



PACIFIC

Passive seismic techniques for environmentally friendly and cost efficient mineral exploration

D5.2 – Environmental and Safety Risk Database

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Duration	36 months	Lead Beneficiary	BEOW

Description

A database accessible to all partners will be created in which shall be stored all documents, data, etc. produced by the ESMC.

Dissemination Level

PU	Public	x
CO	Confidential, only for members of the consortium (including the Commission Services)	

History			
Author	Date	Reason for change	Release
Adeline Paul	23/08/2018		V0
Adeline Paul	29/08/2018	Insertion of inputs from Bill Craggs	V1
Beowulf	01/10/2018	Addition of environmental inputs	V2
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Executive Summary

This deliverable gathers risks related to safety or environmental issues relevant for PACIFIC activities. For each type of issue, the risks/hazards are listed with their score before and after mitigation and the corresponding control measures. A safe working procedure is also described.

This database will serve as reference for the ESMC – Environmental and Safety Risk Management Committee – for follow-up during the course of the project.

1 Risk database

Health, safety and environmental risks associated with mineral exploration depend highly on the used method. In the following table, we summarise the main methods used for mineral exploration and the health, safety and environmental risks associated with each one of them.

This database does not include the COVID-19 pandemic, given its emergent nature and the difference in local, regional, and national regulations. However, risks associated to the pandemic are continuously assessed and managed in the risk database managed on the project SharePoint.

Table 1 Health, Safety and Environmental Risks associated with Geophysical Exploration Methods

Method	Deployment	Access	Grid	Accessory equipment	Health and Safety Risks	Environmental Risk
Passive seismic	light*	using existing paths	not required	none	minor, limited to risks associated with working in remote locations	minimal
Gravity	light	new access paths	yes	none	slight, associated mainly with cutting of grid lines	slight, associated mainly with cutting of grid lines
Magnetic	light	new access paths	yes	none	slight, associated mainly with cutting of grid lines	slight, associated mainly with cutting of grid lines
Magneto-telluric	light	new access paths	yes	none	slight, associated mainly with cutting of grid lines	slight, associated mainly with cutting of grid lines
Electromagnetic	ATV	new access paths	yes	electric generators	moderate, associated with use of large electric currents and cutting of grid lines	moderate, associated with deployment of generators and cutting of grid lines
Ground-penetrating radar	ATV	new access paths	yes	electric generators	moderate, associated with use of large electric currents and cutting of grid lines	moderate, associated with deployment of generators and cutting of grid lines
Active seismic	heavy trucks	new roads	yes	heavy trucks and cables	major, associated with road construction and operation of heavy equipment or explosives	major, due to road construction and noise and vibrations during deployment

* individuals with backpacks supplemented with all-terrain vehicles (ATV)

In Table 2, we provide the list of the specific risks identified in the DoA. They correspond to risks associated with passive seismic survey specifically, and they will be further detailed in the following sections.

Table 2 Description of environmental or safety risks associated with passive seismic surveys, together with their proposed risk-mitigation measures.

Description of environmental or safety risk	Proposed risk-mitigation measures
Restricted and intermittent disturbances to flora and fauna during deployment and retrieval of receivers	The deployment of equipment will be carried out in an environmentally sensitive manner. Impacts on flora and fauna generated by pedestrians or vehicles are limited to restricted areas and times. Workers will be informed about specific flora and fauna in the working areas and field work will be adapted to minimise impacts, in particular to periods of the year with a minimum impact.
Use of snowmobiles, road vehicles and helicopters	Education of workers in correct safety measures; strict control of behaviour when operating or travelling in vehicles
Personal injuries when working in remote regions	Workers will be informed about safety risks and correct working practices will be enforced by the operators
Risks associated with the deployment of receivers in agricultural regions	Before deploying receivers, the local farmers will be consulted and all risks and possible damage to crops or livestock will be identified. Measure will be taken to avoid or mitigate these risks and workers will be informed of correct working practices.

The risk score used in this document is described in the following table.

Likelihood	Severity	Safety, Consider degree of possible injury and number affected	1 - 4 Low
1 Unlikely	1 Minor		
2 Possible	2 Moderate	Environmental, Consider size of potential spillage ease of containment and level of affect.	5 - 12 Med
3 Likely	3 Major		
4 Probable	4 Serious	Quality, Consider possible reject rate and level of difficulty to rectify.	15 - 25 High
5 Certain	5 Catastrophic		

2 Site Access

2.1 Risk assessment

Site	All Sites
Activity Assessed	Site Access to Remote Areas
Assessor Name	Bill Craggs
Assessor Signature	

Persons Involved (Name)	Signature
1	
2	
3	

Assessment Ref No.	BRA01
Assessment Date	August 2018
Planned Review Date	Each Occasion
SSOW or Method Statement Ref.	

Hazards	Adverse effect/ possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Limited Knowledge of Location	Serious Injuries Fatalities	All Site Staff	3 x 5 = 15	Through mapping Trained personnel Local knowledge GPS		1 x 5 = 5
Incompetent Operators	Serious Injuries Fatalities	All Site Staff	4 x 5 = 20	Training Proof of Competence Recognised Qualifications Supervision		1 x 5 = 5

Unsuitable Vehicles	Serious Injuries Fatalities	All Site Staff	4 x 5 = 20	Vehicle selection Vehicle inspections Vehicle maintenance schedules Trained maintenance operatives		1 x 5 = 5
Unsuitable Tools	Serious Injuries	Operational Staff	4 x 3 = 12	Trained Operators Tool Inspections Tool Certification Supervision		1 x 3 = 3
Difficult Terrain	Serious Injuries Fatalities	All Site Staff	4 x 4 = 16	Training Planned Routes Experienced Operators Local Knowledge		1 x 4 = 4
Collisions with Vehicles, Structures, Pedestrians	Serious Injuries Fatalities	All Site Staff	2 x 5 = 10	Training Planned Route Local Knowledge		1 x 5 = 5
Collisions with Wild Animals (Moose, Reindeer etc.)	Serious Injuries Fatalities	All Site Staff	2 x 5 = 10	Training Planned Route Local Knowledge		1 x 5 = 5
Geotechnical Considerations (unprotected edges, rock fall, insecure tips, lagoons)	Serious Injuries Fatalities	All Site Staff	3 x 5 = 15	Geotechnical Training Adequate equipment to deal with anomalies Supervision Adequate PPE (Head Gear)		1 x 5 = 5

Extreme Weather Conditions	Serious Injuries Fatalities	All Site Staff	5 x 5 = 25	Forecasting Tools Local Knowledge Extreme Weather PPE Shelter Options		2 x 5 = 10
Slips, Trips, Falls	Serious Injuries Fatalities	All Site Staff	2 x 5 = 10	Housekeeping Standards Route Clearance before Pedestrian Access Adequate PPE (Footwear)		2 x 5 = 10

2.2 Safe working procedure

2.2.1 Aims & Objectives

To ensure that all sites, some very remote with extreme conditions, can be safely accessed by vehicle and on foot.

2.2.2 Procedure

- The areas to be accessed must be thoroughly mapped beforehand so that personnel minimise the potential for becoming stranded.
- Only trained personnel should be selected for this activity.
- Use local knowledge where available.
- GPS trackers should also be used.
- All operators should have demonstrable proof of competence, with recognised qualifications.
- Vehicles should be selected in accordance with the expected conditions.
- All vehicles should be inspected on a daily basis and any defects recorded and reported.
- Any defect that compromises the safety of the operator should result in that vehicle being withdrawn from service until the defects are controlled or repaired.
- All vehicles should be subjected to regular planned maintenance schedules.
- Maintenance should only be carried out by competent personnel.
- All tools should be inspected before use.

- Equipment such as generators, compressors, lifting equipment or electrical equipment should have valid, current test and inspection certification.
- Be aware of collisions with other vehicles, features, structures pedestrians or wild animals.
- Do not drive close to unprotected edges.
- Do not drive or park beside open faces.
- Do not drive on or park close to potentially insecure tips.
- Gain as much information regarding weather conditions before starting.
- Ensure shelter is available for extreme conditions.
- Ensure that everyone has extreme weather PPE.
- Ensure that spillages and waste materials are cleared away from any access routes.

