. Continued persistence is required by OT with the EHT and *soum* to ensure this study is implemented as soon as feasible (RAP Sections 10.1, 10.2, 10.4).

M3.1 Finalize the vulnerable people assistance action plan based on suggestions made by the IESC. Ensure that the OT contributions proposed are specific and focused on facilitating income generation and diversification opportunities for the households. Implement the vulnerable people program and initiate regular monitoring of vulnerable herder households (RAP Section 6, Table 25 -R05, R11).

M3.2 Continue to implement the opportunities for small scale enterprise development and income diversification and other livelihood assistance for Khanbogd *soum* herders. Implementation of the planned access to credit, second phase camel shearing project, animal health project and cooperative support for herder families will be appropriate to fulfil OT's commitments to a sustainable pastureland management program (RAP Section 5).

Observations– Resettlement, Compensation and Livelihoods Improvement

42. Strengthen the corrective action plan for the Completion Audit for resettled herders. Implement corrective actions as intended (RAP, Sections 10.1, 10.2 10.4);

[41] *E.g. External resettlement consultant, Rio Tinto expert(s) or similar.*

43. Dialogue with the Tripartite Council about reviewing outstanding herder complaints as an alternative to the CWG being reconvened;
44. Define how OT intends to support the *soums* to implement the recommendations from the participatory vegetation/rangeland monitoring report by Nutaag Partners. Ensure there is a clear division of responsibilities between the *soum*, other stakeholders and OT;
45. Implement the local animal health project in Khanbogd as planned; and
46. Implement the local animal health project in Khanbogd as planned.

6.4 STAKEHOLDER ENGAGEMENT

6.4.1 Project Strategy

Community engagement is the responsibility of the CSP team while national government and other national-level stakeholders are managed by the Government Relations and Communications team. Relevant elements of the RT-wide Community and Stakeholder Engagement Tracking System ('CSETS')[42] have now been adopted by the CSP department and others. The CSETS system is designed to assist in managing stakeholder data and information, engagement records and outcomes across the business.

The CSP department has drafted an updated Community Stakeholder Engagement Plan (SEP) for their part of the OT business. This focuses on the key community stakeholders, external consultation groups, methods and tools to be used, as well as monitoring, auditing and reporting requirements. It is supported by a detailed calendar of events for community engagement. The intention is that this process will be complemented by discipline specific consultation plans for different activities as required. Community relations staff members continue to be present at OT site, Khanbogd, Dalanzadgad and Ulaanbaatar.

6.4.2 Observations

No external stakeholders were met or interviewed as part of this desk-top audit. No major issues or concerns were reported with stakeholders for this desk-top audit.

6.4.2.1 Community Engagement

Community engagement is being managed by a detailed calendar of engagement events coordinated by the CSP team and is updated quarterly. Whilst the revised CSP team SEP has been drafted to guide the calendar of engagement activities it still needs to be finalised. Since a number of significant changes have occurred since the operations-phase SEP[43] was prepared, it is necessary and sensible for this to now be revised. It needs to reflect the way that OT currently interacts with the community and other local stakeholders. As stated previously, it is important for OT to ensure it incorporates all of the relevant commitments from the previous operations-phase SEP agreed with Lenders into this new version. The IESC would be pleased to review this when finalised.

Engagement with herders in recent months has been focused on cooperative development and support activities (e.g. sausage production, loan and savings scheme, fodder distribution, etc). Engagement with the EHT has continued as planned since the last site visit and covers topics including pastureland management and monitoring, Undai River diversion and herder livelihoods. Good progress has been made on transitioning the EHT-CAO-OT process towards a long-term consultation body. A Tripartite Council has been proposed and agreed in principal by all parties. This would eliminate the need for the CAO eventually (and after the complaint is withdrawn) and instead bring in the *soum* administration as the third counterpart to this group (See Section 6.4.2.4).

An Undai River specific engagement plan has now been drafted by OT. The Independent Expert Panel (IEP) study commissioned by the EHT-CAO-OT process has been finalised and this has enabled the engagement plan to be drafted based on the recommendations made. The IESC reviewed the draft and will provide separate comments to OT with suggestions on how to finalise it effectively. In general it is a good start and if some further details and an action plan are included it should satisfy the requirement for a topic-specific engagement plan for the Undai. Engagement around the Undai is otherwise ongoing. Some

42 *A 'Community and Stakeholder Engagement Tracking System' being rolled out by Rio Tinto operations worldwide.*

43 *Stakeholder Engagement Plan - Doc. No. OT-05-PLN-0001 dated 01.09.2013.*

findings and recommendations from the IEP that both OT and the EHT are unsatisfied with will need to be discussed to agree a way forward.

Participation in local cultural events in recent months has included annual camel festivals in Khanbogd, Manlai, Bayan Ovoo and Dalanzadgad-Bulgan *soums* and Tsagaan Sar celebrations (February 2015). A series of OT site tours have been organised for various groups in the past 6 months including Khanbogd and Dalanzadgad school teachers, the Khanbogd Governor's office, the Khanbogd Inter-*soum* hospital, Court staff, the Police unit, and Cooperation Agreement Working Group from Dalanzadgad; a total of 140 community members participated (Figure 6.2).

Collaboration with local elders is expanding through the Khanbogd Elders Association and includes work with the OT GIS team to geo-reference local areas in the *soum* with traditional names and details. The sound OT-Khanbogd Elders Association relationship continues to be a strong indicator of effective engagement with this stakeholder group. The monthly "Show and Tell" discussion series at the Khanbogd high school have been running for approximately 2 years and continue to be well received (Figure 6.2). This involves engineers, IT and communication specialists and other professionals from OT presenting to school students and teachers about their work at the mining operation. OT is planning to extend an invite to new college students to have a site tour or 'show and tell' session before they leave to study (e.g. in Ulaanbaatar). This is aimed at providing students with knowledge about the mine operation because people from Khanbogd report that they are always asked about OT when they travel elsewhere.

