

DCN DRILLING LTD

Job Safety Analysis

Job Step	Hazard	Impact On:	UNMITIGATED			Risk	Measures	MITIGATED RISK			Responsible Person
			Consequence	Likelihood	Risk			Consequence	Likelihood	Risk	
Travel to and from site	Traffic Accident	People	1.Single fatality or permanent disability	D - Unlikely	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable (ALARP). Operation at this level requires management approval	Drive to the law, do not exceed speed limit. Drive defensively, stay well back from other vehicles, do not turn out into busy traffic. Drive to conditions. Provide plenty of warning (flashing lights, indicators) to following traffic when approaching and entering work access and carpark location.	1. Single fatality or permanent disability.	E – Very unlikely	Medium	Driver
Travel to and from site	Adverse Weather	People	1.Single fatality or permanent disability	D - Unlikely	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable (ALARP). Operation at this level requires management approval	Drive to the conditions	1.Single fatality or permanent disability	E – Very unlikely	Medium	Driver
Travel through site.	Slowly driving (can instigate dangerous overtaking by others)	People	1.Single fatality or permanent disability	D - Unlikely	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable (ALARP). Operation at this level requires management approval	Be aware of speed of general traffic. Do not impede traffic flow. Stay within speed limit.	1.Single fatality or permanent disability	E – Very unlikely	Medium	Driver
Travel through site.	Forest areas: Driving on steep slopes.	People	1.Single fatality or permanent disability	D – Unlikely	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable (ALARP). Operation at this level requires management approval	Ensure 4WD vehicle is used with appropriate trained driver training. Never access slopes steeper than 45 degrees where traction is good, or 30 degrees where traction is reasonable. Avoid steep slopes if possible. Walk route before driving if unsure. Check for run-out zone. If no zone is available, turn back.	1.Single fatality or permanent disability	E – Very unlikely	Medium	Driver
Walking around site.	Slips, trips and falls on soft, sloping or uneven ground.	People	3. Lost Time Injury (off work recovery required) or short/medium term health issues.	C - Possible	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Wear boots with good grip, ankle support and steel toes. Check before you step; watch out for roots, slippery and soft ground. Avoid damp areas, as these are likely you be slippery. Choose sensible path to destination (not always the quickest path). Do not rush. Plan your route and look ahead.	3. Lost Time Injury (off work recovery required) or short/medium term health issues.	D - Unlikely	Medium	All Site Staff

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Walking around site.	Sunburn, sunstroke, dehydration	People	4. Medical treatment required or short term acute health effects.	C – Possible	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Take a hat, sunglasses and high SPF sunscreen to site and apply as appropriate for the conditions. Take sufficient drinks to site – there may not be local facilities for buying drinks in the immediate vicinity. Stay in shade when resting. Take regular rests and replenishment of fluids during fieldwork.	4. Medical treatment required or short term acute health effects.	D - Unlikely	Low	All Site Staff
Walking around site.	Vehicle impact while working near road	People	2. Extensive injuries or chronic health issues	C - Possible	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable (ALARP). Operation at this level requires management approval	Be aware of Traffic Management requirements and regulations. Park vehicle in a pre-planned location. Plan parking sites using maps, Google Earth, Street view and a drive-through of the working area prior to stopping. Stay well back from live traffic. Only cross the road at safe locations with good sighting lines from both sides, and a safe location to stand at both sides. Step well away from road edge when writing notes, taking photographs etc. Do not work on site in low visibility conditions (heavy rain, mist, fog, duck, dawn, conditions of serve sun strike). Expect distracted drivers and maintain awareness of traffic activity at all times.	2. Extensive injuries or chronic health issues	E – Very unlikely	Medium	All Site Staff
Walking around site.	Crossing streams and gullies or inspecting valley side slopes above rivers/ streams/creeks	People	1. Single fatality or permanent disability	D - Unlikely	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable (ALARP). Operation at this level requires management approval	Do not work on unguarded slopes with potential for a direct fall to a body of water. Do not within 2m deep water or mud. Do not access areas which could become cut off at high tide while the tide is rising. Check weather forecast before leaving. Do not work near or across streams after heavy rain or when this is forecast.	1. Single fatality or permanent disability	E – Very unlikely	Medium	All Site Staff
Walking around site.	Working near/ around electric and barbed wire fences	People	5. Local treatment with short recovery – minor short term health effects.	B - Probable	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Use nearest access gates where possible. Cross fences at gate posts or main (thick) fence posts only. Obtain sturdy foothold before shifting weight onto foot. Use handholds at all times (do not carry objects). Avoid barbed wire and electrical fences. Check for activity of electrical fences (listen for pulsing, check for insulators on fence posts) before touching. Check for safe even ground for landing location on other side of fence before climbing. Be aware of own physical limitations.	5. Local treatment with short recovery – minor short term health effects.	E – Very unlikely	Low	All Site Staff

