REPORT OF THE:

INDEPENDENT ENVIRONMENTAL & SOCIAL CONSULTANT

OYU TOLGOI MINE PROJECT

MONGOLIA

Site Visit: October 2013

Prepared by:
D'Appolonia S.p.A.

Prepared for:
Oyu Tolgoi LLC

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INDEPENDENT ENVIRONMENTAL & SOCIAL CONSULTANT

ENVIRONMENTAL & SOCIAL COMPLIANCE MONITORING

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ACRONYMS

AEMP	Atmospheric Emissions Management Plan
AI	All Injuries
AQMP	Air Quality Monitoring Plan
ARD	Acid Rock Drainage
BAP	Biodiversity Action Plan
BMEP	Biodiversity Monitoring and Evaluation Plan
BMP	Biodiversity Management Plan
BOMP	Biodiversity Offsets Management Plan
BRMP	Business Resilience Management Plan
BRRP	Business Resilience and Recovery Programme
CAO	Compliance Advisor Ombudsman
CHMP	Cultural Heritage Management Plan
CHMS	Cultural Heritage Management System
CHP	Central Heating Plant
CHSSMP	Community Health, Safety & Security Management Plan
COD	Chemical Oxygen Demand
CQC	Construction Quality Control
CRO	Community Relations Officer
CSETS	Community and Stakeholder Engagement Tracking System
CSP MS	Communities and Social Performance Management System
EBRD	European Bank for Reconstruction and Development
ECAs	Export Credit Agencies
EDC	Export Development Canada
EFIC	Export Finance and Insurance Corporation
EHT	Elected Herder Team
EPRP	Emergency Preparedness and Response Plan
ERP	Emergency Response Plan
ERM	Environmental Resources Management
ESAP	Environment and Social Action Plan
ESHS	Environment, Social, Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FAQs	Frequently Asked Questions
GHGs	Greenhouse Gas Emissions
GIIP	Good International Industry Practice
HR	Human Resources
HSE MS	Health, Safety and Environment Management System
IA	Investment Agreement
IESC	Independent Environmental and Social Consultant
IFC	International Finance Corporation
IFIs	International Financial Institutions
IMP	Influx Management Plan
KCB	Klohn Crippen Berger, Ltd.
KPI	Key Performance Indicator
LBAP	Lender Biodiversity Action Plan
LDP	Land Disturbance Permit
LMP	Land Use Management Plan
LTI	Lost Time Injury
LTIFR	LTI Frequency Rate
MIGA	Multi-lateral Guarantee Agency
MLA	Mine License Area
MoC	Management of Change
MTCI	Medical Treatment Case Injury

MWMP	Mineral Waste Management Plan
NAF	Non-acid forming
NEMA	National Emergency Management Agency
NGOs	Non-Government Organisations
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
PCM	Project Complaints Mechanism
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
PR	Performance Requirement
PS	Performance Standard
RAP	Resettlement Action Plan
RDSP	Regional Development and Social Performance
RT	Rio Tinto
RTBS	Rio Tinto Business Solutions
RWDI	Restricted Work Duty Injury
SC	Standard Chartered Bank
SEP	Stakeholder Engagement Plan
SOM	Segregated Oxide Material
SOW	Scope of Work
TBC	The Biodiversity Consultancy
TMP	Transport Management Plan
TPD	Tonnes per day
TSF	Tailings Storage Facility
UG	Underground
US EXIM	Export-Import Bank of the United States
WKC	Ward Karlson Consulting, Ltd.
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.

This report provides the main outcomes of the first field visit to the Project made by D'Appolonia S.p.A., serving in the role of Independent Environmental and Social Consultant (IESC) for compliance monitoring on behalf of the Senior Lenders[1] group planning to provide project financing. The visit was conducted between the 20th and 26th October, 2013 and included meetings with the key project staff in Ulaanbaatar and a site visit to the project mining area.

The key purpose of the visit was to provide an external monitoring evaluation of OT activities with a focus on health, safety, environment and social aspects and to monitor conformance with the environmental and social commitments made for the project operation phase that began in July 2013. The commitments made by the Project for environmental and social management are integrated in the OT HSE Management System and documented in the Operational Phase Management Plans (OMPs) and other documents. The OMPs are the main documents defining OT's environmental and social commitments during the project operational phase and have been signed off by the previous IESC[2] as "Fit for Purpose". An additional document, the Environmental and Social Action Plan (ESAP) has been prepared to define gaps with Lender standards which require time-bound commitments. At the time of this audit some of these gaps were already completed and closed.

The IESC conducts periodic visits to the Project in order to:

- Assess the level of conformance/non-conformance of the Project with the Operational Environmental and Social Management Plans and the underlying monitoring plans and procedures, as necessary, to verify that OT is implementing the actions/commitments embedded in the plans;
- Verify that the activities are carried out consistent with the environmental permits as listed in the ESIA;
- Follow-up on outstanding issues from the April 2013 IESC Audit[3], if they are relevant to current operations;
- Provide professional recommendations relative to Good International Industry Practice (GIIP)[4], if any identified; and
- Identify specific issues, and conduct follow-up and closure of issues in the next audits.

The most significant findings made during this site visit are included in the non-conformance Issues Table in Section 3. Details including description and rationale are provided in the text of this report.

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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.*

[2] *Environmental Resources Management (ERM) was engaged to act as the Independent Environmental and Social Consultant (IESC) for the period August 2010 – April 2013 to support the Senior Lenders in assessing that the Project's Environmental and Social Impact Assessment (the "ESIA") and Construction Phase Environmental and Social Management Plans (the "ESMPs") were in compliance with the various Senior Lender Environmental and Social Standards ("E&S Standards").*

[3] *ERM, "Oyu Tolgoi Construction Phase Environmental, Social, Health & Safety Audit - April 2013 Audit Report", dated 18th July 2013.*

[4] *Good International Industry Practice (GIIP) as defined in the April 2007 IFC EHS General Guidelines as "the exercise of professional skill, diligence, prudence and foresight that would be reasonably expected from skilled and experienced professionals engaged in the same type of undertaking under the same or similar circumstances globally…".*

It is apparent that OT is committed to avoiding adverse social, environmental, health and safety impacts that could be caused by project activities. OT's program for environmental and social management is very comprehensive and has been structured based on the RT overarching HSEQ management system. The IESC observed the experience and dedication of environmental and social staff in the field. These positive indications need to be considered as the backdrop to all of our sector-specific findings.

The main observations of this field visit are summarized as follows.

Environmental and Social Management System

The Environmental and Social Management Plan describes a comprehensive system for administering the project which will aid in 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. Action Plans have been developed to address issues identified during the construction phase, and some of the implementation documents have yet to be completed. Management is knowledgeable and well equipped with the management plans, practices and resources necessary for addressing the issues and effective project operations.

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 the Project from constructing aspects of the Undai River Diversion project that were to take place outside of the fenced Mine License Area (MLA). Diverted groundwater is being discharged to an outfall bore within the MLA; however, this bore is not functioning as anticipated and groundwater is partially discharging to the surface, creating an artificial spring. The current Undai River Partial Adjustment and Protection project does not fully reflect the design specifications as set out in the ESIA, specifically with respect to return of groundwater to the subsurface and replacement of Bor Ovoo Spring. There are conflicting groundwater diversion design details presented in the ESIA. Once the final design has been confirmed, implementation of this should be managed using the company's MoC procedure. An in-line flow meter is needed to measure flow rates through the groundwater diversion pipeline. Water balance reporting should be reviewed for accuracy, and include more details on water efficiency efforts undertaken by the Project. Workplans exist to address boreholes that are interconnecting shallow and deep aquifers; this work will be implemented in the near future. The Water Monitoring Plan (WMP) describes an annual geophysical study, to be completed down gradient of the tailings storage facility, which is pending implementation. OT is investigating the capacity of laboratories located in other countries to address the full suite of parameters of analysis as described in the Water Resources Management Plan (WRMP). If it is not possible to analyse the full suite of sampled parameters, any revision to the sampling suite should be undertaken using the company's MoC procedure.

There are numerous water-related models and studies in progress that should be reviewed by the IESC when complete. Recommendations are made by the IESC to refine reporting efforts undertaken by the Project. Recommendations are also made by the IESC to add more detail to the current Undai River diversion project fortnightly reports.

Mineral Waste Management

Mineral waste management processes at the Open Pit are well developed. Sampling and testing of blast hole cores identifies potentially acid forming (PAF) materials based on established column leach studies, to enable material handling and isolation, even though the arid climate and low precipitation reduces the risk from exposure. The open pit mine management system integrates classification of ore and waste rock with extraction and disposition of materials to ore stockpiles and the Waste Rock Dump (WRD). The interim WRD slopes will require grading and reclamation as part of operations, and the IESC recommends that a strategy be developed that addresses the timing and tentative procedures for reclaiming areas during operations in accordance with the management commitments.

Shaft development rock stockpiles that contain PAF materials remain onsite without being processed as originally envisioned by the Project. Monitoring for containment and drainage is being performed until the ultimate disposition of the material is decided.

The initial phase of Cell 1 of the Tailings Storage Facility (TSF) is being operated, with construction initiated on Cell 2. While the design density of the deposited tailings is being achieved, the beach slope is flatter than anticipated which could impact subsequent TSF dam raising and freeboard, as well as pond water handling. Potential causes are being investigated, interim measures identified, and design modifications being considered. Monitoring of piezometers and seepage in the TSF dam indicate that safety and environmental protection systems are functioning.

Non-Mineral Waste Management

According to the documentation provided and the observations made during the visit, it is evident that the Project is working towards the implementation of the waste management strategy defined in the management plans and related operating procedures. However, in terms of temporary storage and disposal, both non-hazardous and hazardous wastes are currently sent to the interim Waste Management Centre (WMC) that has been in use since the project construction phase. Commissioning of the new permanent non-hazardous waste landfill is awaiting the Waste Disposal Location Permit from the *soum* Governor. Although the IESC recognizes that the current disposal site represents an interim solution and that the availability of the new permanent facility is beyond OT control, the timeframe of the permit is currently unknown and there is the potential for this interim solution to continue to be used for an indefinite period of time. The IESC therefore recommends taking some actions to improve general housekeeping and waste segregation methods that are currently not conforming with Project commitments and GIIP. Medical waste, oily rags, used spill kits, oil/fuel filters and other grease/oil contaminated materials are incinerated at the new EU compliant incinerator that is now operational. However, damage to some of the equipment during transport to the site is currently preventing the monitoring of stack emissions until replacement parts are delivered.

Hazardous Materials Management

Overall, the Project is doing a good job with the management of hazardous materials. The main hazardous materials currently used at the different Project locations are fuel and lubricants for light and heavy vehicles which are generally managed appropriately within properly designed hazardous material storage areas. Some findings and further improvements are recommended, such as at the main diesel fuel depot where spill kits were missing at the time of the visit. OT should ensure that the contractors and site supervisors routinely perform site inspections to confirm the adequateness of spill prevention measures at the different locations where hazardous materials are temporarily stored.

Air Quality

The south Gobi is an arid and windy region, with dust storms periodically causing elevated concentrations of airborne particulates. Due in part to the overall dry and windy environment there are historic and current exceedences of ambient air quality Project Standards, which are based on EU ambient air quality requirements. Within the ambient air monitoring network there are also some occurrences of gaseous parameters in excess of Project Standards. OT has prepared an Action Plan to address these exceedences, and is working with project operational areas to develop appropriate mitigations. State of the art ambient air quality monitoring equipment has been procured which will allow better evaluation of ambient air conditions going forward. A revised ambient air quality monitoring network will be implemented upon obtainment of the necessary equipment. There is a high level of dust being generated intermittently at the coarse ore stockpile location; OT has identified the use of a foam suppressant as the best mitigation. This mitigation is pending implementation. Stack emission sampling is not performed at the Central Heating Plant (CHP), although equipment has been ordered to allow this to occur. The project incinerator was damaged during transport to site, and emissions control and sampling equipment are not functioning. OT is working with the manufacturer to make necessary repairs. The Project has committed to performing an internal greenhouse gas emission reduction and energy efficiency improvement analysis; this is planned for in the near term.

Recommendations are made by the IESC to address Action Plan results in future quarterly and annual reports. It is also recommended that the existing Ambient Air Quality Assessment be updated when data becomes available from the improved ambient air quality monitoring network.

Noise and Vibration

Recent monitoring results indicate only minor exceedences of Project Standards related to noise and vibration. These exceedences are related to wind interference with monitoring equipment. The IESC finds the Project to be in substantive conformance with the Noise and Vibration Management Plan.

Emergency Preparedness & Response

The Emergency Response Team operating under the Emergency Preparedness and Response Plan (EPRP) is well staffed and equipped, with a comprehensive training regimen, and has been responsive to the site needs. Scenarios describing potential events and response actions, as cited in the Emergency Response Plan (ERP), are being prepared using a risk-based approach, with the focus on more likely and higher risk scenarios for detailed procedures. The IESC recommends that the identified scenarios be completed or developed and reviewed relative to the management commitments.

Transport Management

Control over transport vehicles is effectively managed through use of GPS tracking, escorts, security check points, and RFID tags on product bags. In addition to safe vehicle operation, the management controls address roadway dust and potential hazards to livestock and wildlife. Good progress has been made on installation of livestock crossing points, and some progress has been made with respect to warning drivers of potential risks to wildlife species in sensitive locations. However, the basis for identifying sensitive areas, where traffic speed regulation is particularly important, was not clear during the site visit. Also, the IESC recommends that an update be prepared on proposed measures to restrict off-road driving and parking beside roads.

Ecological Management and Biodiversity

The project's Biodiversity Management Plan (BMP) and associated management plans form the basis for implementation of the project's mitigation actions for biodiversity and ecosystems. An Oyu Tolgoi Biodiversity Strategy is being produced as part of the Biodiversity Action Plan process and the outcomes will be integrated into an updated project BMP which will be reviewed for the next IESC visit. A Biodiversity Monitoring and Evaluation Plan (BMEP) is also being developed to set out the project's proposed approach to monitoring of impacts and mitigation-effectiveness and provide a framework for development of any corrective measures needed as part of the project's adaptive management approach. Collection of important baseline information is ongoing and this is needed to confirm the project's impacts, as well as to provide a basis for designing and implementing offsets.

The project affects critical habitat for several species according to IFC Performance Standard 6 (PS6). OT's stated aim of having a Net Positive Impact (NPI) on biodiversity and ecosystems requires implementation of mitigation measures recommended in the ESIA and also development of biodiversity offsets for residual impacts that were identified. Some of the species for which offsets are required are nomadic and wide-ranging, making it particularly challenging to establish reliable baseline information or design interventions on the ground. Successful implementation of offsets will depend on effective management of cumulative threats and pressures on wildlife at a landscape scale and the development of partnerships with several national and international stakeholders. However, it is important for the Project to move clearly towards achievement of tangible gains for biodiversity with at least an indicative timeframe, as habitat loss has already taken place and the project affects critical habitat.

To this end, OT is actively engaging with key stakeholders regarding mitigation actions and to discuss opportunities to integrate biodiversity actions into regional planning efforts. For example, meetings and workshops have been held to discuss options for minimising cumulative fragmentation effects of linear infrastructure through development of wildlife crossings or underpasses. On the basis of the October visit it seems to the IESC that good efforts are being made to engage with suitable experts and specialists to inform development of practical alternatives for mitigation measures. OT has also developed several strategic partnerships with national and international specialists and NGOs in order to pursue key strategic activities, such as development of the biodiversity monitoring programme and Biodiversity Offset Strategy. Ongoing strengthening of these partnerships remains essential to support development of effective offset initiatives.

The Project also affects priority ecosystem services, four of which were identified as "critical" in the ESIA and Critical Habitat Assessment (livestock production, biomass fuel, freshwater supply and water regulation). The Project is using adaptive management strategies to establish effective mitigation actions

over time. A combined Ecosystem Services Taskforce has been established to ensure close integration of biodiversity and social teams and provide opportunities to ensure that livelihood interventions are compatible with biodiversity requirements. The Taskforce will identify actions needed to safeguard ecosystem service supply or benefit and ensure that outcomes are monitored. As the project also depends on freshwater supply for its operational performance, an explicit assessment of its planned use of this service over time and the implications of this for sustainable water supply might help to support a transparent approach to mitigation planning.

Land disturbance caused by the Project is managed through an effective permitting system with input from biodiversity and soil specialists. This operates efficiently, but further efforts to define clear reference or target vegetation communities as a basis for biological rehabilitation should be supported. It is also important to ensure that sufficient capacity is in place to support permitting and rehabilitation activities during periods of intense activity.

Key issues that need to be addressed are the development of an ecological design or specification for the replacement Bor Ovoo spring and the development of measures to manage impacts of off-road driving. A proportion of bird flight diverters are not functioning as intended, possibly due to mechanical problems during installation. The implications of this are being reviewed, but corrective action may be needed.

Labour & Working Conditions

The existing workforce is focused on open pit mining, some outstanding expansion works and completion of the OT-Gashuum-Sukhait (OT-GS) road. A local recruitment policy is being implemented and OT maintains a database of potential local applicants for unskilled work. The OT Investment Agreement (IA) also contains a number of Government imposed percentage requirements related to national content of the workforce during operations. Employment opportunities remain one of the highest expectations among the host communities. There is an opportunity for improvement to provide more regular and informative local recruitment and employment statistics and specific skills criteria to communities. An Employability Program is planned in 2014 to help maximize local content. Regular recruitment and workforce ratio reports enable performance against recruitment policies and the Investment Agreement to be readily monitored.

The human resources (HR) management system appears to be functioning well and there is evidence that a number of policies and procedures have been substantially embedded within the operations. A collective agreement is in place and monitoring of labour relations practices is evident. Monitoring and auditing of contractor performance against HR/labour relations requirements will be assessed in further detail at the next audit. An employee grievance mechanism is implemented and appears to be in line with industry best practice. The level of worker grievances to date in 2013 appears to be relatively low for the workforce size.

The 'pause' in development of the UG mine resulted in collective redundancies in 2013 of both OT LLC and contractor workers. A retrenchment plan was prepared by OT and appears to have been effectively implemented. Evidence of engagement with contractors on retrenchment planning was also observed by the IESC. Due to the process only recently being completed and the limited time spent with the HR department during the audit, the IESC did not confirm in detail the final results of collective redundancies for contractors/sub-contractors. Further information on the implementation process and results for collective redundancies, particularly for contractors will be reviewed at the next audit. In the case of large-scale collective redundancies, Lenders should be provided with the retrenchment plan. No further collective redundancies are anticipated by the Project.

The Project is in the process of refurbishing some of the old accommodation on site with new buildings and replacing coal fired systems in *gers* at the main camp area. The main camp is equipped with a state of the art recreation area. Based on the observations and interviews conducted, no worker accommodation issues were identified at site. The CIS camp in Khanbogd has been closed and remaining personnel now reside at site. Three temporary camps remain outside the fence. These camps were not visited but OT reports to be working to reduce some known issues, e.g. coal fired *gers*, lack of air-conditioning, etc. Long-term worker housing was not a feature of this audit as a decision on this remains on hold until current expansion issues are resolved.

Resettlement, Compensation and Livelihoods Improvement

The focus of resettlement, compensation and livelihood improvements in 2013 has been on delivery of further entitlements to herders from the 2011 compensation program and the completion of several livelihood improvement projects. Other progresses made with herders in Khanbogd include the recent socio-economic census, and the herder health status and livelihoods study, both providing specific data on herder households. The Project also implemented a pilot program to allow grazing access inside the mine site fence for some herders affected by drought and this program was very well received. A Grazing Access Protocol has been developed which outlines how this program will be formally implemented in the future.

A number of herder complaints received in the past year on livelihoods, compensation and access to water at the Undai River diversion have utilized considerable resources from the Project. A number of these complaints remain open and work to resolve them is ongoing. The IESC verified that OT is actively investigating these grievances and collaborating with herders, NGOs, the *soum* Government, and the IFC Compliance Advisor Ombudsman (CAO) to resolve these complaints. Separately, OT is working with the EBRD Project Complaints Mechanism (PCM) and another mining company on complaints related to construction of roads and the generation of dust in Khanbogd.

Notwithstanding some of the ongoing challenges, the Project views the process of engagement with the Elected Herder Team (EHT) and feedback from the Ombudsman as an opportunity to review current practices and strengthen the approach to support for herders. To this end, the Project has planned a series of tasks in 2014 that will help to achieve these goals, including convening of internal and external steering committees and working groups, an independent Expert Panel on pastureland management to support herders and the *soum*, and a process of formal evaluation of affected herders and the programs being implemented to support them.

Some outcome evaluations of resettled herder households have been implemented and evidence suggests that these households have been able to restore their livelihoods and improve their standard of living in most if not all cases. This now needs to be formally assessed by a Completion Audit, which the IESC recommends is scheduled as soon as practical. The scope of work drafted by OT should be reviewed by Lenders and the IESC prior to it being implemented. One herder family from the 2011 compensation program has not yet signed a Compensation Agreement, although they have received the entitlements from OT. OT will need to provide available documentation at the next audit to enable the IESC to verify that these entitlements have been agreed and delivered in absence of a formal agreement. One other household from the 2011 program has requested to be resettled which has been agreed. Some entitlements have been delivered, however the full resettlement package now needs to be expedited including new water well. Compensation packages have been largely implemented for all other households in this program, with well over 90% of entitlements delivered. The overall view of the IESC is that this group has been well targeted for compensation and other support measures. Some of the program data and reporting for this group it is not as well systematized as it could be and there are opportunities for improvement. The Project is encouraging the *soum* to reconvene the Compensation Working group to investigate some complaints from herders who claim to have been left out of this program. Other herders in Khanbogd *soum* potentially affected by seasonal grazing restrictions have been given increased attention in 2013 with various support measures implemented (e.g. well rehabilitation, dung removal and sanitation, training in winter preparation, and establishment of cooperatives). The recent census data should help OT to build a better knowledge base for planning and implementing ongoing support for all Khanbogd herders.

The Pastureland and Livelihood Improvement Strategy appears well conceived and a number of projects have already been completed. It now needs to be operationalised and during the site visit OT outlined its intention to prepare a Pastureland and Livelihood Improvement Plan. An internal Ecosystem Services Group has also been established within OT to coordinate proposed biodiversity offsets, pasture management and herder livelihood interventions.

Special assistance has been provided to a number of vulnerable people/families including those in the directly displaced herder group, and it is pleasing for the IESC to see that assistance has been largely focused on livelihood restoration (rather than donations). The supports provided to date are a good start, but a more comprehensive and well documented vulnerable people program is expected in the operations phase. Vulnerable displaced households must be included in the outcome evaluation process.

Stakeholder Engagement

The IESC observed that the relationship with local communities is generally constructive even though there have been a number of persistent issues raised by communities this year. There are various examples of the results from community engagement being used to inform Project outcomes and there is active dialogue and participation on a range of topics. The Project intends to update its stakeholder analysis and strategies to reflect the current operations phase activities, recent engagement results and new socio-economic data. This is expected to include synthesizing/updating of the various external stakeholder groups.

OT has identified further opportunities for improvement in planning for community engagement and is working on a more coordinated strategy and detailed implementation plan. Recording, analysis and reporting on the results from community engagements is also expected to be strengthened via the new Community and Stakeholder Engagement Tracking System (CSETS) scheduled for implementation in early 2014. Substantial local information disclosure has occurred in the past 6-12 months and whilst there is adequate communication of positive information, there may be opportunities for improvement in responding to community concerns and providing more regular quantitative data to enhance transparency and build trust. The Community Interaction Centre in Khanbogd will provide a useful vehicle for advantageously elaborating the content and materials disclosed and this centre should be completed as soon as feasible. There is an appropriate level of resources in place at OT for community engagement, and senior OT and RT management involvement in 2013 has had a positive impact on managing some of the more challenging community issues.

The number of community grievances is relatively low given the magnitude of the project. The logging, allocation, and processing system for community grievances appears to work, but issues were observed with the analysis of trends and reporting of complaints. Other possible issues were identified with the resolution process and pace at which complaints are resolved. Internal and external reporting of complaints needs to be improved. There is no regular reporting to communities on the status of grievances and this is an important omission that the IESC recommends be remedied. A new community grievance procedure is planned and OT should use this is an opportunity to audit and strengthen the existing procedure and re-train staff if required.

It is not within the remit of the IESC to review the CAO or PCM processes as part of this audit, except to acknowledge the extensive herder engagement being undertaken as part of the CAO process. The IESC also confirms that the CAO process has been the trigger for a number of continuous improvement measures in terms of herder engagement and other activities. The PCM process is at an earlier stage of investigation.

Regional and Community Development

Overall, progress on regional and community development (which are dependent on elements of mine development eg: Khanbogd town development is dependent on the underground mine going ahead) has slowed in 2013 largely due to political and other issues outside the control of OT. The Project recently signed an *'Interim Agreement'* with Khanbogd *soum* which is designed to deliver several key local infrastructure and community development initiatives, in the absence of decisions that will enable longer-term regional development agreements. The IESC commends the Project for achieving this Interim Agreement as these activities are critical to maintain host community support. As such, there is no room for non-delivery or delay on this agreement. Significant progress has been reported by OT in 2013 on drafting of an 'umbrella' Cooperation Agreement for the South Gobi and the nine sub-agreements. Drafting of the term sheets is understood to be advanced and although OT may not achieve the target of end 2013, the process remains generally on track to be completed early in the operations phase. OT's approach to encourage greater participation of communities will ensure ownership by the host population which is essential for long-term community support and enduring relationships.