Figure 6.2: Community Site Tour at OT Operation and "Show and Tell" at Khanbogd School

Community consultations have been held in Khanbogd on the planned construction of the OT-GSK road and Khanbogd-OT-coal road (in Javkhlant *bagh*); as part of the DEIA preparation process. Meetings have also been held with local stakeholders about the management of the CIC and who and how the centre will be managed. The operation was planning a Town Hall meeting on 23 April in Khanbogd which will be a "Local Procurement and Contractors Job Fair".[44]

6.4.2.2 Information Disclosure

The monthly community newsletter continues to be one of the main methods for information disclosure to communities. The depth of information disclosed to communities continues to improve and increase with regular sections in the newsletter now for health and safety, human resources, and environment. A range of metrics are being reported on community grievances, participatory environmental monitoring (PEM), and training and employment.

The annual meeting for participatory water level monitoring was organised on 17 March 2015. The meeting covered a wide range of local stakeholders including *bagh* governors, rangers, and environmental specialists in addition to the participating herders. A range of printed, video and other materials were used to explain the annual results and discuss specific issues with stakeholders. The number of participating herders for water level monitoring has increased by five from Bayan *bagh* since November 2014 and the total is now 44. Under the PEM program OT fully equipped the biology cabinet of Khanbogd school and updated educational materials, tools, and computer displays. Its estimated cost was over 33M MNT.

[44] *At the time of writing the Town Hall had been postponed because of a regional outbreak of measles and the aimag government had issued a notice to all soums to not hold any public gatherings for 30 days.*

Participatory fauna monitoring has re-commenced since March 2015 (after winter) and a planning meeting will be organised in each *bagh* in April. Information disclosure and engagement activities for the PEM program are being actively planned, well-structured and documented.

Now that the fit-out of the Community Interaction Centre in Khanbogd is complete a range of disclosure materials should be available at the centre from mid-2015 (See Section 6.5.2.1). The IESC looks forward to seeing the different material sand methods utilised by OT at the centre during the next site visit.

6.4.2.3 Community Grievances

A total of 16 community grievances were received between November 2014 and March 2015 and 13 of these were resolved at the time of the audit (Figure 6.3). The most common types of complaints continue to be environmental (dust, water, pollution) and human resources complaints. There was also one security complaint which relates to the behavior of security guards. No complaints about herder livelihoods or compensation were received in this period. The IESC reviewed results from the complaints management database in CSETS and it appears to be working well. There has been consistent improvement in how OT logs, allocates, processes and tracks community grievances. Resolutions are also reported more effectively and feedback to complainants is consistently provided and recorded.

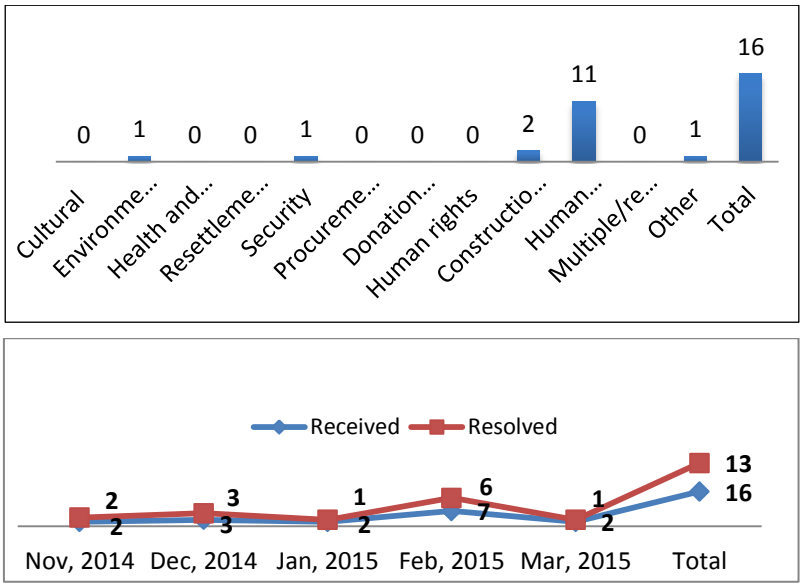

Figure 6.3: Community Grievances Nov 2014 to Mar 2015

Regular reporting to communities on grievances continues through the monthly community newsletter and includes both qualitative and quantitative information (Figure 6.4). Internal reporting on complaints has recently been strengthened with weekly reports to the General Manager continuing and now monthly reports to the Operating Committee, quarterly reports to the Board and quarterly meetings with the CEO. The CSP department organized refresher training on the community complaints procedure for team members on 23 January 2015.

Text (translation): Two complaints were received in March, one was about security and the other one was about human resources/recruitment. We resolved the complaint about security after clarification from relevant staff. The other human resources complaint has been submitted to the HR department, and we are following up actions for the resolution.

Although we received one HR request in January and six in February, we decided to record them as complaints in February. We have taken actions to resolve these complaints accordingly.

Diagram: The diagram shows the year to date community grievances by type.

Figure 6.4: Disclosure of Community Grievances, Requests and Concerns in Monthly Newsletter

6.4.2.4 IFC Compliance Advisor Ombudsman and EBRD Project Complaints Mechanism

The two formal complaints lodged with the IFC Ombudsman Office (CAO) regarding allegations of inadequate compensation for resettled herders and the Undai River diversion remain in mediation. Since November 2014, OT, Elected Herders (the EHT) and Khanbogd *soum* authorities have organised three (3) meetings in total. These parties are in the process of establishing a 'Tripartite Council', which will be a formal mechanism for direct engagement between herders/local government/OT without the CAO. At these meetings, parties agreed to:

- release the IEP report to Undai River herders;
- commence Phase II IEP studies on tributaries of the Undai River;
- call itself the Tri-partite Council and formalise it as the permanent herder representative working group under the Cooperation Agreement; and
- develop an MoU and Charter setting out the Tripartite Council's governance remit.

