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St. Nicholas Exploration Borehole

St. Nicholas - Risk Assessment

December 2014

Risk Assessment for the drilling of the St. Nicholas Borehole

Rev	Date	Details	Prepared by	Checked by	Approved by (Sign)
1	23 Dec 2013	Draft for initial comment	Oliver Taylor (Geologist)		
2	17-12-13	Issue with application		MJ	OT

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INTRODUCTION

An Environmental Risk Assessment (ERA) has been prepared for the drilling of an exploration stratigraphic well near Dyffryn in support of an Environmental Permit application. The assessment has been undertaken in accordance with:

> The Environment Agency horizontal guidance H1 Environmental Risk Assessment for Permits, Version 2.1, December 2011
> EPR6.14 How to comply with your environmental permit

Additional guidance for:

> Horizontal Guidance Note H6 - Environmental Management Systems, April 2010
> Mining Waste Operations, Version 2, February 2011

An ERA has been developed as part of the permit application.

The ERA has identified a number of potential sources and used qualitative methods for determining the level of risk these may present to the environment. Within the ERA it has been identified whether the following three factors exist:-

1. **Source** - The activity or ' hazard' - something with the potential to cause a risk
2. **Pathway** - The route by which exposure from the source may occur
3. **Receptor** - Features in the environment that are valued, which could be harmed and may be adversely affected if the contamination / pollutants reach it.

Only when the source - pathway - receptor route occurs does an environmental risk exist. The ERA has considered the various sources, pathways and receptors to identify the routes (potential risks) which have then been subject to a risk assessment.

Where the risks have been identified mitigation measures in the form of:-

1. **Control** -Monitoring of the risks
2. **Isolation** - Remove the pathway
3. **Reduction** - Reduction of the source
4. **Elimination** - Elimination of source and pathway have been undertaken to reduce the risks

METHODOLOGY

This qualitative environmental risk assessment has considered noise, dust, spillage, fugitive emissions, air emissions, releases to water environment, waste, and potential for accidents and incidents, as these relate directly to the activities.
The risk assessment provides details of the activities and situations that could give rise to harm, and describes what the control and risk reduction measures are in place.

The Initial Risk Rating is calculated as:

Likelihood that harm will occur x the severity of the consequence if it does occur = Risk

Scoring of likelihood, consequence and risk is shown in the following tables.

Score	Likelihood	Consequence
1	Virtually impossible	Minor
2	Remote	Moderate
3	Moderately Likely	Serious
4	Likely	Significant
5	Virtually Certain	Catastrophic

		Consequence				
		1	2	3	4	5
Likelihood	1	1	2	3	4	5
	2	2	4	6	8	10
	3	3	6	9	12	15
	4	4	8	12	16	20
	5	5	10	15	20	25

Score	Risk Rating
1-5	Low
6-12	Medium
15-25	High

Following derivation of the Existing Risk Rating, consideration is then given to implementing additional mitigation measures and the Residual Risk Rating is calculated. This is the remaining level of risk after all identified risk control measures have been implemented. It should be noted that the aim is to reduce risks to an acceptably low level, but that it is not always possible to entirely eliminate risk altogether.

As with any risk assessment, the conclusions reached are subjective but based upon experience, technical understanding and sound professional judgment.

RISK ASSESSMENT

See separate document (St. Nicholas – Environmental Risk Assessment) for the table of risks.

CONCLUSION

The use of the mitigation methods listed in the risk assessment results in a risk rating for every activity as “Low or Medium”.