The recent socio-economic census confirms that there has been considerable influx into Khanbogd *soum* in the past 3 years, with the population now at 5,265. The census is still being finalized but should provide the basis for robust quantitative monitoring of influx by the Khanbogd *soum* which will need to be supported by OT. The Cooperation Agreement should provide a robust framework for the division of responsibilities between all parties for managing Project induced influx when completed. In-migration management activities have continued to focus on Khanbogd *soum* and the control of workers including points of hire and demobilization. OT has contributed to the master planning for Khanbogd *soum* and it is understood the long-term worker housing requirements for the Project are included. The current period before decisions on worker housing and the UG mine presents an opportunity to explore ways to monitor

in-migration and build capacity of the *soum* to deal with unplanned influx and associated issues. The Influx Management Plan (IMP) is scheduled to be updated in 2014.

The Local Business and Economic Development Program is an essential component of delivering benefits to the host population of Khanbogd *soum*, to facilitate herder livelihood improvements, and to lay the foundations for sustainable regional and community development. Several high community profile projects were implemented in 2013 including development of SMEs, business and technology training courses, study tours, community vegetable facility, and a Market Fair in Khanbogd *soum*, and these events were viewed positively by stakeholders interviewed.

Worker Health and Safety

The Health Team is a centralized entity under the HSE Department, and includes the SOS clinic. Medical baselines including hearing, vision and spirometry testing have been established for all employees and contractor personnel. Occupational health resources include five cross-trained staff with audiometry, dosimeter, and sampling/testing equipment. Common studies include evaluation for dust and noise. The SOS clinic is well staffed and equipped including six doctors, X-ray and laboratory equipment and a pharmacy. Two ambulances are available at the clinic and one at the airport. A small, remote clinic is located at the South Contractor Camp. Occupational health resources are now in place for monitoring exposure, and medical surveillance of employees and contractors is occurring, including entrance and termination checks.

Safety is emphasized by the Project through a variety of channels and mediums, and safety teams are organized within each operations department with managers and support staff providing oversight, guidance and auditing. Contractors are also required to have their own safety teams. Hazard identification and risk management processes (e.g. pre-task hazard assessment TRACK - Think through the task, Recognize the hazards, Assess the risks, Control the hazards, Keep safety first in all tasks) are in place, and documented Safe Work Procedures cover frequent and high risk infrequent activities. Assessments and inspections are performed regularly to evaluate if objectives are being met and verify personnel training, certification and equipment. Internal audits are conducted to evaluate implementation of selected standards. The use of PPE was observed to be extensive at all project locations visited. Workplace health or safety incidents are tracked within the (Rio Tinto Business Solutions) RTBS system. The Project employs centralized training using a tiered approach as outlined in the ESMP. Incidents, injuries and illnesses are tracked within the RTBS system. Accident statistics are analysed within the RTBS system, which allows a range of calculations including Lost Time Injury (LTI) and LTI Frequency Rate (LTIFR), Restricted Work Duty Injury (RWDI), Medical Treatment Case Injury (MTCI), and All Injuries (AI) figures for comparison with relevant targets.

Community Health and Safety

The SOS clinic is not involved in specific programs to support communities, although it does provide treatment to members of the community if injured in proximity to the site. A range of community health initiatives were implemented in 2013 including a medical waste management improvement project and awareness campaign on hepatitis prevention. A research study on herder health is underway, with the objective of developing a health monitoring system for herders in selected *soums*.

A number of road traffic injury prevention activities were conducted by OT in 2013 with communities including first aid training, basic lifesaving with health workers, and distribution of road safety calendars. Two serious road traffic incidents occurred in mid-2013 involving Project related vehicles and local drivers in Khanbogd *soum*. These incidents have been investigated with the local Police and no fault has been attributed to the Project. Since additional driver and traffic safety awareness with Khanbogd residents should be considered.

An awareness raising event was held with public servants to increase awareness about cooperation to combat human security and human trafficking issues. The Project plans to expand this awareness training and other potential measures within the local population and this will be reviewed at the next audit.

Cultural Heritage Management

The Cultural Heritage Management System (CHMS) procedures were finalized in 2013 and are being implemented and embedded within the operating framework. Monthly monitoring of cultural sites is undertaken and cultural heritage inductions are conducted. No chance finds or cultural heritage related incidents have been reported to date in 2013.

Implementation of the Cultural Heritage Program Phase II has been continuing in 2013. Adequate progress appears to have been made on intangible heritage with several projects completed or ongoing. Tangible heritage protections and maintenance activities have been implemented at eight sites in Khanbogd (local) and the *Shar Tsav* paleontological site (regional).

Some delays in implementing the Cultural Heritage Program Phase II commitments are expected by OT, including the Omnogovi *aimag* cultural centre and extension of Khanbogd museum. These delays are due to issues with shareholders including the Government of Mongolia and Khanbogd *soum* decisions related to the museum. Implementation of the Cultural Heritage Program Phase II should be monitored by OT in light of these recent constraints to determine what commitments can reasonably be achieved.

1 INTRODUCTION

The Oyu Tolgoi copper/gold mining Project ("the Project" or "OT Project") is located in the *aimag* of Omnogovi, 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.

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)[5] for the OT Project being developed by Oyu Tolgoi LLC (the "Project Company" or OT), a joint venture between the Government of Mongolia, through Erdenes Oyu Tolgoi, and Rio Tinto (RT), through 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 HSE and social aspects during project operation that began on 1 September 2013. Within this role, the IESC reports 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 documentation. The development of the OMPs represents the last step of a process undertaken by the Project, the Senior Lenders, and Environmental Resources Management (ERM) as previous IESC to have a set of technical documents that define how OT will operate the project in the spirit of the Lenders' standards. OT HSE Management system is applied and integrates Mongolian, Rio Tinto and Lender requirements into 1 system that is used to manage and operate the business. The process began in 2010 when ERM was engaged as IESC to support the Senior Lenders through a due diligence phase, and subsequently through construction monitoring, to ensure that the project and related project documents were compliant with the various Lenders Environmental and Social Standards. The process included the review and affirmation of the Project's Environmental and Social Impact Assessment (ESIA) and the Construction Phase Environmental and Social Management Plans (ESMPs) that were disclosed on August 2012 together with an Environment and Social Action Plan (ESAP) which included a list of time-bound future commitments. The process has also included a number of site visits to review onsite construction activities and verify on the ground the Project's performances against the commitments undertaken. After the disclosure of the ESIA and ESAP, the IESC review focused on the review of the Operations Phase ESMPs to ensure they integrated the E&S Standards of the Senior Lenders. At the time of this visit, the Operations Phase ESMPs have been affirmed and represent the reference documents that will be used by the IESC to monitor the Project Environment, Social, Health and Safety (ESHS) performances throughout operation.

This report summarizes the results of D'Appolonia's first field visit, held between 20th and 26th October 2013. 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 field observations and outcomes from interviews with OT employees and Contractor personnel responsible for the field implementation of the OMPs. Several local stakeholders from Khanbogd including Government representatives and herder representatives were interviewed during this trip. Specific activities conducted before, during, and after this site visit included the following:

- Conference calls and desk review of the EHS and social documentation and other project-related reports provided;
- Visits to the project sites and make "spot" onsite observations of the implementation of EHS and social requirements;

[5] *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).*

- Meeting with the project teams responsible for EHS and social compliance monitoring and review relevant plans and procedures;
- Evaluation of implementation of the commitments contained within the OMPs and the ESAP;
- Visits to Khanbogd *soum* including the town centre and along the Oyu Tolgoi-Gashuun Sukhait (OT-GS) road and interviews with local stakeholders;
- 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 on outstanding issues from the April 2013 IESC Audit[6], if they are relevant to current operations; and
- Drafting of an IESC report (this report) to be publicly disclosed.

A close out meeting was held at the OT offices in Ulaanbaatar on October 26th to share preliminary findings and to present the result of observations made during the visit that form the basis for this report.

This report presents the IESC's understanding and assessment of conformance of Project commitments from an EHS and social perspective, based on initial review of the nineteen OMPs, ESIA, Action Plans, and related plans and procedures, along with site observations and interviews. The document provides a snapshot of the Project's state at the time of the visit. Although focus has been given to the assessment of how the commitments included in the OMPs are implemented by the Project, the audit is also a partial review of those issues identified on prior visits during the construction phase that might have implications during the current operational phase of the project.

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.

6 *ERM, "Oyu Tolgoi Construction Phase Environmental, Social, Health & Safety Audit - April 2013 Audit Report", dated 18th July 2013.*

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 60-65% 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.

As of October 2013, the project has achieved the operation phase with open pit mining ongoing, and the concentrator working at full design capacity with concentrate exported to China. Construction of shaft #1 has been completed with initial development workings established, and shafts #2 and 5 have advanced to depths of 1,266 meters and 250 meters, respectively. Underground mine production has yet to start. At the time of the visit, the underground mine was under care & maintenance by OT with activities limited to ongoing inspection and maintenance of equipment and structures. The remaining project construction, apart from completion of the underground mine development and support structures, include about 20 km of roadway sections between the mining area and the Chinese border and of about 5 km road stretch of the Oyu Tolgoi-Khanbogd (OT–KB) road which are expected to be completed in 2014.

It is anticipated that the underground mine will be in a care and maintenance status for several months once a decision is reached regarding resumption of underground mine development. Future plans are to de-prioritize open pit ore, reserving it to supplement higher grade ore feedstock volumes once the underground operation starts production. At the time of the visit, 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. With reference to the Power Plant, it was understood that a process is underway but driven by the Government in conjunction with MCS Energy at Tavan Tolgoi.

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
- 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.

2.3 TRIP SUMMARY

The site visit was undertaken between 20th and 26th October 2013. The broad agenda was as follows:

- Sunday 20th October: travel of the IESC and documentation review;
- Monday 21st October: kick-off meeting with project personnel and Senior Lenders; project status overview from OT and topic-specific presentations;
- Tuesday 22nd October: travel of OT team, IESC and Senior Lenders to site;
- Wednesday 23rd October: meetings at site and field visit to the different project areas;
- Thursday 24th October: meetings at site and field visit to the different project areas;
- Friday 25th October: meetings at site and field visit to different project areas, travel of OT team, IESC and Senior Lenders to Ulaanbaatar and summary presentation of IESC key findings to OT Senior Management; and
- Saturday 26th October: detailed close out meeting with Project staff and Senior Lenders.

3 ISSUES TABLE

This chapter tabulates a summary of key non-conformances raised in this report based on the outcomes of 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[7] 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;
- One Class III non-conformance identified;
- Nine Class II non-conformances identified;
- Sixteen Class I non conformances identified;
- One non-conformance against ESAP commitment identified.

[7] *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		The Undai River Diversion has not been completed in accordance with the ESIA due to a delay in issuance of the Land Use Permit. A temporary approach (the Undai River Partial Adjustment and Protection Project) has been completed to divert surface flow, and capture and re-route groundwater flow from the Undai River. The current Undai River Partial Adjustment and Protection Project does not fully meet all requirements of the ESIA, specifically with respect to return of groundwater to the subsurface, and design of an artificial spring to replace the loss of Bor Ovoo spring. The ESIA and WR12 describe completion of a diversion that will result in creation of a new spring that replicates the size, nature, water availability and water quality of the original Bor Ovoo spring. The current arrangement is not as planned due to unforeseen events. However consideration needs to be given to the equivalence of the current temporary arrangement with commitments contained in the ESIA and WRMP.	III	IESC - April 2013 Audit Water Resources Management Plan (WR12)	Open	See Section 5.1.2.1 and Issue M1.20. Project works outside of the Mine License Area (MLA) are pending regulatory approval (a requisite Land Use Permit). Although the current system is considered temporary, it is not known when the requisite Land Use Permit will be issued allowing for works to be implemented as detailed in the ESIA. Some inconsistencies exist in design criteria for the Undai River Diversion as presented in the ESIA. Implementation of the Undai River Partial Adjustment and Protection Project was undertaken without implementation of the MoC procedure as described in the ESMP. The current discharge of groundwater flow to the surface presents a risk of losses to the system via evaporation and impacts to water quality. The created artificial spring has not been evaluated for consistency with commitments of the ESIA, including ecological equivalency of the created temporary surface spring to the original Bor Ovoo spring. Additionally, there may be social implications associated to implementation of the Undai River Diversion as originally contemplated, as the current surface spring is much greater in area than the original Bor Ovoo spring. These risks were not assessed in the ESIA as the Undai River Partial Adjustment and Protection Project was not considered at the time of ESIA preparation. Although implementation of the MoC procedure was not undertaken prior to the construction of the Undai River Partial Adjustment and Protection Project, the MoC procedure should be implemented to (a) address non-conformance of the existing Undai River Partial Adjustment and Protection project with commitments of the ESIA; and (b) address inconsistencies in the ESIA with respect to design and construction of the full Undai River Partial Adjustment and Protection project (i.e., works to occur outside of the MLA).

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M1.2	Oct.13		Flux rate through the groundwater diversion pipeline is not collected; this prevents calculation of groundwater volumes that are diverted down gradient of the MLA.	II	Water Resources Management Plan (WR13, 13a, WRm02)	Open	See Section 5.1.2.1. Flux through the groundwater diversion pipe is not currently measured. The lack of data for total volume of groundwater diverted does not allow calculation of how much diverted flow is returned to the subsurface relative to the volume currently recorded as surface flow (~ 1 l/s). The Project has represented that measurement of flow through the diversion pipe is not performed due to safety considerations (i.e., doing so would require confined space entry). However given the importance of this data an in-line flow meter should have been ordered and installed as part of implementation of the Undai River Partial Adjustment and Protection Project. The current recording of flow rates using a constructed v-notch has limitations as discussed in Section 5.1.2.1. An in-line meter allowing for continuous measurement of diverted flow has been ordered. Once the flow meter has been installed, OT will then be able to undertake the necessary flow monitoring. It is recommended that in the interim the necessary confined space entry authorization be obtained to allow mechanical measurement of diverted groundwater flow rates.
M1.3	Oct.13		Site water balance should be reviewed to ensure accuracy and incorporation of all water uses.	I	Water Resources Management Plan (WR02)	Open	See Section 5.1.2.3. The Project has prepared a *Benchmarking Water Efficiency at Oyu Tolgoi against Comparable Mining Projects Worldwide* report which provides information on Operational Phase water efficiency efforts. Quarterly and annual on-going site water balance details will have to be reviewed to remove any balancing errors and expanded in future reporting to allow identifying opportunities for water management improvements and consideration of climate variability.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M1.4	Oct.13		The specific flood monitoring procedures identified in the Water Monitoring Plan has not yet been implemented, although flood monitoring does take place using an interim "Monitor Stream Discharge" procedure.	I	Water Monitoring Plan (Section 3.4.4)	Open	See Section 5.1.2.4. The specific flood monitoring procedures identified in the WMP was finalised in Q3 2013 and has not yet been fully implemented by the Project. The Project should develop and implement the specific procedures in the near term.
M1.5	Oct.13		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 5.1.2.5. Evidence exists of exploration bores interconnecting hydrogeological units within the Gunii Khooloi borefield and within the Mine License Area. Mitigation efforts outside of the Mine License Area require regulatory authorization, and are currently under evaluation by a workgroup established with the Khanbogd *soum*. Evidence should be provided as soon as approval from the Mongolian regulatory authorities is received.
M1.6	Oct.13		A surface geophysics survey down gradient of the TSF has not yet been performed.	I	Water Monitoring Plan, Section 3.3.3	Open	See Section 5.1.2.6. The surface geophysics survey down gradient of the TSF survey is intended to help identify any possible seepage from the TSF. The survey has not yet been implemented as it was only recently included in the Water Monitoring Plan. The Project has represented that this survey will be undertaken in 2014. Evidence should be provided to the IESC.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M1.7	Oct.13		Drinking water and treated effluent are currently not assessed against the full suite of determinants (regulatory parameters) as adopted in Project Standards. No laboratories currently exist in Mongolia that would allow sampling of all identified parameters, creating challenges to meeting all adopted Project Standards. Oyu Tolgoi is investigating potential solutions to this issue.	I	Water Resources Management Plan (WR07)	Open	See Section 5.1.2.7. OT is investigating the use of laboratories located in other countries. Implementation of a MoC may be required to allow sampling of all reasonably achievable parameters.
Environment – Mineral Waste Management							
M1.8	Oct.13		The Operational Mineral Waste Management Plan (MWMP) cites that Shaft 1 development rock will be processed through the concentrator during start-up. The material remains stockpiled as operations are initiated and the Project expects that it will not be processed, but ultimately handled as PAF material and disposed in the TSF or WRD. Containment and monitoring of the stockpile has been implemented to address this temporary circumstance associated with mine development.	I	IESC - April 2013 Audit Mineral Waste Management Plan (MW05)	Open	See Section 5.2.2. Rescheduling of ore processing is a normal part of mine operational planning and this development rock may be processed in the future. In the interim, containment has been placed around the stockpile to contain the material and drainage, and monitoring for drainage is performed. Documentation of the monitoring program (within the framework of the Water Monitoring Plan) and development of a strategy for final disposal of the material, related to overall mine development, is recommended.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environment –Non-Mineral Waste Management							
M1.9	Oct.13		The Operational Non-Mineral Waste Management Plan foresees the disposal of non-hazardous waste in a permanent non-hazardous landfill which has been constructed but not available, pending regulatory approval by the *soum* Governor. Meanwhile, the Project has been using for several years the interim WMC that does not conform to Project requirements.	II	IESC - April 2013 Audit Non-Mineral Waste Management Plan (WM07)	Open	See Section 5.3.2. At the interim WMC, actions are required to improve housekeeping and overall operation of the facility. These include the supply of equipments to facilitate the handling, processing and storage of the different waste types throughout the site, the review of the soil covering procedure at the food waste disposal pit, the improvement of the overall waste segregation practice throughout the site until the Permanent WMC (which is constructed) be approved.
Environment – Hazardous Materials Management and Pollution Prevention							
M1.10	Oct.13		The Hazardous Materials Management Plan and some of the supporting procedures foresee that spill kits and protective equipment will have to be available where hazardous materials are stored to clean and mitigate possible spills.	I	Hazardous Materials Management Plan (HM05)	Open	See Section 5.4.2. During the visit the IESC noted that spill kits were missing at the truck loading area inside the main diesel fuel depot and that spill kit bins were being used to dispose oily rags and spilled material. Spill kits should be provided and period inspections carried out at the different locations where hazardous materials are handled and stored.
Environment – Air Quality							
M1.11	Oct.13		Significant dust (particulate) emissions are generated intermittently at the coarse ore stockpile, due in part to lower than anticipated moisture levels.	II	Atmospheric Emissions Management Plan (AQ05)	Open	See Section 5.5.2.1. An assessment has been performed by OT, with the use of a foam dust suppressant identified as the preferred mitigation. The Project should monitor results of implementation to assess the effectiveness of this measure or determine if other mitigations are warranted.
M1.12	Oct.13		Ambient air quality sampling has identified exceedences of applicable Project Standards above identified threshold targets.	I	IESC - April 2013 Audit Atmospheric Emissions Management Plan (AQ-KPI02)	Open	See Section 5.5.2.1. The Project has developed an Action Plan to address identified historical and current exceedences of ambient air quality standards. Additional monitoring equipment is under procurement to allow more robust analysis of ambient air quality conditions, and to allow full analysis relative to Project Standards.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M1.13	Oct.13		Emission stack sampling currently not performed at the Central Heating Plant (CHP) and hazardous waste incinerator.	II	Atmospheric Emissions Management Plan (AQ06, AM03)	Open	See Section 5.5.2.2. The CHP currently lacks monitoring equipment to allow direct sampling of stack emissions. Equipment has been ordered to allow future direct sampling of the CHP stack in conformance with the monthly periodicity identified in the AEMP. Currently, the incinerator is operating at the design temperature, but a cooling circuit was damaged during transport of the unit to the OT site. Equipment and technical assistance have been ordered from the incinerator manufacturer to allow for the necessary repairs. Stack monitoring should be expedited as soon as the necessary equipments will be received at site.
M1.14	Oct.13		Greenhouse gas emission reduction and energy efficient improvement analysis not yet completed, although planned for in 2013 planned activities.	I	Atmospheric Emissions Management Plan (AQ09)	Open	See Section 5.5.2.3. Identification and assessment of greenhouse gas reduction and energy efficiency improvement opportunities will be undertaken per RT procedures during 2014.
Environment – Emergency Preparedness & Response							
M1.15	Oct.13		The Emergency Preparedness and Response Plan references the Site Emergency Response Plan, which identifies scenarios for development of response procedures. The response procedures are reported to be incomplete.	I	Emergency Preparedness and Response Plan (ERP02, 02b, 02c)	Open	See Section 5.7.2. Development of response procedures has been prioritized based on risk assessments, with the more critical scenarios receiving attention. Incident response plans and procedures should be complete, identify and inform communities that may be affected, with response measures tested with potentially affected communities and local Authorities.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environment – Biodiversity and Ecological Management							
M1.16	Oct.13		Installation of bird flight diverters on power lines to minimize mortality due to collisions with and electrocution by power transmission lines (B09) and Lender Biodiversity Action Plan (LBAP). Diverters must be "maintained as necessary to minimize wildlife mortality throughout operations".	I	Biodiversity Management Plan (B09) Lender Biodiversity Action Plan (ID1) Core Monitoring Plan (BMEP)	Open	Section 5.9.2.2. Installation of bird flight diverters is complete, but there are problems with functioning of bird flight diverters, possibly due to faulty installation. Some investigations are currently underway to establish the magnitude of the problem, which relates to a proportion of the alternating flapper-type flight diverters (the large spiral type are functioning correctly). It is important for corrective action be taken as soon as possible so that mitigation is effective to minimize mortality of birds throughout operations. Given the potential costs and disruptions associated with rectifying potentially faulty installation, any corrective action plan will need to consider the cost-benefit of any remedial proposals. Provision to manage effectiveness of this mitigation action will be reviewed in the next IESC visit.
M1.17	Oct.13		The Biodiversity Management Plan (BMP) requires measures to control disturbance of animals and mortality from hunting and collecting. The BMP also includes the installation of structures or barriers at sensitive areas to prevent vehicles from leaving the OT-GS, OT-KB and OT-airport roads.	I	Biodiversity Management Plan (B04) Lender Biodiversity Action Plan	Open	Section 5.9.2.3. In October, OT proposed to the Lenders that this mitigation measure be removed from the BMP (and the Lender BAP). OT will follow its Management of Change procedure and submit documentation for Lender approval that justifies the removal of this mitigation measure and explains what OT plans to do, to mitigate impacts associated with off road driving. This documentation should incorporate input from the project's biodiversity partners. Alternative measures to prevent vehicles from leaving the road in sensitive areas on the Gashuun Sukhait, OT to Khanbogd or OT airport roads need to be developed. Multiple off-road tracks were observed during the visit though not within the site, where controls appear to be in place and well enforced.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M1.18	Oct.13		Ecological design of the Bor Ovoo Spring.	II	IESC - April 2013 Audit Water Resources Management Plan (WR12)	Open	Section 5.9.3, Section 5.1.2.1, and issue No. M1.1. The replacement spring should "mimic" the characteristics of the Bor Ovoo 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). Existing designs and arrangements have not described the target vegetation community or defined its requirements in terms of hydrological regime. The removal of the water supply to the original Bor Ovoo spring has already partially taken place, and it may now be challenging to define key ecosystem parameters for its distinctive spring vegetation community, though the Biodiversity Team have undertaken regular monitoring and have photographs to refer to. Key component plant species have already lost water supply. Translocation may still be possible if it is carried out soon, but ecological requirements need to be clearly defined for target species.
Social - Labor & Working Conditions							
M1.19	Oct.13		The underground mine pause in construction in mid-2013 resulted in a significant number of redundancies of mostly contractor personnel, and some OT LLC staff. The Labour Management Plan requires that collective redundancies are to be notified in advance to Lenders including provision of a retrenchment/HR plan and this is not known to have occurred.	II	Labour Management Plan (Section 5.1.3)	Open	See Section 6.2.2. The IESC recognises that a retrenchment plan was prepared and this should now be retroactively provided to Lenders, including a complete summary of the outcomes of the redundancies (e.g. actions taken, no. in each category affected, no. redeployed etc.).

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M1.20	Oct.13		The Labour Management Plan covers both OT and contractors in terms of requirements for managing collective redundancies. Limited information was available on the results of non-employee/contractor redundancies and further details are required to demonstrate that these have been managed and monitored to the required standards by OT.	I	Labour Management Plan (Sections 5.1.3, 5.18 and LMP m07)	Open	See Section 6.2.2. Provide further information on the implementation process, mitigations, results and monitoring of collective redundancies undertaken by OT with contractors to Lenders/IESC.
Social – Resettlement, Compensation and Livelihoods Improvement							
M1.21	Oct.13		A Completion Audit of herder households resettled as part of the 2004 resettlement compensation program is a specific commitment of the Resettlement Action Plan. This Completion Audit was due in 2012.	I	Resettlement Action Plan (Sections 10.1, 10.2 and 10.4)	Open	See Section 6.3.2. It is understood that a SoW has been drafted by OT and this should be finalised and provided to Lenders/IESC. The Completion Audit should be scheduled and implemented as soon as possible.
M1.22	Oct.13		Successful completion of all Compensation Agreements is an inherent part of the Resettlement Action Plan and implementation of the compensation and livelihood restoration programs with affected families.	I	IESC - April 2013 Audit Resettlement Action Plan (Section 5.4, Annex H)	Open	See Section 6.3.2. Only one household affected by loss of winter pastures from the 2011 compensation program has not yet signed an agreement, although they have received the entitlements from OT. OT will need to provide available documentation at the next audit to enable the IESC to verify that these entitlements have been agreed and delivered (IESC April 2013 Audit; RAP, Section 5.4, Annex H).
M1.23	Oct.13		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	See Section 6.3.2. A formal Outcome Evaluation of affected herders is planned for 2014. The scope and sampling frame for the evaluation needs to be adequate to assess if different segments of the herder population have been able to restore or improve their livelihoods. Vulnerable displaced households must be specifically assessed in the outcome evaluation process.

