

SIRIUS MINERALS PLC - DISCHARGE OF PLANNING CONDITIONS FOR PLANNING PERMISSION NYM/2014/0676/MEIA (AS VARIED BY NYM/2017/0505/MEIA), NORTH YORKSHIRE POLYHALITE PROJECT

CONDITION	NYMNPA 46
REPORT	REMEDIAL ACTION PLAN (NYMNPA 46 – PHASE 4a)
SITE	PHASE 4a WORKS AT WOODSMITH MINE, NORTH YORKSHIRE
DOCUMENT NUMBER	40-FWS-WS-70-WM-PL-0013 Rev. 1

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NYMNPA

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PROJECT NUMBER	1433	
PROJECT TITLE	NORTH YORKSHIRE POLYHALITE PROJECT	
CLIENT	Sirius Minerals plc Resolution House Lake View Scarborough YO11 3ZB	
REPORT TITLE	Remedial Action Plan (NYMNP4 46 – Phase 4a)	
REPORT REFERENCE	1433DevOR380 Rev. 1	
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REMEDIAL ACTION PLAN (NYMNPA PHASE 46 - PHASE 4a)

1 INTRODUCTION

1.1 General Background

This document has been prepared on behalf of Sirius Minerals Plc and provides an addendum to the Remedial Action Plan for the Phase 4 Works at the Doves Nest Farm Minesite (Ref. 1) to include the additional remedial actions required to accommodate for the Phase 4a Works. The scope of the Phase 4a Works is detailed in Section 1.3. This is required to satisfy Condition 46 of the North York Moors National Park Authority (NYMNPA) planning permission NYM/2014/0676/MEIA (as varied by NYM/2017/0505/MEIA).

This document details the remedial actions required should monitoring, undertaken in accordance the Ground and Surface Water Monitoring Scheme for the Phase 4a Works (Ref. 2), identify breaches of the defined Control Trigger Values.

1.2 Objectives

The purpose of this document is to:-

- Provide a list of individuals (and their contact details) who are responsible for identifying and investigating a Trigger Value breach.
- Provide a procedure for investigating and escalating a Trigger Value breach, and for informing the appropriate regulator (the Environment Agency).
- Provide a list of individuals and organisations to be informed in the event of a breach or a confirmed departure from the established baseline.
- Detail actions to protect the environment in the event of a suspected or confirmed environmental incident or departure from the established baseline.

1.3 Phase 4a Works

The VSM construction methodology for the MTS shaft to be undertaken as part of the Phase 4a Works includes the following:-

- Mobilisation to site;
- Use of a VSM at the MTS Shaft, in place of the previously planned d-walling machines.
- Construction of the guide wall and strand jacks for the operation.
- Installation of ancillary equipment.
- Machine setup and installation of VSM.
- Excavation to -55m below shaft platform level (bspl).
- Excavation to -120m bspl.
- Deposition of limited extractive material from within the first 120m of the MTS shaft into earthworks bunds; and
- Grouting of Annulus.

1.4 Compliance with Conditions

Table 1 sets out the wording of Planning Condition 46 to Planning Consent Ref No. NYM/2014/0676/MEIA (as varied by NYM/2017/0505/MEIA) and details where the relevant material, to comply with this condition, has been provided within this report:-

Table 1 - Summary of Planning Condition 46 and where Relevant Details are provided in the Report

NYMNP 46	Compliance with Condition 46
The scheme shall include: -	
Prior to commencement of each Phase of Construction at Doves Nest Farm a Remedial Action Plan, setting out the remedial actions to be taken in the event that any monitoring triggers of the approved Construction and operation Phase Ground and Surface Water Monitoring Scheme are exceeded, shall be submitted to and approved in writing by the MPA in consultation with the Environment Agency.	Sections 1 to 6
Should any monitoring results exceed those triggers set out in the approved Construction and operation Phase ground and Surface Water Monitoring Scheme, the MPA, the Environment Agency and Natural England shall be informed as soon as possible, and the approved Remedial Action Plan shall thereafter be implemented as soon as possible and within one month of the relevant monitoring trigger having been exceeded. Following remedial action, monitoring in accordance with the Construction and Operation Phase Ground and Surface Water Monitoring Scheme will be undertaken in accordance with the timescale to be submitted to and approved by the MPA in consultation with the Environment Agency, the results of which shall be reported to the MPA within four weeks of the monitoring date.	Sections 2 to 5