3 Drilling Operations

3.1 Risk assessment

Site	IN THE FIELD
Activity Assessed	DRILLING OPERATIONS INCLUDING LOADING + UNLOADING
Assessor Name	B. Craggs
Assessor Signature	

Persons Involved (Name)	Signature
1	
2	
3	

Assessment Ref No.	BRA02
Assessment Date	August 2018
Planned Review Date	Each Occasion
SSOW Method Statement Ref.	or

Task/Activity (Risk)	Hazards	Adverse effect/ possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Access to Site and Entering Site	Collisions with Other Vehicles	Fatality/ Serious Injury	Driller Haulier Road Users	2 x 5 = 10	Competency Training Site Induction Warning Devices Safe Parking Positions		1 x 5 = 5

Task/Activity (Risk)	Hazards	Adverse effect/ possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
	Collisions with Pedestrians	Fatality/ Serious Injury	Anyone in Area	3 x 5 = 15	Competency Training Site Induction Warning Devices Safe Parking Positions Use of Pedestrian Routes where available.		1 x 5 = 5
Driving On Site	Collision with other Vehicles or Pedestrians.	Fatality/ Serious Injury	Driller Haulier Road Users	3 x 5 = 15	Competency Training Site Induction Warning Devices Safe Parking Positions Use of Pedestrian Routes where available.		1 x 5 = 5
	Collisions with Wild Animals (Moose, Reindeer etc.)	Fatality/ Serious Injury	Drivers Other Road Users	3 x 5 = 15	Competent Drivers Local Knowledge Speed Awareness		1 x 5 = 5

Task/Activity (Risk)	Hazards	Adverse effect/ possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
	Difficult Terrain	Fatality/ Serious Injury	Driller Haulier Road Users	4 x 5 = 20	Slow Speeds Awareness of Terrain. Route Planning Suitable haulage vehicles. Suitable drilling rig for terrain. Minimise reversing. Seat Belts worn Edge Protection where necessary. Avoid parking alongside high faces		1 x 5 = 5
	Weather Conditions	Fatality/ Serious Injury	Driller Haulier Road Users	5 x 5 = 25	Suitable haulage vehicles. Suitable drilling rig for terrain. Flashing Warning Beacons. Suitable PPE Training		1 x 5 = 5
	Working in Remote Areas	Fatality/ Serious Injury	Driller Haulier Road Users	4 x 4 = 16	Communication system in place. Supervision Training		1 x 4 = 4
Loading/ Unloading Drilling Rig	Trapped Limbs	Crushing Injuries	Driller Haulier Others in Area	4 x 5 = 20	Training/ Authorisation Exclusion zone Correct PPE. Banksman Beacons and Cameras.		1 x 5 = 5

Task/Activity (Risk)	Hazards	Adverse effect/ possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
	Slips, Trips and Falls	Serious Injuries	Driller Haulier Others in Area	3 x 5 = 15	Training/ Authorisation Suitable PPE (footwear). Ensure level work area where possible.		1 x 5 = 5
	Rig Falling from Trailer/ Insecure Load	Fatality/ Serious Injuries	Driller Haulier Others in Area	4 x 5 = 20	Training/ Authorisation. Exclusion Zone. PPE. Cameras. Use of Banksman. Communication between Banksman and unloader Unload on clean, level ground. Low loader bed to be cleaned of mud, ice and snow. Trailer suitable for load. Only use approved/ tested lifting devices (ropes, chains, strops, shackles)		1 x 5 = 5
	Access/ Egress from Drill Rig Cab	Fatality/ Serious Injuries	Driller	3 x 4 = 12	Training/ Authorisation. Suitable PPE Use only designated access steps/ ladders. Trained to use harness/ fall arrest systems.		1 x 4 = 4

Task/Activity (Risk)	Hazards	Adverse effect/ possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
	Lone Working	Fatality	Driller	2 x 5 = 10	Communications system in place. Not Generally Permitted.		1 x 5 = 5
	Noise	Deafness	Driller Others in Area	3 x 5 = 15	Noise exclusion zone Noise assessments. Hearing Protection		1 x 5 = 5
Drilling	Falling Rocks/ Flying Chippings	Fatality/ Serious Injury	Driller	4 x 5 = 20	Drill with cab closed. PPE. Don't drill adjacent to open faces		1 x 5 = 5
	Lone Working	Fatality/ Serious Injury	Driller	2 x 5 = 10	Communications system. Not Generally Permitted		1 x 5 = 5
	Entrapment	Fatality/ Serious Injury	Driller	4 x 5 = 20	Guards and safety devices fitted and checked. Isolation procedure when maintaining. No loose clothing Training		1 x 5 = 5
	Adverse Weather	Fatality/ Serious Injury	Driller	5 x 5 = 25	Suitable PPE Training Assess work before commencing.		1 x 5 = 5

Task/Activity (Risk)	Hazards	Adverse effect/ possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
	Manual Handling	Muscle injuries	Driller	4 x 4 =16	Manual Handling Training. Use of Mechanical Lifting Devices. Use of second person. PPE.		1 x 4 =4
	Noise	Deafness	Driller	3 x 5 = 15	Noise exclusion zone Noise assessments. Hearing Protection Restricted work within exclusion zone. Cab door kept closed.		1 x 5 = 5
	Dust	Respiratory Illnesses/ Fatality	Driller	3 x 3 = 9	Dust collector fitted, maintained and used. PPE Training in use of PPE, drilling equipment and COSHH - Control of Substances Hazardous to Health - assessments.		1 x 3 =3
	High Pressure Air/ Hydraulics	Serious Injuries (eyes, embolisms)	Driller/ Fitter	4 x 4 = 16	Training/ Authorisation. Isolation procedures for air and hydraulic systems. PPE. Regular maintenance of systems.		1 x 4 =4

Task/Activity (Risk)	Hazards	Adverse effect/ possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
	Slips, Trips and Falls	Fatality/ Serious Injury	Driller/ Fitter	3 x 5 = 15	Suitable PPE (footwear). Ensure level work area where possible. Good Housekeeping		1 x 5 = 5
	Overturning Drill Rig	Fatality/ Serious Injury	Driller/ Fitter	3 x 5 = 15	Training/ Authorisation. Centralise and lower mast when travelling.		1 x 5 = 5
Maintenance	Entrapment	Fatality/ Serious Injury	Fitter/ Driller	4 x 4 = 16	Guards and safety devices fitted and checked. Isolation procedure. Training/ Authorisation. Task Specific Risk Assessments carried out.		1 x 4 = 4
	Hazardous substances (oils, greases, chemicals)	Long term health problems with lungs, eyes etc	Fitter/ Driller	4 x 5 = 20	Training/ Authorisation. Hazard Data Sheets made available for all hazardous substances. Suitable PPE.		1 x 5 = 5
Handling Cores	Manual Handling Injuries	Strains, Back Problems	Drillers	3 x 3 = 9	Apply suitable Manual Handling Principles. Training		1 x 3 = 3

3.2 Safe working procedure

3.2.1 Aims & Objectives

A major part of the field work for Beowulf Mining involves investigative drilling. The aim of this procedure is to minimise the potential for harm to hauliers, drillers and other people within the area.

3.2.2 Procedure

Access to Site and Entering Site

- The major hazards that will be encountered are collisions between vehicles and collisions with pedestrians.
- To minimise these risks, the hauliers and the drill rig operators should have a recognised competency qualification, with ongoing training.
- If the site is established, then a site specific induction must be carried out. Where the site is “brown field” then a thorough investigation of the terrain is required in order to assess the potential problems.
- All vehicles, including low loaders, drilling rigs and small vehicles should be fitted with flashing warning devices.
- When parking the low loader, safe parking position should be adopted, preferably facing the direction of egress.
- If pedestrian routes are available, they must be used.

Driving On Site

- As well as the hazards pointed out above, there are additional hazards once the vehicles enter the site. These include the nature of the terrain and the potential for extreme weather conditions.
- Slow speeds must be maintained at all times.
- The drilling area should be fully assessed before work commences to determine the nature of the hazards brought about by the terrain.
- Where extensive movement on site is necessary, routes should be planned and adhered to.
- Suitable haulage vehicles must be used to transport the drill rigs and only competent hauliers should be used.
- The drilling rig selected for the site must be suitable for the terrain and in all cases, outriggers must be used.
- Any vehicle in the area should minimise the amount of reversing. This will reduce the potential for collisions and overturning.
- Where fitted, seat belts must always be worn. If a vehicle overturns, the impact on the driver will be reduced if he is not thrown around the cab.
- Edge Protection must be placed along unprotected edges or alongside significant gradient changes.
- If there are any faces of steep gradients, vehicles should not be parked in areas where falling rocks could cause injury or damage.

- As well as the prescribed PPE required for the operation, operatives must have sufficient protective clothing to meet the potential extreme weather demands (ice, snow, intense heat).
- Because most of this work will be carried out in remote areas, a suitable communications system must be put in place in case of difficulties (breakdown, extreme weather, injury).
- Always be aware of the potential for wild animals which may stray onto the access roads or work area.
- This should include suitable supervision.

Loading/ Unloading Drilling Rig

- There is a risk of entrapment when loading or unloading the drill rig and, as such, only suitable trained and authorised people should carry out the activity.
- An Exclusion Zone should be established so that no unauthorised people can enter the area.
- A Banksman should be used on every occasion, with a suitable communication system. Everyone involved should wear high visibility PPE as well as hand and eye protection.
- Beacons and Cameras should be used to make the activity as visible as possible.
- Communication between Banksman and unloader is essential, whether it is voice controlled, use of radios or hand signals. This should be established beforehand.
- There are manual handling risks involved when lowering or raising the ramps.
- Slips and trips are common and the risks will be reduced if the unloading/ loading process is carried out on prepared, level ground.
- The Low Loader bed should be cleaned of mud, ice and snow, and the exclusion zone should be prepared as free of debris and as level as possible.
- Access and egress to and from any vehicle should be via the designated access steps or stairs only. Access steps should be inspected daily and kept free of mud, ice or snow.
- Drillers should not be working alone, especially in remote areas, but should this happen; a robust communication system must be put in place.
- A noise assessment of the operational drill rig must be carried out, and the exclusion zone should take the noise level into account. Suitable ear protection must be worn and the operator should enter the exclusion zone as infrequently as possible, and for as short a period as possible.
- When securing a drill rig onto the low loader, only suitably tested, approved equipment should be used (chains, ropes, strops and shackles).

Drilling

- When drilling, the rig should not be positioned near to any overhangs or faces, as vibration may cause rock falls.
- PPE should be worn to protect eyes from flying chippings, but, where provided, drilling should be from inside the cab.
- There are rotating parts on a drill rig and all care should be taken to remain outside the exclusion zone. Loose clothing should not be worn in case it becomes entangled.