Mission / Issue No.	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M1.24	Oct.13		A Pastureland and Livelihoods Improvement Management Plan is a commitment in the ESAP for Lenders (based on the existing Pastureland and Livelihood Improvement Strategy) and is also an important element of implementing an effective livelihood restoration program for all affected herders.	I	ESAP Item 7 Resettlement Action Plan, Entitlements Matrix Pastureland and Livelihood Improvement Strategy	Open	See Section 6.3.2. A Pastureland and Livelihood Improvement Strategy has been prepared and is being implemented by OT. The strategy appears well conceived and comprehensive; with a focus on the appropriate requirements; however it remains somewhat conceptual and now needs to be operationalised. During the site visit OT outlined its plans for preparing a detailed implementation plan. The Plan is scheduled for preparation during 2014 and should include a time-bound and costed program of works. Ensure governance arrangements are clear between the different parties, e.g. Steering Committee, Ecosystem Services Working Group, Expert Panel, Pasture User Groups etc.
Social – Stakeholder Engagement							
M1.25	Oct.13		Some parts of the community grievance management process are not as robust as needed, including capturing and analysis of trends and the quality and pace of resolutions. The Community Grievance Procedure foresees a process that is robust and designed to prevent additional grievances or major events. There are also specific targets in the Stakeholder Engagement Plan that require effective monitoring against resolution rates and processes. A bi-annual audit of the grievance procedure is also required and has not yet been implemented.	II	Stakeholder Engagement Plan (Sections 5.7-5.8, SEP09)	Open	See Section 6.4.2. The community grievance management procedure is being reviewed by OT and will be updated and integrated with the new CSETS planned for implementation by end 2013. Review and strengthening of the community grievance procedure should be documented and include processes to analyse and investigate trends and implement corrective actions if needed, monitor the quality of resolutions and increase the resolution rate to enable continuous improvement.
M1.26	Oct.13		The Stakeholder Engagement Plan includes specific commitments to regularly report on the results of the community grievance procedure to relevant communities and this is not currently being implemented by OT.	II	Stakeholder Engagement Plan (SEP09)	Open	See Section 6.4.2. Develop and implement a simple and robust process for reporting on grievances externally to communities on a regular basis. OT should consult communities on the most appropriate content and methods to do this.

4 HEALTH, SAFETY AND ENVIRONMENT AND COMMUNITIES 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[8] (ESMP), Biodiversity Management Plan (BMP), and associated Operational Management Plans (OMPs). Additionally, the Pastureland and Livelihood Development Strategy document also provides commitments for Regional Development and Social Performance. 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.

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. These are currently described in the Lender's Biodiversity Action Plan which is attached as Annex C to the Operations BMP.

The OT Project is currently in the process of streamlining its biodiversity strategy and plans and integrating them with the OT HSE Management System (due for completion in Q4 2013). The OT BMP is being consolidated and updated and will articulate all the Project's biodiversity mitigation and offset objectives, actions and targets. It will be accompanied by a Biodiversity Monitoring Plan. A Core Monitoring Strategy is currently being finalized as a component of this to ensure that requirements relating to critical habitat are progressed. A Biodiversity Offset Management Plan (BOMP) is also being developed.

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 Environmental and Social Impact Assessment (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. Management systems have been developed to meet Mongolian regulatory requirements as well as be in accordance with good international industry practice.

The Operations Management Plans are listed in the table below, and 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 Regional Development and Social Performance department, and addresses how interactions and competing interests with wildlife conservation of the same land areas as rangeland will be coordinated and resolved.

[8] *Environmental and Social Management Plan – Doc. No. OT-10-PLN-0003 dated 01.09.2013.*

Management Plan	Document Reference	Key Implementation Documents
Atmospheric Emissions Management Plan	OT-10-E2-PLN-0001	Air Quality Monitoring Plan Waste Management Centre Operating Procedure Land Disturbance Permit Procedure Air Quality Control Greenhouse Gas Emissions
Biodiversity Management Plan	OT-10-E9-PLN-1001	Land Disturbance Permit Procedure Illegal Wild Plants and Animals Policy Road and Power Line Inspection Procedure Pastureland Management Strategy Rehabilitation Procedure Topsoil Handling Procedure OT Site Wide Traffic Management Plan
Community Health, Safety and Security Management Plan	OT-10-PLN-0001	Land Disturbance Permit Procedure
Contractor Management Framework	OT-07-PLN-0001	OT General Conditions for Goods and Services OT Procurement Principles Supplier Qualification Policy International Strategic Supplier Collaboration Policy South Gobi Supplier Development Policy OT Procurement Personnel Code of Conduct Contractor Engagement Handbook for Designated Managers Contractor Engagement Handbook for Suppliers
Cultural Heritage Management Plan	OT-10-PLN-0002	Land Disturbance Permit Procedure Cultural Heritage Management System Guide
Emergency Preparedness and Response Plan	OT-12-PLN-0011	Spill Response Procedure Incident Management Flow Chart OT Emergency Response Plan Hazard Identification and Risk Management Procedure Redpath Emergency Response Plan
Hazardous Materials Management Plan	OT-10-E5-PLN-0001	Hazardous Materials Management Procedure Guideline for Hazardous Substance Approval Incident Management Procedure Landfarm Operating Procedure Blasting Standard Work Procedures Spill Response Procedure
Influx Management Plan	OT-10-PLN-0004	None

Management Plan	Document Reference	Key Implementation Documents
Labour Management Plan	OT-10-PLN-0005	Hiring Policy and Procedure Equal Employment Opportunity Policy Performance and Disciple Policy Grievance and Fair Treatment Policy Grievance and Fair Treatment Procedure Camp Standard and Code of Behaviour Separation of Employment Procedure Hours of Work Procedure
Land Use Management Plan	OT-10-E9-PLN-0001	Topsoil Handling Procedure Rehabilitation Procedure Land Disturbance Permit Procedure Pastureland Management Strategy
Mine Closure Plan	OT-10-E9-PLN-0002	None
Mineral Waste Management Plan	OT-10-E8-PLN-0001	Topsoil Handling Procedure TSF Operation, Maintenance, and Surveillance Manual Integrated Mineral Waste, Acid Rock Drainage and Dump Management Implementation Plan Water Monitoring Plan ARD Prediction Standard
Noise and Vibration Management Plan	OT-10-E6-PLN-0001	Noise Monitoring and Control Procedure Blasting Standard Work Procedures
Non-Mineral Waste Management Plan	OT-10-E7-PLN-0001	General Waste Collection and Transfer Procedure Waste Management Centre Operating Procedure Hazardous Waste Management Procedure Landfarm Operating Procedure
Resettlement Action Plan	OT-10-E9-PLN-0006	Land Disturbance Permit Procedure Grievance and Fair Treatment Procedure Pastureland Management Strategy
Stakeholder Engagement Plan	OT-05-PLN-0001	Land Disturbance Permit Procedure
Transport Management Plan	OT-10-C3-PLN-0001	Road Construction and Maintenance Procedure Heavy Vehicle Operating Procedure Light Vehicle Operating Procedure Tyre and Rim Procedure OT Site Wide Traffic Management Plan
Water Resource Management Plan	OT-10-E10-PLN-0001	Water Monitoring Plan Water Use and Quality Control Standard

4.2 OBSERVATIONS

4.2.1 Status of OMPs

The HSE MS and CSP MS, as documented in the ESMP and OMPs have been developed to meet: RT and OT Standards and Guidelines; the laws and regulations of Mongolia; the Mongolian regulatory permit conditions as set out in the approved DEIA reports for the project facilities and the Environmental Protection Plan contained in each DEIA; the Investment Agreement; and the environmental, health & safety and social policies, standards and requirements of applicable international financial institutions, including the IFC Performance Standards on Social and Environmental Sustainability and the EBRD Performance Requirements. OT, IFC, EBRD, and the independent consultant prepared and reviewed the plans to jointly set forth the Project's commitments. The IFC and EBRD representatives on the audit confirmed review and approval of the OMPs.

The following OT management is responsible for the associated OMPs:

- General Manager HSE: Atmospheric and Emissions Management Plan; Biodiversity Management Plan; Hazardous Materials Management Plan; Land Use Management Plan; Mineral Waste Management Plan; Noise and Vibration Management Plan; Non-Mineral Waste Management Plan; Water Resources Management Plan;
- General Manager Regional Development and Social Performance (RDSP): Community Health, Safety and Security Management Plan; Cultural Heritage Management Plan; Influx Management Plan; Resettlement Action Plan (assumed); Stakeholder Engagement Plan; Pastureland and Livelihood Improvement Strategy;
- Vice President Human Resources: Labour Management Plan; and
- Vice President Procurement and Infrastructure Development: Emergency Readiness and Response Plan; Transport Management Plan; Contractor Management Framework.

From what was observed in the field, HSE, RDSP, and HR department staff are familiar with their responsibilities contained within the OMPs. There is less familiarity with the role and influence that referenced OMPs or key implementation documents may have upon activities within an individual plan. For instance, the Transport Management Plan addresses road safety issues in sensitive or high risk areas; however, staff interviewed regarding transport management was unaware if or where such areas may be present along the OT to Gashuun Sukhait roadway.

The OMPs include reference to key implementation documents as cited in the above table. One implementation document under development is the BOMP. Another plan under development which is a requirement of the ESAP is the Pastureland and Livelihood Improvement Plan which will operationalize the strategy of the same name.

The ESMP includes key implementation milestones for components or activities under the OMPs. Many milestones have been achieved such as operations of the hazardous waste incinerator, preparation of the OT Site Emergency Response Plan, and finalization of the Water Monitoring Plan. Some activities have not achieved the desired schedule due to conditions beyond the control of OT, such as commencing operations of the WMC which has been delayed due to permitting activities, while other activities are not completely implemented due to project situations. These situations are discussed as observations in the associated portions of this report.

In accordance with RT Communities Standards, the RDSP department has drafted a Multi-year Communities Plan (2013-2016) which was provided to the IESC at the site visit. The multi-year communities plan is the framework document for the CSP MS. This plan is intended as an overarching framework document for alignment between the social OMPs, Cooperation Agreement and various programs being implemented with communities. It is also designed to integrate other teams into community-based or focused programs (e.g. HR department in the Employability Program and HSE department and SOS Clinic in CHSS Program). Finalization of the multi-year communities plan including a time-bound and costed budget should provide additional management system guidance for the RDSP department as well as other internal teams. It will be important for this plan to be completed so that it adequately captures the complete elements of the CSP MS and is consistent with other documents. The elements of the CSP MS are discussed as observations in the associated portions of this report (e.g. Cooperation Agreement, Community Grievance Procedure, etc.).

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. In addition to responsibilities for OT managers, the document includes reference to hazard/risk assessment including HSE, community and compliance risks, Contractor HSE Management Plans, OT awareness and competency training, medical assessment, vehicle and equipment compliance, and chemicals and Material Safety Data Sheets associated with contractor supplied materials. Community-related issues have been incorporated into OT's contractor engagement process, employing the following risk management activities: assessment of contractor activities which could lead to community risks and impacts at the Scope of Work development and tender stage; completion of a Hazard/Risk Assessment which includes consideration of community risks; requirement for the contractor to demonstrate their capacity to manage identified risks during the bidding stage; and on-going management of contractor's community risk through the community's component of the Contractor HSE Management Plan. The procurement process provides a means to effectively identify and ensure the necessary plans and procedures are in place such that Project commitments can be met with contractor services.

With commencement of operations, service contractors have been transitioned beginning in July 2013 to the requirements of the Contractor Engagement Framework. Approximately 50 contractors are covered by this document, providing services such as security, catering, and vehicle maintenance. The Rio Tinto Business Solutions (RTBS) system is employed to track contractor and worker information including training. This system is an effective tool to track measures of contractor performance as well as worker safety training and health monitoring requirements.

OT sponsors periodic Contractor Forums which include presentations by the HSE department regarding environmental, social and training requirements, and provides opportunity for discussion among contractors' topics of interest as well as allows sharing lessons learned and experiences.

4.2.3 Organization and Staffing

The HSE department includes seven key manager positions under the general manager which are fully staffed by personnel with experience on the construction phase of the OT Project: HSE Risk and Management Systems; two Safety Manager positions (currently split between surface and underground); Health; Environmental and Biodiversity Offsets managers. Each key manager position is supported by a team of professionals at a size appropriate to the team responsibilities. Some of these support positions are currently vacant, and will be filled to achieve capacity requirements as necessary.

The RDSP department includes three key manager positions under the general manager. Two of these positions are staffed by personnel with experience on the construction phase of the OT Project: Manager of Regional and Community Development and Manager of the Dalanzadgad office, whilst the other manager position, Community Relations and Cultural Heritage, is currently vacant. This position is actively being recruited and a new manager is expected before end 2013. Each manager position is supported by a number of staff ranging from 8 up to 21, depending on the team. Some of the support positions are currently vacant, and will be filled as necessary. An important support position that has been introduced by the RDSP department is that of Specialist Economic Development and Influx Management, which is expected to be filled in early 2014. A total of 51 positions are included in the RDSP department.

Key roles for implementing the BMP are the Principal Advisor, Biodiversity Offsets and the OT Environment Department Biodiversity Team Leader. OT has also engaged external organisations to pursue various strategic activities, including The Biodiversity Consultancy (TBC). Key interfaces are clearly identified in the OT BMP as well as responsibilities of all employees and contractors. The team is also supported by a number of high capacity consultants and external partners including the Wildlife Conservation Society.

One position has recently been lost in the Biodiversity (fauna) Team and a further member of the team is reportedly due to leave though there has been a long hand-over phase. The Monitoring and Land team is also due to lose a member of staff. Recruitment was underway for this position. The scale of rehabilitation required means that it is challenging to design reference communities, research ecological restoration requirements and develop sufficient stocks of propagules (seed stocks of other propagules such as cuttings) to restore vegetation in practice. Levels of expertise are still high, but concentrated in a small number of individuals.

One observation with the existing RDSP organisational structure is that cultural heritage management appears to be managed in two teams (e.g. the Superintendent of Land and Cultural Resources appears to report to the Manager of Regional and Community Development, rather than the Manager of Community Relations and Cultural Heritage). Some clarification of cultural heritage management roles and responsibilities may be useful.

4.2.4 Management of Change

A Management of Change (MoC) element is contained in the ESMP, applicable to all changes in plant, process and systems, including people. A Change Matrix Guideline procedure is employed under the ESMP to evaluate the potential change and assess whether it qualifies under the MoC, or represents normal repairs or activities to restore original functionality. All employees and contractors are trained to identify what constitutes a change and how to initiate the MoC process. Following conceptual approval, a quantitative risk assessment is employed to determine the category that the change represents based on the significance of environmental and/or social impacts. When a material change to the Project Standards or Management Plans is required, external stakeholders including the Project Lenders must be notified as defined in the ESMP.

4.2.5 Monitoring and Reporting

In 2013 OT has developed a comprehensive monitoring and reporting system which is being managed by the Business Analysis department. This included a detailed monitoring and reporting framework for all of the thematic areas managed by the RDSP department. The first draft quarterly report for Q3, 2013 was provided to the IESC at the site visit. This report is a significant step forward in monitoring and reporting on social performance of the Project. The "traffic light" approach and simple structure is effective. Some work is still needed to ensure that all relevant input and output monitoring is in place to provide the data needed to measure performance against each of the key metrics. The IESC looks forward to seeing the quarterly reports produced prior to the next audit.

The Project has an annual reporting requirement to Lenders and it is understood that the environmental and social annual report for the 2013 calendar year will be released in January 2014.

4.3 APRIL 2013 AUDIT NON-CONFORMANCE

The ERM April 2013 Audit identified non-conformances relating to the previous ESAP (August 2012) and the Construction Phase Management Plans. The updated ESAP (19 September, 2013) and the finalization of the OMPs resolve many of the audit findings and are not addressed herein. However, some findings relate to operational conditions and were considered during this effort. These are discussed in subsequent sections as they relate to Project operations plans.

4.4 FINDINGS AND OBSERVATIONS

Findings – HSE and CSP Management Systems
Nil.

Observations – HSE and CSP Management Systems

1. Finalize the Multi-Year Communities Plan including a time-bound and costed budget with due consideration for all elements of the CSP MS in a manner consistent with other documents, e.g. HSE MS, OMPs, etc.
2. Ensure that the roles and responsibilities for cultural heritage management are clear and well defined in the RDSP organisational structure and relevant CSP Management System documentation.
3. Ensure capacity and levels of expertise are maintained when key members of staff leave the Project.

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[9] (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[10] (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.

5.1.2 Observations

Findings in this section are based on observations made during the site visit, interviews with Environment department staff, as well as review of documentation provided during and after the site visit. Monitoring data related to water resources are compiled in internal quarterly Environmental Management Reports which 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 consolidated in an Annual Report on the Implementation of the Environmental Protection Plan. This latter 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.

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

10 *Oyu Tolgoi Water Monitoring Plan – Doc. No. U25Z\015e dated 09.09.2013.*

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. Current and historic data reflect impacts to the Undai River system, partially as a result of open pit development. These impacts were foreseen 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 OT Project. 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.

OT has not been able to implement the entirety of the planned Undai River diversion project, which has been delayed due to a permitting consideration (issuance of a Land Use Permit). The lack of this permit currently prohibits construction activity from taking place outside of the Mine License Area (MLA). Due to this constraint the Project has moved forward with construction activities within the MLA with modifications to the Undai River Diversion project which 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. To address this division of works OT has 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 a temporary emergency measure due to factors beyond the control of OT without implementation of the MoC, as set out in the Environmental and Social Management Plan of the ESIA.

Phase 1 of the Undai River Partial Adjustment and Protection Project was completed in September 2013. Components of Phase 1 include completion of upstream and downstream Undai River channel cut-off dams. These dams are designed to prevent movement of 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 (north) cut-off dam to an adjacent "Western Channel" alluvial system. From the Western Channel flood waters rejoin the Undai River downstream of the OT mine site. In addition, a groundwater diversion system has been constructed to enable capture of groundwater flow upgradient of the north cut-off dam, and to convey these waters via a buried pipeline to an outfall bore location just within the MLA. Once the requisite Land Use Permit has been issued, OT plans to complete the outstanding components of Undai River Partial Adjustment and Protection project, which includes discharge of diverted groundwater flow to a location approximately 500 meters south of the MLA.

The two groundwater intake bores appear to be functioning as anticipated. There has been no ponding of groundwater behind the north cut-off dam, which would suggest that groundwater is being captured for diversion. The current temporary discharge location of diverted groundwater is to an outfall bore, located just within the fenced MLA and within the Undai River alluvial system. 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 an artificial spring. This spring was designed to have features that replicate the original Bor Ovoo 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 (i.e., without surface expression).

It should be noted that the ESIA describes conflicting design criteria for both the intake and outfall locations. 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 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 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*."

Regardless the currently installed outfall bore is not performing as designed. The outfall bore was intended to recharge diverted groundwater back to the subsurface; however at least part of the flow from the subsurface diversion pipeline is travelling up the 4 – 8 mm nominal diameter gravel pack of the outfall bore and flowing at the surface (Figure 1). During installation of the south cut-off dam it was noted that alluvial sediments are thin in this area, which may be influencing the behaviour of the system.

Since September 4, 2013, OT has been monitoring flow rate at the surface via a constructed V-notch, with rates varying between 1 – 1.2 l/s. However, no formal procedure is in place to ensure the accuracy of these flow rates measurements, and it is possible that both the design of the installed V-notch as constructed and the procedure for recording flow rates are skewing returned data. For example, the channel morphology upgradient of the V-notch is not ideal, the V-notch has some rough edges which may increase friction, and the location of the head (h) measurement is not standardized (head should be recorded at a tranquil location upgradient of the weir, with no gradient towards the notch).

There may be a component of diverted groundwater flow that is being returned to the subsurface, as originally intended. However, the total volume of groundwater flow diverted is not recorded. The Project has represented that this is due to the fact that a confined space entry would be required to use a mechanical flow meter to measure the flow in the diversion pipe.

The collection of this data is a critical component of the measurement of success of the groundwater diversion scheme. There is a lack of baseline data for groundwater flows within the Undai River channel. Given the importance of this data an in-line flow meter could have been ordered and installed as part of implementation of the Undai River Partial Adjustment and Protection Project. En lieu of this the necessary confined space permit could have been obtained to allow mechanical measurement of groundwater diversion flow.

OT has ordered an in-line continuous flow meter which, when installed, will allow precise recording of diverted flows. Once this equipment is available the rate of flow injected into down gradient subsurface alluvium can be calculated as the difference between total diverted flow and the amount currently being recorded as surface flow. These data will be included in internal fortnightly reports that are currently prepared to assess the efficacy of Undai River diversion works. Until this equipment is available on site it is recommended that the necessary confined space permit be obtained to allow mechanical measurement of diverted groundwater flow rates, with these data included in the previously mentioned fortnightly reports.

Although not intended, the surface flow at the MLA fenceline has created an artificial spring that is being used by wildlife as well as herders and their livestock. At the time of the site visit the spring extended approximately 250 meters south of the MLA fence line, with an approximate width of 10 meters (Figure 2). The presence of algae evidences that the surface morphology of the spring is variable and migrates within the Undai River channel. In addition much of the adjacent alluvium shows signs of saturation, suggesting possible flow below surface grade. The 2011 OT Project River Diversion Detailed Design Report – Final estimated the surface area of the historic Bor Ovoo Spring at approximately 40 m^2; however the existing artificial spring has a surface area of approximately 2,500 m^2.

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 current status of Undai River Diversion Partial Adjustment and Protection Project does not ensure that there are no groundwater losses through evaporation caused by diversion of groundwater, as diverted groundwater is now partially returned to the system as surface water. Further the existing spring is located immediately adjacent to the fenceline instead of down gradient from the site. There is the potential that herders may view the existing "temporary" artificial spring as a preferred alternative to completion of the Undai River Diversion as described in the ESIA. 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.

Figure 1: *Outfall bore - diverted groundwater migrating up the gravel pack*

Figure 2: *Outfall bore and artificial spring*

A monitoring point (OTMB11-45) is located approximately 400 meters to the south of the southern cut-off dam. The existing spring disappears into the alluvium approximately 150 meters below this location (Figure 3).

Figure 3: *OTMB11-45 monitoring location – surface flow outside of the MLA*

Recent monitoring data from OTMB11-45 is presented in Figure 4. A sharp increase in water level is observed beginning in April 2013, at the initiation of Undai Diversion construction works. At that time subsurface flow from the Undai River alluvial channel was diverted up-gradient of the north cut-off dam, routed through a subterranean pipeline, and ultimately discharged through an overland hose to the Undai River alluvial surface, at a location south of the MLA. There were also multiple precipitation events. Current data reflect possible stabilization of groundwater elevations at levels similar to those pre-construction. This trend is relatively new, and will require close monitoring going forward. As previously mentioned fortnightly reviews are undertaken by the Environmental department to evaluate monitoring results associated with the Undai River Partial Adjustment and Protection project.

Figure 4: *OMB11-45 - water level data (May, 2012 – October, 2013)*

5.1.2.2 Water Use in the South Gobi

OT has committed to working with the Government of Mongolia, non-governmental organizations, as well as with 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. Multiple efforts have been undertaken by OT to further this initiative including:

- *South Gobi Water, Mining and Communities Industry Roundtable*. OT is actively supporting this initiative which provides a platform for mining operators in the region to coordinate efforts related to water management and stakeholder participation.
- *South Gobi Water, Mining and Communities Water Management Training.* Through this effort OT assists in the training of technical and non-technical key stakeholders involved in South Gobi water management.
- *Community Agreement Water Sub-Committee*. This sub-committee is involved in implementation of the Water Sub-Agreement of the overall OT Community Agreement. The first meeting of this sub-committee was convened in May, 2013.
- *Water Resources as a Catalyst for Growth Event*. OT participated in this event arranged by the Ministry of Nature, Environment and Green Development and World Economic Forum. The general intent of the event was to identify opportunities for Mongolia's water resources to serve as a catalyst for economic growth, while still adhering to the country's Green Development vision.

Other initiatives include participation in the Business Council of Mongolia (Environmental Working Group), participation in the National Forum on Green Development, and the Future Mongolia Conference, among others.

5.1.2.3 OT Water Usage and Conservation

The OT Project is permitted to withdrawal water from the regional Gunnii Hooloi aquifer, which is brackish, at a rate of 870 l/s (approximately 75,000 m^3/day). Total groundwater extraction by OT from January to October 2013 was 7,343,000 m^3, or approximately 25,000 m^3/day. By far the biggest use of water by the Project is within the concentrator circuit, for which water recovery efforts are undertaken to recycle a large percentage of water used. Currently over 90% of water used in the concentrator circuit is reportedly recycled. Overall, the Project is achieving an 89.4% recycling efficiency rate, close to the 90% target and above the 80% threshold minimum criteria include key performance indicators. Although these figures support focused water conservation efforts, it is recommended that greater attention be placed in quarterly and annual reporting of water usage by the Project. The current site balance, as provided in internal quarterly reports, contains some errors with respect to inputs and outputs. The site water balance should also incorporate pit dewatering rates (138,000 m^3 of water was removed from the pit from January – September, 2013).

5.1.2.4 Potential Impacts to Herder Wells

The IESC April 2013 audit of the OT Project identified possible impact of project activities on the Khaliv and Shavag-1 herder wells, located in the Khaliv river ephemeral drainage. These potential impacts were also identified in project internal reporting. Since that time the Project has prepared formal reviews of possible impacts to these herder wells. Evidence is conclusive that direct impacts from project activities have not been realized due to the distance of the herder wells from OT abstraction wells OTCO2P and OTCO4P. However, the internal review did identify that the Shavagt-1 herder well is in poor condition, with the accumulation of sediment seen to be affecting water recharge. As such, the Shavagt-1 well has been included in the OT Well Rehabilitation Program.

