



Oyu Tolgoi LLC

Health, Safety and Environment Management System Procedures

Element 10. Heavy vehicle operating procedure
(C3 Vehicles and Driving Safety Standard)

Heavy Vehicle Operating Procedure		
Effective Date: 2012.04.16	Document Number: OT-10-C3-PRC-0002-E	Version: 1.1

1 PURPOSE

The objective of this procedure is to reduce the risk of personal injury and property damage, by ensuring heavy vehicles are maintained in good operating condition, and ensuring that drivers or operators are competent to operate this equipment safely in the remote Gobi desert region of Oyu Tolgoi.

Heavy Vehicle operation has been identified as a high risk activity within Oyu Tolgoi LLC and the Rio Tinto Group.

2 SCOPE

This procedure applies to all employees and contractors of Oyu Tolgoi. It includes all roads owned and operated by Oyu Tolgoi or contractors that are employed onsite or offsite for Oyu Tolgoi LLC business purposes

3 ROLES AND RESPONSIBILITIES

Role	Responsibilities
Employees, Contractors and Visitors	<ul style="list-style-type: none"> • Vehicles shall be driven within the prescribed speed limit and with due care and attention to the conditions. • Vehicles shall not be operated by individuals whilst under the influence of alcohol or other drugs in accordance with the Oyu Tolgoi Alcohol and Other Drugs Policy. • Mobile phone usage is prohibited while driving. • Vehicle windows should be wound up when driving unless required for safe operation of the vehicle. • Drivers and passengers shall wear their seat belts at all times whilst the vehicle is moving. • Any loose articles that have the potential to become projectiles if the vehicle stops suddenly, shall be securely restrained. • No vehicle is to be pushed or roll started, either by one individual or a group of individuals. • With exception of heavy vehicles, no unattended vehicle or mobile equipment is to be left idling at any time. In the case of leaving a heavy vehicle unattended, it is to be parked as per the parking procedure for that vehicle. • Ensuring that they have valid licenses as legally required by Mongolia law. • Conducting a vehicle pre start and safety check. • Reporting any faults or damage to the vehicle as soon as possible; • Reporting immediately and tagged 'OUT OF SERVICE' any failure or concern which affects the safe operation of the vehicle, i.e. brakes or steering. • Maintaining vehicles in a clean and tidy condition.
Supervisors	<ul style="list-style-type: none"> • Before any person is authorised to operate an Oyu Tolgoi vehicle the following occur: <ul style="list-style-type: none"> • A driver's license check is conducted. • The driver is familiarised with the vehicle including pre-

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	<p>operation inspection requirements and post operation actions.</p> <ul style="list-style-type: none"> • The driver is familiar with the contents of this procedure. • A safe driving observation is conducted. • A license check and a safe driving observation is conducted annually for all direct report employees. • Leased, owned or hired vehicles are maintained in accordance with the manufacturer's recommendations, and with the instructions of the leasing or renting organisation.
Superintendent	<ul style="list-style-type: none"> • All vehicles driven for work purposes are subject to an appropriate pre-operation safety check based on the vehicle risk assessment and behavioural aspect. • Equipment involved in continuous operation shall be checked on a shift by shift basis in accordance with predetermined safety inspection standards. • Equipment that is used infrequently shall be checked prior to use. • All vehicle checks shall be recorded on the relevant checklist, with a copy remaining in the vehicle. • There shall be a process to ensure that damage or defects found on vehicles are reported and repaired. • Un-roadworthy vehicles shall not be operated and shall be tagged out of service. • Oyu Tolgoi leased and owned cars, vans and trucks shall be equipped in accordance with Vehicle Equipment section. • Vehicles are regularly cleaned.
Leader Once Removed (LOR) / Manager	<ul style="list-style-type: none"> • All vehicles used for work purposes shall be subject to a risk assessment as per the requirements of <i>Rio Tinto Safety Performance Standard C3 Vehicles and Driving</i>. The risk assessment should be displayed in the vehicle. • All vehicles meet the conditions of vehicles requirements in Condition of Vehicles section. • There shall be a system to ensure that all vehicles driven for work purposes, including hired vehicles, are subject to an appropriate pre-operation safety check at a frequency based on a risk assessment for the type of vehicle. • All vehicles shall be recorded on a register. • Where applicable, vehicles shall be registered, licensed and insured in accordance with the relevant regulations. • There shall be a system to ensure that no person drives a vehicle unless they are trained, competent, tested and licensed to operate that vehicle in accordance with the relevant Oyu Tolgoi Training and Assessment requirements. The training must address hazards assessed for that vehicle and the tasks for which it is used. The driver licensing requirements are detailed in Drivers Licensing section • All persons required driving heavy vehicles and light vehicle for