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Borehole drilling & CPT	Being struck by drilling machinery and parts	People	3. Lost Time Injury (off work recovery required) or short/medium term health issues.	D - Unlikely	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Follow contractors guidelines for staying clear of machinery. Don not approach drill rig without operator instruction. Complete drill rig induction to become familiar with rig and emergency features.	3. Lost Time Injury (off work recovery required) or short/medium term health issues.	E – Very unlikely	Low	All Site Staff
Borehole drilling & CPT	Hydrocarbon spill	Environment	1.Single fatality or permanent disability	D - Unlikely	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Emergency plan to be discussed with contractor. Contractor to have all necessary spill kit equipment on site, and protection measures to prevent offsite releases.	Offsite release, no significant environmental damage. Remediation in terms of weeks.	E – Very unlikely	Low	All Site Staff
Borehole drilling & CPT	Drilling activities causing a fire to start	People	2.Extensive injuries or chronic health issues	C – Possible	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable (ALARP). Operation at this level requires management approval	Be aware of hot exhausts and engine/machinery parts which may be in contact with dry grass. Make sure drill rig has at least 1 fire extinguisher on it and know where it is. Be aware of any drill rods or fluids which may be warm from use, especially in forestry blocks.	2.Extensive injuries or chronic health issues	E – Very unlikely	Medium	All Site Staff
Borehole drilling & CPT	Drilling activities causing a fire to start	Environment	2. Major offsite release, short to medium term environmental damage. Remediation in terms of months.	C - Possible	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable (ALARP). Operation at this level requires management approval	Be aware of hot exhausts and engine/machinery parts which may be in contact with dry grass. Make sure drill rig has at least 1 fire extinguisher on it and know where it is. Be aware of any drill rods or fluids which may be warm from use, especially in forestry blocks.	2. Major offsite release, short to medium term environmental damage. Remediation in terms of months.	E – Very unlikely	Medium	All Site Staff
Borehole drilling & CPT	Drilling activities causing a fire to start	Community	2. Widespread reputation loss to single business unit, widespread community outcry.	C - Possible	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable (ALARP). Operation at this level requires management approval	Be aware of hot exhausts and engine/machinery parts which may be in contact with dry grass. Make sure drill rig has at least 1 fire extinguisher on it and know where it is. Be aware of any drill rods or fluids which may be warm from use, especially in forestry blocks.	2. Widespread reputation loss to single business unit, widespread community outcry.	E – Very unlikely	Medium	All Site Staff

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Walking around site	Encountering animals – disease/ infection/ illness	People	3. Lost Time Injury (off work recovery required) or short/ medium term health issues.	D - Unlikely	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Wash hands before eating, drinking etc. Carry soap and antibacterial gel in vehicle for washing before eating. Do not enter areas where diseases are prevalent (e.g. Leptospirosis)	3. Lost Time Injury (off work recovery required) or short/ medium term health issues.	E – Very unlikely	Low	All Site Staff
Walking around site	Encountering animals – being attacked	People	3. Lost Time Injury (off work recovery required) or short/ medium term health issues.	D - Unlikely	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Where practicable, do not enter areas where animals are present (e.g. Bulls, Farm dogs, etc). Obtain advice from farmers and landowners regarding stock movements and dangerous stock. Stay calm, stop work and leave site if is not safe. Contact animal control.	3. Lost Time Injury (off work recovery required) or short/ medium term health issues.	C – Possible	Medium	All Site Staff
Walking around site	Community concern due to impact of route selection on properties	People	4. Local community concern.	C – Possible	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Be prepared with description of site activities which can be used in response to queries. Display awareness of community concerns without providing personal or professional opinions. Do not reveal technical findings.	4. Local community concern.	D - Unlikely	Low	All Site Staff
Walking around site	People causing physical or verbal threat to site personnel	People	4. Medical treatment required or short term acute health effects.	C - Possible	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Stay calm and reasonable. Leave site if it is not considered safe. Contact police and project manager is necessary.	4. Medical treatment required or short term acute health effects.	E – Very unlikely	Low	All Site Staff
Walking around site	Falls from height when working near steep road embankments, landslide scarps, road cut benches	People	1.Single fatality or permanent disability	D - Unlikely	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable (ALARP). Operation at this level requires management approval	Work well away from steep road or slope edges. Do not try to access benches at heights. Do not attempt to climb slopes which are unstable or difficult to access (i.e. up steep/loose banks). Be aware of where you are standing/ walking and be careful not to kick or knock anything down from the edge of the bench or steep edge of road embankment. Inspect slip crests from the side where possible rather than from head scarps. Ensure a colleague is aware of your activities and location.	1.Single fatality or permanent disability	E – Very unlikely	Medium	All Site Staff
Walking around site	Striking underground services	People	2.Extensive injuries or chronic health issues	D - Unlikely	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable (ALARP). Operation at this level requires management approval	Contractor to follow regulations. Services to be located prior to drilling. As developed site drawings of any buildings, private sections and roading alignments need to be obtained. Service plans to be onsite. Hand excavated inspection hole to depth of at least 1.5m to be dug prior to drilling on roads and near and mapped services.	2.Extensive injuries or chronic health issues	E – Very unlikely	Medium	All site staff