The IESC April 2013 audit also identified possible impact of project activities on the Sukhai, Ovoo tsav, and *Suurin shavag* herder wells, located near the Gunii Hooloi Cluster 5 water supply boreholes. Again, prior internal reporting by the Project had identified these potential impacts. These herder wells were also subject to formal reviews, with results evidencing no direct impact from project activities. The water supply boreholes are located in the deep aquifer, and it has been established that there is no hydrogeologic connectivity in this area between shallow alluvials and the deeper Gunni Hooloi aquifer. Water level variations from the three herder wells are correlated with trends in nearby regional boreholes, indicating natural variation as a result of regional precipitation trends. Both the Ovoo Tsav and Sukhai herder wells were rehabilitated by OT in 2011; the *Suurin shavag* herder well has not been in use as a water source since 2007.

No direct or indirect impacts to herder wells have been identified in current Environment department analysis, although the department is continuously monitoring water level data to identify any possible correlation. Any observed water level decreases or changes in water quality trigger an assessment of the subject herder well, including a physical investigation and organization of a meeting with the owner of the well. OT has committed to taking corrective actions should any project impacts be realized.

Currently 29 herder families are involved in the Participatory Monitoring Program including 11 within the Undai River system, 8 in the Khaliv ephemeral drainage, 6 along the OT-GS corridor, and 4 within the Gunii Hooloi drainage basin. Data collected through this program is evaluated in conjunction with data collected by the Project. A total of 38 herder wells have thus far been rehabilitated by OT as part of the Well Rehabilitation Program.

The monitoring of flood events, to the extent possible, is an important part of the Water Monitoring Plan. The specific flood monitoring procedures identified in the Water Monitoring Plan have not yet been implemented, although flood monitoring does take place using an interim "Monitor Stream Discharge" procedure. The specific flood monitoring procedures detailed in the Water Monitoring Plan were recently finalized, and the project is in a period of transition to the new requirements. OT has ordered necessary equipment and is in the process of amending current flood monitoring procedures to reflect the specific guidance of the Water Monitoring Plan.

5.1.2.5 Shallow and Deep Aquifer Interconnection

OT has submitted a plan to the Khanbogd *soum* Governor for the sealing of boreholes where interconnection of hydrogeological units (i.e., the hydrogeologic communication between shallow and deeper aquifers) has been identified. The implementation of mitigation measures in the event of aquifer interconnectivity is also a requirement of the Water Resources Management Plan (WR-04). There is recognized cascading behaviour at a collection of exploration boreholes located in the vicinity of the Gunnii Hooloi regional aquifer (boreholes CGHW4x6, GHW5x1, GHW6x1, GHW14x1, GHEB-08 and GHEB-02). Interconnecting boreholes have also been identified within the MLA, in the vicinity of the Undai River. A scope of work has been developed by OT to abandon the interconnecting bores located with the MLA, or otherwise convert them to productive use (e.g., conversion of these bores to piezometers).

Outside of the MLA a working group has been established by the Khanbogd *soum* Governor to investigate the possibility of additional hydrogeologic communication in exploration bores located in the Gunnii Hooloi region. There are approximately 300 of these exploration bores. The established working group is currently assessing the full extent of shallow and deep interconnection, and will also make a recommendation as to how any identified cross-communicating bores should be abandoned.

5.1.2.6 Hydrogeology Studies

A groundwater model update for the Gunii Hooloi borefield is in progress, and should be complete by the end of 2013. A groundwater modelling update for the mine site will soon be put to bid, with the study to be completed in 2014. A groundwater investigation for development of a water supply for Khanbogd is in progress, including review of drilling logs and pump test results. This later information will be used to develop a groundwater model for Khanbogd water supply. A scope of work has been developed for the installation of additional groundwater monitoring points as described in the WRMP. A separate scope of work will be issued by OT to include an annual review of culvert conditions (including any possible associated erosion), as well as erosion monitoring along the Western Channel and crossings of ephemeral water channels including the Undai River channel. The WRMP describes an annual geophysical survey to be implemented down gradient of the tailings storage facility, to identify any possible seepage from this facility. Due to recent inclusion in the WRMP this study has not yet been implemented; however the Project has represented that this survey will be implemented in 2014.

5.1.2.7 Potable Water and Treated Effluent

The Project 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. However, the full suite of determinants (regulatory parameters) identified in these tables cannot currently be sampled for, as insufficient laboratory capacity exists in Mongolia to address all determinants. Per Project representation, OT is investigating the use of laboratories in other countries to address this challenge. However, the use of foreign laboratories could lead to delay times in receiving results and transport could affect the results obtained. Alternatively, a MoC could be considered to reduce the number of parameters to be checked to allow continued use of in-country laboratories. Excluded parameters could include determinants that are unlikely to occur or are otherwise unnecessary (e.g., uranium).

Historical data for treated effluent indicated exceedances of the Project Standard for chemical oxygen demand (COD). OT has recently completed an internal investigation into the root cause of this persistent issue, with results indicating that the brackish quality of current treated effluent had skewed prior laboratory results. Field testing of treated effluent indicates conformance with the Project Standard for COD.

5.1.3 Findings and Observations

Findings - Water and Wastewater Management

M1.1 Project works outside of the Mine License Area (MLA) are pending regulatory approval (a requisite Land Use Permit). Although the current system is considered temporary, it is not known when the requisite Land Use Permit will be issued allowing for works to be implemented as detailed in the ESIA. Some inconsistencies exist in design criteria for the Undai River Diversion as presented in the ESIA. Implementation of the Undai River Partial Adjustment and Protection Project was undertaken without implementation of the MoC procedure as described in the ESMP. The current discharge of groundwater flow to the surface presents a risk of losses to the system via evaporation and impacts to water quality. The created artificial spring has not been evaluated for consistency with commitments of the ESIA, including ecological equivalency of the created temporary surface spring to the original Bor Ovoo spring. Additionally, there may be social implications associated to implementation of the Undai River Diversion as originally contemplated, as the current surface spring is much greater in area than the original Bor Ovoo spring. These risks were not assessed in the ESIA as the Undai River Partial Adjustment and Protection Project was not considered at the time of ESIA preparation. Although implementation of the MoC procedure was not undertaken prior to the construction of the Undai River Partial Adjustment and Protection Project, the MoC procedure should be implemented to (a) address non-conformance of the existing Undai River Partial Adjustment and Protection project with commitments of the ESIA; and (b) address inconsistencies in the ESIA with respect to design and construction of the full Undai River Partial Adjustment and Protection project (i.e., works to occur outside of the MLA) (IESC April 2013 Audit; WR12).

M1.2 Flux through the groundwater diversion pipe is not currently measured. The lack of data for total volume of groundwater diverted does not allow calculation of how much diverted flow is returned to the subsurface relative to the volume currently recorded as surface flow (~ 1 l/s). The Project has represented that measurement of flow through the diversion pipe is not performed due to safety considerations (i.e., doing so would require confined space entry). However given the importance of this data an in-line flow meter should have been ordered and installed as part of implementation of the Undai River Partial Adjustment and Protection Project. The current recording of flow rates using a constructed v-notch has limitations as discussed in Section 5.1.2.1. An in-line meter allowing for continuous measurement of diverted flow has been ordered. Once the flow meter has been installed, OT will then be able to undertake the necessary flow monitoring. It is recommended that in the interim the necessary confined space entry authorization be obtained to allow mechanical measurement of diverted groundwater flow rates (WR13, 13a, WRm02).

M1.3 The Project has prepared a *Benchmarking Water Efficiency at Oyu Tolgoi against Comparable Mining Projects Worldwide* report which provides information on Operational Phase water efficiency efforts. Quarterly and annual on-going site water balance details will have to be reviewed to remove any balancing errors and expanded in future reporting to allow identifying opportunities for water management improvements and consideration of climate variability (WR02).

M1.4 The specific flood monitoring procedures identified in the WMP was finalised in Q3 2013 and has not yet been fully implemented by the Project. The Project should develop and implement the specific procedures in the near term (WMP, Section 3.4.4).

M1.5 Evidence exists of exploration bores interconnecting hydrogeological units within the Gunii Khooloi borefield and within the Mine License Area. Mitigation efforts outside of the Mine License Area require regulatory authorization, and are currently under evaluation by a workgroup established with the Khanbogd soum. Evidence should be provided as soon as approval from the Mongolian regulatory authorities is received

	(IESC April 2013 Audit; WR04, WR14).
M1.6	The surface geophysics survey down gradient of the TSF survey is intended to help identify any possible seepage from the TSF. The survey has not yet been implemented as it was only recently included in the Water Monitoring Plan. The Project has represented that this survey will be undertaken in 2014. Evidence should be provided to the IESC (WMP, Section 3.3.3).
M1.7	OT is investigating the use of laboratories located in other countries. Implementation of a MoC may be required to allow sampling of all reasonably achievable parameters (WR07).

Observations – Water and Wastewater Management

4. It is recommended that quarterly and annual reporting specifically address any identified potential impacts to herder wells, and describe efforts undertaken to investigate any observed downward trends.
5. There are numerous water-related models and studies in progress, which will require IESC review when completed. Work plans have been developed to install additional groundwater monitoring points as described in the WMP. Erosion monitoring in the Western Channel, culverts and ephemeral stream crossings is planned for in a pending Landscape Change Study. Information from these and other modelling studies should be reviewed as it becomes available.
6. It is recommended that some additional analysis be included in Undai River Diversion project fortnightly monitoring reports. This additional analysis should include (a) review of potential impacts to groundwater quality; (b) measurement of created spring size as it relates to that of the former Bor Ovoo spring; (c) discussion of potential evaporative losses, as estimated using known evapotranspiration rates; (d) discussion of observed use of spring by wildlife and domesticated animals; (e) discussion of observed surface flow relative to total amount of groundwater diverted, allowing analysis of amount returned to the subsurface; (f) discussion of observed trends in herder wells and monitoring points located further down gradient in the Undai River channel.
7. It is recommended that results from the monitoring of well OTMB11-22 be included in Undai River diversion project fortnightly monitoring reports. This monitoring point is located down gradient of the Western Channel and could be impacted by surface flow diversion; however another data point would be useful in describing long-term trends. Also recommend incorporation of the Khukh Khad spring behaviour in fortnightly reporting.
8. It is recommended that the access road to the boiler house, which crosses the Undai River channel, be evaluated to determine any potential impacts to surface water flow and recharge to alluvial sediments. This could be included in the pending scope of work for erosion monitoring of ephemeral water channels.

5.2 MINERAL WASTE MANAGEMENT

5.2.1 Project Strategy

The Mineral Waste Management Plan[11] (MWMP) addresses environmental conditions associated with the waste rock, overburden, tailings and combustion ash. Key elements of the Project strategy include the determination of potentially acid forming (PAF) mineral waste, and proper handling and disposal of these materials, even though the arid climate and low precipitation reduces the risks from exposure. PAF material will be encapsulated with mineral waste determined to be non-acid forming (NAF) material. Mineral waste management structures include Waste Rock Dumps (WRDs) designated for PAF and NAF materials located adjacent the Open Pit, and the TSF. Combustion ash from the CHP is treated as a NAF material, and encapsulated in the WRDs. Additionally, transitional materials and ore are stockpiled during mining at the Open Pit in separate stockpiles, including: Segregated Oxide Material (SOM), Low Grade Ore. These materials are handled and segregated consistent with PAF materials requirements. Rock in the

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

Shaft 1 stockpile is managed as a PAF material and will be processed through the concentrator during start-up under the MWMP; Shaft 1 development rock used as fill in the laydown area will also be processed through the concentrator.

The overarching Acid Rock Drainage (ARD) control strategies for the WRDs and stockpiles include: 1) segregation and separate handling of NAF from PAF; 2) containment of contact water within the operation footprint; and 3) construction of NAF waste rock store and release covers over final PAF waste rock surface. NAF and acid neutralizing materials will be used in post-mining landforms for cover materials, physical stability and acid buffering capabilities. Progressive rehabilitation and cover of the WRDs will be undertaken as often as reasonably practicable, with the objective of creating a safe and sustainable landform which resembles, in as far as feasible, the hills in the surrounding landscape.

The implementation of the management plan is the responsibility of the HSE General Manager, and also requires participation by the Open Pit and Underground department for segregation and handling of PAF; Mine Engineering department with respect to structural stability of the WRDs and TSF; and Tailings Management Team with respect to deposition of tailings within the TSF and protection of groundwater resources. Mineral waste management is implemented by the following: OT Integrated Mineral Waste, Acid Rock Drainage and Dump Management Implementation Plan; Topsoil Handling Procedure; TSF Operation, Maintenance and Surveillance Manual; and WMP. OT also conducts hazard identification and risk management under the ESMP, which applies to Mineral Waste Management activities.

5.2.1.1 WRD Design and MWMP Relative to Lender Guidance

The WRD and stockpile design and water management is documented in the Integrated MWMP, and consists of the West Dump for NAF materials, the South Dump for PAF materials, Low Grade Ore Stockpile, Segregated Oxide material (SOM) Dump, TSF clay stockpile, and TSF waste rock stockpile. Following topsoil and alluvial material removal and stockpiling, the dumps and stockpiles have been established by end dumping with angle-of-repose slopes. A surface water collection system is provided to collect runoff that contacts the rock dumps and stockpiles, and contains it within a lined pond, for recovery and reuse on the project. Ultimately, the dumps and remaining stockpiles will be grades to designed slopes which provide for stability, erosion control, and reclamation.

The WRD and Stockpile design and water management are consistent with the IFC Environmental, Health and Safety Guidelines for Mining (2007), as summarized herein. The rock dumps and stockpiles provide for terraces and lift height specifications based on materials and as necessary to reduce erosion and maintain stability. Potential changes in geotechnical properties of the waste rock are considered, which can affect dump geometry and tentative cover systems. A comprehensive system for testing and managing PAF materials has been implemented, to limit exposure, isolate, and dispose of the materials.

5.2.1.2 TSF Design and MWMP Relative to Lender Guidance

The TSF design is documented in the Klohn Crippen Berger, Ltd. (KCB) 2010 TSF Design report, and will consist of two cells, each subdivided to achieve alternating deposition and drying of tailings with collection of clarified water within the decant pond for return to the concentrator plant. The first phase of the initial rectangular cell is operational, formed using NAF material for the construction of the perimeter dam embankments and with a clay liner or natural clay barrier. The perimeter dam embankments are approximately 2 kilometers on a side, and are zoned to control seepage and achieve filtration criteria. The TSF is operated as a zero discharge facility, with all water returned for use in the ore concentrator plant, and no water discharged to the environment.

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 standards are determined based on the potential consequences from failure of the TSF, including consideration of risks to downstream economic assets, ecosystems, and human health and safety, and which provide guidance for flood and seismic criteria. Through the assessment of potential consequences, the TSF was classified as "High" potential consequences which support the selection of flood and seismic loadings for design. A site specific seismic hazard assessment was carried out to establish the Maximum Credible Earthquake ground motion for the seismic design and analysis of the TSF. Partial liquefaction and strength degradation of saturated tailings was considered in the seismic stability analysis, and the design met acceptable factors of safety for post-earthquake conditions.

The TSF includes measures to isolate the tailings which may be acid forming, and includes provisions for placement of PAF in areas isolated from seepage water. The dam embankments include provisions for seepage control and stability management, including instrumentation system to be maintained throughout the structure life cycle.

The TSF design evaluated the Probable Maximum Flood (PMF) event and required freeboard, establishing the design flood for operations (after Starter Dam construction) as 33-percent of the combined 1,000 year event plus Probable Maximum Flood and providing a minimum of 1-meter of freeboard. After closure, the TSF is designed to handle the Probable Maximum Precipitation (PMP) which is 347 mm in 24 hours. These criteria are based on the CDA standards, and support safe operations and closure, and the intent of zero discharge during operations.

Independent review during stage construction as part of operations of the TSF, and monitoring of the physical structure and water quality is performed. Currently, Golder Associates is performing construction quality control (CQC) services for the TSF, including evaluation of the deposition of tailings within the facility, and KCB is performing independent verification of TSF construction relative to design intent.

The Site Emergency Response Plan identifies the tailings dam failure scenario, which is referenced in the separate document: Emergency Response Procedures.

The Mine Closure Plan includes measures to implement reclamation upon permanent closure and in response to temporary closure, post closure monitoring, and financial feasibility.

5.2.2 Observations

Topsoil is recovered and stockpiled as part of construction and mining operations, under the Land Use Management Plan and Topsoil Handling Procedure. Stockpiles are limited to 3-meters in height, and located to avoid erosion from drainage. Monitoring and sampling is conducted by the HSE department, and reports document the stockpile materials in conformance with procedures. Three stockpiles were documented as non-conforming to height limitations in the Environmental Management 2nd Quarter 2013 report; two of these are temporary and associated with the WRDs and one is permanent associated with the TSF. The temporary stockpiles are planned to be reused at the airport.

Waste rock (PAF and NAF), unconsolidated overburden and low grade ore are segregated during extraction, and placed in prescribed dumps or stockpiles in accordance with the Integrated Mineral Waste Management Implementation Plan. 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. On-going confirmatory geochemical testing programs are contributing to the database in support of segregation and prediction of acid generation and neutralization.

WRDs are located in accordance with siting limitations and drainage controls, and runoff is directed into a lined collection pond, and managed on site. Groundwater collected in the Open Pit is removed from sumps by water trucks for use on the site. Currently, the WRDs are developed in about 15-meter lifts using end dumped procedures with slopes at the angle of repose; ultimately, the slopes will be graded to meet design requirements before covering for reclamation. No evidence of foundation or slope instability or significant erosion has been observed during the dump and stockpile development.

The rock stockpiles from Shaft 1 and 2 developments are maintained within areas with a perimeter berm to contain the material and control drainage (consistent with findings during the April 2013 Audit). The rock has not been completely characterized relative to NAF and PAF, and is being managed as PAF. The stockpile contains materials which may be unsuitable for processing through the concentration plant, such that it may ultimately be consolidated with other PAF mineral waste. However, the IESC was informed that no final determination regarding the disposition of the stockpile has been made.

The first phase of the TSF is being constructed to meet design criteria in the OT Project Tailings Storage Facility 2010 Feasibility Study Update, using NAF materials. The clay liner is under construction for Cell 2 of the TSF, where necessary. The TSF embankment and liner are subject to quality control inspection and testing to ensure project specifications are met.

Monitoring and testing of tailings deposition in the TSF has revealed that initial densities are close to design values, however beach slopes are flatter than anticipated (0.4-percent, as compared to a design slope of 1-percent). Potential causes are being investigated, and interim measures have been identified such as additional spigots for discharge and water controls. The CQC engineer is also evaluating design modifications to the TSF to meet water management and freeboard requirements.

Decant water accumulation at the TSF appears to be within design thresholds, and water quality exhibits basic pH with high levels of Total Dissolved Solids based on the Environmental Management 2nd Quarter 2013 Report. Waterfowl have reportedly been attracted by the water. Containment of drainage from the TSF is established; no seepage has been reported through the exterior perimeter embankments and the piezometer monitoring system indicates levels within design thresholds.

5.2.3 Findings and Observations

Findings – Mineral Waste Management

M1.8 Rescheduling of ore processing is a normal part of mine operational planning and this development rock may be processed in the future. In the interim, containment has been placed around the stockpile to contain the material and drainage, and monitoring for drainage is performed. Documentation of the monitoring program (within the framework of the Water Monitoring Plan) and development of a strategy for final disposal of the material, related to overall mine development, is recommended (IESC April 2013 Audit, MW05).

Observations – Mineral Waste Management

9. Document the monitoring program to ensure that the shaft development rock perimeter containment bunds are effective and the drainage tested within the framework of the Water Monitoring Plan.
10. Develop implementation strategy 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).
11. TSF tailings deposition beach slope is not within design criteria (MW14). If the flat beach slope persists, changes in the design for raising of the TSF dam and in the construction schedule will be necessary to maintain freeboard and control of decant pond water in a manner consistent with the planned safety and environmental protection systems. This observation is being addressed by OT, including: testing of deposited tailings samples; investigating the cause of flatter beach slopes; evaluation of interim measures; and assessment of potential design modifications. Consider the following if not already being evaluated:
    a. Performing index and classification tests in addition to density measurements of the deposited tailings.
    b. Potential for increasing solids concentration from the concentrator thickeners.
    c. As interim measures are evaluated such as additional spigots and water controls, systematically evaluate the effects on tailings deposition and document the findings.
12. Depending on the results of OT's investigation of the tailings deposition beach slope, review and update TSF Risk Assessment, or conduct risk assessment of observed tailings deposition conditions if the flat beach slope persists, along with any TSF design modifications being considered relative to safety and environmental protection systems.
13. Review and clarify the TSF Operations, Maintenance and Surveillance Manual with respect to Operations (Section 9) hydrologic and freeboard criteria, and Table 9 Triggers and Actions under Adaptive Management for Tailings Management (clarify or insert parameter values). Consider developing threshold levels for piezometers and underdrain/seepage flow measurements based on design analyses and tied to response actions.

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[12] developed by OT, which sits under the overarching OT ESMP Framework and outlines the general strategy to manage project generated wastes 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 provisions included in the plan apply to all OT operations including contractors, and define the general requirements for the management of waste, from identification of the different waste streams up to proposed treatment and final disposal, the monitoring requirements and reporting procedures as well as responsibilities. The plan provides a number of key management controls that define how the different wastes generated during operation will be managed including the responsible departments and the procedures in place to monitor the effectiveness of the waste disposal process. The scope of this Management Plan is to ensure the effective management of non-mineral waste at OT through an adequate implementation of the waste management hierarchy including minimization of waste generation at the source, maximization of waste recycling, and storage, treatment and final disposal in compliance with international standards.

The Waste Management Plan has been supplemented by a General Waste Collection and Transfer Procedure and a WMC Operating Procedure which provide details on specific aspects of the day-to-day waste management activities at OT. The first document includes the requirements for the control and minimization of potential hazardous and non-hazardous wastes and indications on how they will be managed from initial collection, segregation, and temporary storage up to transport to the onsite WMC for final disposal. The second procedure focuses on the management of the WMC and the requirements for non-hazardous solid waste disposal, hazardous waste incineration and recycling operating practices for proper operation of the facility.

5.3.2 Observations

According to the documentation provided and the observations made during the visit, it is evident that the Project is working towards the implementation of the waste management strategy defined in the Non-Mineral Waste Management Plan. At the time of the audit, OT was able to self-manage the wastes associated with operation through disposal at the interim waste management facility and through recycling of selected waste categories including plastics, metal, oil/coolants, and waste timber for which an effective in-country re-use market is in place either through local vendors or local communities. The identification of further recycling opportunities is an on-going effort for the Project taking into account challenges such as the remote location of project areas and the difficulties in identifying in-country reliable recycling options.

Overall, as a general observation, an adequate waste tracking system is in place with records of the different waste streams well maintained including identification of waste sources, total amounts generated and final disposal/treatment location/option. Good housekeeping and proper waste collection and segregation at sources were observed through an extensive use of specific colored containers located at the different working areas.

Both non-hazardous and hazardous wastes are currently sent to the interim WMC that has been in use for several years since the project construction phase. The facility was visited by the IESC and operationally falls short of the commitments included in the waste management plan. The site is currently managed by 6 workers with limited equipment and resources for handling, processing and storing the significant volume and variety of waste received. Overall, housekeeping as well as the methods of waste segregation and temporary storage should be improved throughout the site. A significant number of drums containing waste oil and expired chemicals has accumulated onsite. Although some of the containers were temporarily stored on concrete bunded areas, a significant number of metal drums containing residues of potentially hazardous material were lying on the ground with no paved areas and/or secondary containments to prevent potential spills. In an attempt to reduce the volume of the empty drums, a drum

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

crusher was provided but reportedly has been out of service for the last 2 months pending spare parts. Food/putrescible domestic waste and other biowaste (paper, cardboard, etc.) are disposed into two different pits. The operation of the pit used for disposal of food/putrescible domestic waste is questionable with no evidence of systematic soil covering to reduce the attraction of avian species. Although the area occupied by the WMC is reportedly situated over a layer of clay to prevent leachate percolation into the groundwater, no leachate collection system was reported to be available during the visit and this could potentially lead to legacy contamination issues once the use of the facility will be discontinued. A significant amount of plastic bottles and empty plastic containers has accumulated at the site. During the visit it was understood that the situation has improved since the commissioning of the reverse osmosis central water supply plant in September, and partial substitution of 5 gallon water dispensers for small plastic water bottles. However, because of delays/stoppages in shipping the plastics to the recycling contractor during transition between construction and operation, a significant volume of plastic bottles and containers have accumulated at site. According to the information provided, the Project is aware of this situation and a baler has been ordered to reduce the plastics volume and increase shipping effectiveness.

Used tires from both light and heavy vehicles are stored since construction in a dedicated area within the WMC, pending a final disposal solution. The option to recycle them through specialized contractors present some challenges because no suitable suppliers could be identified in country and therefore other options are being explored by OT.

Medical waste, oily rags, used spill kits, oil/fuel filters and other grease/oil contaminated materials are incinerated at the new EU compliant incinerator that is now operational. However, damages occurred to some of the equipment during transport to the site are currently preventing the monitoring of stack emissions until replacement parts are delivered (see Section 5.5 for further details).