OT's Chief Operating Officer participated in one of these meetings and provided a formal apology from OT for the manner of construction-phase consultation and the anxiety this created in connection with the Undai River diversion at the time. The apology was formally accepted and recorded in the form of a letter presented to the EHT and publicised in local media and by OT on its website.

The IESC has reviewed the draft MOU and Charter of the Tripartite Council and these appear to be comprehensive and set out a sensible framework for its operation. The past activities with the CAO have established a robust foundation for effective ongoing consultation and problem solving. In summary, the complaints made to the CAO are expected to be withdrawn imminently paving the way for the Tripartite Council to be the vehicle for all future engagement activities on these topics. The MOU is expected to be signed in April/May. We concur with the plan and look forward to seeing the progress of the Council at the next site visit.

A third complaint to the EBRD's Project Complaint Mechanism (PCM) aimed specifically at Energy Resources LLC and OT LLC alleges major disruption to herd movements due to increased traffic on transport corridors. At the December 2014, CAO/EHT/OT Joint Meeting, EHT and OT were informed by the CAO that representatives from EBRD PCM will conduct a site visit in Mongolia in early 2015 to assess the eligibility of the complaints. No update has been received by OT since that news. In the case where PCM considers the complaints eligible, the Tripartite Council agrees to be the vehicle for negotiation, providing that other stakeholders agree.

6.4.3 Findings and Observations

Findings –Stakeholder Engagement

M2.11 An Undai River specific engagement plan has now been drafted by OT. The Independent Expert Panel (IEP) study commissioned by the EHT-CAO-OT process has been finalised and this forms the basis of the draft plan. The draft is a good start and if some further information and an action plan are included it should satisfy the requirement for a topic-specific engagement plan for the Undai. The IESC will review the final version for the next audit (SEP Annex E, SEP05).

Observations– Stakeholder Engagement

47. Finalise the CSP team operations-phase SEP incorporating all the relevant community engagement commitments from the previous SEP (SEP Section 6) and provide for review to IESC/Lenders;
48. Finalise the Tripartite Council MOU and Charter with the EHT and Khanbogd *soum* authorities as planned and develop a schedule of meetings and standard agenda;
49. Establish a wide range of disclosure materials and displays at the Community Interaction Centre once it is operational;
50. Continue dialogue with the EHT and *soum* government on the findings and recommendations from the IEP to agree a way forward.

6.5 REGIONAL AND COMMUNITY DEVELOPMENT

6.5.1 Project Strategy

Regional and community development is one of the main functions of the CSP department. A core element of the OT approach to regional and community development is the establishment of a long-term Cooperation Agreement for the South Gobi, supported by sub-agreements that address thematic areas of importance to the target *soums*, Umnogovi *aimag* and the mine. As part of the step-wise approach to preparation of the Cooperation Agreement, OT made an Interim Agreement with Khanbogd *soum* which was signed in late 2013. Implementation of the Interim Agreement has been ongoing in 2014.

A range of localised projects continue to be implemented by the CSP team that are contributing to regional and community development, including those being delivered through the local business and economic development, cultural heritage, community health, safety and security, pastureland management, and employability and training programs.

There are two work streams in the CSP department and the Compliance and Governance work stream covers the cooperation agreement and interim agreement. OT is positioning the operation towards eventually delivering all social programs through the cooperation agreement model.

The regional and community development program is directly related to in-migration management which is addressed through the Influx Management Plan[45] (IMP) and to a lesser degree in the Labour Management Plan and Community Health, Safety & Security Management Plan[46] (CHSSMP). These plans are all designed to minimise unplanned influx, maximise regional and community development to help the host communities cope with population growth, and promote sustainable economic development.

6.5.2 Observations

6.5.2.1 Cooperation Agreement

A number of local infrastructure and community development projects have been started and/or completed in Khanbogd in early 2015. Trench works and relocation of a mobile fence were completed for the interim waste management facility by a local company (**Error! Reference source not found.**) and handed over to the local administration in March 2015. This completes the OT contribution to the interim waste

45 *Influx Management Plan - Doc. No. OT-10-PLN-0004 dated 01.09.2013.*

46 *Community Health, Safety & Security Management Plan - Doc. No. OT-10-PLN-0001 dated 01.09.2013.*

management facility under the Interim Agreement. The "Galba" public park in Khanbogd which was opened last year with OT support was recognised as the best construction project in the Umnogovi *aimag* in 2014 (Figure 6.5). Detailed design is now complete for the drainage facilities along the paved roads in Khanbogd *soum* centre and an EOI was announced for local/regional companies in early 2015. The works are expected to start mid-2015.

Figure 6.5: Interim Waste Facility Trench Work and Khanbogd Public Park ("Galba" Park)

The internal fit-out of the Community Interaction Centre is now complete and was commissioned by the State Committee in January 2015. The use and management of the centre is still being finalised between OT and the Khanbogd administration. The CSP team will move to the centre by mid-year and some parts of the Khanbogd government[47] around the same time. A survey was conducted with residents to identify the preferred use of the community hall/public space in the centre. One of the ideas currently being discussed in further detail is the potential for part of the building to become the Khanbogd Tourism Information Centre. The IESC looks forward to seeing the occupied space at the next site visit.