2 RESPONSIBILITIES AND CONTACTS

2.1 Parties Responsible for Identifying and Investigating a Trigger Value Breach

Table 2 presents the details of the individuals and their contact information for the parties responsible for identifying and investigating a Trigger Value breach.

Table 2 - Parties Responsible for Identifying and Investigating a Trigger Value Breach

Contact Name	Position	Company	Contact Details	Responsibility
Robert Staniland	Environment Manager	Sirius Minerals	Resolution House Lake View Scarborough YO11 3ZB +44 7775585456	Coordination of Environmental Activities within the Development
TBC	Project Manager	Sirius Minerals	TBC	Monitoring of ground and surface water in accordance with the Ground Water Management Scheme.
TBC	Project Manager	Herrenknecht	TBC	Coordination of VSM activities

2.2 Parties to be informed in the Event of a Breach/Departure from Baseline Conditions

In accordance with Condition 46, Table 3 presents those individuals and organisations who are to be informed in the event of a breach:-

Table 3 Parties to be informed in the Event of a Breach/Departure from Baseline Conditions

Contact Name	Position	Company/ Regulatory Body	Contact Details
Robert Staniland	Environment Manager	Sirius Minerals	Resolution House Lake View Scarborough YO11 3ZB +44 7775585456
TBC	Project Manager	Sirius Minerals	TBC
TBC	Director of Operations	Herrenknecht	TBC
TBC	Project Manager	Herrenknecht	TBC

3 PROCEDURE FOR EVALUATING BREACHES IN TRIGGER VALUES

3.1 General

A Phase 4a Groundwater and Surface Water Monitoring Scheme (Ref. 2) has been prepared that details the requirements for monitoring the surface water discharge from the VSM construction works into the Shaft Platform surface water drainage system. This monitoring is to be undertaken in addition to the monitoring strategy already specified for groundwaters, spring waters and surface waters for the Phase 4 Works, as detailed in the Ground and Surface Water Monitoring Scheme for the Phase 4 Works (Ref. 3).

The Control Trigger Values presented for the Phase 4 Works (Ref 3) will be adopted for the additional surface water monitoring to be undertaken around the Shaft Platform during the Phase 4a Works (Ref. 2). Where breaches of the Control Trigger Values occur, the procedure to evaluate and record the remedial actions required, will be as set out Section 3.1 of the Remedial Action Plan for the Phase 4 Works (Ref. 1). As the additional Phase 4a Works monitoring is restricted to two locations; in the concrete lined perimeter drain to the Shaft Platform and the outfall to the Silt Removal Facility and includes no additional monitoring of the discharge from the site into Sneaton Thorpe Beck, which is to be undertaken as part of the Phase 4 Works monitoring (Ref 3 and 1), no Compliance Trigger Values are warranted in evaluation of this supplementary Phase 4a Works monitoring.

3.2 Surface Water Quality

3.2.1 Surface Water Quality Assessment Procedures

Appendix 1.1 presents the procedure for assessing breaches of surface water quality (SWQ) Control Trigger Values during the Phase 4a Works. It presents a summary of the sequence of activities and respective timescales for each stage, for which details are provided below.

3.2.2 Monitoring Appraisal

The purpose of the monitoring strategy, of the surface water discharge from the VSM works into the Shaft Platform drainage system, is to detect potential chemical and physical impacts of the Phase 4a Works on the wider construction surface water drainage system that could ultimately impact on Sneaton Thorpe Beck. In the event of an adverse impact being detected, the objective of the appraisal is to determine the cause, so that appropriate remedial measures can be adopted in the construction water pre-treatment system prior to discharge to the Shaft Platform surface water drainage system.