- Adverse weather may be a big issue and adequate PPE and all-weather clothing should be worn. This may include freezing weather or extremely hot weather.
- Manual handling tasks, such as lifting drill steels and cores should be carried out only by operators who have received manual handling training.
- Tools should be inspected and replaced if found to be faulty.
- Where a cab is provided, this will be the best control over high noise levels. Assessing the noise levels inside and outside the exclusion zone will reduce risk of hearing problems.
- The rig will be fitted with a dust collector which should be operational at all times.
- There is high air pressure and hydraulic pressure involved. Only trained personnel may carry out the activity and training should include awareness of such risks as injection and skin irritation.
- Isolation procedures must be in place to ensure that all energy sources are reduced to non harmful levels when working on the machine.
- Defects should be reported and controlled immediately.
- Keep the working area as clear as possible from debris.
- When travelling, the mast should be lowered and centralised to minimise the potential for overturning the rig.

Maintenance

- Anyone working on the rig in a maintenance capacity will be vulnerable to entrapment in moving parts unless correct procedures are used.
- While operating the rig, all guards and safety devices should be in place. These should be checked on a daily basis.
- An Isolation Procedure must be in place to ensure all energy sources have been isolated, including electrical, hydraulic, pneumatic, stored energy, before any work commences.
- All guards and safety devices must be restored before work recommences.
- Only trained/ authorised personnel should carry out this work.
- Task Specific Risk Assessments should be carried out before each specific activity.
- Fitters and operators should be made aware of COSHH (Control of Substances Hazardous to Health) controls with respect to substance used during maintenance activities.

Handling Cores

- Manual handling training should be given to anyone who may be involved in lifting sample cores.
- Adequate PPE should be worn during the operation.

4 Operation of Low Loader

4.1 Risk assessment

Site	All Sites
Activity Assessed	Use of low loader for transporting mobile plant.
Assessor Name	B. Craggs
Assessor Signature	

Persons Involved (Name)	Signature
1	
2	
3	

Assessment Ref No.	BRA03
Assessment Date	August 2018
Planned Review Date	
SSOW Method Statement Ref.	or

Task/Activity (Risk)	Hazards	Adverse effect/possible injury	Persons Exposed	Risk Rating	Existing Control	Additional Control	Final Risk Rating
Parking suitable location in	Site operations and operatives, live traffic, site traffic members of the public.	Serious injuries, collision with people or property, possible fatal injuries	Public, site operatives low loader driver.	3 x 3 = 9	Reporting to site staff on arrival. Adhering to local highway code. Adhering to site rules, use of banksman as necessary. Use of competent operators. Park away live traffic whenever possible		1 x 3 = 3
Lowering ramps	Restricted space, passers by	Injuries, damage to property	Public, site operatives	3 x 4 = 12	Check area is safe / suitable before lowering ramps.		1 x 4 = 4

			low loader driver		Cordon of area around low loader using traffic cones.		
Loading plant onto low loader	Driver unfamiliar with plant.	Abuse of plant, possible collisions	Driver	4 x 5 = 20	Use approved operators, check competence certificates,	Assess operators for loading plant.	1 x 5 = 5
	Slippery surfaces	Loss of control, plant overturning, serious injuries	Driver	3 x 4 = 12	Use competent, experienced operators. Use of salt/grit in icy conditions		1 x 4 = 4
	Limited width of bed	Plant falling off the bed, serious injuries	Driver/ passers by	3 x 4 = 12	Use competent, experienced operators. Keep area free of pedestrians where possible		1 x 4 = 4
	Lone working	Illness, possible personal attack, break down, serious accident/ injuries	Driver	2 x 4 = 8	Mobile phone Look at using lone working alarm systems. Communications systems		1 x 4 = 4
	Access/ egress of plant, fall from height.	Slips, falls, injuries.	Driver	3 x 5 = 15	Check access before entering clean any deposits as necessary/ use three points of contact to machinery as required.		1 x 5 = 5
	Working at height	Falls, injuries	Driver	3 x 5 = 15	Use three points of contact to machinery as required.		1 x 5 = 5
Securing plant to low loader	Straps / Chains	Entrapment, cuts bruises	Driver Operator	3 x 4 = 12	Trained operators, regular checks on equipment. Wear the correct PPE for the task, including gloves as required.		1 x 4 = 4
	Winches	Equipment failure Whip injuries, entanglement.	Drivers	3 x 5 = 15	Regular checks and maintenance of equipment use of trained competent operators		1 x 5 = 5

	Traffic	Stepping out into site or live traffic	Driver	3 x 5 = 15	Cordon off area, park away from traffic area where possible.		1 x 5 = 5
Transport plant	Incorrectly secured plant.	Fall from loader, serious injuries possible fatalities, property damage	General public	3 x 5 = 15	Use trained competent operators, drivers check chains, straps locking pins etc before setting off.		1 x 5 = 5
Unloading plant	Access/egress to/from plant	Fall from height, serious injuries.	Driver	3 x 4 = 12	Clean access routes, three points of contact. Suitable foot wear.		1 x 4 = 4
	General public, site operatives, site/live traffic	Collision with, injuries damage	General public, site operator	3 x 5 =15	Park in safe sterile area if possible, check all round before and during unloading of plant. Use a banksman to assist as necessary		1 x 5 = 5

4.2 Safe working procedure

1 Aims & Objectives

To carry out the task safely, in compliance with the health and safety at work act.

To comply with company procedures

To ensure mobile plant items are transported to their destinations without causing harm, injury or damage.

2 Associated Risk Assessment and Documents

WAH. (Working at Height)

3 Additional Information Required

Destination, safe parking areas, site staff contact details.

4 Environmental Considerations

Noise (night working)

Where the machinery is parked (consider effect on grassed areas, fauna, flora)

5 Equipment Involved

Mobile plant

Winches

Straps

Chains

6 Personal Protective Equipment (PPE)

High visibility clothing

Hard hats

Safety glasses

Gloves (as required)

7 Training

HGV Licence

Basic training on manoeuvring the relevant items of plant.

Company internal training

Competence assessment

8 Permit Requirement

N/A

9 COSHH (Control of Substances Hazardous to Health)

N/A

10 Procedures

The low loader driver must receive basic training on manoeuvring the relevant items of plant prior to undertaking transporting duties.
Where possible the loading/ unloading of plant should be planned for when there is someone on site on arrival and departure of plant.
The co-ordinator should be contacted by the low loader operator to receive instruction on destinations and type of plant to be transported.

On arrival to a live site, low loader driver is to report to site staff to receive instructions.

The instructions should include which items of plant are to be transported and their destination.

Instructions should also identify a safe area for loading/ unloading the mobile plant.

Where a site is not occupied (pre start or has been completed) the driver must receive the location of the plant from either the co-ordinator or site staff.

On arrival the driver is to ensure he parks in manner which is safe, allows enough room to carry out his task safely, and causes minimum disruption to the general public.

After parking up and checking the area is safe, the driver can then proceed to prepare his low loader for loading/ unloading.

Before starting up any item of plant the operator must carry out a visual all-round check.

Any item of plant / machine deemed to be in a dangerous condition must not be loaded until it has been assessed and authorised by a qualified competent person.

Any minor faults or damage must be reported to the co-ordinator and site staff.

Before loading plant, the bed of the loader should be clear of any obstacles.

The ramps can then be lowered and the plant can then be loaded and parked safely on the bed of the low loader.

Each item of plant will be slowly manoeuvred on to the low loader by the driver or a competent operator

The driver/operator must take special care when entering and exiting each item of plant as in many cases he will be some distance from the ground

The accesses to mobile plant is to be checked before use, three points of contact must be used

After loading, all plant must be secured using strap, chains, and winches as required.

Only the low loader driver or an experienced competent person may use the restraints to secure the plant.

After the plant has been secured to the loader, the ramps can then be lifted back into place.

A final all round check should be made before proceeding on the journey.

Before unloading plant will be checked to ensure they are still secure, ramps will be lowered, securing equipment removed and each item of plant carefully removed from the low loader by the driver or a competent, experienced operator.

On no occasion must mobile plant be transported regardless of distance, until it has been properly secured.

11 Emergency Procedures

Gather relevant contact numbers before commencing journey.

In the case of loads moving during transport, stop where it is safe to do so using hazard lights and flashing beacon. Check load security, address as necessary.

Inform managers of planned routes and estimated times of arrival.

Report any machinery faults/damage to site managers.

12 Housekeeping

Park items in a safe tidy manner.