The DEIA for the OT to Khanbogd to Javkhlant *bagh* road construction is still underway and proposals for the works have been obtained from several companies; works are still expected to commence in mid-2015. It will be important for OT to engage herders and other relevant stakeholders in Khanbogd prior to any earthworks on the road construction. An MOU has been signed between OT and the ADB-funded project to build a bulk water supply system in Khanbogd; detailed engineering and design is underway. There is no further update on the permanent Khanbogd landfill[48] and the planned Cultural and Sports (C&S) hall in Dalanzadgad is understood to be still on hold. It is positive that commitments from the Interim Agreement are now largely complete and progress continues on infrastructure development in Khanbogd and the South Gobi.

The Cooperation Agreement including the Trust arrangements and an implementation plan have progressed significantly in early 2015. Negotiations with the *aimag* and *soums* have been successful and the Cooperation Agreement was signed in April by the relevant parties.[49] This is a considerable achievement given that these types of agreements are still very new in Mongolia. This progress is due to the efforts of OT management, the CSP team and their advisors.

The parties to the agreement are the Umnugovi *aimag*, Khanbogd *soum* and OT. The term of the agreement is the same as current expiry date of OT's mining license (or 2033) which is extendable. The thematic areas for cooperation are:

- Water Management;
- Environmental monitoring and protection;
- National History, Culture and Tourism;
- Traditional Animal Husbandry and Pasture Land Management;

47 *Several government agency staff will move into the building including social welfare amongst others.*

48 *Design was completed with OT support but construction of the landfill itself is the responsibility of the soum and not part of the Interim Agreement.*

49 http://ot.mn/en/communities/cooperation-agreement

- Basic Social Services (Health, Culture, Education, Vocational Training and Employability);
- Local Enterprise Development, Goods & Services Procurement; and
- Public Infrastructure and Capital Projects.

The agreement will be funded through a Development Support Fund (DSF). To achieve this, the parties have agreed to establish an independent legal entity (an NGO) to implement programs and projects in Umnugovi. A Relationship Committee (RC) will be established to maximize community participation and provide a platform for interaction between local government, community members, and OT. In terms of funding the OT operation will make a financial contribution to the DSF each year.. Many of the future community and social programs will be funded under the DSF. The Cooperation Agreement was signed on 22 April 2015 in Dalanzadgad. The amount of the DSF was agreed at USD 5 million (indexed) per year throughout the life of the mine. The full version of the Cooperation Agreement is now available on the OT website www.ot.mn. It is highly positive that the agreement has now been finalised by OT and the relevant local and regional stakeholders.

Lastly, a number of in-kind donations have been made by the OT operation in recent months including to the Khanbogd hospital, Khanbogd school, and the *aimag* and *soum* Red Cross units

6.5.2.2 Induced In-migration

No assessment of in-migration management activities was conducted at this audit as the current status of operations does not present any additional risks to population growth or reduction at this time.

6.5.2.3 South Gobi Supplier Development

The Supplier Development Program by OT continues to focus on building the capacity of South Gobi suppliers. A total of 11 suppliers from Umnogobi currently operate at OT site. A reported 1,225 jobs have been locally generated and more than 190 types of service and products have been supplied by South Gobi suppliers. OT has worked with around 200 regional suppliers including through various supplier development trainings and consultancy support on areas such as HSE, business management and different types of technical skills. In addition, OT has organized 14 trade fairs involving 1,479 local businesses to date. Micro credit loans to 132 businesses worth 1,3 billion MNT have been disbursed. A recent supplier report by OT found that suppliers are becoming more sustainable with 17 other mining buyers with sales over 544 m MNT in the South Gobi.

6.5.2.4 Local Business and Economic Development

Cooperative development continues to be the focus of the local business and economic development program in 2015. Collaborating herder businesses are reported to number 17 cooperatives across 7 business types as follows: Camel milk processing – 1; Felt and crafts – 3; Cattle farming – 1; Concrete block producing - 2; Veterinary service – 4; Retail shop – 5; and Boots making – 1. The assistance provided to these businesses includes micro-loans, training, consulting and study tours to similar factories or establishments. OT also facilitates monitoring and ongoing support for these new businesses through their cooperative training partner, the 'Mongolian Cooperative Training and Information Center'. This group conducts visits, trainings and various other activities with cooperatives and also helps to review the financial viability of new local business proposals.

A total of 6 new proposals from cooperatives with herder membership have been received by OT in the past 6 months (from Khanbogd, Bayan Ovoo and Manlai). These include proposals for tourism and sausage production businesses which are currently being assessed by the cooperative training center. In April 2015 the cooperative training center along with relevant specialists[50] visited a number of existing and potential cooperatives to provide training, monitor progress and determine any additional support measures needed. The sausage production factory was identified as a potentially successful business with a good local market but with a number of technological and other weaknesses to overcome before it could operate successfully. After a series of meetings and trainings an action plan was agreed to ensure the necessary equipment and other supports will be in place for the cooperative (Figure 6.6).

[50] *E.g. Two technological specialists including an engineer and technologist accompanied the cooperative training center to the sausage factory to provide training and advice.*

It was useful for the IESC to see the report from the cooperative training center about their activities with the sausage factory and other cooperatives. We encourage OT to prepare similar reports for all of their efforts to support cooperatives and include specific details on the company's contribution to each business. Results should be disaggregated wherever feasible, e.g., by soum, by type of support, by level of herder involvement etc. This ongoing support for cooperatives with herder membership is positive progress towards additional income improvement and diversification opportunities for pastoralists in Khanbogd. The IESC plans to visit some herder cooperatives/businesses in Khanbogd at the next site visit and looks forward to seeing the results of their activities at that time.

