Checklist

Surface exploration drilling

This checklist is intended to assist employers to identify common hazards and manage risks associated with surface exploration drilling.

June 2017

Background

In surface exploration drilling, a number of holes are drilled in the ground to retrieve samples from varied depths. Hazards can arise due to the use of drill rigs and auxiliary equipment in rugged areas, where there may be unknown or variable environmental conditions.

This checklist is intended to assist employers (in particular, employers that hold a mining and exploration licence) to identify common hazards and manage risks associated with surface exploration drilling.

Employers should also use this checklist when required to consult with employees and contractors.

How to use this checklist

The first part of the checklist focuses on the following four critical hazard areas commonly associated with surface exploration drilling:

1. Establishing drill site
2. Accessing drill site
3. Drilling operations
4. Drilling and ancillary equipment

The second part of the checklist includes other OHS considerations.

Note: This checklist should not be regarded as a comprehensive list of hazards – other hazards may exist which would need to be controlled so far as is reasonably practicable. If you answer with a **NO** against a question in the checklist, you need to take appropriate action to ensure your workplace is safe and without risks to health. You may need to seek advice from a suitably qualified person. If you answer with a **YES**, you still need to monitor the area of risk to ensure that appropriate safety standards are maintained.

Use the Safety Action Plan at the end of this checklist to keep track of what needs to be done, who is responsible and when each action needs to be completed.

Further information

Other WorkSafe publications

Guidance Note – *Occupational health and safety in surface exploration*

Guidance Note – *Preventing Falls from Quarry faces*

Compliance Code – *First aid in the workplace*

Compliance Code – *Workplace amenities and work environment*

Compliance Code – *Plant*

Compliance Code – *Hazardous Manual Handling*

Checklist – *Plant h*azards

Australian Standards

AS/NZS 4602:1999 – *High Visibility Clothing*

This checklist has been reviewed and updated for the sole purpose of amending year and regulation references relating to the Occupational Health and Safety Regulations, in line with amendments which came into effect on 18 June 2017.

PART 1 – The four critical hazard areas		
Hazard area	**Yes/No**	**Action/control measure**
1. Establishing drill site		
Is the drill site safe from natural or man-made hazards (eg falling rocks, trees or branches, vertical openings, sheer drops)?		
Have overhead powerlines or underground services been identified (eg pipelines – have you called Dial-before- you-dig)?		
Does the drill site allow: ▪ clear access ▪ good visibility (no blind spots) ▪ suitable working space ▪ parking area ▪ escape routes in case of emergency?		
Are deep ponds fenced to prevent people falling into them?		
Is the drill site free of litter and slip, trip and fall hazards?		
Is the drill site level and stable?		
Are the drill rig jacks on a suitable foundation?		
If jacks can be locked in position, are they secure?		
Has potential spill run-off been managed?		
2. Accessing drill site		
Are the access roads/tracks to the drill site well-formed (consider steepness and width)?		
Are the roads suitable for the vehicles and machines used on the site?		
Is access to the drill site clearly marked on an exploration or mining licence?		
Is edge protection in place where required?		
Is the ground around the drill rig free from litter and slip, trip and fall hazards?		
Does the working platform have sufficient space to allow work to be conducted without risk of falling?		
Is fall-arrest equipment available and in good condition?		
Are ladders and walkways clear and in good condition?		

Hazard area	Yes/No	Action/control measure
3. Drilling operations		
Mast and lifting		
Is the rig mast free of damage (eg check it is not bent or twisted and free of cracked welds or supports, or signs of significant corrosion)?		
Are mast pivot points and locking pins secured and in good condition?		
Are all necessary bolts securely in place (ie ensure there are no loose/missing bolts)?		
Are pull-down/pull-back chains or cables in good condition?		
Are hoisting cables, wire lines and slings free from knots, kinks, whiskers or broken wires?		
Is all lifting gear (eg chain, swivels, shackles, wire rope and slings) tagged or stamped with a safe working load?		
Are winch drums and sheaves in good condition (ie no signs of excessive wear, visible damage or cracks)?		
Do wire ropes conform to the original manufacturer's specifications and include relevant conformance tags and documentation?		
Are hoist limits regularly checked and tested?		
Drill rod handling		
Does the site layout allow for minimal need to manually handle, move or carry drill rods?		
Do drill rod handling procedures assist to prevent injury and include: ▪ pre-drilling/collaring activity ▪ production ▪ pack up ▪ jammed drill rods?		
Is there a drill rod handling procedure for loading the carousel?		
Are drill rod break-out tools and equipment fit for use?		
Are drill rod break-out tools checked for wear?		
Are the drill rods stored securely?		
Are rods checked for rough projections and routinely discarded?		

