Activity / Event	Hazard	Source	Pathway	Receptor	Existing Risk				Mitigation Measures						Residual Risk			
									What measures will Coastal Oil and Gas Limited take to reduce the risk?									
What are the operational activities?	What has the potential to cause harm?	Where is it coming from?	How can the hazard get to the receptor?	What is at risk? What do I wish to protect?	Likelihood	Consequence	Risk	Risk Rating	Eliminate (E)	Reduce (R)	Isolate (I)	Control (C)		Mitigation Comments	Likelihood	Consequence	Risk	Risk Rating
Drilling Borehole / Circulating drilling muds	Noise	General Site Noise	Sound waves	Local community	4	2	8	Med		X		X	R	Vehicular movement will be restricted during night time operations Noise Absorbent matting placed around site perimeter and noise generating equipment	4	1	4	Low
													C	Noise monitoring equipment in place				
Site Construction	Dust	Vehicle movements on highway	Airborne Contaminant	Local community / Wildlife	4	2	8	Med	X	X		X	E	Keep stone and roads damp as possible	2	1	2	Low
													R	Clean water available on site to damp site roads as required				
													C	Trained operatives to visually inspect site for dust				
Site Dust	Dust	Movement around site	Airborne Contaminant	Local community / Wildlife	4	2	8	Med	X	X		X	E	Keep stone and roads damp as possible - Utilise road sweeper as required	2	1	2	Low
													R	Clean water available on site to damp site roads as required				
													C	Trained operatives to visually inspect site for dust				
Fuel Filling / Greasing site equipment	Spillage of Fuels / Oil etc	Vehicles, Equipment, Plant	Surface runoff and percolation	Surface water, soil, groundwater	4	3	12	Med	X	X	X	X	E	Oils are Fuels stored in above ground double lined tanks	3	3	9	Med

			into the ground towards the south of site down gradient	in superficial deposits									R	Drip trays and oil absorbent matting placed under plant and site equipment. Bunded membrane placed under vehicles, equipment, plant. Only Trained operatives to undertake re-fuelling operations				
													I	Drip trays and oil absorbent matting placed under plant and site equipment				
													C	Visual Inspection by trained operatives of all tanks and control point to take place daily				
Drilling Borehole / Circulating drilling muds	Returned drilling muds - Liquid Waste (waste)	Overfilling mud tanks or surface pipe leaks	Surface runoff and percolation into the ground towards the south of site down gradient	Surface soil, surface water	3	2	6	Med	X	X	X	X	E	Drilling muds are Non-hazardous pollutant	2	1	2	Low
													R	Drilling Mud is viscous and not of a consistency to flow easily or quickly if spilled at surface. All Drilling fluid in a closed loop system				
													I	Mud tanks are situated on top of an impermeable membrane laid on the site				
													C	Visual inspection of pipes and tanks during site daily HSE tours. Visual monitoring by on site waste contractor Pollution Incident Plan in place on site with all staff briefed on the controls.				

Drilling Borehole / Circulating drilling muds	Returned drill cuttings - Solid Waste (waste)	Overfilling mud tanks or surface pipe leaks	Surface runoff and percolation into the ground towards the south of site down gradient if raining	Surface soil, surface water	3	3	9	Med	X	X	X	X	E	Drilling muds are Non-hazardous pollutant	2	2	4	Low
													R	Drill Cuttings are largely solid and not of a consistency to flow easily or quickly if spilled. All Drilling fluid in a closed loop system				
													I	Cuttings skips are situated on top of an impermeable membrane laid on the site				
													C	Visual inspection of tanks during site daily HSE tours. Visual monitoring by on site waste contractor Pollution Incident Plan in place on site with all staff briefed on the controls				
Drilling Borehole / Circulating drilling muds	Losses to surrounding underground rock whilst drilling the well through	Mud systems	Geological matrix	Groundwater	2	1	2	Low	X	X		X	E	Drilling muds are Non-hazardous pollutant. No potential loss zones identified from the geological analysis of the surrounding well data	1	1	1	Low
													R	Minimum amounts of additives used				