5 Lone Working

5.1 Risk assessment

Site	FIELD
Activity Assessed	Lone Working in the Field
Assessor Name	B. Craggs
Assessor Signature	

Persons Involved (Name)	Signature
1	
2	
3	

Assessment Ref No.	BRA04
Assessment Date	August 2018
Planned Review Date	
SSOW Method Statement Ref.	or BSS04

Task/Activity (Risk)	Hazards	Adverse effect/ possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Driving in the Field	Driving on opposite side of the road.	Fatality/ Serious Injury	Employee	3 x 5 = 15	Competent Driver Experience driving overseas.		1 x 5 = 5
	Faulty vehicle	Fatality/ Serious Injury	Employee	3 x 5 = 15	Reliable Car Hire Company used. Vehicle serviced regularly.		1 x 5 = 5
	Driving off road	Fatality/ Serious Injury	Employee	3 x 5 = 15	Competent driver. Car chosen to suit roads.		1 x 5 = 5

	Weather conditions	Fatality/ Serious Injury	Employee	4 x 5 = 20	Suitable vehicle chosen. Serviced for extreme conditions		1 x 5 = 5
Air Travel	DVT from long haul	Serious Illness	Employee	2 x 4 = 8	Regular exercise during flight		1 x 4 = 4
	Internal small aircraft/ helicopters	Fatality/ Serious Injury	Employee	3 x 5 = 15	Development of Good Helicopter Habits (see H+S Policy) Seat belts Secured loads/ equipment Communication Competent pilots		1 x 5 = 5
Working in the Field on foot	Poor Terrain	Serious Injury	Employee	3 x 4 = 12	Awareness Suitable PPE First Aid Kit		1 x 4 = 4
	Lack of Communication if lost, missing	Fatality/ Serious Injury	Employee	2 x 5 = 10	Regular timed voice communication with office (agreed between employee and office depending upon location). Phones charged regularly. E-mail comms. Emergency numbers Search procedure	Periodic visits Automatic warning devices. Alarm raising triggers. Established emergency procedure training. Local communication	1 x 5 = 5

						point established	
	Weather Conditions	Fatality/ Serious Injury	Employee	4 x 5 = 20	Check local forecasts Suitable PPE Communication		1 x 5 = 5
	Flying rock chips	Serious Injury	Employee	3 x 4 = 12	Suitable PPE Use hammer at arm's length.		1 x 4 = 4
	Wild Animals	Fatality/ Serious Injury	Employee	3 x 5 = 15	Awareness First Aid Kit		1 x 5 = 5
	Damaged Tools	Serious Injury	Employee	3 x 4 = 12	Tool Inspection		1 x 4 = 4

5.2 Safe working procedure

1 Aims & Objectives

It is often necessary to be working alone, sometimes in remote parts of the world, in conditions that can be extreme. The aim of this SSOW is to minimise the risks to anyone who is tasked with working alone.

2 Procedure

Driving in the Field

- Only competent drivers should be driving vehicles on behalf of the company. This should include experience driving overseas and in extreme weather conditions.
- Only reputable car hire companies should be used and records of servicing should be made available.
- Driving may be in extremely hot conditions or in snow and ice, so the car chosen should be the one best suited to those conditions.
- It may also be necessary to drive on less than ideal roads where flat tyres etc may occur. A basic knowledge of car maintenance will be useful, or communication with someone who has.

Air Travel

- Air travel is essential and during long haul flights, Deep Vein Thrombosis (DVT) can affect blood flow through the lower limbs.
- Leg exercises and walking up and down the aisle of the plane can help combat this.
- The Company Health and Safety Policy outlines the need for good helicopter habits for those flying this way.
- Helicopter pilots should be competent and approaching the helicopter is outlined in the policy.
- Seat belts must be worn and equipment must be secured.

Helicopter Policy

It is important to develop good helicopter habits – the pilots know far too many stories of those who didn't, so follow the instructions below as well as the pilot's instructions.

1. Always approach the helicopter from the front or from the side. This is to avoid the almost invisible and extremely dangerous tail-rotor, and to ensure that the pilot can see you.
2. Always bend down when approaching or leaving a helicopter. This is to avoid the main rotor which often droops to 'neck height' when the engine idles. In uneven terrain, leave the helicopter downhill and approach uphill (remembering 1) above.
3. Seat belts must be kept fastened during flight. Sit still, especially during take-off and landing.
4. Follow the pilot's instructions when loading helicopters (and other aircraft). Always carry long objects horizontally near a helicopter – beware of the main rotor! Never throw anything when near the helicopter.
5. Near an aircraft, and especially near a helicopter, all light items must be weighed down very securely. It may be best to carry them away from the aircraft and sit on them.
6. Smoking near any aircraft, and during take-off and landing, is strictly prohibited. Smoke during flight only with the pilot's permission. Use the ashtrays.
7. If in a camp use a wind cone if possible. In the camp the wind cone should hang free in order to give the pilot a pre-landing check on wind direction and force. Place radio antenna and wind cone in such a way as to leave an easy landing site open for the helicopter.

8. A person on the ground can show the wind direction to a pilot by turning his back to the wind and stretching out his arms to each side. Usually the pilot hereafter prefers to select a landing site himself.

Working in the Field on Foot

- The terrain can be extremely unpredictable and when working alone, it is essential that a heightened awareness of potential hazards is maintained.
- A first aid kit should be available and basic knowledge of first aid is useful.
- Suitable clothing is essential whether it be warm clothing and thermal boots for snow/ice conditions, or adequate body covering and sturdy boots for extreme heat.
- Basic survival kits are a must, in addition to first aid equipment, such as water.
- A communication system is essential in case the field operative becomes lost or stranded.
- Ideally, the office will know the location having received the Trip Itinerary Form beforehand.
- All communications devices, such as phones and e-mail should be charged and ready. Ideally, there should be a local contact that can raise the alarm within a specified time frame.
- In every case, regular communication must be kept with some contact point, whether it is local or the office. This must be a VOICE contact and when in the field, contact made every few hours is not unreasonable.
- Time zone differences may be a factor.
- Emergency numbers must be communicated.
- Weather conditions are a constant risk and regular updating of local forecasts will be useful. Heavy duty clothing should be worn in extreme cold conditions.
- Knowledge of local customs and behaviours may eliminate the risk of falling foul of local authorities.
- Local knowledge of wild animals and their habits and habitats should be sought in more extreme locations.
- When sampling, damaged tools may break causing injury, so tools should be inspected before travelling and replaced if necessary.
- When striking rock samples, rock chips may fly and cause eye injuries, so adequate eye protection should be used

6 Energy Isolation

6.1 Risk assessment

Site	All Sites
Activity Assessed	Isolation
Assessor Name	B. Craggs
Assessor Signature	

Persons Involved (Name)	Signature
1	
2	
3	

Assessment Ref No.	BRA05
Assessment Date	August 2018
Planned Review Date	
SSOW Method Statement Ref.	BSS05

Hazards	Adverse effect/possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Entrapment in Moving Equipment	Serious Injury/ Fatality	Operatives	4 x 5 = 20	Site Lock Off Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Electrocution	Serious Injury/ Fatality	Operatives	3 x 5 = 15	Site Lock Off Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Stored Energy	Serious Injury/ Fatality	Operatives	3 x 5 = 15	Site Lock Off Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5

Hazards	Adverse effect/possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Unauthorised start-up of equipment	Serious Injury/ Fatality	Operatives	3 x 5 =15	Site Lock Off Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Evasive Egress from inadvertent start-up situation	Serious Injury/ Fatality	Operatives	3 x 5 =15	Clean equipment manually before starting Inspection hatches	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Struck by falling material from above	Serious Injury/ Fatality	Operatives	3 x 5 =15	Physical isolation PPE	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Interaction with Vehicles	Serious Injury/ Fatality	All Staff Involved	3 x 5 =15	Traffic Plan Barriers, Bunds, Communication	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Failure to Notify before Isolation	Fatality (someone still working on equipment)	All Staff Involved	3 x 5 =15	Isolation Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Failure to Shut Down Correctly	Fatality (potential for power surge)	All Staff Involved	3 x 5 =15	Isolation Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Failure to Isolate	Fatality (potential for start-up when people working)	All Staff Involved	3 x 5 =15	Isolation Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Failure to Lock Out and Tag	Fatality (Potential for unauthorised start up)	All Staff Involved	3 x 5 =15	Isolation Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5

Hazards	Adverse effect/possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Failure to Ensure Zero Energy	Fatality (potential for release of stored energy e.g. oil under pressure, air under pressure, snagged conveyor etc)	All Staff Involved	3 x 5 =15	Isolation Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Failure to Try Out before work	Fatality (potential that isolator has failed to de-energise)	All Staff Involved	3 x 5 =15	Isolation Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Failure to Inspect before restart	Fatality (potential for guards left off, tools left out, people in vicinity)	All Staff Involved	3 x 5 =15	Isolation Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Failure of Hydraulic Systems	Fatality due to high speed injection	Operators	3 x 5 =15	Isolation Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Failure to physically Isolate (barriers, props etc.)	Fatality, Serious Injuries	Operators	3 x 5 =15	Isolation procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5
Failure of pneumatic systems (tyre failure)	Fatality, Serious Injuries	Operators	3 x 5 =15	Isolation Procedure	Review Lock Off Procedure Isolation TBT	1 x 5 = 5

6.2 Safe working procedure

Preparation

- The item of equipment to be isolated must be prepared before isolation. Preparation may take the form of completing a work permit, completing housekeeping, diagnosis of maintenance to be carried out or discussion of activity with colleagues.
- This may also include placing barriers around the item to be worked upon (physical isolation) lifting of engine covers, jacking equipment up, relieving hydraulic pressure and discussing risk assessments.

Notification

- Everyone involved with the equipment to be worked upon should be informed of the reason and type of isolation.

Shutdown

- The item of equipment to be worked upon must then be shut down in a controlled manner.
- This must not be done by throwing the isolator whilst equipment is still in motion. Equipment should be stopped via the stop button. (Electrical isolation)
- Some items of equipment may have a series of activities that constitute a controlled shutdown.
- Remove any stored energy hydraulic, tension, pneumatic

Isolation

- The item of equipment to be worked upon should then be isolated. This may include;
- Electrical Isolation, by switching an isolator.
- Hydraulic Isolation by draining a hydraulic system
- Pneumatic isolation by caging tyres to be inflated
- Pressure Isolation by draining an air receiver
- Stored Energy such as jammed stones, tensioned conveyors, gravity take up units.
- Physical Isolation such as placing barriers, cleaning chutes

Lock Out/ Tag

- Personal padlocks must be applied to each item isolated.

- The key to the personal padlock should be held by no-one other than the padlock owner.
- Where more than one person will be working on the item of equipment, one padlock per person must be applied.
- A hasp will be needed to handle multiple padlocks.
- A tag, informing every one of those whose padlocks have been applied and the item worked upon, should be written on a tag which is attached to the hasp.