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Borehole drilling & CPT	Hearing being effected by construction noise.	People	3. Lost Time Injury (off work recovery required) or short/medium term health issues.	C – Possible	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Wear hearing protection; especially during SPT's	3. Lost Time Injury (off work recovery required) or short/medium term health issues.	D - Unlikely	Medium	All Site Staff
Borehole drilling	Handling possibly contaminated core.	People	3. Lost Time Injury (off work recovery required) or short/medium term health issues.	C – Possible	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Wear gloves. Carry disinfectant. Wash hands before eating, touching face etc. Have clean water and soap at work station.	3. Lost Time Injury (off work recovery required) or short/medium term health issues.	D - Unlikely	Medium	All Site Staff
Borehole drilling	Extraction of contaminated core.	Environment	3. Offsite release, no significant environmental damage. Remediation in terms of weeks.	D - Unlikely	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Contamination control plan to be discussed with contractor. Contractor to know what to do in the case of a spill. Safe guards to be emplaced by contractor to prevent offsite release. Material to be disposed of in a environmentally responsible manner.	4. Local community concern.	E – Very unlikely	Low	All Site Staff
Borehole drilling & CPT	Sediment release.	Environment	3. Offsite release, no significant environmental damage. Remediation in terms of weeks.	D - Unlikely	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Sediment release control measures to be emplaced by contractor. Plan to be in place whereby contractor is prepared to control sediment in case of sediment release.	4. Medical treatment required or short term acute health effects.	E – Very unlikely	Low	All Site Staff
Borehole drilling & CPT	Sediment release.	Community	3. Regional Concern	D - Unlikely	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Sediment release control measures to be emplaced by contractor. Plan to be in place whereby contractor is prepared to control sediment in case of sediment release.	1.Single fatality or permanent disability	E – Very unlikely	Low	All Site Staff
Borehole drilling & CPT	Crushing or bruising of body parts during machinery operation.	People	2.Extensive injuries or chronic health issues	D - Unlikely	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Follow contractors guidelines for staying clear of machinery. Do not approach drill rig without operator instruction. Complete drill rig induction to become familiar with rig and emergency features. Do not use drill rig equipment. Drill rig induction to inform personnel of emergency stop switches, if operator becomes involved in an emergency situation.	2.Extensive injuries or chronic health issues	E – Very unlikely	Medium	All site staff
Borehole drilling & CPT	Public being struck by drilling equipment	People	2.Extensive injuries or chronic health issues	C – Possible	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable	Contractor to follow regulations with construction signage and suitable fencing to keep public at safe distance from work area.	2.Extensive injuries or chronic health issues	E – Very unlikely	Medium	All site staff

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Borehole drilling & CPT	Striking overhead obstruction (i.e. trees, power lines etc.)	People	2.Extensive injuries or chronic health issues	C - Possible	High	High Risk: Risk is undesirable. Verify, and where possible quantify, the accuracy and certainty for the existing risk level. Implement control measures to ensure risk level is reduced to or is confirmed to be As Low As Reasonably Practicable (ALARP). Operation at this level requires management approval	Check above and around site for overhead power lines, trees, structures etc. Maintain safe operating distance from any obstructions.	2.Extensive injuries or chronic health issues	E – Very unlikely	Medium	All Site Staff
Borehole drilling	Crushing of body parts during SPT tests	People	2.Extensive injuries or chronic health issues	D - Unlikely	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Do not interfere with drilling equipment. Stand well back while SPT tests are being performed.	2.Extensive injuries or chronic health issues	E – Very unlikely	Medium	All Site Staff
Borehole drilling	Cutting and crushing of hands during shear vane testing	People	3. Lost Time Injury (off work recovery required) or short/ medium term health issues.	C - Possible	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Do not wrap fingers over edge of shear vane. Wear gloves.	3. Lost Time Injury (off work recovery required) or short/ medium term health issues.	D - Unlikely	Medium	All Site Staff
Borehole drilling	Trimming of core	People	4. Medical treatment required or short term acute health effects.	C - Possible	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Wear gloves. Use suitable caution when using a knife.	4. Medical treatment required or short term acute health effects.	D - Unlikely	Low	All Site Staff
Borehole drilling & CPT	Manual lifting of core boxes and hand testing equipment.	People	3. Lost Time Injury (off work recovery required) or short/ medium term health issues.	C - Possible	Medium	Medium Risk: Are only tolerated if examination proves them to be ALARP. Implement management plans to prevent the occurrence and monitor for changes. Reduce to Low Risk if the benefits outweigh the cost.	Use correct lifting techniques. Do not attempt to exceed physical capabilities. Seek assistance from contractor.	3. Lost Time Injury (off work recovery required) or short/ medium term health issues.	E – Very unlikely	Low	All Site Staff