	fissures												C	Monitoring Pit Volume to prevent formation loss Non Hazardous Additives incorporated (if needed) into muds to control any loss of mud to the surrounding underground formation. Trace quantities/ residual					
Cementing (mud displacement back to surface)	Incomplete mud displacement from well bore	Bypassed by cement	Geological matrix	Groundwater	2	1	1	Low	X	X			E	Drilling muds are Non-hazardous pollutant. Mud left in the well bore does not migrate/leachate into matrix	1	1	1	Low
													R	Minimum quantities required Cementing volumes and procedures in place				
Cement returns	Cement at surface with residue of extractive waste (muds and drill cuttings)	Well bore (annular)	Surface runoff and percolation into the ground towards the south of site down gradient	Surface soil, surface water	2	1	2	Low	X		X	X	E	Non-hazardous pollutant.	1	1	1	Low
													I	Pre flush to remove drilling muds with the well bore prior to cementing Returns are situated on top of an impermeable membrane laid on the site				
													C	Competent contractors Monitoring QC/QA pumped in and pumped out of the well. Cement Bond Log on casing string FIT (Formation integrity testing) on casing shoes				

Fugitive Methane Emissions	Desorption of methane from coals and carbonaceous strata	Desorption from coal and carbonaceous strata at surface	Airborne Contaminant	Atmosphere	3	1	3	Low		X		X	R	Coal Samples collected for testing. Cores stored so air can circulate to reduce build up. Volumes of gas are very small	1	1	1	Low
													C	Site Air quality monitoring includes methane				
Fugitive Methane Emissions	Natural gas (global warming)	Leaks	Airborne Contaminant	Atmosphere	3	2	6	Med	X	X		X	E	Integrity testing of pipework and joints before use.	3	1	3	Low
													R	Duration of exploration activities and well testing phase is short term. No production testing will take place				
													C	Site Air quality monitoring includes methane				
Waste storage on site	Leaking tanks / over filling tanks / loading transporters	Waste Storage system	Surface runoff and percolation into the ground towards the south of site down gradient if raining	Surface soil, surface water	3	2	6	Med	X	X	X	X	E	Drilling muds are Non-hazardous pollutant. Mud left in the well bore does not migrate/leachate into matrix	2	2	4	Low
													R	Drill Cuttings are largely solid and not of a consistency to flow easily or quickly if spilled.				
													I	Waste skips are situated on top of an impermeable membrane laid on the site				

													C	Visual inspection of tanks during site daily HSE tours. Visual monitoring by on site waste contractor Pollution Incident Plan in place on site with all staff briefed on the controls				
Transportation of waste materials / liquids	Accident (fugitive emission)	Spill onto highway	Surface run off into drains or soft ground	Surface water and soils	2	3	6	Med		X	X	X	R	Reduced speed limit in built areas and single carriage roads	2	2	4	Low
													I	Site spill kits to respond to spillages along the access road Spill kits available on each delivery carrying liquids/ fuels Support from 24 hour emergency suction tankers and spill response				
													C	Use of Environment Agency authorised haulage/ delivery companies. Utilisation of a travel plan MSDS sheets to accompany movement of liquids Pollution Incident Plan in place on site with all staff briefed on the controls				

Waste road tankers reversing	Noise	Reversing alarm	Sound waves	Local community	4	2	8	Med		X		X	R	Vehicular movement will be restricted during night time operations Noise Absorbent matting placed around site perimeter Trees provide natural sound abatement	4	1	4	Low
													C	Noise monitoring equipment in place				
Failure of skips or containers integrity	Produced water, drill cuttings, drilling muds (fugitive emission)	Leaking skips or containers	Surface runoff and percolation into the ground towards the south of site down gradient	Surface water, soil, groundwater	4	2	8	Med	X	X	X	X	E	Non-hazardous pollutant	2	2	4	Low
													R	Cuttings and muds are not of a consistency to flow easily or quickly if spilled				
													I	Extractive waste skips are situated on top of an impermeable membrane laid on the site				
													C	Visual inspection of tanks during site daily HSE tours. Visual monitoring by on site waste contractor Pollution Incident Plan in place on site with all staff briefed on the controls				