Ensure Zero Energy

- Check that meters are registering zero (amps, pressure etc)
- Ensure that tyres are deflated sufficiently.
- Ensure tension has been removed from drums, belts, rotating shafts etc
- Ensure adequate props are in place.

Try Out

- To ensure total isolation, an attempt to start the equipment should be made. This can be done in manual mode if equipment is in sequence.

Complete the Task

- Complete any planned maintenance on the item of equipment isolated, following procedures or SSOW in place.

Inspect and Restore

- Once the activity has been completed, the equipment must be inspected before any de-isolation takes place.
- This is to ensure all physical items have been removed and all parts have been secured for start up.
- Remove all padlocks from the isolation points and restore isolators into “run” position.
- Padlocks must only be removed by the owner of the padlock.
- If the owner of any padlock cannot be traced (left work etc), a full investigation and inspection must be carried out before action is taken to remove the padlock.
- If a padlock has been left on, it must initially be assumed that the task has not been completed until proven categorically otherwise.

Emergency Procedures

Fire Procedure

Spill Procedure

Emergency Contacts

First Aid Cover on site.

7 Safe Use of Hand Tools

7.1 Risk assessment

Site	All Sites
Activity Assessed	Safe Use of Hand Tools
Assessor Name	B. Craggs
Assessor Signature	

Persons Involved (Name)	Signature
1	
2	
3	

Assessment Ref No.	BRA06
Assessment Date	August 2018
Planned Review Date	
SSOW Method Statement Ref.	BSS06

Hazards	Adverse effect/ possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Hammers	Serious Injuries Eye Injuries Cuts, abrasions	All Site Staff	3 x 4 = 12	Replace broken shafts or heads Fix heads securely PPE Training Designated tools only	Safe System of Work	1 x 4 = 4

Hazards	Adverse effect/ possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Screwdrivers	Serious Injuries Eye Injuries Cuts, abrasions	All Site Staff	3 x 4 = 12	Replace broken tools Use correct sized tool Secure item being worked upon (do not hold) Training Designated tools only	Safe System of Work	1 x 4 = 4
Chisels	Serious Injuries Eye Injuries Cuts, abrasions	All Site Staff	3 x 4 = 12	Replace damaged tools PPE Training Designated tools only	Safe System of Work	1 x 4 = 4
Files and Rasps	Serious Injuries Eye Injuries Cuts, abrasions	All Site Staff	3 x 4 = 12	Replace damaged tools Training PPE Designated tools only	Safe System of Work	1 x 4 = 4
Spanners	Serious Injuries Eye Injuries Cuts, abrasions	All Site Staff	3 x 4 = 12	Replace damaged tools Training PPE Designated tools only	Safe System of Work	1 x 4 = 4
Saws	Serious Injuries Eye Injuries Cuts, abrasions	All Site Staff	3 x 4 = 12	Replace damaged tools Training PPE Designated tools only	Safe System of Work	1 x 4 = 4

Hazards	Adverse effect/ possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Clamps	Serious Injuries Eye Injuries Cuts, abrasions	All Site Staff	3 x 4 = 12	Replace damaged tools Training PPE Designated tools only	Safe System of Work	1 x 4 = 4
Knives and Cutting Tools	Serious Injuries Eye Injuries Cuts, abrasions	All Site Staff	3 x 4 = 12	Replace damaged tools Training PPE Designated tools only	Safe System of Work	1 x 4 = 4
Snips	Serious Injuries Eye Injuries Cuts, abrasions	All Site Staff	3 x 4 = 12	Replace damaged tools Training PPE Designated tools only	Safe System of Work	1 x 4 = 4
Pliers	Serious Injuries Eye Injuries Cuts, abrasions	All Site Staff	3 x 4 = 12	Replace damaged tools Training PPE Designated tools only	Safe System of Work	1 x 4 = 4
Environmental	Slips, trips, falls Ignition of materials	All Site Staff	4 x 4 = 16	Housekeeping Standards Non-metallic tools where appropriate	Safe System of Work	1 x 4 = 4

7.2 Safe working procedure

Aims

Most injuries which arise from the use of hand tools occur because the tool being used is not suitable for the job or because it is not in a sound condition.

Many risks can be controlled by ensuring hand tools are properly used and maintained on a regular basis. For example, Impact tools such as chisels, wedges or drift pins are unsafe if they have mushroom heads. The heads might shatter on impact, sending sharp fragments flying.

The following is a list of tools and how they should be used safely.

Hammers

- Avoid split, broken or loose shafts.
- Avoid worn or chipped heads.
- Hammer heads must be tightly fixed with a proper wedge.

Screwdrivers

- Always use the correct size of screwdriver for the job.
- Make sure the handles are sound –split handles are hazardous.
- Keep the end square and blunt.
- Do not hold the work in your hand – screwdrivers often slip.
- Never use a screwdriver as a chisels
- Never strike with a hammer

Chisels

- The cutting edge should be sharpened to the correct angle.
- Do not use a chisel with a mushroomed head – trim the sides regularly.
- Always cut away from the body.
- Most chisel work requires the wearing of approved eye and hand protection.

Files and Rasps

- A file or rasp should have a correct sized fitted handle.
- Never use a file as a lever.
- Store safely

Spanners

- Always use the correct size spanner for the job.
- Avoid splayed jaws.
- Where practicable always use a ring spanner rather than an adjustable spanner.
- Do not use pliers etc. as makeshift spanners.
- Never use a spanner (or a wrench) as a hammer.
- Do not improvise by using pipes etc. as extension handles.

Saws

- Do not use an adjustable blade saw such as a hacksaw, coping saw, keyhole saw or bow saw if the blade is not secure.
- Do not use a saw that has dull saw blades.
- Do not carry a saw by the blade.
- When using the hand saw, hold the workpiece firmly against the work table.

Clamps

- Do not use the G-clamp for hoisting materials.
- Do not use the G-clamp as a permanent fastening device.

Knives and cutting tools

- Knives and cutting tools should be kept sharp.
- Always cut away from yourself, hands behind the cutting edge.
- Store with the sharp edges protected.

Snips

- Do not use straight snips to cut curves.
- Keep the blade aligned by tightening the nut and bolt on the snips.
- Do not use snips as a hammer, screwdriver or pry bar. • Use the locking clip on the snips after use.

Pliers

- Do not use pliers that are cracked or broken.
- Do not use pliers as a wrench or hammer.
- Do not attempt to force pliers by using a hammer on them.
- Do not slip a pipe over the handles of pliers to increase leverage.
- Use insulated pliers when performing electrical work.
- When using the diagonal cutting pliers, shield the loose pieces of cut material from flying into the air by using a cloth or your gloved hand.

Personal protective equipment

- Use the appropriate personal protective equipment i.e. safety goggles, gloves etc to reduce the risk of injury while using hand tools.

Environment

- Keep ground conditions as clean, tidy and as dry as possible to prevent accidental slips and trips with or around hand tools.
- Hand tools should always be cleaned before storage and be stored safely and kept in a dry environment.
- Sparks produced by hard metal hand tools e.g. chrome steel, can be an ignition source if used in the vicinity of flammable substances. Where this hazard exists alternative spark-resistant tools should be used.

Please note. Do not use any hand tool unless you are competent to do so. If you are unsure how to use any hand tool safely, ask your line manager or supervisor.

8 Safe Use of Pneumatic Tools

8.1 Risk assessment

Site	All Sites
Activity Assessed	Safe Use of Pneumatic Tools
Assessor Name	B. Craggs
Assessor Signature	

Persons Involved (Name)	Signature
1	
2	
3	

Assessment Ref No.	BRA07
Assessment Date	August 2018
Planned Review Date	
SSOW Method Statement Ref.	or BSS07

Hazards	Adverse effect/possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Untrained User	Serious Injuries Eye Injuries Crush Injuries Cuts, Abrasions	All Site Staff	4 x 4 = 16	PPE Training Replace damaged tools Maintain tools	Safe System of Work	1 x 4 = 4
Proximity of other Workers	Serious Injuries Eye Injuries Crush Injuries Cuts, Abrasions	All Site Staff	4 x 4 = 16	PPE Training Physical Isolation Replace damaged tools Maintain tools	Safe System of Work	1 x 4 = 4

Hazards	Adverse effect/possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Damaged tools (not maintained)	Serious Injuries Eye Injuries Crush Injuries Cuts, Abrasions	All Site Staff	4 x 4 = 16	PPE Training Physical Isolation Replace damaged tools Maintain tools	Safe System of Work	1 x 4 = 4
Dirty, unlubricated tools	Serious Injuries Eye Injuries Crush Injuries Cuts, Abrasions	All Site Staff	4 x 4 = 16	PPE Training Replace damaged tools Maintain tools	Safe System of Work	1 x 4 = 4
Use wrong attachments	Serious Injuries Eye Injuries Crush Injuries Cuts, Abrasions	All Site Staff	4 x 4 = 16	PPE Training Replace damaged tools Maintain tools	Safe System of Work	1 x 4 = 4
Incompetent user	Serious Injuries Eye Injuries Crush Injuries Cuts, Abrasions	All Site Staff	4 x 4 = 16	PPE Training Replace damaged tools Maintain tools	Safe System of Work	1 x 4 = 4
Manual Handling of Heavy Tools	Serious Injuries Eye Injuries Crush Injuries Cuts, Abrasions Strains Back Injuries	All Site Staff	4 x 4 = 16	PPE Manual Handling Training Replace damaged tools Maintain tools	Safe System of Work	1 x 4 = 4

8.2 Safe working procedure

What are pneumatic tools?