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	<p>work purposes in operational areas shall complete the <i>Annual Drivers Checklist</i> on an annual basis to reinforce safe driving techniques.</p> <ul style="list-style-type: none"> • Vehicles shall not be used for towing unless they are engineered for that task. • Vehicle incidents and accidents occurring on public roads shall be reported to the local authorities in accordance with the requirements of the local laws. Accidents and infringements of road regulations involving company vehicles shall be reported and investigated.
Department General Managers	<p>A comprehensive risk analysis identifying the conditional and behavioural factors that impact vehicles and driving safety shall be conducted for each site in accordance with the requirements of <i>the Safety Performance Standard C3 Vehicles and Driving [OT-10-C3-STD-0003-E]</i>. An action plan to address the findings shall be in place at each site and tracked to completion.</p> <p>The site C3 Committee and HSE shall ensure that speed limits, road signage and traffic rules are regularly reviewed and reinforced.</p>

4 PROCEDURE

4.1 Driver Licensing

4.1.1 Mobile equipment

Operators of mobile equipment must comply with the requirements of AS2359.2 SAA Industrial truck code – Part 2: Operation. In addition mobile equipment operators shall:

- Hold a current motor vehicle driver’s license valid in Mongolia with no restrictions
- Be a minimum of 18 years of age.
- Be competent and licensed to operate the equipment.

4.2 Fatigue

Drivers and passengers shall be aware of, and be able to identify, the symptoms associated with fatigue and respond by informing their Supervisor, stopping to rest or changing drivers.

4.3 Condition of Vehicles

All vehicles used for work purposes, including all hire vehicles, shall be roadworthy and fitted with fixed seats and safety belts for the driver and all passengers.

All vehicles capable of exceeding the lowest applicable speed limit shall be fitted with a speedometer or like means or restricted to operate below those limits.

No vehicle tows or recovers equipment unless it is engineered to do so (see Appendix A).

Un-roadworthy equipment must not be operated and shall be tagged ‘OUT OF SERVICE’ in accordance with the isolation regulations.

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4.3.1 Vehicle Pre-Operation Checks

Vehicle pre-operation checks are designed to ensure vehicle serviceability, completeness of equipment and that the operator is familiar with the vehicle.

All vehicles shall have a pre-operation inspection conducted not less frequently than weekly.

All vehicles engaged in continuous shift operations shall have a pre-operation inspection conducted at the commencement of each shift. Where for operational requirements a vehicle cannot have a pre-operation inspection conducted at the start of the shift it shall be inspected during the shift period.

All vehicle checks must be recorded on the relevant checklists. The duplicate copy of the checklist is to be handed into the supervisor.

4.3.2 Driver Post-Operation Action

At the completion of each shift drivers should ensure that vehicles cleaned and that all faults are reported.

4.4 Vehicle Equipment

All vehicles used on site shall carry the following equipment:

- the vehicle manufacturers operators manual,
- a fire extinguisher,
- a set of three reflective triangles; not carried in heavy vehicles,
- a set of two wheel chocks,

4.5 Seatbelts

All vehicle occupants are to wear fitted seatbelts whenever a vehicle is moving.

4.6 Speed Limits

Ensure that site speed limits and traffic rules are reviewed regularly.

4.6.1 Speed Limits - General

Speed limit signs indicate the maximum allowable speed on that particular section of road under ideal conditions. Sign posted speed limits are not to be exceeded.