During the audit the new permanent WMC was also visited. The facility is an engineered landfill designed to comply with US EPA CFR 258 standards. At the time of the visit two cells and two water collection pits were completed and ready to be used as soon as the Waste Disposal Location Permit from the *soum* Governor will be received. From the information provided in the field, the timeframe for receipt of the permit is currently unknown and there is the potential for the interim waste management facility to continue to be used for an indefinite period of time. The IESC recognizes that the availability of the new permanent facility is beyond OT's control and that the Project is working to resolve these permitting challenges in a timely manner. However, the current waste disposal practice observed at the interim facility is non-compliant with Project commitments and GIIP. The IESC noted that the Project is aware of the conditions of the site and there has been an ongoing improvement effort. The IESC also recognizes that the site represents an interim solution, is located in a remote area and there are minimal risks from an environmental and communities standpoint, but nevertheless believes that with some minor improvements the overall conditions of the site could be enhanced. The IESC therefore recommends expediting the supply of the bailer and the repair of the metal drum crusher to reduce the volume of plastic and metal containers and to improve general housekeeping and waste segregation methods throughout the site. The areas where different waste streams are accumulated should be clearly demarked, concrete pads where drums containing residue of waste oil and chemicals are accumulated should be repaired and additional areas should be provided to store those drums currently lying on the ground.

5.3.3 Findings and Observations

Findings – Non-mineral Waste Management

M1.9 At the interim WMC, actions are required to improve housekeeping and overall operation of the facility. These include the supply of equipments to facilitate the handling, processing and storage of the different waste types throughout the site, the review of the soil covering procedure at the food waste disposal pit, the improvement of the overall waste segregation practice throughout the site until the permanent WMC (which is constructed) be approved (IESC April 2013 Audit, WM07).

Observations – Non-mineral Waste Management

14. Expedite the supply of the plastics baler and the repairing of the drums crusher to reduce the volume of plastics and metals containers and avoid further accumulation.

15. Ensure that proper oil/chemical spill kits and fire extinguishers are provided at the interim WMC (HM05).
16. Continue the effort to identify realistic disposal solutions for specific waste categories such as tires, batteries, air filters.
17. Ensure that empty drums containing waste oil and solvents residue are temporarily stored on paved areas equipped with secondary containments to contain/limit spills during rain events (IESC April 2013 Audit, WM09, General Waste Collection and Transfer Procedure[13]).
18. Verify that routine inspections on general housekeeping are carried out by area HSE superintendents/supervisors, to check progress in the field and take actions as necessary (WMM2).
19. Ensure that periodic audits are carried out at all third party facilities and/or contractors engaged to recycle project waste to ensure they fulfil Project/GIIP requirements (WMM4). If they do not, consider if it is practical to help these companies increase their standards through OT's programs for enhancement of local businesses and work with OT's social teams to develop effective capacity building programs.

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[14] developed by OT, which sits under the overarching OT ESMP Framework. The plan was developed to comply with the Project Standards, including applicable Mongolian laws and standards, RT standards as well as relevant Lenders standards and guidelines and 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 includes a number of practical management control measures to properly handle and store the different hazardous substances managed at site, the monitoring measures to be implemented, as well as responsibilities.

The Hazardous Materials Management 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 which provides technical guidance regarding handling, transport, and storage of hazardous materials at the different OT operation areas and a Spill Response Procedure which focuses on actions to be implemented for an effective response in the event of a hazardous material spill including details on spill response kits needed, techniques for containment and clean-up of spills, and measures for proper disposal of contaminated material.

5.4.2 Observations

From the information provided during the visit and what was observed in the field, the main hazardous materials currently used at the different project locations are fuel and lubricants for light and heavy vehicles and other related chemicals. Overall, hazardous materials are generally managed adequately with properly designed hazardous material storage areas. Petrovis is the contractor responsible for all operations of transporting, unloading and distributing the fuels used at the different project areas. Fuels are delivered daily via tankers from their main storage base in Choir city and stored at two fuel depots, a main one to supply heavy trucks working at the mine site, and a storage/fuel station for light vehicles and buses. The process of refuelling heavy equipment is managed either with the delivery truck directly at the depot or via smaller special-equipped tankers that supply diesel at the heavy equipment working at the open pit or in other remote locations throughout the mining area. The two depots were visited and observed to be in good condition, well managed and compliant with Project Standards and GIIP. At the main storage depot, diesel is stored in four tanks for a total storage capacity of 2,400 m^3. The tanks are located inside concrete and paved secondary containment provided with a sump connected with a concrete basin to collect potentially contaminated rainwater. The diesel truck loading area is sheltered, provided with a vapour recovery

[13] *General Waste Collection and Transfer Procedure - Doc. No. OT-10-E5-PRC-0001-E dated 05.06.2013.*

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

system, paved and has concrete berms to contain any potential spills during refuelling. The different areas within the depot are connected to a centralized fire fighting system, and portable fire extinguishers are also located throughout the site. The only findings made by the IESC during the audit was with respect to the spill kits that were missing, and spill kit bins were instead being used for disposal of oily rags. The light vehicle fuel station includes a total of six tanks for a total diesel and gasoline storage capacity of about 300 m^3 located in a concrete bunded area provided with a metal fence. Spills kits and fire extinguishers were properly located at this site.

A couple of areas where lube oil, lubricants and chemicals are stored were also visited. One area is located nearby the main fuel depot and is used for temporary storage of lube oils for maintenance of heavy equipment. The drums are located inside concrete and paved secondary containment provided with a sump to collect rainy water. The truck loading area is also paved and provided with a slope to contain any potential spills. As an observation for improvement, the Project should consider sheltering at least part of this area for drums that will be stored for an extended period to reduce sun and rainfall exposure. The second area is located at the main warehouse where all oils and chemicals received from vendors are stored before distribution to the different project areas. All drums are located in a concrete pad provided with secondary containment and graded to collect drainage in an area, before removal either through evaporation or with adsorbent materials. Spill kits, drip trays and fire extinguishers were properly located at the site. Similar to the observations for the other storage area, the Project should consider sheltering at least part of this site to reduce sun and rainfall exposure.

The fleet maintenance area and workshop was also visited during the audit. Since the construction phase, the facility has been managed by TransWest, who have been in charge of the maintenance of all heavy equipment and trucks used at site. The current program is to have a transition period with the final goal to have the responsibility of equipment maintenance progressively handed over to OT employees in 5 years. Overall, the facility is well organized and properly managed with high standards in terms of hazardous material handling, housekeeping and safety, including a centralized fire fighting system. The warehouse area is equipped with a floor heating system, extraction fans to collect exhaust from diesel engines during maintenance and a system to supply oils and lubricants to the different vehicles maintenance pads via centralized lube rack connected to lubricants storage tanks located in an adjacent building. Oil spill and first aid kits were found to be available as well as different tools to prevent potential spills. Waste oil and waste coolant are collected via a pipe system to 465 m^3 and 60 m^3 tanks, respectively, located in a concrete basin outside the workshop building. During the visit it was explained that under heavy rain events the floor of the workshop is inundated by runoff flowing from external areas. A solution has been identified that includes the excavation of a trench to collect runoff and divert it away from the facility, although budget constraints are delaying its construction.

5.4.3 Findings and Observations

Findings – Hazardous Materials Management and Pollution Prevention

M1.10 During the visit the IESC noted that spill kits were missing at the truck loading area inside the main diesel fuel depot and that spill kit bins were being used to dispose oily rags and spilled material. Spill kits should be provided and period inspections carried out at the different locations where hazardous materials are handled and stored (HM05).

Observations – Hazardous Materials Management and Pollution Prevention

20. Consider sheltering at least part of the lube oil and chemicals storage areas nearby the main fuel depot and at the main warehouse to reduce sun and rainfall exposure of those drums that will be stored for an extended period.
21. Expedite the construction of the trench to avoid runoff inundation of the fleet maintenance warehouse during rain events.
22. Consider prioritizing the on-going construction work at the heavy truck washing bay whose commissioning is currently foreseen for Q1 or Q2 2014.
23. Consider providing a shelter for the lubricant storage area outside the fleet maintenance workshop to reduce sun exposure and minimize the amount of potentially contaminated runoff.

24. 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[15] (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[16] (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.

5.5.2 Observations

Findings in this section are based on observations made during the site visit, interviews with members of the Environment department, as well as a review of documentation provided during and after the site visit. Monitoring data related to air quality are compiled in internal quarterly Environmental Management Reports. These reports are intended to inform management of any developing trends, and guide appropriate mitigations, as needed. Data from the quarterly Environmental Management Reports are consolidated in an Annual Report on the Implementation of the Environmental Protection Plan. This latter 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 Environment department has developed a spreadsheet which identifies any historic or current exceedences of Project Standards. A total of 46 monitoring locations have registered an exceedence at some point in time. In some instances multiple exceedences have been recorded at the same location, whereas at others only single exceedences have been recorded and these may be isolated events. Although no air quality incidents have been recorded, the number of non-compliances exceeds the five per year threshold identified in key performance indicator AQ-KPI02 of the AEMP.

The Environment department has prepared an internal Action Plan to address the identified air quality concerns, including a proposed mitigation. This Action Plan has also been included in the Environmental Protection Plan for 2013 submitted to the Ministry of Nature, Environment and Green Development. The Environment department is currently working with each operational area to identify the optimal mitigation for locations within the MLA. It should be noted that an Ambient Air Quality Risk Assessment was performed in 2013, and is included as an appendix to the AQMP. Potential health impacts to workers from elevated levels of sulphur dioxide was assessed as a medium risk, which could be reduced to as low as reasonably practical with the procurement of a lower sulphur coal source. During the site visit it was indicated that coal used for the CHP has a lower sulphur content than that previously used in small boilers.

There is significant dust (particulate) generation at the coarse ore stockpile, in part a reflection of the lower than anticipated moisture levels of this material. In June 2013 the Environment department prepared a summary report detailing ambient conditions, and suggesting possible causes. A detailed engineering study has been completed to address the concern, with the use of a dust foam suppressant identified as the best mitigation. At the time of the site visit the selected mitigation had yet to be implemented and a dust cloud was visible from both within and outside of the MLA.

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

[16] *Air Quality Monitoring Plan – Doc. No. OT-10-E2-PLN-0002.*

There are limitations to the existing ambient air monitoring network available on site. The AQMP describes needed necessary equipment at the OT site to monitor ambient air conditions to Project Standards. This equipment has been procured by OT, but is not yet available on site. Subsequent to equipment delivery, a three month implementation schedule is anticipated to install the network on site and train staff on its use.

5.5.2.2 Stack Emission Quality

The Project Central Heating Plant (CHP) currently lacks monitoring equipment to allow direct sampling of stack emissions. Direct sampling of the CHP stack has not been performed. Ambient air quality monitoring is undertaken, with some exceedences recorded for gaseous emissions. Equipment has been ordered to allow future direct sampling of the CHP stack in conformance with the monthly periodicity identified in AQMP. The CHP was not subject to stack emission monitoring as part of the stack emission survey undertaken by WardKarlson Consulting Ltd. (WKC) in November 2012. Stack emission sampling results, when available, should be compared against Project Standards.

An incinerator procured to Project Standard design criteria is now operating at site. This incinerator is processing materials such as medical waste, oily rags, used spill kits, and oil/fuel filters. The incinerator is operating at design temperature; however a cooling circuit was damaged during transport of the unit to the OT site. The lack of sufficient cooling capacity prevents the usage of the emissions control circuit for the incinerator, which also contains air emission quality monitoring equipment. No data are therefore currently collected from stack sampling at the incinerator. Equipment and technical assistance have been ordered from the incinerator manufacturer to allow for the necessary repairs.

5.5.2.3 Greenhouse Gas Accounting and Energy Efficiency

OT records greenhouse gas emissions (GHGs) and reports a total of 347,773 $CO_{2\ (eq)}$ generation in 2012. Monthly GHG emission accounting began in July, 2013 (previously only annual reporting was completed). The identification and assessment of GHG reduction and energy efficiency improvement opportunities has not yet taken place, but is part of OT's planned 2013 activities. The Environment department does engage on the purchase of new equipment for the mine site to ensure emissions controls are included in design specifications.

5.5.3 Findings and Observations

Findings – Air Quality

M1.11 An assessment has been performed by OT, with the use of a foam dust suppressant identified as the preferred mitigation. The Project should monitor results of implementation to assess the effectiveness of this measure or determine if other mitigations are warranted (AQ05).

M1.12 The Project has developed an Action Plan to address identified historical and current exceedences of ambient air quality standards. Additional monitoring equipment is under procurement to allow more robust analysis of ambient air quality conditions, and to allow full analysis relative to Project Standards (IESC April 2013 Audit, AQ-KPI02).

M1.13 The CHP currently lacks monitoring equipment to allow direct sampling of stack emissions. Equipment has been ordered to allow future direct sampling of the CHP stack in conformance with the monthly periodicity identified in the AEMP. Currently, the incinerator is operating at the design temperature, but a cooling circuit was damaged during transport of the unit to the OT site. Equipment and technical assistance have been ordered from the incinerator manufacturer to allow for the necessary repairs. Stack monitoring should be expedited as soon as the necessary equipments will be received at site (AQ06, AM03).

M1.14 Identification and assessment of greenhouse gas reduction and energy efficiency improvement opportunities will be undertaken per RT procedures during 2014 (AQ09).

Observations – Air Quality

25. The Action Plan related to mitigation of ambient air quality exceedences should be reported on in future quarterly and annual monitoring reports. This will allow easy identification of what issues have been addressed, and provide status updates on other locations.
26. The Ambient Air Quality Assessment should be updated when ordered ambient air quality monitoring equipment has been installed on site, and after collection of sufficient data to allow analysis.

5.6 NOISE AND VIBRATION

5.6.1 Project Strategy

Chapter C3 of the OT ESIA describes the potential environmental and social impacts related to noise and vibration that could result from construction and operation of the project. The general strategy for management of noise and vibration is described in the Operations Phase Noise and Vibration Management Plan[17]. This management plan cross-links with other management plans that are related to noise and vibration impacts including the Transport Management Plan, the Cultural Heritage Management Plan, and the Biodiversity Management Plan.

The intent of the Noise and Vibration Management plan is to minimize noise and vibration impacts on the surrounding environment and communities. Control is accomplished through identifying noise and vibration sources, and taking effective measures to design and implement appropriate controls.

5.6.2 Observations

Noise monitoring has identified only isolated incidents of noise levels above relevant Project Standards. The Gobi desert is often windy, and gusts can and do influence monitoring data. No exceedences of Project Standards have been directly attributed to the Project. No community complaints related to noise have been received thus far in 2013.

5.6.3 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)[18] 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 detailed response plans developed by OT which define specific response actions to be undertaken in the event of an emergency situation.

The plan sits under the broader RT Business Resilience and Recovery Programme (BRRP) which is a requirement under Element 12 of the Rio Tinto HSEQ Management System Standard. The Business Resilience Management Plan (BRMP) is the overarching plan for Business Resilience and Recovery and covers all areas where OT operations are on-going and that are considered under OT responsibility. The BRMP for OT operations is the overarching plan and covers Emergency Response, Business Continuity, and IT Disaster Recovery, all managed through specific plans. The BRMP has been developed based on a number of realistic scenarios that have consequently driven the development and implementation of two Emergency Response Plans (ERP) which document site-specific emergency scenarios, resources and strategies for immediate response to incidents at the project site or at Ulaanbaatar, respectively. Each ERP is than supplemented by a number of specific procedures designed to handle the different scenarios identified.

[17] *Noise and Vibration Management Plan - Doc. No. OT-10-E6-PLN-0001 dated 01.09.2013.*

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

5.7.2 Observations

The IESC was provided with information on the incident tracking system, with examples of inspections, internal audits, and other tools that support the RTBS management system. The RTBS system enables events to be tracked and analyzed by hours, days and months as well as statistical analyses.

Hazard identification and emergency response planning has been conducted as outlined in the EPRP and the ERP documents. A risk assessment process is being applied to identified scenarios to define response procedures as part of emergency actions for surface and underground mine conditions, airport, as well as scenarios with potential community impact. The focus has been on developing the more likely and higher risk scenarios into detailed procedures, including airport, concentrator and roadway operations. The ERP, scenarios, and procedures are to be reviewed annually, or every 3 years depending on the risk assessment, to identify necessary changes and improvements.

Communities and local and national authorities have been engaged concerning the Emergency Response Team's activities to address a range of situations, with the more typical being roadway accident or spill response. Police patrols of roads have been facilitated under a memorandum of understanding. The National Emergency Management Agency (NEMA) performs annual audits of the ERP, and has been involved in a recent missing person alert. Recent local community engagement included fire extinguisher inspection and refilling, which included an education element as well.

A comprehensive training regime for Emergency Response Personnel has been established, and in November two training modules will be presented over a three week period focusing on readiness. The training schedule calls for a combination of desk top and field demonstration exercise to be undertaken, including the following areas: hazard identification, risk assessment and risk profiling; management of emergencies, procedures and scene preservation; airport emergencies and response equipment; chemical spills, equipment and response; special environments and techniques; fire suppression including exercise; first aid; etc.

The EPRP includes commitments to inform and test emergency response measures with potentially affected communities.

Following deployment, incident response records are compiled and managed through the RTBS system. There have been 251 incidents with only a limited number being fire or vehicle accident (many reported incidents turned out to be system error or signal tampering, or associated with detection of smoking).

The surface emergency response team has 25 personnel over two shifts (plus 5 vacancies), and operates two emergency trucks from a temporary fire house (scheduled to be replaced in the coming years) which houses ERT support equipment. Separate teams have been trained for surface and underground response. Contractors have responsibility for emergency response and equipment for their activities, such as transportation and underground production mining. Contractor vehicles are inspected upon arrival to ensure safety and response equipment meet requirements.

A separate ERP for underground production mining has been prepared by Redpath. With the underground mine in care and maintenance condition, OT has performed a risk assessment and identified hazards and response actions, and are prepared to respond. The OT activities include service and maintenance of underground equipment, and inspection of workings employing two shifts of 10 to 11 personnel. Risk assessments for the shafts and workings included loss of power, gas generation, and fire. Workshops were cleared of fuels and lubricants; water lines and fire suppression equipment have been maintained. Sumps are operated, and gas monitors used during underground activities. Refuge chambers are located in proximity to equipment storage areas.

5.7.3 Findings and Observations

Findings – Emergency Preparedness and Response

M1.15 Development of response procedures has been prioritized based on risk assessments, with the more critical scenarios receiving attention. Incident response plans and procedures should be complete, identify and inform communities that may be affected, with response measures tested with potentially affected communities and local Authorities (ERP02, ERP02b, ERP02c).

Observations – Emergency Preparedness and Response

27. Ensure that response procedures for scenarios identified in EPRP have been developed, reviewed, and fully meet the associated management controls and intent of the Project Standards.
28. Develop strategy for full scale exercise of the ERP considering a scenario which includes involvement of local authorities in the community. Evaluate the list of scenarios that may have potential impact on local communities, and prepare prioritization for full scale exercises among the scenarios.

5.8 TRANSPORT MANAGEMENT

5.8.1 Project Strategy

The Transport Management Plan[19] (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 (both livestock and wildlife). Along the OT to Gashuun Sukhait, OT to Khanbogd, and OT to airport roads, herder crossings to allow wildlife crossing are being installed. Measures required to allow wildlife to cross roads safely are currently being explored. These include possible underpasses, signs to alert drivers on sensitive stretches of road and also measures to control off-road driving. 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.

5.8.2 Observations

A monitoring system is in place for traffic hauling concentrate to Gashuum Sukhait, which includes run sheets completed by drivers and compared with logistics records, and monitoring of vehicle location and speed by escort vehicles, security guards at check points, GPS tracking systems, and detection of RFID tags on product bags. The Logistics department is informed immediately (via automatically generated emails from the GPS Tracking System) should vehicles deviate from the bonded route, as well as excessive speed. All OT vehicles that are operated off site have GPS units installed. Every vehicle movement is tracked on a real-time basis to ensure compliance to the required speed limits and driving behaviours (i.e. to identify unauthorised off-road driving).

Vehicles receive pre-start safety inspections, and truck drivers receive awareness training including road safety requirements and are instructed to limit speed based on roadway surface (80 km/hr on paved roads, and 60 km/hr on aggregate roadways) or as posted. OT reports that induction training for export operations drivers will shortly include a presentation from the OT Communities Team to raise awareness of the impact export convoys contribute to, plus the issues facing the local population living adjacent to the route used for export operations. Incident reports along with driver training, license, and medical monitoring are recorded in the RTBS system. Incidents include both dust and animal contact on off-site roadways, which are raised in daily management meetings. There have been a couple of reported animal strikes over the last few months.

A one-time trial fleet for concentrate transport from OT to a railhead connection at Choir, and shipment to China, is being considered. The roadway is currently used for fuel transport to the site, and has been evaluated relative to the planned trial fleet and could require some maintenance. Escorts and GPS tracking will be performed as part of the trial fleet transport.

[19] *Transport Management Plan - Doc. No. OT-10-C3-PLN-0001 dated 01.09.2013.*

Good progress has been made on installation of livestock crossing points, with the majority complete. Proposed controls on parking beside roads to reduce threats as well as obstacles to wildlife movement are not clear. Partial progress has been made and some signs have been provided to warn drivers of potential risks to wildlife species. However, the basis for identifying key or sensitive areas, where traffic speed regulation is particularly important from a wildlife perspective, was not clear during this visit (See also Section 5.9.2.3).

5.8.3 Findings and Observations

Findings – Transport Management
Nil.

Observations – Transport Management

29. Ensure that proposed measures for traffic calming off-site are finalized in a workplan and are put in place to minimize risk of vehicle collisions with wildlife and livestock before traffic increases on new roads.
30. Monitor the use of livestock crossing points so that designs can be adapted if necessary.
31. Provide an update on proposed measures to restrict off-road driving and parking beside roads, e.g. structures or barriers at sensitive areas to prevent vehicles from leaving the OT-GS, OT-KB and OT-airport roads. If these are no longer considered appropriate, suggest alternative mechanisms for managing impacts associated with off-road driving.
32. Develop a clear basis for identifying key or sensitive areas, where traffic speed regulation is particularly important to avoid collisions with wildlife species.

5.9 BIODIVERSITY AND ECOLOGICAL MANAGEMENT

5.9.1 Project Strategy

The Biodiversity impacts which could result from the construction and operation of the project and required mitigation measures are described in Appendix 3 of the OT ESIA and in Chapter 6 of the ESIA. The Project has attempted to follow the mitigation hierarchy, whereby it avoids and minimizes impacts, undertakes rehabilitation efforts to further reduce impacts and then finally offsets any residual impacts.

The Operational Biodiversity Management Plan[20] (BMP) sets out a number of objectives and also establishes links with several other management plans through which biodiversity-related actions are intended to be implemented, including:

- The Land Use Management Plan, particularly in relation to pastureland management, land rehabilitation and minimising land disturbance;
- The Water Resources Management Plan, particularly in relation to management of water resources for the protection of biodiversity values and ecosystem services;
- The Transport Management Plan, in relation to mortality due to collisions with vehicles, landscape fragmentation effects, deposition of vehicle induced dust and use of unapproved roads/tracks;
- The Non-Mineral Waste Management Plan, in relation to prevention of placing waste along roadsides where it may attract wildlife;
- The Mine Closure Plan;
- 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; and
- The Stakeholder Engagement Plan, which includes biodiversity-related stakeholder engagement commitments.

In addition to the management controls outlined in the BMP and other management plans listed above, OT has committed to a number of biodiversity management activities specifically required to meet Lenders Standards. These are described in the Lender's Biodiversity Action Plan (LBAP) which is currently

[20] *Biodiversity Management Plan - Doc. No. OT-10-E9-PLN-1001 dated 01.09.2013.*

attached as Annex C to the BMP. They include development of OT's biodiversity offsets programme which is being developed in a separate Biodiversity Offsets Management Plan (BOMP).

The OT Project is currently in the process of streamlining its biodiversity plans and integrating them with the OT Environment Management System (due for completion in Q4 2013). This will ensure that all biodiversity commitments and requirements are fully incorporated into the OT Management System and will strengthen ability to track implementation and outcomes. A revised and updated OT BMP, together with the BOMP, will form the basis for management of biodiversity risks and opportunities moving forward, articulating biodiversity mitigation and offset objectives, actions and targets. A Biodiversity Monitoring Plan will provide the basis for monitoring outcomes. A Core Monitoring Strategy is currently being drafted (as a component of this plan) to ensure that requirements relating to critical habitat are progressed. Evidence of effective translation of plans into management outcomes will be reviewed in future IESC visits.

The overall goal of the OT Project with respect to biodiversity and ecosystems is to benefit the biodiversity of the Southern Gobi Region. The goal is to have a Net Positive Impact (NPI) by mine closure, but to seek opportunities to achieve net positive impact as early as practicable in the project life.

The OT Project affects the following critical habitat, identified according to IFC PS6 and EBRD PR6:

- Tier 1 Critical Habitat for Asiatic Wild Ass or Khulan (*Equus hemionus hemionus*);
- Tier 2 Critical Habitat for animal species Argali (*Ovis ammon*); Goitered Gazelle (*Gazella subgutturosa*); Houbara Bustard (*Chlamydotis undulate*); Short-toed Snake-eagle (*Circaetus gallicus*) and for Mongolian Chesney (*Chesneya/Chesniella mongolica*) and granite outcrop plant communities;
- Four critical ecosystem services (water regulation, pasture for livestock, biomass fuel and freshwater); and
- Other biodiversity which is important according to RT BAP guidelines including Mongolian gazelle, nine bird species, Tall Saxaul Forest and riverine elms.

Measures to safeguard populations of these species are included in the LBAP, appended to the BMP. Saker Falcon has been re-listed by IUCN as Endangered since the Project ESIA was completed but was not a critical habitat trigger species at the time when the ESIA was conducted. It is therefore not identified as requiring action in the LBAP, but implications of the Project for this species have been considered while developing the OT BAP.