Figure 6.6: Sausage Factory Cooperative and Training Activities

OT is planning the next phase of the camel shearing and camel wool branding pilot projects. The demonstration project for camel shearing was introduced to *aimag* stakeholders including the Department of Agriculture in early 2015 and was reported to have been very well received. The *aimag* is apparently planning to apply electric shearing techniques to all *soums* by the next shearing season. However, OT recognises the potential constraints of an *aimag* wide approach (e.g. need for good quality shears and adequate training). As such, OT is committed to facilitating the establishment of a camel shearing team in Khanbogd and neighbouring *soums*. This would minimise risks by having a trained team with quality equipment to carry out the shearing. It is expected that a cooperative will be formed by the already trained and high potential local shearers and then this group will act as a mobile shearing team for herder household across the *soums*. The OT contribution is likely to include business development support, cooperative training and leasing out of the shearing equipment on favourable terms. As stated previously, it is important that the next phase of the camel shearing initiative is initiated by the next shearing season so benefits can continue to be realised for herders. This is an important livelihood improvement project for herders and should be given high priority by OT. Each phase of the project should be fully documented and evaluated to determine lessons learnt and to provide the basis for the design of the next phase.

After the initial eco-tourism viability study facilitated by OT in Khanbogd and neighbouring *soums*, local stakeholders attended a Tourism Expo held in Ulaanbaatar and extended their networks with city based tour operators. Herders are also being trained to engage in community-based tourism hosting tourists at homestays and other activities. Lastly, OT facilitated development of the Khanbogd Tourism Master Plan with the *soum* administration in early 2015. This included help to develop the plan, consult with a range of local and other stakeholders and finalise the plan based on the contributions received.

The fodder distribution program was implemented through cooperatives this past winter (15 cooperatives were involved including 7 in Khanbogd *soum*). The Mongolian Cooperative Training and Information Center was engaged by OT to support and monitor the fodder distribution process with cooperatives. Initial findings show that as of April 2015 the process was 68% complete and cooperatives had collected 13.9 Million MNT (across three *soums* of Khanbogd, Bayan Ovoo and Manlai). Overall, it has been a successful process this season and a significant achievement given the number of cooperatives, herder households and geographic area covered. It is an ongoing challenge for some herders to change from the

'free of charge' mindset (they were previously used to receiving the fodder free from OT)[51] and some issues were identified with fodder storage which will need to be addressed in the future. OT will conduct a full analysis after the process has finished for this season. It was a sensible decision by OT to support implementation of this program through the cooperatives after the lessons learned from the previous year (where the *soum* authorities implemented it). This is a good example of how OT is continuing to contribute to herder livelihoods whilst moving towards a more sustainable approach which hopefully herders can maintain with reduced support in the coming years.

A micro-credit loan scheme has been incorporated into the Cooperation Agreement starting in 2015. It will be part of the sub-component 'Local Enterprise Development, Goods & Services Procurement' and will be funded by the DSF (See Section 6.5.2.1). A total of 5% of the DSF will be allocated for a 'Future Generation Fund', which will be a revolving fund to be used for micro-loans to support to local businesses. This will be a welcome addition to livelihood improvement opportunities for Khanbogd and other Umnogovi residents. It will be important for this micro loan scheme to be structured so it can be readily accessed by herders to make a range of livelihood investments. The previous loan scheme implemented by OT was successful in supporting SME[52] development locally, but was unavailable to those residents who needed small-scale loans for more subsistence livelihood activities (e.g. upgrade to an animal shelter, purchase of agricultural equipment or veterinary services etc).[53] If well-conceived and implemented this will contribute significantly to ensuring access to credit for herders and others in the region. The IESC looks forward to seeing the operating framework and action plan for the Future Generation Fund when available Access to credit for local herders is likely to be further enhanced by the recent establishment of a credit and savings union.[54] This union was established on 5 April 2015 and is called the "Galbiin Goviin Khishig" credit and savings union. Support has been provided by OT in the form of training and advice delivered through the Cooperative Training and Information Center.

6.5.3 Findings and Observations

Findings – Regional and Community Development
Nil.

Observations– Regional and Community Development

51. Finalise the move to the Community Interaction Centre in Khanbogd *soum* as planned including development of the community/public space in the building once agreed;
52. Engage herders and other relevant stakeholders in Khanbogd prior to any earthworks on the road construction for the OT to Khanbogd to Javkhlant *bagh* road;
53. Document the negotiation process for development of the Trust including any agreements reached with the relevant parties on the Trust fund, rules and criteria;
54. Complete the signing of the Cooperation Agreement and sub-agreements as planned (Investment Agreement Item 4.9, SEP28, SEP29, IMP (various), IMP20, IMP21);
55. Continue to dialogue on influx/out-migration and related issues with Khanbogd *soum*. At the appropriate time develop procedures and build capacity of the *soum* and OT to monitor and deal with influx and associated issues (IMP02-04, IMP07, IMP08);
56. Continue to support cooperatives and in particular those with herder membership. Continue to prepare reports for all of the efforts to support cooperatives and include specific details on the company's contribution to each business. Disaggregate results wherever feasible, E.g., by *soum*, by type of support, by level of herder involvement etc.;

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51 *It is important to note that the program still caters for herders unable to purchase fodder through the Emergency Fund of each soum.*

52 *SME = Small to Medium-scale Enterprise.*

53 *The criteria for the previous loan scheme included a business proposal to establish a small to medium enterprise.*

54 *The credit and savings union will operate in two streams: (1) herders savings; (2) micro loan for herders. The initiative has recently started and is being piloted (trial project) in Khanbogd soum.*

57. Support the next phase of the camel shearing initiative as planned prior to the next shearing season. Continue to evaluate the camel shearing program to determine lessons learned and provide the basis for the design of further phases. Prepare an implementation plan including budget and time-bound actions for OT's contributions to the next phase of the program;
58. Conduct full analysis after the fodder distribution process this season. Report on lessons learned and incorporate improvement measures into next phase of support for relevant cooperatives;
59. Develop the operating framework and implementation plan for the Future Generation Fund. Implement the first phase of the fund under the Cooperation Agreement once finalized. Ensure the micro-loan scheme can be readily accessed by herders and others it intends to target by making the access criteria relevant.