Hazard area	Yes/No	Action/control measure
4. Drilling and ancillary equipment		
Pressure		
Are pressure relief valves fitted?		
Is there a testing procedure in place?		
Are hydraulic hoses inspected for leaks, cuts and torn outer casing (ensure there is no double braid wire showing)?		
Are high pressure hoses kept clear from sharp edges and in good condition?		
Are high pressure hoses equipped with hose restraints/ stockings?		
Are manifolds, exhaust pipes, turbo-chargers and mufflers in good condition and adequately guarded or heat shielded?		
Electrical		
Is a residual-current device fitted to generators and regularly tested?		
Are electric cables and tools in good condition and fitted with a current test tag?		
Are electrical cables safely positioned (ie not a trip hazard) and protected from damage?		
Are the drill rig night lights and electrical fittings waterproof, clean and adequate?		
Dangerous parts		
Is guarding suitable for rotating or moving parts, hot surfaces and other electrical parts?		
Is the work area clear of potentially dangerous objects (eg falling objects, whipping ropes or gas cylinders)?		
Is the drill rig fitted with an automatic cut-off device (eg safety switches (interlocks) which stop the drill from rotating when the safety cage is open)?		
Has a check been conducted to determine if there are any potentially explosive gases present? Are potential ignition sources guarded and checked?		

PART 2 – Additional OHS considerations		
Hazard area	**Yes/No**	**Action/control measure**
Inspection and maintenance		
Are there specification or service manuals on site covering the rig and ancillary equipment?		
Are there records relating to pre-start checks, including third party inspections?		
Is there a system for recording and reporting mechanical faults?		
Are gauges, warnings, emergency stop buttons and controls on the driller's console clearly labelled?		
Amenities and PPE		
Are employees free of entanglement hazards (eg loose/ragged clothing, loose bootlaces, jackets with drawstrings, long hair and loose jewellery)?		
Is personal protective equipment (PPE) used appropriately and suitable for purpose?		
Are precautions against extreme weather conditions (eg UV exposure or cold) taken? If a heating system is in use, check whether there are any additional hazards such as fire.		
Are the crib room, toilet or washing facilities and accommodation adequate?		
Emergency procedures		
Is there an emergency plan in place?		
Does the emergency plan cover: ▪ vehicle incidents ▪ how to communicate for assistance (including numbers/authorities) ▪ evacuation of personnel ▪ fire planning and notification?		
Are the following facilities adequate and maintained: ▪ first aid ▪ back up electronic communication ▪ transport ▪ fuel/chemicals storage ▪ fire extinguishers ▪ fire break?		
Are trained first aiders available on site?		
Do operators have a plan in place to action fire prevention and fire-fighting		

Hazard area	Yes/No	Action/control measure
OHS procedures		
Are drill rig operators aware of procedures for: ▪ monitoring fitness for work (fatigue, heat, drugs and alcohol) ▪ manual handling ▪ fire prevention and response ▪ working at heights ▪ noise and dust ▪ spill management ▪ use of vehicles ▪ use of portable tools ▪ use of dangerous goods and hazardous substances (including how to find information contained in MSDSs) ▪ use of heaters and electricity including emergency shutdown?		
Is there an OHS plan in place and are rig operators aware of where to access the plan?		
Are there measures in place to ensure drill rig operators comply with workplace procedures and requirements?		
Does the drill rig operator have a Safety Management System (SMS)?		
Does the SMS cover: ▪ training ▪ management of contractors ▪ hazard and risk management ▪ maintenance ▪ management of change ▪ communication and consultation ▪ inspection, auditing and verification ▪ continuous improvement ▪ emergency management?		

Safety Action Plan

Safety issue or hazard	Action required	Person responsible	Completion date	Review date and comment
Use this plan to eliminate or control risk associated with hazards identified in the checklist.				
High priority				
Medium priority				
Low priority				