- Pneumatic tools are powered by compressed air. Common types of these air-powered hand tools that are used in industry include buffers, nailing and stapling guns, grinders, drills, jack hammers, chipping hammers, riveting guns, sanders and wrenches.

How do you use pneumatic tools safely?

- Review the manufacturer's instruction before using a tool.
- Wear safety glasses or goggles, or a face shield (with safety glasses or goggles), and, where necessary, safety shoes or boots and hearing protection.
- Post warning signs where pneumatic tools are used. Set up screens or shields in areas where nearby workers may be exposed to flying fragments, chips, dust, and excessive noise.
- Ensure that the compressed air supplied to the tool is clean and dry. Dust, moisture, and corrosive fumes can damage a tool. An in-line regulator filter and lubricator increases tool life.
- Keep tools clean and lubricated and maintain them according to the manufacturers' instructions.
- Use only the attachments that the manufacturer recommends for the tools you are using.
- Be careful to prevent hands, feet, or body from injury in case the machine slips or the tool breaks.
- Reduce physical fatigue by supporting heavy tools with a counter-balance wherever possible.

How should you handle air hoses?

- Use the proper hose and fittings of the correct diameter.
- Use hoses specifically designed to resist abrasion, cutting, crushing and failure from continuous flexing.
- Choose air-supply hoses that have a minimum working pressure rating of 1035 kPa (150 psig) or 150% of the maximum pressure produced in the system, whichever is higher.
- Check hoses regularly for cuts, bulges and abrasions. Tag and replace, if defective.
- Blow out the air line before connecting a tool. Hold hose firmly and blow away from yourself and others.
- Make sure that hose connections fit properly and are equipped with a mechanical means of securing the connection (e.g., chain, wire, or positive locking device).

- Install quick disconnects of a pressure-release type rather than a disengagement type. Attach the male end of the connector to the tool, NOT the hose.
- Do not operate the tool at a pressure above the manufacturer's rating.
- Turn off the air pressure to hose when not in use or when changing power tools.
- Do not carry a pneumatic tool by its hose.
- Avoid creating trip hazards caused by hoses laid across walkways or curled underfoot.
- Do not use compressed air to blow debris or to clean dirt from clothes.

What should you avoid with a compressed air?

- Cleaning with compressed air is dangerous.
- Do not use compressed air for cleaning unless no alternate method of cleaning is available.
- The nozzle pressure MUST remain below 207 kPa (30 psi).
- Personal protective equipment and effective chip guarding techniques must be used.

9 Manual Handling

9.1 Risk Assessment

Site	All Sites
Activity Assessed	Manual Handling
Assessor Name	B. Craggs
Assessor Signature	

Persons Involved (Name)	Signature
1	
2	
3	

Assessment Ref No.	BRA08
Assessment Date	August 2018
Planned Review Date	
SSOW Method Statement Ref.	or BSS08

Hazards	Adverse effect/possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Manual handling Pre shift checks/lifting side panels/stretching	Strains, sprains	Operator	3 x 4 = 12	Trained operative, appropriate PPE.		1 x 4 = 4
Manual Handling Collecting Parts	Cuts, Abrasions	Operator	4 x 3 = 12	Trained operative, appropriate PPE. Maintenance schedule (sharp edges etc)		1 x 3 = 3

Hazards	Adverse effect/possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Manual Handling Carrying Tools	Strains, Cuts, Abrasions	Operatives	4 x 3 =12	Trained Authorised Approved Competent Correct PPE	On-going manual handling assessment and training	1 x 3 = 3
Manual Handling Lifting Plant	Sprain and strains	Operatives	4 x 3 =12	Correct selection of tools and equipment to carry out the task Mechanical methods available Trained operatives Correct PPE to be worn	On-going manual handling assessment and training	1 x 3 = 3
Manual Handling Release bolts with tools and electric tools (rust, sharp edges)	Strains, Cuts, Abrasions	Operatives	4 x 3 =12	Correct selection of tools and equipment Only 110V tools. PAT Tested.	On-going manual handling assessment and training	1 x 3 = 3
Manual Handling of Cores Twisting, bending	Strains, Sprains	Operatives	4 x 4 = 16	Suitable personnel (physically) Training More than one person task		1 x 4 = 4
Manual Handling of Tools	Strains, Cuts, Abrasions	Cleaner Fitter	3 x 3 = 9	Manual Handling TBT		1 x 3 = 3
Manual Handling/ Posture	Strains	Cleaner Fitter	3 x 3 = 9	MH TBT Fit + Able Personnel Selected		1 x 3 = 3

Hazards	Adverse effect/possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Manual Handling when fuelling	Strains, Cuts, Abrasions	Operatives	3 x 4 = 12	Training PPE Filling point at chest height.		1 x 4 = 4
Manual Handling Lifting and Slings	Muscular strain/serious injury	Operators	4 x 4 = 16	Use of mechanical equipment where available.		1 x 4 = 4

9.2 Safe Working Procedure

1 Aims & Objectives

To ensure that all Manual Handling activities carried out by employees, minimise the risk of injuries to those carrying out the activity.

2 Associated Risk Assessment and Documents

BRA08 (Manual Handling)

3 Additional Information Required

Weights of Items to be lifted.

Manual Handling TBT

4 Environmental Considerations

Dust

Noise

Weather Conditions

5 Equipment Involved

Mobile Equipment

Hand Tools

Spare Parts

6 Personal Protective Equipment (PPE)

Standard PPE

Gloves

Eye Protection

7 Training

Manual Handling TBT

Risk Assessment TBT

8 Permit Requirement

Possibly Isolation Permit

9 COSHH (Control of Substances Hazardous to Health)

Ensure data sheets and Risk Assessments available for oils and greases.

10 Procedure

- Only personnel who are trained to carry out these activities should be considered for the task.
- For some activities, personnel must be physically capable of dealing with the loads and the access, which is often restricted.

Pre shift checks/lifting side panels/stretching

- Only trained operators should be carrying out this activity.
- Defects, such as damaged or rusted panels should be reported and rectified to avoid cuts and abrasions.

- Panel supports must be available and working correctly.
- Gloves should be worn.

Collecting Parts

- Any spares which are greater than 25kg in weight must be handled either mechanically or with a second person.
- Heavier machine spares should be kept on lower shelving to eliminate the risk of falling from height.

Carrying Tools to Job

- All tools must be inspected prior to use.
- Any tool which is defective should be taken out of service and replaced (e.g. broken hammer shaft, worn sling).
- Tools should be carried collectively in a bag or tool bag to enable ease of access when climbing steps etc.

Lifting equipment on to plant

- Mechanical methods of lifting should be employed wherever possible.
- All lifting equipment must be currently tested and any defects must result in the item of equipment being removed from service immediately.
- Large, awkward items should be lifted by two people.

Release bolts using hand tools or electrically powered tools, contact with rust/sharp edges.

- Only 110V power tools may be used.
- All power tools must be PAT tested.
- Only people trained in the use of power tools should be chosen to do this activity.
- Hand tools must be inspected and each tool must be selected for the activity for which it was intended.
- Gloves and eye protection should be used, especially where nuts and bolts are rusted or difficult to remove.
- Also beware of sharp edges and worn edges in case of cuts and abrasions.

Manual handling of Cores

- When handling cores, only those physically capable should be selected.
- These activities may require at least two men to carry it out.
- Gloves should be worn during this activity.

- Be aware of posture issues when handling cores.

Cleaning/ Shovelling

- Cleaning tools must be inspected before use and taken out of service if defective.
- Attention should be paid to posture when cleaning out underneath conveyors or in confined areas.

Removing Guards

- Care should be taken if guards are covered with spillage/oils in case stones fall onto personnel.
- Gloves should be worn, especially where guards have become rusted and worn.
- Where possible, guards should be modular, restricting the size and weight of each section of guard.

Fuelling/Re-fuelling including oil and grease barrels/cartridges

- Refuelling should be carried out in accordance with FLSS05 (Refuelling Mobile Equipment)

Manual handling of chains and slings etc (when lifting mats, shafts, hammers etc)

- All slings and straps should be currently tested and any defect should result in the item of equipment being removed from service.
- Only people trained in the use of lifting equipment should carry out these activities.

11 Emergency Procedures

Fire Procedure

Spill Procedure

Emergency Contacts

First Aid Cover on site.

12 Housekeeping

Ensure no waste items are left in or around the machine (rags, grease cartridge)

Ensure vehicle has been cleaned for next operator.

Maintain clean and clear refuelling area.