7 HEALTH AND SAFETY

7.1 WORKER HEALTH

7.1.1 Project Strategy

Occupational health is managed under the OT Health, Safety and Environmental Management System which is consistent with OHSAS 18001, and addressed in the Environmental and Social Management Plan. Occupational health assessments are conducted for workers based on exposure to risk, and medical monitoring of employees and contractors is performed. Onsite health facilities have staffing to respond to chronic conditions and emergencies.

Fitness for work is emphasized in the ESMP, and policies and practices address a range of health maintenance and protective measures, including alcohol impairment awareness. Thermal stress and dust is actively monitored.

7.1.2 Observations

Periodic health screening and assessments are performed under the continuing occupational health program. Among other initiatives, the Health Team is conducting ongoing dust sampling in all areas, with specific attention given to the Open Pit and Concentrator facilities.

The health clinic is managed by International SOS and is staffed with physicians and other personnel, including X-ray and laboratory equipment and a pharmacy. Ambulances are available at the clinic, and one is maintained at the airport. Recently, an outbreak of measles across Mongolia occurred and 6 workers at OT were diagnosed and put in isolation. The Health Team has provided instructions to report to the clinic or hospital if symptoms develop, and receive regular updates.

The ChemAlert program has been implemented for access to information on chemicals used on the Project. Currently, 830 products are registered in the ChemAlert program, with summary Material Safety Data (MSD) summaries in Mongolian. HSE personnel review and approve new chemicals before they come on site. The Health Team is holding training sessions in many areas where chemicals are being used, with about 100 employees involved in providing guidance on how to use ChemAlert.

7.1.3 Findings and Observations

Findings –Worker Health
Nil.

Observations– Worker Health

Nil.

7.2 COMMUNITY HEALTH

7.2.1 Project Strategy

Community health is addressed in the CHSSMP. The primary objectives include: mitigate the community health and social conflict risks associated with influx; develop strong relationship with health service providers and improve their capacity to respond; and mitigate impacts of road and other transport movements associated with the Project. In addition to Transport, Influx Management, and Emergency Response, CHSS management programs also address monitoring of key health indicators for community residents relative to OT operations, and response strategies. Implementation of community health protection measures are the joint responsibility of the HSE and CSP departments.

7.2.2 Observations

Recent local health system strengthening activities have included participation in dialogue with health officials and other partners to articulate the roles and responsibilities of each in the Umnugobi *Aimag's* Health Systems Strengthening Strategy 2015-2017. OT organised for 40 health care workers to attend English language training in Dalanzadgad.

The Khanbogd hospital emergency room is now fully equipped and operational, following additional funding by OT in late 2014 as reported in the last audit report. OT also contributed to the upgrade of the Manlai hospital training room which was completed in early 2015.

Following the Australian Royal Flying Doctor Service (RFDS) fact finding mission last year, OT has now facilitated the preparation of a funding submission by Umnogovi *Aimag*, the WHO and RFDS to the Australia-Mongolia Extractives Programme (AMEP). This submission is seeking support for a pilot scheme in the South Gobi. The IESC looks forward to seeing the outcome of the funding submission at the next audit.

No review was conducted by the IESC on follow-on activities from the herder health and livelihood study at this time. This will be investigated further at the next site visit and we look forward to seeing the proposed herder health contributions proposed by OT at that time.

7.2.3 Findings and Observations

Findings – Community Health
Nil.

Observations– Community Health

None.

7.3 WORKER SAFETY

7.3.1 Project Strategy

Occupational safety is also managed under the OT Health, Safety and Environmental Management System which is consistent with OHSAS 18001. A series of operations management plans and procedures provide management controls and monitoring systems, along with specific procedures to be followed for mining and transportation activities, including exposure to safety risks of the public. General workplace health and safety is addressed in the ESMP and companion documents: Element 3 - Hazard and Risk Management; and Element 6 - Training, Competency and Awareness. These documents describe the framework for hazard and risk assessment, including tiered assessment levels to address a range of occupational and operational activities that support understanding of the hazards and controls. All employees and contractors receive training in hazard awareness and the assessment process.

Hazardous substances are addressed in the Hazardous Materials Management Plan, and health and safety awareness discussed in other OMPs. Design and operations for blasting is undertaken in accordance with the Blasting Standard Work Procedures, which address: use, handling, and transport of explosives; personnel and training; schedules, warning systems, and monitoring; and audit procedures. Additionally, the Noise and Vibration Management Plan addresses associated effects from blasting, and it is noted that there are no sensitive receptors in the area.

Physical hazards relate to mine conditions, transport, use of fixed and mobile equipment, and machinery. Geotechnical safety is addressed as part of mine plans and related operations management plans, including the Mineral Waste Management Plan. Transport and machinery safety management controls are addressed through traffic controls, signage, illumination, and safety barriers and berms. Specific procedures have been developed for work activities, including electrical safety, isolation, working at heights, crane operation, confined spaces, etc.

The underground mine is still in a care and maintenance condition at present, with personnel restricted to maintenance of equipment, inspections and roof support. Workshops have been cleared of potential hazards, and equipment situated for safety and maintenance at the Shaft 1 entry ramp. Monitoring is performed for explosive gases, and refuge bays located within close proximity of equipment.

