Form

Environmental Risk Assessment

Management System:	Health, Safety and Environmental (HSE)	**File Name:**	CORP-Temp-009
Approver:	HSE&P Manager	**Version No:**	Issue 2.0
Reviewer:	Health and Safety Officer, Environmental Compliance Advisor	**Date of Issue:**	2rd April 2018
Author:	HSE Consultant	**Proposed date of Review:**	2st May 2019

Version	Section	Revision Information	Date	Reviser
Draft	All	Draft for review	28/02/17	CEO
1.0	All	Published	03/03/17	
2.0	Risk Ass	Added in site specific detail	02/05/18	HSE&P Manager

Procedures are reviewed as per proposed review date, or sooner if a significant change to the operation has taken place, to ensure relevance to the systems and process that they define.

Likelihood						
	5 Highly Likely	5	10	15	20	25
	4 Likely	4	8	12	16	20
	3 Low Likelihood	3	6	9	12	15
	2 Unlikely	2	4	6	8	10
	1 Highly Unlikely	1	2	3	4	5
		1 Insignificant	**2 Minor**	**3 Moderate**	**4 Major**	**5 Extreme**
	Consequence					

After combining the likelihood and consequence, a risk category score is established e.g.

Likelihood = 5 (Highly Likely) and Consequence= 1 (Insignificant): Risk = 5 (Low)

Risk Ratings

Likelihood: The likelihood accounts for the probability of an event occurring taking into account a potential pathway to a receptor.

Likelihood of Event	Score	Description
Highly Likely	5	The event will occur daily and there is a potential pollution linkage
Likely	4	The event might occur weekly and there is a potential linkage
Low Likelihood	3	The event might occur monthly/yearly etc. and there is a potential pollution linkage
Unlikely	2	The event could occur at some time but less than once per decade and there is a potential pollution linkage
Highly Unlikely	1	May only occur in exceptional circumstances and there is a potential pollution linkage

Consequence: The consequence measures how the potential event interacts with a receptor (natural environment).

Consequence	Score	Description
Extreme	5	Irreversible environmental damage
Major	4	Environmental damage with significant effects which requires immediate and possibly long term management intervention to mitigate the damage and aid natural recovery
Moderate	3	Environmental damage with noticeable effects which requires immediate and possibly short term management intervention to preserve natural environment
Minor	2	Environmental damage is localised and easily managed
Insignificant	1	Very slight environmental damage with no measurable effect

Date of Assessment	17th November 2019	Site Name & Location: Preston New Road	Risk Assessor Name: EPP Manager and Environmental Specialist
Site Doc Reference	**PNR-ERA-002**		***Does the activity impact other Cuadrilla departments or require legal consent? (N)***
Job/ Activity Description	**Well suspension at PNR site to justify the monitoring regime.**		

Activity/ Event	**Hazard**	**Source**	**Pathway**	**Receptor**	**Unmitigated Risk**				**Mitigation Measures**					**Residual Risk**				**RAMP** (Risk Assessment Management Plan)
What are the operational activities?	*What has the potential to cause harm? (H1 Risk)*	*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 Score*	*Risk Rating*	*What measures will Cuadrilla take to reduce the risk?*					*Likelihood*	*Consequence*	*Risk Score*	*Risk Rating*	*Is a RAMP required?*
									Eliminate (E)	*Reduce (R)*	*Isolate (I)*	*Control (C)*	*Mitigation Comments*					*Yes/ No*
Well head leaking	Natural gas	Bowland Formation	Vertical migration	Atmosphere Groundwater	*2*	*3*	*6*	*Medium*					Master value and lower valve closed for double barrier prevention of flow (PNR2). Double barrier set with bridge plugs to prevent flow from formation (PNR 1z). Monitoring of wellhead 3 times a year to check for leaks. Wellhead designed to contain formation pressure. Maintenance of wellhead by competent personnel. Annuli pressure monitoring to detect changes in wellbore. Well designed and executed in accordance with safety and environmental standards and reviewed by Environment Agency PO5. Site perimeter fenceline, CCTV and security to prevent third party vandalism. Groundwater monitoring x4 boreholes to verify integrity of well.	*1*	*2*	*2*	*Low*	*No*
Car/van/tele handler/ surface water tanker movement	Diesel	Leaks and drips	Overland flow	Drainage ditch	*3*	*1*	*3*	*Low*		✓	✓	✓	Well maintained vehicles to be used. Spill kits available on site Drip trays to be used if required	*1*	*2*	*2*	*Low*	*No*

Uncontrolled surface water discharge	Contaminated water	Leaking Valve	Pipe network	Carr Bridge Brook	*2*	*3*	*6*	*Medium*		✓	✓	✓	Multiple isolation valves which are closed during operations and only opened when permitted. Limited hazards at site to change rainwater quality. Inspection and maintenance of valves during site walk downs.	*1*	*3*	*3*	*Low*	*No*
Storage and equipment (separator, pipes, flowback tanks etc.)	Metals	Equipment	Overland flow	Drainage ditch	*1*	*1*	*1*	*Low*		✓	✓	✓	Materials storage area organised No storage of flowback fluid or any other extractive waste. No storage of chemicals on site associated with fracturing phase.	*1*	*1*	*1*	*Low*	*No*
Storage of waste in a skip	Waste	Litter	Airborne	Pad or fields	*1*	*2*	*2*	*Low*		✓	✓	✓	Use of covered skips. Site secured from third party vandalism. Removal of waste from site and avoid overfilling skips ona frequent basis.	*1*	*1*	*1*	*Low*	*No*
Diesel storage & Refuelling	Diesel	Leaks and Drips	Overland flow	Drainage ditch	*1*	*1*	*1*	*Low*		✓	✓	✓	Diesel storage in bunded area located on a site wide impermeable membrane. In frequent refuelling required due to the lack of site activity. Refuelling is a manned operation and locked when not in use. Spill kits available for drips and leaks. Site secured from third party vandalism.	*1*	*2*	*2*	*Low*	*No*
Use of a generator	Diesel	Emissions	Airborne	Atmosphere	*1*	*2*	*2*	*Low*		✓	✓	✓	Use to power a small cabin Generator below 1MWth for MCPD. Generator compliance checks as per manufacturer instructions.	*1*	*1*	*1*	*Low*	*No*
Use of Water Treatment plant	Noise	Engine	Soundwaves	Local community	*1*	*1*	*1*	*Low*		✓	✓	✓	Located behind a noise wall. dB levels do not result in levels discernible at receptors.	*1*	*1*	*1*	*Low*	*No*

Accumulation and transfer of cabin sewerage.	Waste water	Leaks and drips	Overland flow	Drainage ditch	*2*	*2*	*4*	*Low*		✓	✓	✓	Sealed contained unit to accumulate waste. Transfer from tanker to pump using minimal distance from tank to tanker. Manned operation during transfer. Utilisation of a licence waste carrier. In frequent transfer due to lack of waste generated.	*1*	*2*	*2*	*Low*	*No*
Removal of downhole pressure gauges (slickline)	Diesel/ Natural Gas	Emissions	Airborne	Atmosphere	*2*	*2*	*4*	*Low*		✓	✓	✓	BOP and lubricator installed for well control purposes providing double barrier during operations. Removal of gaugues short duration (1 day) Use of generator to power slickline unit for 1 to 2 days. Deployment of LDAR once gauges retrived to check wellhead remains secure.	*1*	*2*	*2*	*Low*	*No*