10 Activity at Height

10.1 Risk Assessment

Site	All Sites
Activity Assessed	All activities at Height
Assessor Name	B. Craggs
Assessor Signature	

Persons Involved (Name)	Signature
1	
2	
3	

Assessment Ref No.	BRA09
Assessment Date	August 2018
Planned Review Date	
SSOW Method Statement Ref.	BSS09

Hazards	Adverse effect/possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Slips, Trips, Falls from Height	Personal Injury	Operators	3 x 5 = 15	Housekeeping, Cleaning up Spillage Removal of Debris Inspection of walkways Inspection of handrail		1 x 5 = 5

Hazards	Adverse effect/possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Defective Tools or Equipment (Broken walkways, hand rails, steps)	Cuts, Abrasions, Serious Personal Injury	Site Staff	3 x 5 = 15	Tool Inspections Daily Plant Inspections Supervision Training in Use of Tools/Equipment PAT Testing Gas Bottle Inspection (hoses, gauges, flashback arrestors)	Testing of Lifting Equipment Ladder Inspection	1 x 5 = 5
Entrapment in Moving Equipment at Height	Fatality, Serious Personal Injury	Operators Fitters	3 x 5 = 15	Isolation Procedure Tool Box Talk on Isolation delivered to all site staff. Not wearing loose clothing. Training Supervision Guarding		1 x 5 = 5
Working at Height Access/Egress from Mobile Plant Maintenance activities	Fatality Serious Injury	Fitters Site Staff	3 x 5 = 15	Harness available Maintained steps and stairs Some walkway platforms with hand rails. Access Platforms		1 x 5 = 5
Collisions—Traffic with Structures such as Cranes and cherry pickers	Fatality Serious Injury	Fitters Site Staff	4 x 5 = 20	Operator training	Isolate area where work being carried out with cones or tape	1 x 5 = 5

Hazards	Adverse effect/possible injury	Persons Exposed	Risk Rating Before Controls	Existing Control	Additional Control	Risk Rating After Controls
Manual Handling at Height	Cuts, Abrasions, Strains, Impact Injury	Fitters Site Staff	3 x 5 = 15	Manual Handling Tool Box Talk carried out with all site staff. PPE (gloves) Use of mechanical lifting equipment	Provision of platforms.	1 x 5 = 5
Adverse Weather Conditions	Serious injury	All site staff	5 x 5 = 25	Cold Weather PPE Stop work at height in high winds		1 x 5 = 5

10.2 Safe Working Procedure

1 Aims & Objectives

To ensure that all activities carried out at height by employees are completed safely by eliminating the risks of falling from equipment, or falling into voids.

2 Associated Risk Assessment and Documents

All Risk Assessments contain a section on Working at Height. This document should be treated as the generic system for Working at Height activities, but specific Safe Systems should be adhered to when carrying out specific tasks.

3 Additional Information Required

Any defects to accesses, including walkways, hand rails, kick boards.

Location and condition of harnesses.

WAH TBT

4 Environmental Considerations

Weather Conditions

5 Equipment Involved

Plant

Drill Rigs

6 Personal Protective Equipment (PPE)

Standard PPE

Safety Harnesses

7 Training

Risk Assessment TBT

Working at Height TBT

Inspection and Use of Harnesses.

Operation of Cherry Picker/Elevated Platform/Telehandler.

8 Permit Requirement

Possible Working at Height Permit

9 COSHH (Control of Substances Hazardous to Health)

None specific to these activities.

10 Procedure

Only personnel who are trained to carry out these activities should be considered for the task.

Any activity which takes place above ground level should be considered as Working at Height.

Scaffolding must not be used unless erected by a qualified person.

Pre start machine checks

- All access steps onto and down from equipment must be inspected daily.

- Any defects to access equipment must be reported, and defects which adversely affect the safety of any personnel should result in stopping the activity until the risk has been adequately controlled.
- Hand rails must be used to access areas above ground level.
- Machine platforms should be coated with anti-slip paint.
- Suitable footwear should be worn.

Inspection of Plant

- All walkways and hand rails around plant should be inspected and any defect rectified before activity carried out.
- If working on top of screen, harnesses should be worn this will restrain a fall rather than arrest the fall.
- Harnesses should be inspected and taken out of service if defective.
- Operator should be trained in use of harness.

Use of designated ladders to access plant, mobile equipment

- Ladders should be inspected before use and taken out of service if any defect is found that may adversely affect the safety of any personnel.
- Three points of contact should be maintained whilst climbing access ladders.
- Access ladders should only be used if designated as such.
- Mobile ladders must not be used for any other purpose other than access.
- These ladders should be inspected for damage before use, and must be tied off and correctly footed.

Use of MEWP

- This activity should only be carried out from a Mobile Elevated Working Platform (MEWP).
- Only trained personnel may carry out this activity.

11 Emergency Procedures

Fire Procedure

Spill Procedure

Emergency Contacts

First Aid Cover on site.

12 Housekeeping

Ensure no waste items are left in or around the machine (rags, grease cartridge)

Ensure all spillage is cleared before access.

Ensure that all harnesses are replaced to storage areas and cleaned off.

11 Environmental Risks and Considerations

11.1 Environmental Impacts

1. SPILL CONTROL

Accidental releases of oils and fuels may account for a large number of pollution incidents. Many can be prevented, so it is essential that all site staff are trained to deal with incidents. Spills can lead to environmental harm, prosecution, attract financial penalties and negatively impact upon public relations.

Actions

- Stop work immediately
- If flammable, extinguish all possible ignitions
- Identify source and rectify
- Contain spillage using site materials such as sand etc.
- Inform management
- Wear appropriate PPE
- Protect sensitive areas such as water courses
- Clean-up the spill using absorbent materials
- Dispose of contaminated materials in an appropriate manner
- Record/document incident, clean-up actions taken, and waste disposal measures

DO NOT

- Ignore spillages
- Hide the incident
- Hose the spillage into a drain

2. WATER POLLUTION PREVENTION (FUEL AND OIL)

It is illegal to discharge fuel and oil into drains or water courses.

Illegal discharges may result in prosecution, financial penalties and significant clean-up costs and damage to wildlife/habitats.

Actions

- Store oils away from drains and water courses
- Return oils and fuels to storage areas after use
- Locate storage areas away from trafficked areas
- Place drums in bunded areas with enough capacity to contain any spillage
- Ensure fuel deliveries are supervised
- Use drip trays during maintenance and refuelling activities
- Bulk storage bunds should have 110% capacity
- Ensure bunds have no cracks or leaks
- Regularly empty bunds and drip trays of rain water
- Keep hoses within bunded areas

- Keep spill kits nearby
- Conduct regular inspections of storage areas and ensure they are fit for purpose

DO NOT

- Refuel or store within 10m of water courses
- Allow bunds to overflow
- Leave hoses outside of bunds
- Hose down spills

3. DUST AND AIR QUALITY

Dust and air pollution can be a hazard to health and be of concern to neighbours. Authorities can halt operations if pollution occurs.

Actions

- Respond to complaints immediately, take action, report, communicate back to complainant
- Monitor operations and weather conditions
- Take proactive action to address deteriorating conditions
- With processing plant, keep surfaces swept and damp down when necessary
- Minimise drop heights when loading into vehicles or discharging from conveyors
- Shield cutting and grinding operations
- Ensure lorries leaving site operations are sheeted or loads fully enclosed/contained
- Minimise speed limits on site, set and enforce speed limits for mobile plant, ensure roads are in good condition and damped down as necessary
- Store dry, fine materials within areas shielded from wind, consider complete enclosure
- Clean up or damp down dust spillages

DO NOT

- Burn materials without permission, ensure waste materials are disposed of correctly
- Use poorly maintained vehicles
- Leave plant running
- Ignore poor air quality
- Ignore complaints

4. NOISE AND VIBRATION

Noise is defined as “unwanted sound”. Emissions can disturb local residents, giving rise to complaints.

Noise and vibration can result in prosecution, financial penalties, disturb wildlife, disturb neighbours and delay site activities.

Actions

- Respond to complaints immediately, take action, report, communicate back to complainant

- Restrict noisy activities to certain times of day
- Work only within consented hours
- Arrange deliveries to minimise noise
- Try not to operate noisy plant close to public areas
- Reduce drop heights into hoppers
- Screen noisy plant close to the source
- Keep doors and hoods closed

DO NOT

- Carry out noisy activities late at night or very early in the morning
- Leave doors and hoods open
- Leave plant running
- Use poorly maintained plant
- Ignore complaints

5. WATER POLLUTION—SILT

Silt mixed with water creates a mud which can run into water courses and drains. It can be caused by rainwater run off or cleaning of ditches and drains.

High levels of silt can suffocate fish and kill plants and animals. Prosecution can follow if site offends.

Actions

- Respond to complaints immediately, take action, report, communicate back to complainant
- Monitor water management systems and authorised discharges from site
- Prevent unauthorised discharges from site
- Only discharge silt into designated settlement systems on site
- Regularly check that site drainage systems are working, especially after rainfall, and that if any authorised discharge is taking place, that the quality is acceptable
- Ensure all hard standings are kept clean from silt and mud

DO NOT

- Dewater without permission
- Hose silty water directly into rivers or ditches
- Strip surrounding land of vegetation
- Store materials within 10m of water courses
- Pump contaminated water into water courses
- Over pump from water courses

6. WASTE MANAGEMENT

To minimise waste, it is essential to: eliminate if possible, OR, reduce waste created, OR, reuse materials, OR, recycle the waste, OR, if none of the above are possible, dispose of the waste.

Reduction of waste reduces the potential for environmental harm and reduces costs of: wasted material, unloading, hauling, storing and transportation, waste collection, transport of waste to appropriate/designated waste reception facilities and replacement costs.

Actions

- Eliminate wastage by storing materials on solid ground to avoid loss
- Keep materials packaged until required
- Reuse potential waste
- Recycle where possible by segregating different types of waste
- Store waste in designated skips or containers
- Maintain good housekeeping standards
- Only use suitable skips and containers
- Cover skips with lids or nets
- Check waste containers are not corroded
- Mark up waste containers clearly
- Mark up storage bays clearly

DO NOT

- Put waste materials into the wrong container
- Open new packages until old ones are empty
- Leave materials where they can be damaged or contaminated
- Burn or bury waste
- Mix waste streams

7. STORAGE OF PETROL, DIESEL AND OILS

Inappropriate storage of petrol, diesel or oils can result in pollution of the environment. This usually occurs by spillages coming into contact with water courses or drains.

Pollution may result in prosecution, financial penalties, environmental harm, significant clean-up costs and negative publicity.