7.3.2 Observations

The HSE Department implemented the Critical Risk Management (CRM) program, focusing on 17 critical risk activities, with five associated with the underground mine, based on RT and industry experience and review/input from OT department leaders. Training has introduced the program to managers, superintendents and supervisors, and was initially rolled out in pilot areas, including the truck maintenance shop and light-duty equipment shops. The program is now being expanded across the organization. Critical controls that address the risks are verified through field data collection forms that managers complete and provide continuing confirmation in each department. During pre-start meetings, the critical risks associated with activities are identified along with controls, and placards installed to remind workers and those that might enter the work zone of the hazards. Supervisors check to confirm that the controls are

functioning. The involvement and responsibilities on department leaders ensure that they are engaged and visible in work areas, and this initiates high-quality interaction. Targets have been established for department leaders to complete critical control verification checklists, to promote sustained attention and involvement. Voluntary critical risk discussion sessions are also being conducted, with the following completed: fall from height/falling objects; vehicle collision or rollover/vehicle impact on person; contact with electricity/uncontrolled release of energy; and lifting operations/exposure to hazardous substance. The HSE Department will be monitoring the CRM program, and expect that additional critical risks and controls will be added as the program matures.

The CRM is complementary to the established Job Hazard Analysis (JHA) and TRACK (Think, Recognize, Assess, Control, and Keep safe) programs, which will be reviewed and potentially incorporate the critical risk verification and control process. During 2015, monthly HSE themes will reflect the critical risk of the CRM, and the March/April period is reminding workers on "Vehicle Collision/Rollover and Vehicle Impact on Person." Currently contractor performance is evaluated with respect to implementation of established safety programs, and the CRM program is envisioned to extend to contractors. Scheduled contractor engagement programs, such as that planned for April that will include safety officers and leaders of contractors, will introduce CRM through presentations and discussions.

The attention to vehicle safety has included review of the use of light vehicles on and off-site, and measures to isolate travel ways where heavy vehicles operate such as at the Open Pit and TSF. These efforts are focused on reducing the number of light vehicles operating to those necessary, and limiting use to better vehicles. Berms, separate vehicle travel ways, and drive-through parking are among improved journey management processes expected to have positive effect. Measures for dust control and suppression continue, and with installation of the foam system for the Core Ore Storage facility, problems are not occurring as reported in the previous IESC report. The most significant challenge with the foam system in winter months is freezing of ore, which makes it less effective in reducing dust.

Security and Human Rights training for the security service providers is scheduled for May 2015. The training program has been developed based on RT's policies and in accordance with the Voluntary Principles on Security and Human Rights, and comprises two parts. The first part is to ensure that senior security personnel and training staff have a thorough, in-depth knowledge on Security and Human Rights as it applies to security personnel. The second part is intended to train a core group of personnel to enable them to deliver training to their teams.

Incidents, Injuries and Illnesses are tracked within the RTBS system, with summaries included in the monthly and quarterly HSE Reports. Incident descriptions encountered at departments are provided in the reports. In March 2015, monthly incident counts (reflecting significant incident, significant potential incident, and process safety incident) included six incidents at the Concentrator and Open Pit, with critical risks identified as uncontrolled release of energy (explosive loading hose jammed inside borehole at Open Pit); falling object (motor cable caught on scaffold at Concentrator); and slope failure/falling objects (injury while operating excavator at Open Pit). Three were reported injuries, with one lost-time, the first in 2015. A clarification to the definition for Significant Potential Incident is being introduced, to remove the necessity for judgment of likelihood of injury.

Incident and injury statistics are analyzed within the RTBS system, which allows a range of calculations including Lost Time Injury (LTI) and LTI Frequency Rate (LTIFR), and All Injuries Frequency Rate (AIFR) figures for comparison with relevant targets (AIFR and LTI) that are tracked and presented in monthly reports.

7.3.3 Findings and Observations

Findings –Worker Safety
Nil.

Observations–Worker Safety

None.

7.4 COMMUNITY SAFETY

7.4.1 Project Strategy

Community safety risks and management measures are incorporated into several environmental and OH&S management plans and procedures described above, and the key community safety protection measures are summarised in the CHSSMP. The CHSS management programs include commitments on community safety awareness training and monitoring of personal safety issues in the local population. Safety risks which have the potential to affect communities are the joint responsibility of the HSE and CSP departments. The CSP team is responsible for safety awareness training and monitoring within communities and these remain currently focused on road traffic safety and human security and human trafficking risks.

7.4.2 Observations

Oyu Tolgoi continued to support awareness-raising activities on human security and human trafficking through its partnership with the International Organisation for Migration (IOM). Out of seven business proposals received for migrant women in Khanbogd at the end of 2014, four have been approved for funding by OT. Implementation of these proposals is expected to begin by mid-2015. A total of 300 copies of the manual on human security and human trafficking prevention for peer educators have now been disseminated in Dalanzadgad, Khanbogd, Bayan Ovoo and Manlai *soums*. A total of 1,200 pieces of the IOM handbook for border officers directly engaged in the immigration processes at airports and border crossing points have also been disseminated.

OT continues to support the implementation of the UNFPA Youth Development Program in Khanbogd *soum.* A co-financing agreement was signed on March 11, 2015 by OT and the UNFPA on the planned Youth Development Centre (YDC) in Khanbogd. There will be two staff at the centre and an announcement has been made that these will be Khanbogd citizens. The deadline for applications is April 2014. The YDC will be established at the OT Trade Training Centre building. Space has been made available because the new Community Interaction Centre is now completed and the CSP team will move to this new building. Residents between the ages of 10-34 will benefit from YDC activities including herder household members with OT sharing information from herder households with UNFPA to ensure youth from herder families are integrated into the activities. In addition to YDC, an Adolescent and Youth friendly clinic will be established at Khanbogd inter-soum hospital.

Annual first aid training for herders/road maintenance workers continued in 2015. After preparing a draft emergency response procedure for incidents occurring in the communities to define OT's process for responding upon notification of an incident, the ERT and CSP team met with officials in Khanbogd to establish awareness and learn about the community's capabilities and requirements, and where coordination or assistance may be considered. This input is being considered in assessing possible training opportunities and reviewing the draft procedure. Additionally, the ERT initiated the Emergency Response Committee with a meeting in January, which includes the CSP team as well as other OT departments on safety and health management procedures to monitor and prevent disease.