Various biodiversity monitoring surveys are being undertaken to establish reliable baseline information. For Khulan, for example, these include ground-based distance sampling surveys, aerial surveys, habitat mapping, collaring and tracking.

Biodiversity offsets needed to address residual impacts are being developed through a separate but complimentary process through which specific offset actions will be identified and later integrated into a BOMP.

OT has also developed several strategic partnerships with national and international specialists and NGOs in order to pursue key strategic activities, such as development of the biodiversity monitoring programme and Biodiversity Offset Strategy. Further stakeholder engagement remains essential to support development of effective offset initiatives.

5.9.2 Observations

Findings in this section are based on observations made during the October site visit, interviews with Environment department staff (in particular the biodiversity and land use management teams), as well as review of documentation provided during and after the site visit.

5.9.2.1 Resources and Staffing

The BMP outlines key roles and responsibilities for implementation. Key roles are the Principal Advisor, Biodiversity Offsets and the OT Environment department Biodiversity Team Leader. OT has also engaged external organisations to pursue various strategic activities, including The Biodiversity Consultancy (TBC). Key interfaces are clearly identified in the OT BMP as well as responsibilities of all employees and contractors. Interviews during the October site visit show that members of the Biodiversity Team are fully

aware of biodiversity-requirements and of the requirements of the BMP. They are well qualified to undertake necessary tasks and have a good awareness of associated risks and opportunities.

The team is also well supported by a number of consultants and external partners including the Wildlife Conservation Society. Ongoing development of relationships with external stakeholders and partners will remain essential and appears to be an area of intense focus and activity at present.

Areas where there is some indication of capacity being a potential issue are in relation to development of NPI and offset strategy and in relation to biological rehabilitation. Overall knowledge of biodiversity requirements/NPI is concentrated within a few key staff, though general awareness of NPI among OT management and the biodiversity team is reasonable. The scale of rehabilitation required means that it is challenging to design reference communities, research ecological restoration requirements and develop sufficient stocks of propagules (seed stocks of other propagules such as cuttings) to restore vegetation in practice. Again, levels of expertise are high, but concentrated in a small number of individuals.

5.9.2.2 Managing Impacts associated with Footprint and Infrastructure

One of the BMP key management controls is to install bird Flight Diverters on power lines to minimise mortality due to collisions (B09 and LBAP) with and electrocution by power transmission lines. Diverters must be "maintained as necessary to minimise wildlife mortality throughout operations". Installation is complete, but there are problems with functioning of bird flight diverters, possibly due to faulty installation. Some investigations are currently underway but it is important for corrective actions be taken as soon as possible so that mitigation is effective. The OT BMP is currently being updated so provision to manage effectiveness of this mitigation action will be reviewed in the next IESC visit. For all offsite infrastructure good efforts appear to be made to minimise footprint and to restore damaged vegetation. For example, the Drill Rig Procedure requires a standard layout which was designed to minimize footprint with inputs from the geoscience, environment and drilling teams. Another measure used to minimize footprint was having one entry and exit point for the working area. Restoration of temporary roads is planned. Traffic was using these roads at the time of the October visit but construction of the new road was not complete at that stage. Success of rehabilitation may be reviewed at a future IESC visit.

5.9.2.3 Managing Impacts related to Traffic and Transport

The risk that wide ranging wildlife might experience loss of habitat due to avoidance of roads was identified in the ESIA, together with associated risks from induced increases in levels of hunting and further disturbance caused away from roads by vehicles driven off-road. Various measures were proposed to reduce these effects, including identification of areas where suitable structures could potentially be placed to deter vehicles and off-road driving. Road safety signs are needed to make drivers aware of risks to wildlife in sensitive locations and partial progress has been made. The basis for identifying key or sensitive areas where traffic speed regulation is particularly important was not clear during this visit. Similarly, progress in development of traffic calming measures was not possible to review during this visit and will be followed up in the next IESC visit. A draft workplan has been submitted to Lenders which was not available for review and this may articulate additional measures which need to be followed up.

The BMP requires measures to control disturbance of animals and mortality from hunting and collecting. The BMP also includes the installation of structures or barriers at sensitive areas to prevent vehicles from leaving the OT-GS, OT-KB and OT-airport roads. However, in October, OT proposed to the Lenders that this mitigation measure be removed from the BMP (and the Lender BAP). OT will follow its Management of Change procedure and submit documentation for Lender approval that justifies the removal of this mitigation measure and explains what OT does, and plans to do, to mitigate impacts associated with off road driving. This documentation will incorporate input from the project's biodiversity partners. Alternative measures to prevent vehicles from leaving the road in sensitive areas on the Gashuun Sukhait, OT to Khanbogd or OT airport roads need to be developed. Multiple off-road tracks were observed during the visit though not within the site, where controls appear to be in place and well enforced.

The Gashuun Sukhait road was visited and good progress has been observed on installation of crossing points with the majority complete. At the time of the October site visit, discussions were imminent concerning suitable designs for potential measures to allow wildlife to cross roads safely without encouraging off-road driving or compromising traffic safety. A workshop was held with specialists, OT biodiversity staff, Lender biodiversity specialists and other stakeholders in Ulaanbaatar in November 2013 to review alternatives for development of wildlife crossing points or structures such as underpasses. The results of this workshop will be reviewed when available and in advance of the next IESC visit. Managing cumulative impacts associated with OT and other roads being constructed and used in the Region will be challenging due to impacts outside OT's control which are not being managed to the same standards.

5.9.2.4 Managing Illegal Hunting

The Illegal Wild Plants and Animal Products Policy (OT-10-E9-PLC-1001) includes a no-hunting policy to be communicated through induction and training to all personnel, whether they are employees or contractors. This is an ongoing requirement. Spot-checks of vehicles and accommodation are carried out and monitoring by external specialists organisations is expected to be proposed through the OT BMEP (not yet complete). Induction training is carried out for contractors and the Stakeholder Engagement Plan is also seen as an important communication mechanism. Based on the visit, these requirements are being implemented, but evidence of the effectiveness of induction and other training for OT staff and Contractors will be sought in the next IESC visit. Otherwise, ability to monitor project impacts depends on obtaining more information about levels of hunting in the region, which is being collected.

5.9.2.5 Land Disturbance Control and Land Rehabilitation

OT has a Land Disturbance Procedure which ensures that approval for land disturbance is underpinned by reviews and assessments to check that no areas of environmental significance are likely to be damaged. The OT Environmental department is responsible for reviewing and updating the Land Disturbance Permit Procedure. The procedure covers both onsite and offsite disturbance and the Land Team conducts regular inspections to ensure that contractors comply with Land Development Permit (LDP) conditions. LDP request forms are submitted to the Environmental department when a proposed workplan is submitted, together with any external permits or approvals that are required (eg Khanbogd Governor Decrees). Templates for all relevant forms as well as examples of completed forms were seen during the October site visit.

Pre-disturbance environmental inspection is conducted by the Environmental Team. This includes inputs from the biodiversity team to check for presence of rare plants or other important or sensitive biodiversity receptors. Provisions are supposed to be made to safeguard "sensitive" areas.

As a result of pre-disturbance inspections, conditions are stipulated, which may include measures to safeguard sensitive or rare plant species, for example. A copy of the approved LDP is provided to Contractors prior to commencement of work and this includes the conditions. This appears to be an effective mechanism for ensuring that sensitive biodiversity features are avoided to the extent possible during land disturbance.

The OT Land Team is responsible for conducting regular LDP compliance inspections in work areas until the work gets completed. LDP compliance inspection forms are completed and communicated to the manager or supervisor responsible for the work. Examples of these forms were seen during the October site visit.

The LDP covers all stages of land disturbance and then rehabilitation. When the project manager considers rehabilitation to be complete, the Land Team undertakes an LDP completion process, including inspections of the completed work area. An LDP-completion inspection form is prepared for review by the Environmental Supervisor, who signs off the Completion section of the Land Disturbance Permit if the rehabilitation is satisfactory and reports on the permit closure.

Land disturbance often generates topsoil. There is a Topsoil Handling Procedure which governs storage and re-use of topsoil. Testing is carried out to ensure topsoil is suitable for receptor locations. When

applying for an LDP, contractors are required to submit a Topsoil Management Plan to the Environment department for review. Templates are prepared to help contractors by giving them an outline of information to be covered. This has made it easier for contractors to comply with requirements and has helped to improve standards of topsoil management, storage and handling.

Regular reports are produced summarising the extent of land disturbance caused by project activities. By the end of September 2013, there was a total onsite disturbance area of 2539.61ha and a total offsite land disturbance area of 1336.727ha. The large project footprint means that it is important to ensure that land is rehabilitated to clear target communities. The extent to which target communities are defined at present was not entirely clear during the October site visit.

The LDP appears to be effective and to function well, with integrated inputs from biodiversity and land team staff. However staff from both teams referred to challenges of workload during periods of high activity.

The BMP (B10) makes provision for rehabilitation of land due to physical footprint impacts through the OT Rehabilitation Procedure, Interim Rehabilitation Management Plan, Topsoil Handling Procedure and Mine Closure Plan, in accordance with the principles set out in the Land Use Management Plan. The intention is to rehabilitate disturbed areas progressively. Objectives relate to minimising the areas of land that require rehabilitation, ensuring that soil materials needed for rehabilitation are preserved, creating stable landforms and establishing permanent, self-sustaining vegetation cover in disturbed areas. There is also an objective to achieve final land uses compatible with pre-mining use, including supporting endemic vegetation cover or providing wildlife habitat as well as grazing. There are two main components or phases: technical rehabilitation and then biological rehabilitation. The OT Research and Biodiversity Team is responsible for developing plans for biological rehabilitation and then for implementing and reporting on these plans. Technical rehabilitation, on the other hand, is the responsibility of contractors. The relationship between the two teams is important to ensure that satisfactory ecological outcomes can be achieved and could possibly be strengthened.

OT has established a Plant nursery which is working to research propagation techniques for conservation priority plant species and to develop stocks of plants and seeds needed for rehabilitation. Very good linkages between research and practice were observed. Nevertheless, it may be challenging to produce the stocks of seed needed to meet ongoing rehabilitation requirements.

5.9.2.6 Ecosystem Services

OT affects four priority ecosystem services which were identified as critical in the ESIA and critical habitat assessment carried out for the project (fresh water supply, water regulation, livestock production from pasture and biomass fuel). OT has a large footprint on pasture which is traditionally used by herders and also constitutes critical habitat for Wild Ass and two species of Gazelle. Measures to promote pasture health and productivity could potentially have ecological and socio-community benefits. However, some livelihood interventions intended to benefit herders could have unintended consequences for wildlife. Close integration of social and ecological interventions is therefore important. A key objective of the OT Operational BMP is to "ensure that the OT Biodiversity Strategy is communicated to and aligned with all other OT environmental and social/community strategies". Key mechanisms for this alignment are combined management and monitoring plans and the newly established Ecosystem Working Group. OT is therefore actively taking measures to ensure that effective integration takes place in practice and there is early evidence that is beginning to improve levels of engagement between social and biodiversity teams. Regular meetings are held and some joint actions have been identified. It will be important to ensure that provision for monitoring of ecosystem services incorporates measures of ecosystem service supply, use and benefit especially for critical ecosystem services. Review of project dependencies on ecosystem services might help to clarify any mitigation measures needed to ensure their sustainable supply for the lifetime of the project. In particular, this is advisable for water resource use, as this is important for project performance, as well as being critical for other users. An explicit assessment might make it easier to clarify the project's impacts or demands on critical ecosystem services in relation to their supply so that any measures needed to maintain supply or benefit can be identified.

5.9.2.7 Monitoring

OT affects critical habitat for several species. Due to delays in completing baseline surveys in advance of construction, some uncertainty remains concerning the significance of project impacts on wildlife and plant species populations. Biodiversity monitoring is therefore very important. OT's Biodiversity Team have been actively engaged in monitoring flora and fauna affected by the project and produce regular (quarterly) internal reports on wildlife incidents and mortality, distribution and movements of ungulates and other species, functioning of bird flight diverters and other aspects. Monitoring plans are not yet finalised and will be reviewed in future visits. When developing these plans it is important to ensure that provision is made for corrective actions and that these are specified, together with thresholds or conditions which should trigger them.

5.9.2.8 Achieving Net Positive Impact

OT's stated aim of having a Net Positive Impact (NPI) on biodiversity and ecosystems requires implementation of mitigation measures recommended in the ESIA and also development of biodiversity offsets. OT's goal to benefit the biodiversity of the southern Gobi region is particularly challenging due to the presence of populations of globally endangered rangeland mammals and birds which range over wide areas, as well as a small number of endangered plant species within the project affected area and a degree of uncertainty about their distributions and ecological requirements.

Predicted residual impacts from the project included an increase in illegal hunting and collecting, habitat loss and collisions by birds with powerlines. Preliminary suggestions for offsets include actions over a large "Offsets Landscape" of 50,000 km^2 across the *soums* east and west of Khanbogd *soum*. Initial investigation into a Biodiversity Offsets Strategy (TBC and FFI 2012) suggested that gains could potentially be generated through reducing hunting levels and improving rangeland management over this area and strengthening protected areas. Because of their scale, biodiversity offsets are being developed through a separate but complimentary process through which specific offset actions will be identified and later integrated into a management plan. The offsets strategy presents initial estimates of losses and gains within a period of 25 years between 2011 and 2036 and suggests that this timeframe is reasonable for addressing stakeholder requirements and potentially achieving NPI.

The offset planning process has been initiated in partnership with external organisations, but concrete measures cannot be put in place until further baseline monitoring information is available and key partnerships are established. OT is currently carrying out studies to improve understanding of movement patterns and behaviour for ungulate species which have critical habitat affected by the project. This includes radio-tracking for Khulan, for example. NPI is considered to be 'Technically Feasible' by OT's Biodiversity Partners and consultants if proposed actions can be successfully implemented, but there are significant challenges. The current situation is therefore one of biodiversity deficit due to the presence of the project (certain loss and theoretical but uncertain gain).

An independent NPI review team conducted an initial visit to RT's OT LLC Project in Mongolia from 5-9 August 2013 to undertake a pilot review of OT operations and to:

- Test the scope and technical content of the draft NPI Review Protocol; and
- Provide OT with additional non-binding specialist feedback on its biodiversity programmes.

The team recognised the achievement of NPI for "nomadic species ranging over across large dynamic landscapes undergoing rapid development" as ambitious. It was considered to be theoretically feasible despite "considerable challenges" associated with development of local community support and enabling government frameworks as well as significant risk of cumulative impacts from operations "that may not follow OT's good example".

As a result of these challenges, the OT BMP includes commitments to engage with key stakeholders regarding mitigation actions and opportunities to integrate biodiversity actions into regional planning efforts. OT is taking action to ensure that the necessary engagement takes place and is pursuing key partnerships and relationships at local, national and international levels. This approach is commended,

together with OT's willingness to engage openly and transparently with its stakeholders concerning impacts, risks and opportunities.

5.9.3 Findings and Observations

Findings – Biodiversity and Ecological Management

M1.16 Installation of bird flight diverters is complete, but there are problems with functioning of bird flight diverters, possibly due to faulty installation. Some investigations are currently underway to establish the magnitude of the problem, which relates to a proportion of the alternating flapper-type flight diverters (the large spiral type is functioning correctly). It is important for corrective action be taken as soon as possible so that mitigation is effective to minimize mortality of birds throughout operations. Given the potential costs and disruptions associated with rectifying potentially faulty installation, any corrective action plan will need to consider the cost-benefit of any remedial proposals. Provision to manage effectiveness of this mitigation action will be reviewed in the next IESC visit (B09, LBAP ID1, BMEP).

M1.17 In October, OT proposed to the Lenders that this mitigation measure be removed from the BMP (and the Lender BAP). OT will follow its Management of Change procedure and submit documentation for Lender approval that justifies the removal of this mitigation measure and explains what OT plans to do, to mitigate impacts associated with off road driving. This documentation should incorporate input from the project's biodiversity partners. Alternative measures to prevent vehicles from leaving the road in sensitive areas on the Gashuun Sukhait, OT to Khanbogd or OT airport roads need to be developed. Multiple off-road tracks were observed during the visit though not within the site, where controls appear to be in place and well enforced.(B04, LBAP).

M1.18 The replacement spring should "mimic" the characteristics of the Bor Ovoo 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). Existing designs and arrangements have not described the target vegetation community or defined its requirements in terms of hydrological regime. The removal of the water supply to the original Bor Ovoo spring has already partially taken place, and it may now be challenging to define key ecosystem parameters for its distinctive spring vegetation community, though the Biodiversity Team have undertaken regular monitoring and have photographs to refer to. Key component plant species have already lost water supply. Translocation may still be possible if it is carried out soon, but ecological requirements need to be clearly defined for target species (IESC April 2013 Audit, WR12; see Section 5.1.2.1 and issue No. M1.1).

Observations –Biodiversity and Ecological Management

33. Resources for land disturbance. At times there are multiple areas with land rehabilitation taking place. Land rehabilitation is a labour intensive activity and it is important that resources are available as needed to ensure that pre-disturbance and post impact ecological appraisals are carried out.
34. Managing off-road driving. Given recent conclusions concerning inappropriateness of barriers to prevent off-road driving, consider further/ongoing action to raise awareness internally and with contractors of the impacts of off-road driving on biodiversity and pasture. Identify and map sensitive areas where it is particularly important to prevent off-road driving or otherwise establish a clear plan for identifying such areas when necessary information is available. Develop a clear plan and timeframe for rehabilitation of old roads in cases where new roads are constructed (with community involvement) to reduce scope for off-road driving in parallel with roads and to minimise road footprint.
35. Topsoil management. Ensure that the Topsoil Handling Procedure is reviewed by the Biodiversity or Flora Team to ensure that it reflects requirements to ensure that the biological properties of topsoil are preserved and that topsoil is stripped to an appropriate depth to optimise retention of

native plant seeds. There does not appear to be a requirement to match topsoil source and receptor areas in biodiversity terms. This could mean that the soil seed bank introduces species are transferred from a source location to a new receptor location unintentionally. Ensure that topsoil is only transferred from one location to another within similar ecosystem types or zones.

36. Land disturbance. Ensure that all ecologically sensitive areas are clearly delineated and mapped to reduce risk of them being missed when LDP are issued. Restored vegetation and habitats should match pre-impact types as closely as possible in terms of both composition and structure. This is not currently reflected clearly in Land Rehabilitation Plans and Procedures. Consider amending the Land Disturbance Permit (LDP) procedure to ensure that botanists describe affected vegetation in such a way that success of reinstatement can be assessed and monitored, as well as identifying important or rare plant species that may be affected. If possible, establish realistic timeframes for achieving established, mature vegetation of the intended type. Ensure that completion criteria proposed to be developed to assess outcomes of the objectives included in the Interim Rehabilitation Management Plan incorporate measures of equivalence between pre-disturbance and post-rehabilitation states. Carry out monitoring and follow-up of completed rehabilitation to compare outcomes with undisturbed or pre-impact conditions, including photographs and estimates of plant species composition, density and coverage. This should also be done at a suitable time post-rehabilitation to be able to assess established, mature vegetation.
37. The BMEP is not yet finalised. In developing this plan, make sure that there are clear provisions for corrective action if the need is identified as a result of monitoring. At the moment mechanisms or procedures for interpreting monitoring data and then acting on the conclusions are not entirely clear.
38. Ecosystem Services. Given the project's impacts on critical services, consider systematic review of the project's dependencies on ecosystem services, notably fresh water supply, in terms of operational performance. This might help a) to clarify the project's key natural resource dependencies and the implications of any changes in supply for project performance over time; b) to clarify the magnitude of project impacts relative to overall supply and c) demonstrate that the project is taking the actions necessary to safeguard supply or, alternatively, the benefits people derive from affected services.

6 SOCIAL

6.1 SCOPE OF SOCIAL REVIEW FOR THIS SITE VISIT

The October 2013 audit was conducted at a time when construction activity was limited (at site and outside the fence), and operations were focused on the open pit mine and transport of concentrate. Social issues such as cultural heritage, community health and safety and influx were not investigated in detail as they were of less significance at the time of the visit. Most of the attention was therefore dedicated to economic displacement and compensation, pastureland management and livelihood restoration, stakeholder engagement and community liaison, and to a lesser extent community and regional development, and labour and working conditions.

6.2 LABOUR & WORKING CONDITIONS

6.2.1 Project Strategy

As of the 31 August 2013, according to the OT workforce ratio report there were 9,236[21] workers on the project, including those employed by OT LLC and contractor companies. These include workers at the mine site and in the various offices in Ulaanbaatar, Dalangazad and Khanbogd[22]. Approximately 2,900 workers are OT LLC employees with the remainder of workers employed by contractors and sub-contractors. The total workforce comprises slightly over 90% Mongolian nationals.

A Labour Management Plan[23] 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.

6.2.2 Observations

The OT Project is currently in a transition phase due to suspension of the construction of the underground (UG) mine. The existing workforce is focused on open pit mining, some outstanding expansion works and completion of the OT-GS road.

6.2.2.1 Recruitment

OT has a local recruitment policy and maintains a database of potential local applicants for unskilled work. This local recruitment policy is implemented by OT as well as contractors. The RDSP department works closely with the HR department to carry out local recruitment activities in the target *soums* and Omnogovi *aimag*. Employment opportunities remain one of the highest expectations among the host community in Khanbogd *soum*.

There was one case during the audit of a local government representative[24] reporting *'not enough local employment'* of people from Khanbogd, however this appears to be more about a lack of information rather than an issue with preferential local recruitment processes. The IESC identified an opportunity for improvement to provide more regular and informative local recruitment and employment statistics as well as specific skills criteria to communities (these are understood to be available if requested but not necessarily provided on a regular basis at present). This would allow communities to monitor local content themselves and potentially make more informed choices about how to increase their chance for employment with the Project. OT intends to implement an Employability Program from 2014 to help

21 *This figure excludes the trainees included in the OT training program under its Memorandum of Understanding (MoU) with the Mongolian Government to provide 3,300 training places for Mongolian nationals.*

22 *Small satellite offices are also present in Bayan Ovoo and Manlai soum centres with a Community Relations Officer.*

23 *Labour Management Plan– Doc. No. OT-10-PLN-0005 dated 01.09.2013.*

24 *Meeting with Bayan* bagh *Governor on 23 October 2013.*

maximise local content and bridge the imbalance between available jobs and the skills in the local community.

An internal monthly recruitment report is prepared by the HR department and progress on local recruitment is included in this report. A monthly workforce ratio report of employees and contractors is also available which shows progress against key metrics set out in the IA. This allows for performance against recruitment policies and requirements to be readily monitored by OT.

One possible future challenge with local recruitment may arise after a decision is made on long-term worker housing. The current process of identifying local applicants does not necessarily differentiate between *existing* or *new* residents of Khanbogd *soum*[25]. In other words, as the population grows there is a risk that the original inhabitants could be marginalised from local opportunities if they are not specifically targeted and equipped with the skills needed to achieve their full potential in the labour market. The close collaboration between OT and the Labour Exchange Office as well as the Employability Program should help to minimise these issues if implemented effectively. Furthermore, management of local recruitment is a key element of the influx management strategy and it will be important for OT to help the *soum* find practical ways to ensure it is adequately enforced, e.g. to discourage unplanned influx of job seekers. Further assessment of local recruitment processes will be conducted at the next IESC audit.

6.2.2.2 Management of Worker Relationship

A collective agreement is in place with the Oyu Tolgoi Trade Union Committee and periodic negotiations of wages and benefits are undertaken. In October negotiations were underway with the trade union on the 2012 collective agreement and it was therefore not feasible for the IESC to meet with representatives during the site visit.

The HR management system appears to be functioning well and there is evidence that a number of policies and procedures have been substantially embedded within the daily operating framework of OT. Monitoring of a number of OT labour relations practices is evident. One area that was not reviewed in detail and will be investigated further at the next audit is the monitoring and auditing of contractor performance against HR/labour relations requirements.

An employee grievance mechanism is in place and available to employees and contractors. Based on the reports sighted, the level of worker grievances to date in 2013 appears to be relatively low for the workforce size (less than 50 grievances by mid-Oct 2013). The overall process appears to be in line with good international industry practice and includes tracking and reporting of complaints. Interviews with workers will form part of the next site visit.

6.2.2.3 Retrenchment/Collective Redundancies

At the end of July 2013, RT announced that the development of OT's UG mine would be delayed and that all current development activity would temporarily cease. This 'pause' in development of the UG mine also affected the OT expansion projects and thus resulted in a series of collective redundancies of OT LLC and Contractor workers.

A retrenchment plan was prepared and implemented by OT to manage the redundancies. The retrenchment plan incorporated engagement with unions, contractors and employees, investigation of alternatives to redundancy, redeployment, and mitigation of the potentially negative impacts of redundancies. The retrenchment plan appears to be generally consistent with the requirements in the Labour Management Plan and the process is understood to have been effectively implemented; with no increase in employee grievances and no known negative media attention reported.

A total of 63 OT LLC personnel are reported to have been affected and around 1,400 contractor personnel from 22 companies. According to HR documentation provided to the IESC around 60% of the OT employees affected have been redeployed.

Evidence of engagement with contractors on retrenchment planning was observed by the IESC. It is also understood that a special redeployment program was implemented with the most affected contractor

[25] *In Mongolia it is possible under the law to be recognised and registered as a local resident in any community by finding a standard plot of land and erecting a ger or other residential structure.*

(Redpath). Detailed data was captured and monitored on OT and contractor demobilisations. Due to the process being only recently completed by October 2013 and the limited time spent with HR department during the audit, the IESC was not able to review and confirm in detail the final results of collective redundancies for contractors/sub-contractors. It is important that non-employee collective redundancies are closely managed and monitored to ensure the same standards for retrenchment planning have been met. As such, further information on the implementation process, results and monitoring of collective redundancies by OT will need to be reviewed at the next audit.