Actions

- Store bulk quantities in bunded tanks with 110% capacity
- Keep spill kits nearby
- Store materials away from drains and water courses
- Put lids on containers after use
- Check containers for damage
- Use shut off systems for fuel delivery
- Constantly attend when refuelling
- Lock storage tanks
- Use drip trays
- Clean up minor spillages
- Use funnels on small plant to avoid spillages

DO NOT

- Refuel within 10m of drains or water courses

- Allow drip trays to overflow
- Leave hoses outside of bunds
- Leave refuelling operations
- Leave containers where they may become damaged
- Ignore spillages
- Pour spillages down drains

8. MATERIAL HANDLING AND HOUSEKEEPING

Poor storage and handling of materials causes waste. This is a costly loss of resource. There is a heightened risk of pollution.

Good storage and handling reduce the cost of waste disposal and transport. Also, the risks of pollution is reduced. Good working practice makes for a clean and tidy site, better appreciated by employees, the general public and visitors.

Actions

- Avoid double handling as much as possible
- Supervise deliveries to ensure correct storage locations
- Use entire batches before starting new ones
- Return unused materials to storage
- Pick up litter

DO NOT

- Leave unprotected any materials that may be negatively affected by weather
- Over order materials so that they need to be stored outside designated areas
- Do not allow contamination of materials.

9. WASHING DOWN PLANT AND MACHINERY

Washing down plant, degreasing engines or cleaning out cementitious materials can all lead to serious pollution issues if allowed to run into drains or water courses?

Again, this activity can lead to prosecution and attract large costs. It can also cause serious pollution issues.

Actions

- Use a specifically designated area for washing down machinery
- Ensure wash down slurry or residue does not enter water courses or drains
- Check before using degreasing solutions. Some are toxic.

DO NOT

- Wash down in other than designated areas
- Wash down into drains or water courses
- Allow dirty water to enter gullies
- Allow wash down material to enter storage areas
- Use more water than is necessary

10. BIODIVERSITY – QUESTIONS TO BE CONSIDERED

What will be impact on local wildlife? Dependent on the season, are there specific events taking place, such as bird nesting etc.

Are there protected species in the area? Review local plans, and if any, conservation status of working areas.

Are any of the local wildlife owned by local people? e.g. reindeer.

Contact/consult with local personnel if husbandry will be affected. Agree a plan to manage activities sensitively.

Are permits required to operate in the area? Contact local authorities to understand requirements and brief them on work being undertaken.

11. TREE PROTECTION

In any environment, trees and hedgerows are an important part of the countryside. They provide important habitats for wildlife.

It may be illegal to cut down certain trees which could result in prosecution, depending upon local laws/land ownership.

Disturbing wildlife, whose habitat is within trees and hedgerows, could lead to prosecution, financial penalties and negative publicity.

Do

- Check if trees or hedgerows are protected
- Only clear vegetation as required to carry out the operation
- Ensure that there is no wildlife nesting or habiting the trees or hedgerows
- Seek permission to drill or excavate next to trees if required

Do Not

- Cut down trees or hedgerows unless permitted to do so, and never when wildlife is nesting, habiting etc
- Excavate near trees or hedgerows without permission to do so
- Track vehicles over protected areas
- Store fuels and oils next to trees and hedgerows

12. ARCHAEOLOGY

It is possible that some sites may be housing historical artefacts, jewellery, pottery, coins, bones and skeletons from hundreds or thousands of years ago.

If an archaeology site exists, permission will be required to enter the area. Often, these sites are discovered accidentally, and it is essential that local knowledge is sought beforehand in case there is a possibility of impacting an historical site.

If unauthorised, impacting an archaeological site could result in prosecution, financial penalties and negative publicity.

Do

- Check for potential sites of potential archaeological interest with local personnel and authorities.
- Cease work immediately if any artefacts are discovered.
- If an archaeologist is on site, his guidance should be adhered to.

Do Not

- Assume that artefacts are not important.
- Remove any artefacts from the discovery site.
- Undertake any work in areas of archaeological importance in case of water ingress or cracking caused by vibration.
- Drive vehicles across archaeology sites.

13. BENTONITE

Bentonite is a type of clay that swells and gels when dispersed into water

As a mud, it is used as a lubricant in drilling operations and as a slurry, it can be used to support walls of excavations.

The bentonite comes granular or powder which is mixed with water

Bentonite can be very polluting if allowed to enter water courses or an air pollutant if allowed to become airborne when dry.

Do

- Store powder or granules in closed containers to prevent it becoming airborne.
- Prevent ground spillages.
- Clean up all spillages.
- Protect water courses and drains from spillages.

Do Not

- Leave containers open to the air.
- Ignore spillages.
- Allow spillages onto the ground.
- Allow into water courses.

14. BE A GOOD NEIGHBOUR

The response of local communities can have a considerable bearing on the smooth running of an operation. The public are very wary of dust, noise, traffic movements and the potential for harm.

Creating a bad public image can cause all sorts of problems if operations are not well-managed and good communications with stakeholders are not employed. If there are complaints, the site activity can be affected, there is potential for prosecution, financial penalties and negative publicity.

Actions

- Be polite and considerate to members of the public at all times

- Take note of any complaint, however trivial it seems and pass it on or deal with it
- Respond to complaints immediately, take action, report, communicate back to complainant
- Only use approved access to site
- Use only designated parking areas
- Keep dust and noise to a minimum
- Keep engine covers and plant hoods closed
- Direct site lighting away from adjacent properties
- Do not allow skips or containers to overflow

DO NOT

- Obstruct vehicle access
- Obstruct rights of way
- Drag mud onto the road
- Trespass onto neighbours' land
- Leave engines running
- Play radios on top volume
- Drop litter
- Leave site gates open.

12 Conclusion

The major purpose of this document is to ensure the safety and well-being of all stakeholders involved in the project. These stakeholders shall include;

- All contractors involved in the completion of the work
- All visitors to the site area
- All local inhabitants, neighbours and visitors
- All indigenous species of fauna, flora and wildlife.

Adherence to the controls outlined in the document will eliminate, or at least minimise, the potential for harm whilst carrying out the activities.

All participants involved in the practical part of the project must be made aware of the risks involved and particularly in the controls put in place to prevent injuries or disease.

It is essential that everyone involved agrees and signs up to this document and it should be considered as a vital part of their training. It is also essential that any challenges to this process be acknowledged and acted upon if valid.

Whereas every effort has been made to tailor the activities to comply with the Regulations outlined in the Bibliography, it is understood that there may be local regulations, conditions and traditions to which this document must defer.

13 Bibliography

Documents of Stillwater Canada Incorporated on Environmental and Safety Risk Management

Documents prepared or compiled by Stillwater Canada will form the basis of the Risk Management Framework and database. A list of these documents is given below

Operational Procedures

- Health and Safety Policy (BWplc)
- Risk Assessment of all Activities (including but not restricted to)

AREAS OF RISK
Risk Assessment
Fire Prevention
COSHH
Personal Protective Equipment
Manual Handling
Working at Height
Noise Exposure
Control of Contractors
Incident Management
First Aid Arrangements
Emergency Procedures
Lone Working
Training
Drilling Operations
Environmental Management
Weather Conditions
Vehicle Operation
Hand Tools
Pneumatic Tools
Energy Isolation
Lifting Operations

- Safety Training and Site Orientation (Proof of Competence Documentation)
- All-Terrain Vehicle Operation
- Bear Safety
- Chain Saw
- Hand tool Safety
- Helicopter safety

- Line, Trail, Pad Cutting
- Passenger Vehicle
- Personal Protective Equipment
- Working in Extreme Hot or Cold Weather Conditions
- Working in Remote Areas
- Geotechnical Considerations (unprotected edges, potential rock fall, areas of tipped materials etc)
- Vehicle and Traffic Rules
- Emergency Plans, including Lone Working Procedures
- Maintenance Procedures/ Inspection Schemes (Lifting, welding, electrical and pressure vessels, tools)

Environmental Procedures

- Environmental Policy
- Environment Procedure for Contractors
- Migratory Birds

Inspection and Reporting Procedures

- Hazard Reporting Policy
- Spill Report Form
- Hazard Report Form
- Incident Investigation Report
- Work Site Inspection Template
- Drill Environment Checklist
- Plant and Equipment Daily Check List
- Near Miss Reporting
- Geotechnical Inspections (roads, ramps, benches, tips, lagoons)
- Daily Environmental Report (wind speed, dust emissions)

Supporting Documents

The documents describing policies and procedures are complemented by a large number (ca. 40) of supporting documents. Some examples are given below:

- Exploration Best Practices – International Council on Mining and Metals
- Excellence in Health and Safety e-toolkit. Prospectors and Developers Association of Canada
- Overview of best practice environmental management in Mining – Environment Australia
- Good Practice Guide – Indigenous Peoples and Mining – International Council on Mining and Metals
- Good Practices for the Collection of Biodiversity Baseline Data – International Council on Mining and Metals

References

The legislative references below represent the sources from which this document has been compiled.

- The Health and Safety at Work Act 1974
- Management of Health and Safety at Work 1999
- Approved Code of Practice 2000
- Provision and Use of Work Equipment Regulations 1999 (PUWER)
- The Control of Substances Hazardous to Health Regulations 2002 (COSHH)
- Workplace (Health, Safety and Welfare) Regulations 1992
- Manual Handling Operations Regulations 1992
- Personal Protective Equipment at Work Regulations 1992
- Noise at Work Regulations 1998
- Confined Spaces Regulations 1997
- Lifting Operations and Lifting Equipment Regulations 1999 (LOLER)
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
- Borehole Sites and Operations Regulations
- The Quarries Regulations
- Working at Height Regulations