7.4.3 Findings and Observations

Findings – Community Safety

Nil.

Observations– Community Safety

60. Prepare a report on the outcomes of the work on training and preparation of the manual for human trafficking and human security prevention. Also prepare a report on the outcomes of the work with IOM to support migrant women in the OT area of influence (CHSSMP Table 3, CHSS05, CHSS06);
61. Continue to receive and monitor crime statistics from the Khanbogd soum and engage in dialogue with authorities including the Police; consider if training or other activities can be implemented with workers to reduce some of the risks or if there are other such measures that OT could support (IMP Table 2, IMPm11, IMP04, IMP05);
62. Complete the draft emergency response procedure for incidents occurring in the communities.

8 CULTURAL HERITAGE

8.1.1 Project Strategy

A Cultural Heritage Management Plan[55] (CHMP) is in place as well as a range of complementary Cultural Heritage Management System (CHMS) procedures, including a chance finds procedure and a land disturbance permit amongst others. Physical protection measures have been implemented at cultural sites and a range of contributions continue to be made to local cultural traditions and events. A team is present at Khanbogd/onsite to implement the cultural heritage management requirements.

The focus of cultural heritage management and monitoring continues to be on fulfilling commitments made by OT to protect known cultural heritage sites and to make a sustainable contribution towards preserving the tangible and intangible heritage of the Gobi region. These commitments are embodied in the Cultural Heritage Program Phase II which is currently being implemented. Additional cultural heritage studies and field work has been required in the past 12 months for the concentrate transport trial through Choir and the planned construction of roads in Khanbogd *soum*.[56]

8.1.2 Observations

In 2015 year to date, no cultural heritage incidents have been recorded and a total of 6 land disturbance permits have been received, assessed and approved by the CH team.

Work has not yet started on road construction along Zone 3 of the OT-GS road[57] or the Khanbogd-OT-Javkhlant *bagh* road. As such, no further work has been required on cultural heritage studies, excavations or monitoring in these areas since those reported in the last audit. All works in these areas will be subject to the CH procedures including land disturbance permits, special CH inductions for contractors and a CH monitor present for all ground works.

Monthly monitoring of cultural sites is continuing at 19 locations in the region. Eight (8) CH assistants are responsible for monitoring, maintenance and protection at these heritage sites (these include a number of herders). During 2015 year to date, cultural heritage and community relations inductions have been given to 228 workers. A total of 81 workers have been trained in the Chance Finds Procedure year to date.

The Khanbogd Elderly Association is still working at the Gobi Culture *Ger* and a total of 439 OT site workers have visited the *Ger* this year. OT recently helped the Khanbogd Elderly Association create a Facebook page where people can access a range of information, photographs, and videos about the Gobi culture and the Culture *Ger*. As part of this process the Elderly Association was assisted to make 28 short videos on different Gobi cultural topics and resources. The elders and items in the Culture *Ger* featured as the main characters. These are available at the website.[58]

The planned national conference on cultural heritage was held on 26 November 2014 and led by the Ministry of Culture, Sport and Tourism and the Ministry of Education and Science with support from OT. The conference, titled "Umnogobi *aimag's* historical and cultural heritage: Present and Future", had around 100 participants from national, regional and local government, key institutions in charge of cultural heritage, mining and infrastructure companies and community service organisations. Key outcomes from the conference include a greater awareness of the contribution of OT for the protection and preservations of cultural heritage in Umnogovi *aimag* and agreement by the Mongolian Academy of Sciences on the establishment of the Centre for Gobi region cultural heritage and development studies.[59] Further progress on the centre is currently on hold until restructuring is completed within the Academy of Sciences (reported by OT to be already complete at the time of the desk audit).

Other highlights from recent cultural heritage activities include the camel caravan in Manlai in early 2015 which was supported by OT (Figure 8.1). Further work has also been done on research for potential

55 *Cultural Heritage Management Plan - Doc. No. OT-10-PLN-0002 dated 01.09.2013.*

56 *This includes the OT to Khanbogd to Javkhlant bagh road and "Zone 3" of the OT to Gashuun Sukhait road.*

57 *Zone 3 of the OT-GS road is the last 17 km to the Chinese border.*

58 *https://www.facebook.com/pages/%D0%A5%D0%B0%D0%BD%D0%B1%D0%BE%D0%B3%D0%B4-%D1%81%D1%83%D0%BC%D1%8B%D0%BD-%D0%B0%D1%85%D0%BC%D0%B0%D0%B4%D1%8B%D0%BD-%D1%85%D0%BE%D1%80%D0%BE%D0%BE/823982694304585?fref=ts*

59 *The resolution was formalised on December 12, 2014 (Resolution No. 195).*

cultural heritage tourism products in Umnogovi aimag. For example, discussions are being held on possible camel caravan tours around *Khurdet* cave. Potential development of cultural heritage tourism products is included in the CHMP. Leading archaeologists and palaeontologists from the United States and Japan are due to travel to Mongolia in April and May 2015 to work with OT and relevant agencies on preparation of the CHMP for the *Shar Tsav* paleontological site and *Khurdet* cave (regional sites).

Figure 8.1: Camel Caravan Supported by OT in Manlai Soum

Extension of the Khanbogd museum and a replica of OT Hill are still under discussion with the *soum* and no decision will be made on these until OT has further clarity around the UG mine.

8.1.3 Findings and Observations

Findings – Cultural Heritage
Nil.

Observations– Cultural Heritage

63. Provide copy of draft CHMP for *Shar Tsav* and *Khurdet* cave when available;
64. Continue dialogue with the Mongolian Academy of Sciences on the establishment of the Centre for Gobi region cultural heritage and development studies.