Any collective redundancies are supposed to be notified in advance to Lenders and in the case of large scale collective redundancy (i.e. over 500 or more than 25% of the workforce), OT is required to provide Lenders with an advance copy of the retrenchment plan. This plan and the outcomes of the collective redundancies should be provided to Lenders. Some uncertainty in workforce forecasts are expected within the next 12 months until issues with shareholders are resolved, however at present no further collective redundancies are anticipated by the Project.

6.2.2.4 Worker Accommodation

During the visit the IESC had the opportunity to tour the different type of accommodations in place at the site. Now that the Project has entered into operations and the workforce at site has significantly dropped, the Project is in the process of replacing some of the old accommodations with new buildings. The first step of this process has been to replace coal fired systems in the *gers* with electric heating or heating supplied by the centralized heating plant that is currently providing heat to all facilities. At the moment, there are three levels of backup in case of off-set of the centralized heating plant. The next step will be to replace some of the *gers* with new lodgement by the incoming winter season.

The Manlaia camp that includes the new accommodation block has been visited. It is structured in different levels of accommodation for the different workforce to be lodged. The minimum standard is set by the rooms for level 5+ workers that include 2 beds per room with shared bathrooms and showers. All rooms are provided with smoke detectors, fridge, TV, internet and air conditioning. It is sized to host about 2,300 people and structured in blocks of 72 rooms each. The second level is for level 6+ workers that comprise 2 people per room with private bathroom and shower. Accommodations for level 7+ are single accommodation with private bathroom and shower.

Of the *ger* camp, the target is to maintain the master *gers* that are currently lodging one or two people and are provided with shared bathroom and showers. Those will be maintained for guests or for those workers that prefer to maintain this style of accommodation. However, the number of people in each *ger* will be reduced from four to two or one.

The camp is equipped with a state of the art recreation area which includes, among others, 2 indoor basketball courts, 2 indoor volleyball fields and a gymnasium. An outdoor soccer pitch and additional basketball and volleyball courts are also available.

Based on the observations and interviews conducted, no worker accommodation issues were identified at the site. An internal audit of worker accommodation was also conducted by OT during 2013 and no significant issues transpired of this audit. It is noted that the phasing out of coal fired *gers* in 2013 and the plan to move all residents to refurbished accommodation should not be delayed.

The CIS camp in Khanbogd has been closed and all remaining catering contractor personnel now reside at the site. Three temporary camps are understood to remain (outside the fence) to house MonRoads employees and workers involved in the OT-GS road construction and other minor civil works. These camps were not visited as part of this audit but OT reported to be working to reduce some of the known issues, e.g. coal fired *gers*, lack of air-conditioning etc. The IESC suggests that these are resolved as soon as possible if these facilities are to remain anything beyond a short-term arrangement[26].

Long-term worker housing was not a feature of this audit as a decision on this remains on hold until current issues with the UG mine and shareholders are resolved. This topic will be monitored by the IESC at the next audit.

[26] *It is understood that the "North" and "South" camps are scheduled to be closed in late 2013/early 2014, but plans for the third camp, the "Summer" camp were not confirmed.*

6.2.3 Findings and Observations

Findings – Labour and Working Conditions

M1.19 The IESC recognises that a retrenchment plan was prepared and this should now be retroactively provided to Lenders, including a complete summary of the outcomes of the redundancies (e.g. actions taken, no. in each category affected, no. redeployed, etc) (Labour Management Plan, Section 5.1.3).

M1.20 Provide further information on the implementation process, mitigations, results and monitoring of collective redundancies undertaken by OT with contractors to Lenders/IESC (Labour Management Plan, Sections 5.1.3, 5.18, and LMP m07).

Observations – Labour and Working Conditions

39. Consider providing more regular and informative local recruitment and employment statistics as well as specific skills criteria to communities.
40. Continue to work with the *soum* and *aimag* to monitor local recruitment and identify opportunities to support the *soum* to minimise unplanned influx of job seekers.
41. Provide evidence of monitoring and auditing of contractor HR/labour relations practices including provision of an audit schedule and scope for the next IESC audit visit.
42. Complete the phasing-out of coal fired *gers* in 2013 and relocation of residents to refurbished accommodations at site.
43. Continue to resolve issues with temporary camps outside of the OT fence and identify alternative arrangements in the case of any contractors requiring longer-term accommodation.

6.3 RESETTLEMENT, COMPENSATION AND LIVELIHOODS IMPROVEMENT

6.3.1 Project Strategy

A Resettlement Action Plan[27] (RAP) has been in place since 2012 and is being implemented by OT to manage physical and economic displacement as a result of the project. This plan was updated in 2013 to reflect the current operations phase activities and provide a progress report on the status of resettlement and compensation for affected herders in Khanbogd. The intent of the RAP is to ensure effective implementation of compensation and other entitlements for affected herder families, informed herder engagement, and monitoring and evaluation of displaced people, as well as the resolution of any grievances. The RAP is designed to encompass all current activities by OT, and also act as the framework for any future displacement that might occur due to new activities or associated facilities.

One of the key supporting components of this plan is the Pastureland and Livelihood Improvement Strategy.[28] 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. It is particularly aimed at those herder households that may not have been directly economically displaced, i.e. in one of the identified 'impact zones' of the project and part of the 2004 or 2011 compensation processes, but who may still need support to maintain, restore and/or improve their livelihood as a result of changes to pastureland availability, capacity and/or quality.

Other complementary elements of the strategy for minimising and managing displacement issues include the Land Use Management Plan[29] (LMP) and Land Disturbance Permit (LDP). These implementation documents deal with requirements to minimise disturbance to land needed for project-related activities and ensuring that relevant local permits and approvals are acquired.

[27] *Resettlement Action Plan - Doc. No. OT-10-PLN-0006 dated 01.09.2013.*

[28] *Pastureland and Livelihood Improvement Strategy - Doc. No. OT-10-E2-PLN-0001 dated 01.09.2013.*

[29] *Land Use Management Plan - OT-10-E9-PLN-0001-E dated 01.09.2013.*

6.3.2 Observations

These findings are based on a review of documentation, database of affected people, monitoring reports, interviews with RDSP department staff and meetings with some local authorities including the Bayan *bagh* Governor and the former Deputy Khanbogd *soum* Governor[30], as well as 3 herder representatives from Khanbogd. Further interviews will be conducted with herders at the next IESC visit.

6.3.2.1 General

The focus in 2013 has been on delivery of further entitlements to herders from the 2011 compensation program and the completion of several livelihood improvement projects. Other progress made with herders in Khanbogd include the recent socio-economic census providing specific data on herder households, and the herder health status and livelihoods study providing a comparison of mine impacted and other *soums* (See also Section 7.1.2).[31] The Project also implemented a pilot program to allow grazing access inside the mine site fence for some herders affected by drought in the nearby area. A total of 7 families were involved and overall this program was very well received with no reports of negative issues. The Project has developed a Grazing Access Protocol which outlines how this program will be formally implemented in the future.

A number of herder complaints received in the past year about livelihoods, compensation and access to water at the Undai River diversion have utilised considerable resources from both OT and RT in the past 6-12 months. Some of these complaints have been made directly to the IFC Ombudsman[32] (See also Section 6.4.2.5), whilst others have been lodged via the OT community grievance procedure. A number of these complaints remain open and work to resolve them is ongoing. The IESC verified that OT is actively investigating these grievances and collaborating with herders, NGOs, the *soum* government and the Compliance Advisor Ombudsman (CAO) where relevant, to resolve these complaints.

Notwithstanding some of the ongoing challenges, the Project views the process of engagement with the Elected Herder Team (EHT) and feedback from the Ombudsman as an opportunity to review current practices and strengthen the approach to support for herders. To this end, the Project has planned a series of tasks in 2014 that will help to achieve these goals, including convening of internal and external steering committees and working groups, an independent Expert Panel on pastureland management to support herders and the *soum*, and a process of formal evaluation of affected herders and the programs being implemented to support them. These activities will be most beneficial if there is strong coordination of the various processes by senior management who have a holistic view of herder issues, ownership of the results, and the authority to influence future program design and funding.

6.3.2.2 Resettlement

The 11 herder households physically displaced as part of the 2004 resettlement program have been compensated and provided with livelihood restoration packages, including those 5 households who were affected a second time by the 2011 economic displacement program. Some outcome evaluations of these resettled herder households have been implemented by the Project, including most recently an internal evaluation in 2010 and an external assessment of pastureland access and resettlement in 2012. One of the challenges with these assessments is that they have not always used a standard set of indicators including relevant proxy indicators to enable evaluation of standard of living. Comparison of outcomes over time has been difficult. Evidence from OT and previous IESC audits suggests that resettled households have been able to restore their livelihoods and improve their standard of living in most if not all cases.

Since there have been some households reporting some difficulty in restoring livelihoods, reduced access to pastures and several complaints stemming from this group, the status of these families now needs to be formally assessed by a Completion Audit. The Completion Audit process should synthesise the previous

[30] *Both of these individuals are members of the Compensation Working Group in Khanbogd.*

[31] *The Socio-Economic Census in Khanbogd soum and the Herder Health Status and Livelihoods Study were both commissioned by OT in collaboration with relevant authorities and other stakeholders.*

[32] *It is not within the remit of the IESC to review the CAO process as part of this audit.*

evaluation results and determine if there are cases where any additional support is needed. Since this is overdue it should be scheduled as soon as practical[33].

The Completion Audit does not need to be onerous given the low number of households, but it does need to be well conceived and implemented by an external resettlement specialist. It is understood that a SoW has already been drafted by OT and it is suggested that Lenders and the IESC have the chance to review this prior to it being implemented.

6.3.2.3 Economically Displaced Herders

One household out of 89 herder families from the 2011 compensation program has still not yet signed a Compensation Agreement. It is understood that the affected herder household has taken an employment opportunity with OT as an entitlement of the Compensation Agreement, but was uncomfortable signing the formal documentation. The IESC will review the available documentation at the next audit and determine if an employment agreement and/or other records will be sufficient to demonstrate that these entitlements have been agreed and delivered.

One other household from the 89 herder families has requested to be resettled (they assert that there are persistent nuisance and pasture issues in their current location) and after further investigations and negotiations this has been agreed to by OT. This household is understood to have signed an agreement and a number of entitlements have already been delivered including an employment opportunity. The delivery of the remaining entitlements including a new water well is scheduled for early 2014. The IESC will review delivery of the full resettlement package at the next audit.

Of the other 88 affected herder households from the 2011 compensation program, evidence was verified to demonstrate that compensation packages have been largely implemented for all families; with well over 90% of entitlements already delivered. Some outstanding items include commitments to education support and tertiary scholarships which cannot be implemented until children reach the relevant age. The overall view of the IESC is that this group has been well targeted for compensation and other support measures, there has been continuous engagement, and each family is well known to OT. Some of the program data and reporting for this group it is not as well systematised as it could be and there are opportunities for improvement. For example, it would be useful know which herder households have participated in different programs, e.g. the community vegetable facility, camel wool value chain project, dung removal and sanitation, etc, which households have made complaints, and so on. This will also be useful to develop an appropriate scope and sampling frame for the outcome evaluation process, which should look at the success different segments of this group depending on the livelihood restoration activities they have participated in. More formal feedback from the household visits made by community relations staff could also be beneficial.

Some employees from this group have now transitioned from construction phase positions to longer-term open pit positions. These roles are understood to still be part-time (approximately 14 hours per week), enabling the employees to continue herding or other income generation activities. One possible issue was identified in the cases where families chose the *'payment of a loan'* as the main livelihood restoration support. This may have impacted livelihood restoration for some families if loan payments were not appropriately utilised or there were unintended consequences (e.g. abandonment of wife and children). This should be investigated as part of the outcome evaluation process.

There have been some recent complaints about herders not being included in the 2011 compensation program, e.g. being outside 'impact zones' originally defined in 2011. OT does not intend to reopen the compensation program for existing impacts and this is supported by the IESC, so long as there are not new impacts identified and the other programs including the pastureland and livelihood improvement program designed to support other herders are properly implemented. OT reported that they are encouraging the Khanbogd *soum* to reconvene the Compensation Working Group as the representatives of affected herders to investigate these complaints.[34]

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[33] *The Completion Audit was scheduled for 2012 in the Resettlement Action Plan.*

[34] *Note: this does not include any new impacts that may be caused by additional activities or facilities such as power plant and worker housing which would require a comprehensive ESIA.*

6.3.2.4 Other Soum Herders

Other herders in Khanbogd *soum* potentially affected by restrictions to seasonal grazing and reduced communal pastures have been given increased attention for support by OT in 2013. This group includes those herders outside of the direct impact zones who are entitled to participation in the pastureland management program and other relevant income generation opportunities. Some of the support measures implemented with herders in 2013 include well rehabilitation (38 wells), dung removal and sanitation (110 herders), training in winter preparation (670 herders), and establishment of cooperatives (7 cooperatives established), as well as a camel wool value chain analysis project These projects are being delivered through the pastureland and livelihood improvement program (See also Section 6.3.2.5).

It is the IESC's view that there are opportunities for continuous improvement in identifying, targeting and monitoring of all herders in Khanbogd *soum*. Indeed, the recent socio-economic census should help OT to build a better knowledge base of all herder families which will allow for enhancement of planning and implementation of support for herders. Since a number of the grievances raised have been from these indirectly affected herders, it is recommended that a sample of this group is included in the outcome evaluation process. This will enable the Project to further investigate these claims and potentially safeguard against any spurious claims about livelihood impacts. The IESC will review the activities to support all *soum* herders in the next audit.

6.3.2.5 Pastureland and Livelihood Improvement

The Pastureland and Livelihood Improvement Strategy is based on four key areas of intervention/support which are: pasture management; pasture water supply; herding management and animal health; and cooperation and market access. The strategy is guiding the overall approach to pastureland management and herding-based livelihood improvement by OT, with a number of projects already implemented in each of these areas. The strategy appears well conceived and comprehensive with a focus on the appropriate requirements; however, it remains somewhat conceptual and now needs to be operationalised in a more detailed implementation plan. During the site visit the Project outlined its plans for preparing a Pastureland and Livelihood Improvement Plan. This is scheduled for completion in 2014 and should include a time-bound and costed program of works to be implemented in next 1-2 years. The IESC encourages OT to expedite the completion of this Plan, and it is important that a draft is provided to the Lenders and IESC for review as part of the development and finalisation of the Plan.

This program is being managed by the RDSP department with several related activities implemented by the Environment department. One of the past challenges for OT has been to coordinate between these teams on the complex topic of interaction between herder livelihoods, biodiversity and other environmental issues including water. Importantly, an internal Ecosystem Services Group has now been established (in August 2013) between the RDSP and Environment teams. The IESC met with this group and observed that it appears to be functioning well. A terms of reference for this group has been drafted and the IESC encourages this to be formalised and endorsed by senior management.

Measures to improve productivity of pasture for the benefit of wildlife species are a keystone of proposed biodiversity offsets. It is therefore essential to ensure that any livelihood interventions are compatible with biodiversity offset requirements, and will not lead to perverse outcomes for critical habitat species. Similarly any biodiversity offsets need to be designed within the context of pasture management by herders, without adverse consequences for their livelihoods.

An independent Expert Panel (with 3 members)[35] has been established with the support of OT to advise the *soum* on pastureland management. This is highly positive and the IESC expects that this should bring further coordination and transparency to the pastureland and livelihood improvement activities. The Pastureland and Livelihood Improvement Plan should include clear governance arrangements between the different this panel and other internal and external parties, e g. Steering Committee, Ecosystem Services Working Group, Pasture User Groups, etc.

[35] *This panel will include one each of an agricultural, pasture management, and biodiversity specialist.*

6.3.2.6 Vulnerable Displaced People

An updated vulnerable people identification study was conducted in 2013 in collaboration with the Social Welfare Office. This coincided with a revised definition of vulnerable people/families introduced by the Khanbogd *soum* government. This process involved working closely with the *soum* authorities to identify vulnerable households including those within the directly displaced herder group.

The IESC observed evidence of special assistance to a number of vulnerable people/families, including measures such as provision of a job at OT, donation of a *ger*, inclusion in the vegetable growing facility project, and local business development support. It is pleasing for the IESC to see that vulnerable people assistance has been largely focused on livelihood restoration for displaced vulnerable people, not only on donations, which is a common weakness of similar programs. The supports provided to date appear to be a good start, but a more comprehensive and well documented vulnerable people program is expected by the IESC in the operations phase. Other areas that could be investigated include provision of healthcare, help with education, and more income diversification opportunities. Improvements to the data management of vulnerable people should enable the Project to also monitor and evaluate the results. Vulnerable displaced households must be specifically included in outcome evaluation process. The IESC would like to see additional details on this program for review at the next audit visit.

6.3.3 Findings and Observations

Findings –Resettlement, Compensation and Livelihoods Improvement

M1.21 It is understood that a SoW has been drafted by OT and this should be finalised and provided to Lenders/IESC. The Completion Audit should be scheduled and implemented as soon as possible (RAP, Sections 10.1, 10.2 and 10.4).

M1.22 Only one household affected by loss of winter pastures from the 2011 compensation program has not yet signed an agreement, although they have received the entitlements from OT. OT will need to provide available documentation at the next audit to enable the IESC to verify that these entitlements have been agreed and delivered[36] (IESC April 2013 Audit; RAP, Section 5.4, Annex H).

M1.23 A formal Outcome Evaluation of affected herders is planned for 2014. The scope and sampling frame for the evaluation needs to be adequate to assess if different segments of the herder population have been able to restore or improve their livelihoods. Vulnerable displaced households must be specifically assessed in the outcome evaluation process (RAP, Sections 10.1, 10.2 and 10.4).

M1.24 A Pastureland and Livelihood Improvement Strategy has been prepared and is being implemented by OT. The strategy appears well conceived and comprehensive, however it remains somewhat conceptual and now needs to be operationalised. During the site visit OT outlined its plans for preparing a detailed implementation plan. The Plan is scheduled for preparation during 2014 and should include a time-bound and costed program of works. Ensure governance arrangements are clear between the different parties, e.g. Steering Committee, Ecosystem Services Working Group, Expert Panel, Pasture User Groups etc. (ESAP Item 7; RAP, Entitlements Matrix; Pastureland and Livelihood Improvement Strategy).

Observations – Resettlement, Compensation and Livelihoods Improvement

44. Use experienced resettlement and livelihood restoration specialists to conduct outcome evaluations and completion audit; this should include experience with IFC PS5 and EBRD PR5 requirements.

45. Systematize and strengthen the program data and internal reporting for the economically displaced herder group from the 2011 compensation program.

[36] *The RDSP Department reports that the affected herder family are uncomfortable signing the formal documentation and the RDSP staff will attempt to secure confirmation of receipt of benefits by an alternate legally binding mechanism.*

46. Expedite the delivery of the remaining entitlements including a new water well, for the one herder household who it was agreed would be resettled in addition to other entitlements for loss of winter pastures.
47. Investigate the cases where families chose the 'payment of a loan' as the main livelihood restoration support to determine if loan payments have been effectively utilized or if other issues have arisen (e.g. this could be completed as part of the outcome evaluation).
48. Utilize the recent socio-economic census data to build a better database of all herder families to allow for continuous improvement in planning and targeting of support for all Khanbogd *soum* herders.
49. Expand the vulnerable people program and provide additional documentation on the past activities and planned future support at the next audit visit.
50. Consider investigation of other support measures for vulnerable people such as provision of healthcare, and more income diversification opportunities.
51. Consider how to systematize the Ecosystem Services Review for critical services, including pasture production, to clarify any interventions needed to maintain supply, use and benefit from this service.

6.4 STAKEHOLDER ENGAGEMENT

6.4.1 Project Strategy

An operations phase Stakeholder Engagement Plan[37] (SEP) has been developed by OT to outline the general strategy for community and other engagement in the project area of influence. This SEP is part of the overarching OT ESMP Framework. The plan includes a description of the key stakeholders, external consultation groups, the community grievance procedure, an action plan for stakeholder engagement with communities, as well as monitoring, auditing and reporting requirements.

Management of stakeholder engagement records and results for the OT Project is in a transition phase as OT LLC moves from the former 'OASIS' system to a new RT-wide Community and Stakeholder Engagement Tracking System ('CSETS'). The implementation of CSETS is understood to be scheduled for Q4 2013. This package is designed to be a complete system that will assist in managing stakeholder data and information, engagement records, consultation results, as well as the grievance management process. A community grievance procedure has been in place for a number of years within the target *soums* and is well-established and known among communities. The Project is understood to be in the process of reviewing the existing procedure to integrate it with the new CSETS.

OT has a community relations office and team in Khanbogd which is currently located in the Project vocational training centre in town but is to eventually move to a dedicated Community Interaction Centre. There is also community relations personnel based at the mine site, a regional office with community relations staff in Dalanzadgad, as well as satellite offices in Bayan Ovoo and Manlai each with a Community Relations Officer (CRO). The community relations personnel are part of the RDSP department.

6.4.2 Observations

The IESC observations from the October 2013 audit are focused on community engagement rather than wider consultation with regional and national authorities or non-government organisations (NGOs). The findings are based on review of documentation, interviews with RDSP department staff and with selected stakeholders including a representative of the Khanbogd Citizens Khural ('Council'), a *bagh* governor, former deputy *soum* governor, and several herders.

6.4.2.1 Community Engagement

Community engagement is focused on the target *soums* of Khanbogd, Manlai, Bayan Ovoo, and Dalanzadgad; with particular attention given to Khanbogd *soum* as the host community of the mine site and associated facilities. Although there have been several persistent community issues raised this year, in discussing the project and potential issues with community representatives the IESC was pleased to note

[37] *Stakeholder Engagement Plan - Doc. No. OT-05-PLN-0001 dated 01.09.2013.*

that the relationship generally appears to be constructive. There are various examples of the results from community engagement being used to inform Project outcomes, E.g. the Grazing Access Protocol, the Interim Agreement, amongst others. Community engagement methods being implemented include small group meetings, workshops, herder household visits, attendance at quarterly *bagh* meetings, study tours, site walkovers, town hall meetings and so on. There is active dialogue with communities on a range of topics and issues such as livelihoods and pastureland management, cultural heritage, and water resources including the Undai River diversion.

It is the IESC's view that it would be advantageous for the Project to update its stakeholder analysis and strategies to reflect the current operations phase activities and recent engagement results. It was reported that the RDSP department will use the recent census data and feedback from engagement with the Elected Herder Team and others to modify its approach to community engagement. This is expected to include synthesising/updating of the various external stakeholder groups (e.g. Local Advisory Groups, Elected Herder Team, Pasture User Groups, Compensation Working Group, etc). Ensuring that each of these groups has a defined and clear remit should help to maximise their value in terms of engagement outcomes, as well as minimise the potential for conflicting agendas or inconsistent messaging. One of the challenges for OT will be to ensure that the stakeholder groups convened are indeed representative of the people they claim to represent (e.g. the Elected Herder Team[38]).

The RDSP department has identified that there are opportunities for improvement in the planning for community engagement and reported to the IESC that the new General Manager[39] is working on a more coordinated strategy and detailed implementation plan. The RDSP department currently holds weekly meetings to plan community activities but this needs to be integrated with longer-term strategic thinking and incorporate other teams including the HSE department. Some models that have been beneficial on projects of a similar scale include a 'calendar of events' to guide community engagement on a week-to-week or month-to-month basis, and the preparation of issue specific engagement plans for important topics. The Undai River diversion project is a good example where an issue-specific community engagement plan is needed to ensure that the various activities of the different internal and external teams are coordinated. Recording, analysis and reporting on the results from community engagements is also expected to be strengthened via the implementation of the CSETS.

The Participatory Environmental Monitoring (PEM) Program is a best practice initiative designed to enable active participation of the community in monitoring of environmental issues for the OT Project, and in particular Khanbogd *soum* herders. Monitoring has now commenced for all key environmental media – water, fauna, dust, and vegetation, with a range of participants including herders and school children. It will be important for OT to ensure that there is consistent and meaningful interpretation and communication of the results to stakeholders in a timely manner to build trust and maintain the value of this program. Herders participating in the PEM Program interviewed by the IESC each mentioned the desire to see analysis of the monitoring results, as well as comparison with other data and activities.

6.4.2.2 Information Disclosure

Substantial local information disclosure has occurred in the past 6-12 months and a range of information sheets, community newsletters, notice boards in *baghs* etc, have been verified by the IESC. The recent introduction of a community newsletter with the opportunity for the public to include their own information is a best practice approach which is encouraged.

The IESC observed that there is adequate communication of many *'good news stories'* from the Project, but perhaps some limitations on the information communicated about more difficult topics or '*issues raised*' by communities. In similar ventures elsewhere, a system of collecting and responding to 'Frequently Asked Questions' (FAQs)[40] or equivalent has been an effective way to demonstrate to communities how their feedback is being received and actioned.[41] There may also be opportunities for improvement in providing

[38] *The IESC understands that OT is in dialogue with the EHT and the Khanbogd soum authorities to try to get a new EHT that is actually elected by residents so that it is more representative of all soum herders.*

[39] *The new RDSP General Manager joined Oyu Tolgoi LLC in August 2013.*

[40] *E.g. By way of a monthly FAQ's section in the community newsletter or a regular FAQ's info sheet.*

[41] *The IESC notes that almost all of the disclosure materials for communities are in Mongolian only and therefore these observations are based on discussions about content and basic translations provided to the auditor by OT.*

more regular quantitative data in local disclosure materials to demonstrate greater transparency and build trust, E.g. on employment statistics, no. of grievances received, resolved etc, including in cases where the data is not always favourable.