4.6.2 Speed Limits - Unsealed Roads

Drivers must be particularly vigilant of the conditions when travelling on unsealed roads and adjust their speed accordingly.

4.7 On-coming Traffic.

Extra caution should be practised when approaching and passing oncoming traffic.

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4.8 Parking of Vehicles

All vehicles shall be parked fundamentally stable. Where a vehicle is not fundamentally stable it shall be chocked.

All unattended vehicles are to be parked fundamentally stable. Additionally:

- With exception of heavy vehicles, which may be left idling in cold weather, subject to a risk assessment, no unattended vehicle or mobile equipment is to be left idling at any time. In the case of leaving a heavy vehicle unattended, it is to be parked as per the parking procedure for that vehicle.
- the hand brake shall be fully applied; and
- the vehicle shall be in gear

4.9 Headlights

Vehicle headlights must be on at all times the vehicle is in operation.

4.10 Driving on Unsealed Roads

When driving on unsealed roads it is vital that traction is established and maintained between the vehicle and the road surface. Traction can be established by driving at a speed that allows the tyres to maintain contact with the road, effective observation and vehicle path selection.

4.11 Crossing of Water Hazards

Water can present a significant hazard to vehicle operations particularly on unsealed roads. Drivers shall not enter water until the driver is certain that:

- Water depth is less than 0.5 m;
- The flow strength of running water will not wash the vehicle off the causeway etc; and
- Driving surface integrity exists and that the road has not been scoured out nor had materials deposited on it.

Persons should not place themselves at risk in the process of checking water depth, flow strength or the conditions of road under water.

4.12 Push Starting of Vehicles

Push starting of vehicles is prohibited.

4.13 Amber Beacons

Vehicles required to be operated within the mine sites or other designated areas (e.g. construction sites) are to have amber beacons fitted and the beacons are to be operated in accordance with specific site requirements.

The beacon light may be roof mounted either by a permanent fixture or a magnetic removal type.

Amber beacons are not to be activated for light vehicles travelling on roads outside of the Oyu Tolgoi site. Amber beacons, where fitted, are to be activated for the purpose of warning of approaching vehicles any potentially hazardous condition i.e. accident or obstruction.

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4.14 Breakdown, Accident and Recovery Procedures

In the event that a vehicle breaks down the operator is to contact Open Pit Dispatch and their Supervisor to arrange for the Heavy Vehicle Maintenance Supervisor to be notified to initiate repair or recovery action.

The vehicle is to be fundamentally stable.

In the event of a vehicle accident and, the vehicle is damaged the recovery of the vehicle would be pending an incident investigation. If the vehicle was located in such a position that it was a hazard to other road users, Open Pit Dispatch should be contacted to coordinate action to remove the vehicle from the area.

Only competent personnel shall conduct recovery operations. Vehicle recovery is covered in appendixes A

4.14.1 Flat Tyre Procedures

In the event of a flat tyre on a vehicle the operator is to call Open Pit Dispatch and their Supervisor.

4.15 In Vehicle Documentation

A copy of this procedure shall be carried in all vehicles along with the vehicle risk assessment.

5 DEFINITIONS

Vehicle: Any motorised wheeled conveyance used for work purposes including light vehicles and mobile equipment; but excluding locomotives and machines operated on a rail system.

Shall: Indicates that a requirement is mandatory

Should: Indicates that a requirement is recommended

Light vehicle: A light vehicle is any land-based vehicle weighing less than 4.5 tonnes gross.

Heavy vehicle: Larger vehicles and machinery used in the mining process which can move from one part of the site to another under their own power.

Unattended vehicle: A vehicle is unattended when a competent person to operate that vehicle is not positioned at the controls of that vehicle.

Fundamentally stable: Where mobile equipment is left in a manner where it will not roll away or move if the equipment is left in neutral and the braking system, including park brakes are not applied.