It is anticipated that the Community Interaction Centre in Khanbogd will provide a useful vehicle for advantageously elaborating the content and materials disclosed to the community e.g., maps, interactive models, other displays, graphs on key metrics showing environmental and social performance etc. Whilst the IESC understands that some decisions by the *soum* Government have affected completion of this centre, it is our view that this is an essential element to maintain successful community relations, and should be completed as soon as feasible. At this point in the operations phase it is considered good international industry practice to have a dedicated project information centre on a large scale and long-term mining project such as OT (See also Section 6.5.2).

6.4.2.3 Community Relations Personnel

There is an appropriate level of resources in place at OT to implement an effective consultation program in the target communities at this stage of operations. Responsibility for community engagement is shared within the RDSP department between community relations staff and other teams including the local business and economic development, pastureland management, and cultural heritage teams. The HSE department is also engaged with the community on specific issues including air quality, water resources, pastureland management and traffic safety.

It is notable that many of the community relations personnel met including managers are particularly dedicated and most have been with the Project for more than 3 years, providing continuity and enhancing trust in the communities with whom they work. It was also recognised by the IESC that senior OT and RT managers have been more actively involved in community engagement in 2013. This is an important strategy by the Project that is strongly encouraged in order to manage some of the challenging community issues that have arisen in the past year. The new RDSP General Manager, as an influential Mongolian national with mining experience, has the authority and background needed to effectively manage community engagement in this context and is expected to contribute substantially to the process in the coming period.

6.4.2.4 Community Grievances

The number of community grievances is relatively low given the magnitude of the Project. As shown in below (Figure 5) a total of less than 50 grievances have been reportedly received in 2013 to date (to end September). This needs to be qualified by the low population in the Gobi region.

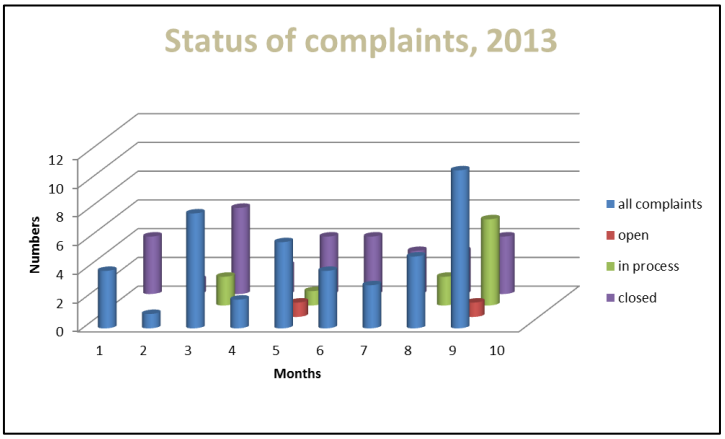

Figure 5: *Summary of Community Grievances received in 2013 (Source: Oyu Tolgoi, RDSP department)*

The logging, allocation, and processing system for community grievances appears to work, but issues were observed with the analysis of trends and reporting of complaints both internally and externally. Whilst data is captured on the number and categories of complaints, formal analysis of trends does not currently occur such that corrective actions may not always be taken to reduce the potential for future complaints. Notwithstanding the need for more systematic analysis of complaints, there were some examples observed during the audit to demonstrate that the Project does act on the results of community concerns or recurring

grievances. Other possible issues were identified with the resolution process and pace at which complaints are resolved. Review of the complaints log identified that some complaints may have been prematurely 'closed' before being fully resolved (e.g. one case was related to the OT-Manlai Road which may require further investigation). The pace at which complaints are resolved could be more effectively tracked to measure performance and enable continuous improvement.

There is some reporting of complaints to senior management but it was not observed to be consistent or of sufficient detail to ensure that they are informed of trends, resolution rates and other information needed to direct resources to corrective measures that may be required. There is no regular reporting to communities on the status of grievances and this is an important omission that needs to be remedied. OT should consult communities on the most appropriate content and methods to report on grievances.

A new community grievance procedure in planned to be integrated with the CSETS. This is an opportunity for the Project to audit and strengthen the existing procedure and re-train community relations personnel if required. It is important that the timeline for implementing improvements to the grievance procedure is not delayed; even if the CSETS implementation schedule is not maintained. As far as practical, OT should aim to maintain consistency from old to new procedures to minimise any potential community confusion.

6.4.2.5 IFC Compliance Advisor Ombudsman and EBRD Project Complaints Mechanism

The IFC CAO has been investigating two complaints from herders since early 2013, related to the Undai River diversion and herder livelihoods in Khanbogd *soum*. More recently in July 2013 a complaint was also submitted by a group of Khanbogd residents through the EBRD Project Complaints Mechanism (PCM). This complaint relates to both OT and Energy Resources (who operate the Ukhaa Khudag coal deposit also in Omnogovi *aimag*) in relation to the coal transport route to China and possible environmental degradation and pollution problems in Khanbogd *soum*.

It is not within the remit of the IESC to review the CAO or PCM processes as part of this audit, except to acknowledge the extensive herder engagement being undertaken as part of the CAO process and to highlight where relevant, if these processes have the potential to positively or negatively impinge on other findings in this review. To this end, the IESC can confirm that significant resources have been expended by OT LLC towards to CAO process, and it has been the trigger for a number of continuous improvement measures in terms of herder and other engagement activities. It is also observed however, that this process has the potential to override other engagement activities for the Project. It will be a careful balance by OT to ensure that there is a clear boundary around the CAO process versus 'normal' ongoing community engagement, so that progress can continue in other areas even whilst these complaints are investigated. The Project is also cooperating with the PCM process which is at an earlier stage of investigation.

6.4.3 Findings and Observations

Findings – Stakeholder Engagement

M1.25 The community grievance management procedure is being reviewed by OT and will be updated and integrated with the new CSETS planned for implementation by end 2013. Review and strengthening of the community grievance procedure should be documented and include processes to analyse and investigate trends and implement corrective actions if needed, monitor the quality of resolutions and increase the resolution rate to enable continuous improvement (SEP, Sections 5.7-5.8, SEP09).

M1.26 Develop and implement a simple and robust process for reporting community grievances externally to communities on a regular basis. OT should consult communities on the most appropriate content and methods to do this. (SEP09).

Observations – Stakeholder Engagement

52. Update the stakeholder analysis and strategies for community engagement to reflect the current operations phase and recent census data and engagement results, particularly related to herders.

53. Synthesize/update the various external stakeholder groups ensuring that those convened have a clear and documented remit and are representative of the segment of the population they are intended to represent.

54. Prepare a revised community engagement strategy and annual implementation plan. Consider a calendar of events and preparation of topic-specific engagement plans, E.g. for the Undai River diversion project, pastureland management, etc.
55. Strengthen the recording, analysis and reporting of community engagement results as part of the implementation of the new CSETS.
56. Develop a process for communicating a consistent and meaningful interpretation of the results of the PEM program to communities. Consult the participants to develop the format and content of these reports.
57. Consider a Frequently Asked Questions system or similar to regular communicate responses to community concerns raised and demonstrate what the Project is doing to address them.
58. Look for opportunities to include quantitative data more regularly in disclosure materials to increase transparency and continually build trust.
59. Expedite the completion of the Community Interaction Centre and the provision of more Project disclosure materials and displays once established.
60. Continue the active involvement of senior OT and RT managers in community engagement in early 2014 to ensure effective management of some of the more complex community concerns.
61. Improve internal reporting of community grievances to senior management to inform appropriate direction of resources and decisions that affect communities.
62. Review complaints related to the OT-Manlai road and investigate if any additional actions are required to resolve any outstanding issues.

6.5 REGIONAL AND COMMUNITY DEVELOPMENT

6.5.1 Project Strategy

Regional and community development is one of the main functions of the RDSP 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*, Omnogovi *aimag* and the Project. The development of the Cooperation Agreement is in progress and is being actively supported by RT corporate personnel with experience in negotiating similar such agreements.

At the same time, there are a number of localised programs being developed and implemented by the RDSP team that are contributing to regional and community development, including those related to the local business and economic development, cultural heritage, community health, safety and security, pastureland management, and employability and training.

The regional and community development program is directly related to in-migration management which is addressed through the Influx Management Plan[42] (IMP) and to a lesser degree in the Labour Management Plan and Community Health, Safety & Security Management Plan[43] (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

Overall progress on regional and community development has slowed in 2013 largely due to political and other issues outside the control of OT which have affected decisions on the UG mine, long-term worker housing and related expansion plans. Nevertheless, progress has been made by OT on the commissioning of the OT-KB 35kV power line and substation, the Khanbogd waste area improvement project, and completion of the Bayan Ovoo *soum* public sports facility.

[42] *Influx Management Plan - Doc. No. OT-10-PLN-0004 dated 01.09.2013.*

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

Recently, OT signed an *'Interim Agreement'* with the Khanbogd *soum* which is designed to deliver several key local infrastructure and community development initiatives, in the absence of decisions that will enable longer-term regional development agreements to be completed. The IESC commends the Project for achieving this Interim Agreement. It is an important step in continuing to fulfil OT's commitment to Khanbogd *soum* and overall regional development as outlined in the IA and various OMPs. These activities are critical to maintain host community support and as such there is no room for non-delivery or delay on this agreement. It was observed during the audit that not all OT departments necessarily have a clear understanding of what is included in the Interim Agreement, which could lead to inconsistent messaging or difficulties in managing expectations. A copy of the Interim Agreement was not available for IESC review as part of this audit. It is important that this agreement is provided to Lenders and the IESC for review when available to enable further assessment on the progress of regional and community development at the next audit.

6.5.2.1 Cooperation Agreements

Rio Tinto is an industry leader in the development of agreements with host communities for long-term mutual economic and community benefits at a number of its mine sites. Significant progress has been reported by OT in 2013 on drafting of an 'umbrella' Cooperation Agreement for the South Gobi and the nine sub-agreements. A number of working groups and sub-agreement teams have been established with the *aimag* and *soum* authorities and a total of 11 meetings of 5 sub-agreement teams have been conducted to date. Drafting of the term sheets is understood to be advanced and although OT may not achieve the target of end 2013 for the completion of the Cooperation Agreement (and 5 sub-agreements), the process remains generally on track to be completed early in the operations phase.

The IESC concurs with OT's approach to encourage greater participation of communities in addition to the authorities to finalise these agreements; ownership by the host population will be essential for long-term community support and enduring relationships. The IESC looks forward to seeing the progress made by the next audit.

6.5.2.2 Induced In-migration

The recent socio-economic census confirms that there has been considerable influx into Khanbogd *soum* in the past 3 years, with the population now at 5,265 (of which 4,469 people are permanent residents), compared to approximately 3,500 people in 2010 (excluding people living at OT site). Based on estimates made by the ADB, the *soum* population is expected to reach 30,000 to 35,000 by around 2025, of which OT employees will represent approximately 13-14,000 people[44]. Preliminary results also indicate that 60% of the *soum* population was born in Khanbogd, making the other 40% migrants with the majority arriving in the past 3 years. The final report from the census is still pending and the IESC will review the findings on in-migration, and potential monitoring and management measures proposed to address these at the next audit. This information should provide the basis for robust quantitative monitoring of influx and related issues by the Khanbogd *soum*, but this will need to be facilitated and supported by OT as government capacity remains low. Interviews with authorities during the audit identified that they currently report to have procedures to 'register' permanent residents (e.g. those who establish a plot of land with a *ger* or house), but no such procedures or plans to register or monitor temporary residents.

A number of the themes of the Cooperation Agreement relate directly to long-term management of planned and unplanned project induced in-migration including infrastructure in neighbouring *soums*, Khanbogd urban planning, and local and regional training and employability schemes. One of the most common challenges for projects in managing induced in-migration issues is ownership of the process and responsibilities by government. The Cooperation Agreement and sub-agreements when completed should provide a robust framework for the division of responsibilities between OT, the *soums*, and the Omnogovi *aimag* in terms of managing Project induced influx.

In-migration management activities have continued to focus on Khanbogd *soum* and the control of the worker population including points of hire and demobilisation activities since the previous IESC audit. OT has also contributed to the master planning for Khanbogd *soum* which has been completed by AECOM as

[44] *Source: rePlan 2012, and ADB population projections, as cited in the OT Influx Management Plan, dated September 2013.*

part of an ADB funded initiative for the Omnogovi *aimag*. The IESC understands from OT that the Master Plan for the *soum* centre has been largely finalised and includes the long-term worker housing requirements for the Project.

The reduced workforce and supplier opportunities this year have lessened the urgency to implement more significant influx management measures. However, the current period before decisions on worker housing and the UG mine presents an opportunity for both the *soum* and OT to work together to explore ways to monitor in-migration and build capacity of the *soum* to deal with unplanned influx and associated issues. Sometimes even small-scale local infrastructure improvements, such as those that will be implemented under the Interim Agreement, can attract additional newcomers. Indeed, it is noted that OT has created a new position for a specialist in 'economic development and influx management' within the RDSP department, so should be equipped once this position is filled to proactively work on influx related issues.

The IMP is scheduled to be updated in 2014 to reflect the long-term worker housing solution, new socio-economic data and any agreements made with the *aimag* and *soums* on regional and economic development cooperation. The IESC welcomes this update and suggests that OT and Lenders agree a mutually acceptable due date based on the best current estimate of the future development schedule.

6.5.2.3 Local Business and Economic Development

A Local Business and Economic Development Program which is managed by the RDSP department has been in place for more than 2 years. It is designed to deliver projects that build entrepreneurial capacity, strengthen existing businesses and create opportunities for new SMEs that are not tied to the mining industry. It is the IESC's view that this program is an essential component of delivering benefits to the host population of Khanbogd *soum*, to facilitate herder livelihood improvements,[45] and to lay the foundations for sustainable regional and community development. It is supplementary to the Local Supplier Development Program implemented by the Procurement department which is focused on mining supplier development and maximising local content to the extent feasible. There are a number of synergies between these programs and a recent review by RT in 2013 identified several suggestions for maximising the coordination and leverage from both programs.

Several high community profile projects were implemented in 2013 under the Local Business and Economic Development Program including strengthening of 40 SMEs and establishment of 20 new SMEs, 8 business and technology training courses (200 participants), a study tour (6 businesses), creation of a community vegetable facility in 3 *soums* (78 households), and a Market Fair event in Khanbogd *soum* with in excess 10 million MNT in sales income and participation of more than 70 local businesses. These events were identified by stakeholders interviewed as highly positive, particularly the Market Fair.

OT directly funds training and business planning initiatives whilst support for individual SMEs is achieved through access to a micro-finance fund which has been underwritten by OT with several Mongolian banks. Other similar local economic development programs sometimes include the provision of small-scale capital investments directly to beneficiaries and revolving funds for cooperatives to maximise livelihood improvement results. These may be models for consideration by the Project. The IESC looks forward to seeing continued progress on this program as it is our view that this will be central to improving herder livelihoods and delivering sustainable benefits to Khanbogd and other communities.

6.5.3 Findings and Observations

Findings – Regional and Community Development

Nil.

Observations – Regional and Community Development

63. Raise awareness internally of the scope of the Interim Agreement to ensure consistent messaging and to enable effective management of expectations within the community.

[45] *Many of these projects focus on essential herder livelihood requirements such as food security and herder business development.*

64. Provide a copy of the Interim Agreement to Lenders and IESC for information and to enable further assessment of regional and community development progress at the next audit.
65. Continue to progress completion of the Cooperation Agreement and sub-agreements including facilitation of further participation of target communities.
66. Work with the Khanbogd *soum* to develop procedures to monitor influx and related issues using the updated census data and findings.
67. Fill the position for a specialist economic development and influx management advisor and explore ways to monitor in-migration and build capacity of the *soum* to deal with unplanned influx and associated issues.
68. Agree with Lenders an appropriate date for updating the IMP to reflect the long-term worker housing solution, new socio-economic data and any agreements made with the *aimag* and *soums* on regional and economic development cooperation.
69. Consider opportunities to maximize the livelihood improvement results from local business and economic development programs, e.g. provision of small-scale capital investments for beneficiaries and revolving funds for cooperatives.

7 HEALTH AND SAFETY

Rio Tinto is an industry leader in safety, health and wellness programs for staff members and proximate communities. The OT Project has a well-developed occupational health and safety program for workers including contractors, as well as developing community health and safety program in Khanbogd and other target *soums*.

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

The Health Team is organized as a centralized entity under the HSE department, and includes monitoring, rehabilitation, medical surveillance, and the SOS Clinic. Medical baselines including hearing, vision and spirometry testing have been established for all employees and contractor personnel, and the program is established for entry and exit examinations.

Occupational health resources include five cross-trained staff with audiometry, dosimeter, and sampling/testing equipment. Common studies include evaluation for dust and noise. The main clinic is managed by International SOS and is staffed with 37 personnel and six doctors, with X-ray and laboratory equipment and a pharmacy. Two ambulances are available at the clinic, and one is maintained at the airport. A small, remote clinic with communication links to the main site clinic is located at the South Contractor Camp. Trauma is stabilized and patients are medevac from the site to Ulaanbaatar for procedures and surgeries.

7.1.3 Findings and Observations

Findings –Worker Health
Nil.

Observations – Worker Health

None.

7.2 COMMUNITY HEALTH

7.2.1 Project Strategy

Community health is addressed in the CHSSMP. The immediate term 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 RDSP departments.

7.2.2 Observations

Occupational health monitoring of similar exposure groups had not been adequately demonstrated in the IESC April 2013 audit, with no evidence of baseline, periodic, and termination medical surveillance (Item 2.03). The occupational health resources are now in place for monitoring exposure, and medical surveillance of employees and contractors is occurring, including entrance and termination checks.

The SOS clinic is not involved in specific programs to support communities, although it does provide treatment to members of the community if injured in proximity to the site, such as accident victims from roadway accidents. In fact, there is a formal process that has been communicated to the Khanbogd community in the case of emergency medical situations and making a request for support from the Project. The CHSS Management Plan includes commitments through management controls to reduce risks related to communicable diseases, non-communicable diseases and injuries, and social conflict, and to increase capacity of community health systems to respond to health needs and risks. Key implementation milestones, key performance indicators and monitoring measures are established, with internal conformance monitored via annual internal audits which will be reviewed, along with associated incident registry during future audits.

A range of community health initiatives were implemented in 2013 including a medical waste management improvement project to train 184 health care workers, provide sharps boxes and waste bins, and distribute videos, posters, and leaflets on disease prevention. A Hepatitis awareness raising program including training of 14 health care workers and free testing for 764 people was also implemented. An archery in schools project was run in 7 schools in 4 *soums* to promote healthy lifestyles among local youth.

A research study on herder health is underway, with the objective of developing a health monitoring system for herders in selected *soums*. The fieldwork was completed in August 2013 and preliminary results are available and were verified by the IESC. The final report is due in March 2014. It will be most useful if these results particularly those related to herder livelihoods are also integrated into the other programs for herders, including the pastureland and livelihood improvement program and the outcome evaluation process.

7.2.3 Findings and Observations

Findings – Community Health
Nil.

Observations – Community Health

70. Provide the Lenders and IESC with a copy of the final report from the herder health status and livelihoods study, and details of the herder health monitoring system proposed.

71. Ensure the results from the herder health status and livelihoods study are incorporated into the design of the Pastureland and Livelihood Improvement Plan and the outcome evaluation process for herders in Khanbogd.

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. The TRACK system (Think through the task, Recognize the hazards, Assess the risks, Control the hazards, Keep safety first in all tasks) is a well conceived and utilized tool employed on the Project. Competency training is provided based on role requirements. Another element of the ESMP is Communication, including a variety of media and forums with a clear safety message (HSE themes, safety share, pre-start programs, committees, signage, etc.) required by management.

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 EPRP includes referenced procedures and plans, and the HSE department is well equipped and managed. Underground mining production operation is addressed in the Redpath Emergency Response Plan.

The underground mine is 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

Decentralized Safety Teams are organized within each operations department, with two HSE department Safety Managers and support staff providing oversight, guidance and auditing. Contractors are also required to have their own safety teams. Hazard identification and risk management processes are in place, and documented Safe Work Procedures cover frequent and high risk infrequent activities. Assessments and inspections are performed regularly to evaluate if objectives are being met and verify personnel training, certification and equipment. Internal audits are conducted to evaluate implementation of selected standards, and each finding is logged into the RTBS system with an attendant action item for follow-up and tracking. Workplace health or safety incidents are also tracked within the RTBS system, and regularly reviewed by HSE department management.

The Project employs centralized training using a tiered approach as outline in the ESMP. The RTBS system is the repository for training records for employees and contractors.

Incidents, Injuries and Illnesses are tracked within the RTBS system, and can be evaluated by month, weekday and hour for analysis of trends. The OT Incident Investigation Requirements include classification of each incident relative to consequence (actual consequence and maximum reasonable outcome) in establishing investigation method and documentation within the RTBS system. Incident and injury statistics are analysed within the RTBS system, which allows a range of calculations including Lost Time Injury (LTI) and LTI Frequency Rate (LTIFR), Restricted Work Duty Injury (RWDI), Medical Treatment Case Injury (MTCI), and All Injuries (AI) figures for comparison with relevant targets.

Detection of unsafe conditions at the underground mine site (associated with fire extinguishers, emergency shower and eye wash station, and leaking diesel dispenser) disclosed weakness or inadequate tracking within the management system during the previous audit (IESC April 2013 audit – Issues 2.02). At the time of the October visit the OMPs reviewed by the IESC include internal inspections and audits, and an example of internal audit was provided by OT to demonstrate implementation of the plan.

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 a number of the environmental and OH&S management plans and procedures described above, and the key community safety protection measures are summarised in the CHSS MP, which also provides further commitments toward community safety awareness and 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 RDSP departments. The RDSP team is responsible for safety awareness training and monitoring within the community.

7.4.2 Observations

Road traffic injury prevention activities conducted by OT in 2013 include first aid training and provision of first aid kits to 86 herders, basic lifesaving training for 12 health care workers from 3 *soums*, and 100 road safety calendars distributed in Dalanzadgad. School children were involved in road safety awareness by participating in an event to draw road safety slogans and pictures which were published in the calendars.

Two serious road traffic incidents occurred in mid-2013 involving Project related vehicles and local drivers in Khanbogd *soum*. It was reported to the IESC that these incidents have been thoroughly investigated by OT in collaboration with the local Police, and no fault has been attributed to the Project. Since both of these incidents resulted in fatalities, additional driver and traffic safety awareness with Khanbogd residents should be considered.

A "Rights, Responsibilities and Participation" awareness raising event was held with 28 *soum* and *aimag* public servants to increase awareness about cooperation to combat human security and human trafficking issues. Participants included personnel from the Gashuun Sukhait border point, Police, Aimag Governor's Office, and Army representatives. This event is a positive first step in collaborating with authorities to understand the potential risks for human security and trafficking issues in the project area. The IESC looks forward to seeing how the project plans to expand this awareness training and other potential measures within the local population at the next audit visit.

7.4.3 Findings and Observations

Findings – Community Safety
Nil.

Observations – Community Safety

72. Consider additional driver and traffic safety awareness with Khanbogd residents to reduce risk of traffic accidents between local and project vehicles.

73. Develop plans to expand the human security and trafficking awareness training and other potential measures within the local population and provide at the next audit.

8 CULTURAL HERITAGE

Note: this is not an in-depth assessment of Project performance as time did not allow for any field verification with regards to cultural heritage management. Due to the Project entering the operations phase and results of past IESC audits no significant issues were expected at the present time.

8.1.1 Project Strategy

A Cultural Heritage Management Plan[46] (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 made to local cultural traditions and events. A team is present at Khanbogd/onsite to implement the cultural heritage management requirements.

As the Project is now in operations and current construction works are limited, the focus of cultural heritage management and monitoring is 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.

8.1.2 Observations

The CHMS procedures were finalised in 2013 and are being implemented and embedded within the operating framework of OT. Monthly monitoring of cultural sites is undertaken. Cultural heritage inductions are conducted and evidence of these inductions was verified by the IESC. No chance finds or cultural heritage related incidents have been reported to date in 2013.

Implementation of the Cultural Heritage Program Phase II has been continuing in 2013. Adequate progress appears to have been made on intangible heritage, with several projects completed or ongoing including the publication of a Gobi long song book and a Khanbogd mountain worship guide, as well as contributions to a number of cultural festivals and activities (e.g. *Tumen Temee* annual camel festival in Dalanzadgad). Tangible heritage protections and/or maintenance activities have been implemented at eight cultural heritage sites in Khanbogd *soum* (local) and the *Shar Tsav* paleontological site (regional).

Some delays in implementing a number of Cultural Heritage Program Phase II commitments are expected by OT, including the establishment of an Omnogovi *aimag* cultural centre, extension of the Khanbogd museum and a replica of OT Hill. These delays are due to both internal restrictions on expenditure due to the abovementioned issues with shareholders including the Government of Mongolia, as well as local *soum* decisions related to the museum complex in Khanbogd.[47]

The implementation status of the Cultural Heritage Program Phase II should be monitored by OT in light of these recent constraints to determine what commitments can reasonably be achieved – an updated implementation schedule may be needed. Any changes to the implementation schedule should be made in consultation with communities and other relevant stakeholders. Ongoing implementation of CHMS procedures and the status of the Cultural Heritage Program Phase II will be reviewed further at next audit.

8.1.3 Findings and Observations

Findings – Cultural Heritage
Nil.

Observations – Cultural Heritage

74. Monitor the implementation status of the Cultural Heritage Program Phase II and consider if an updated implementation schedule is needed in consultation with communities and other relevant stakeholders.

[46] *Cultural Heritage Management Plan - Doc. No. OT-10-PLN-0002 dated 01.09.2013.*

[47] *The IESC understands that the Khanbogd soum has decided that they would like to establish a new museum complex and this has affected the prior plans made with OT to contribute to an extension of the Khanbogd museum.*