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6 REFERENCES AND RELATED DOCUMENTS

	Name	Location
Legal and Other Requirements	Rio Tinto HSEQ Element 10 Operational Control	Prospect
Oyu Tolgoi HSE Management System	Element 10 – Operational Control	OT HSE Portal
	OT-10-PRC-0005-E-HSE Standard Notices and Signs Procedure	
	OT-10-C3-PRC-0005-E-Traffic Management Plan	
	OT-10-C3-PRC-0004-E-Tyre and Rims Management Plan	
	OT-10-C3-PRC-0006-E- Licencing Procedure	
	OT-10-C3-PRC-0002-E- Light Vehicle Procedure	
	OT-10-C3-PRC-0003-E-Heavy Vehicle Procedure	
	OT-10-C3-PRC-0001-E-Road Construction and Maintenance Procedure	

7 DOCUMENT CONTROL

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8 APPENDIX A - Vehicle Recovery Procedure

8.1 Purpose

The purpose of this procedure is to ensure vehicle recovery is performed in a safe manner.

8.2 Scope

This procedure covers the recovery of one vehicle by another.

8.3 Aims and Objectives

The aim of this procedure is to ensure that all factors impacting on the safe recovery of vehicles is considered prior to commencing the recovery.

8.4 Procedure

There are a number of factors that impact on the forces required to recover vehicles. These factors are influenced by the conditions of each recovery and impact on the physical attributes of the recovery equipment, recovered equipment and any attachments between the two vehicles.

The following is a brief overview of factors that must be considered to ensure the safe execution of a recovery operation:

The total force required to recover the equipment. This will determined by:

- Weight of the equipment to be recovered (GVM).
- Rolling resistance of the equipment to be recovered.
- Grade resistance of the equipment to be recovered.

The total useable force available from the recovery equipment. This will be determined by:

- Weight of the recovering equipment.
- Rolling resistance of the recovering equipment.
- Grade resistance of the recovering equipment.
- Traction of the recovering equipment.

The capacity of all attachments between the recovery equipment and the equipment to be recovered. This includes:

- Capacity and condition of the attachment points on the equipment to be recovered.
- Capacity and condition of the attachment points on the recovering equipment.
- Capacity of any chains, shackles or other attachments used in the recovery.

Dynamic forces – during the recovery operation dynamic forces will be generated as a result of the forces applied to move stationary equipment. The nature of these dynamic forces will need to be understood and allowances made where necessary e.g. braking of recovered equipment on sloping ground.

8.5 Responsibilities

It is the responsibility of the person in control of the recovery operation to ensure that the factors impacting on a safe recovery have been considered in the selection of all equipment to be used in the operation.

In addition, equipment waiting to be recovered need to be fundamentally stable

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8.6 Definitions

Rolling Resistance - a measure of the force that must be overcome to roll or pull a wheel over the ground. This resistance is affected by the ground conditions and total vehicle weight (i.e. includes load). Rolling Resistance is usually measured as a percentage of Gross Machine Weight (GMW or Gross Vehicle Mass - GVM) and is expressed in kilograms.

Tyre flexing – can either increase or decrease rolling resistance. A flat tyre has more resistance than an inflated tyre however a tyre with reduced inflation pressure will reduce rolling resistance in muddy or sandy situations.

Grade Resistance - a measure of the force that must be overcome to move a machine over unfavourable grades (i.e. uphill). Grades are generally measured in percent slope, which is the ratio between vertical rise and the horizontal distance in which the rise occurs. Grade resistance is approximately equal to 1% of GVM for each 1% of grade and is expressed in kilograms.

Grade Assistance - a measure of the force that assists machine movement on favourable grades (i.e. downhill). Grades are generally measured in percent slope, which is the ratio between vertical or fall and the horizontal distance in which the fall occurs. Grade assistance is approximately equal to 1% of GVM for each 1% of grade and is expressed in kilograms.

Total Resistance - the combined effect of rolling resistance and grade resistance (or assistance). The addition of these two factors will give a resistance in kilograms.

Traction - the driving force developed by a wheel or track as it acts upon a surface. Traction is affected by weight on the driving wheel (or tracks), gripping action of the wheel (or track) and ground conditions.

Gross Vehicle Mass (GVM) – mass of the vehicle including, Tare, payload, fuel, driver & passengers.

Dynamic Forces – forces in or as a result of motion.