Monitoring at the point of discharge into the Shaft Platform drainage system up and down stream of the Shaft Platform oil interceptor will be undertaken, as detailed in Ref. 2, including :-

- At the discharge point from the VSM water treatment works into the Shaft Platform concrete lined drain at location SD1 (Drawing 1433DevOD339 Appendix 2), to monitor the water quality from the works area.
- Downstream of the Shaft Platform oil interceptor at SD2, to monitor the water quality entering the Silt Removal Facility in main site drainage system, to confirm that the combined effect of the VSM water treatment facility and the Shaft Platform oil interceptor is adequate to manage the water quality entering the surface water drainage system.

The supplementary water quality monitoring of the VSM construction water discharge will be undertaken on a daily basis during periods of water discharge during the Phase 4a Works and will be tested in the field for pH, electrical conductivity, total dissolved solids, turbidity and visual observation for hydrocarbon sheens. Should visual evidence of hydrocarbon sheens be observed then a water sample will be taken for laboratory analysis.

The monitoring data will be assessed by consideration of the construction activities, plant maintenance records and water discharge conditions from the VSM works, as determined from a visual site inspection of the operations, and the meteorological conditions, to identify the cause of a specific breach.

3.2.3 Consultation with Project Manager and Planning Remedial Actions

The recorded breach of any SWQ Control Trigger Value and the findings of the inspection will be evaluated by the Environment Manager in consultation with the Project Manager to determine the cause of the breach and what appropriate course of remedial action will be taken.

3.2.4 Implementing Remedial Actions

Where remedial actions are specified, related to a breach in SWQ Control Trigger Values, they will be advised to the Director of Operations and the Environment Manager (as detailed in Section 2.2), and implemented by the Project Manager.

Remedial actions for a breach of SWQ Control Trigger Values may include, but not be limited to, changes to the pre-treatment methodology for the construction waters generated from the

VSM excavation works, maintenance of the silt-buster and oil separators, use of absorbent spill pads and booms to contain and absorb hydrocarbon contamination within the Silt Removal Facility prior to egress into the main attenuation pond system.

4 REPORTING

All breaches in Surface Water Quality Control Trigger Values or visually identified impacts observed and remedial actions implemented will be reported on a weekly basis during the Phase 4a Works. That report will detail the breach that occurred, the weekly construction activities and meteorological conditions preceding the breach, the results of the site inspection/monitoring, the established cause of the breach in Trigger Values and the remedial action specified together with the timescale for it to be implemented.

Where Control Trigger Value breaches are identified associated with the Phase 4a Works, a record of the insitu test results and site observations will be issued to those identified in Section 2.2 within 24 hours of the breach. Where visual evidence of adverse impacts associated with the Phase 4a Works are identified, the inspection report and remedial action specified and taken will be issued to those identified in Section 2.2 within 24 hours of that breach.

5 TIMESCALES

A cumulative report detailing the assessment of monitoring and inspection results for surface water quality, recording any breaches in Control Trigger Values or visually identified impacts observed and remedial actions to be implemented will be prepared on a weekly basis. The reports will be issued to the relevant regulators listed in Section 2.2 where a breach in Trigger Value or an impact is visually observed.

Control Trigger Value breaches will be investigated within one day and the remedial action required implemented within two days of receipt of the monitoring results reporting the breach.

R IZATT-LOWRY
DIRECTOR

6 REFERENCES

- 1 FWS Consultants Ltd. 2017. Remedial Action Plan for Woodsmith Mine Phase 4 Works (1433DevOR207).
- 2 FWS Consultants Ltd. 2018. Ground and Surface Water Monitoring Scheme for Woodsmith Mine Phase 4a Works (1433DevOR379).
- 3 FWS Consultants Ltd. 2017. Ground and Surface Water Monitoring Scheme for Woodsmith Mine Phase 4 Works (1433DevOR206).

APPENDIX 1

APPENDIX 1. 1 - PROCEDURE FOR ADDRESSING TRIGGER VALUE BREACH FOR SURFACE WATER QUALITY

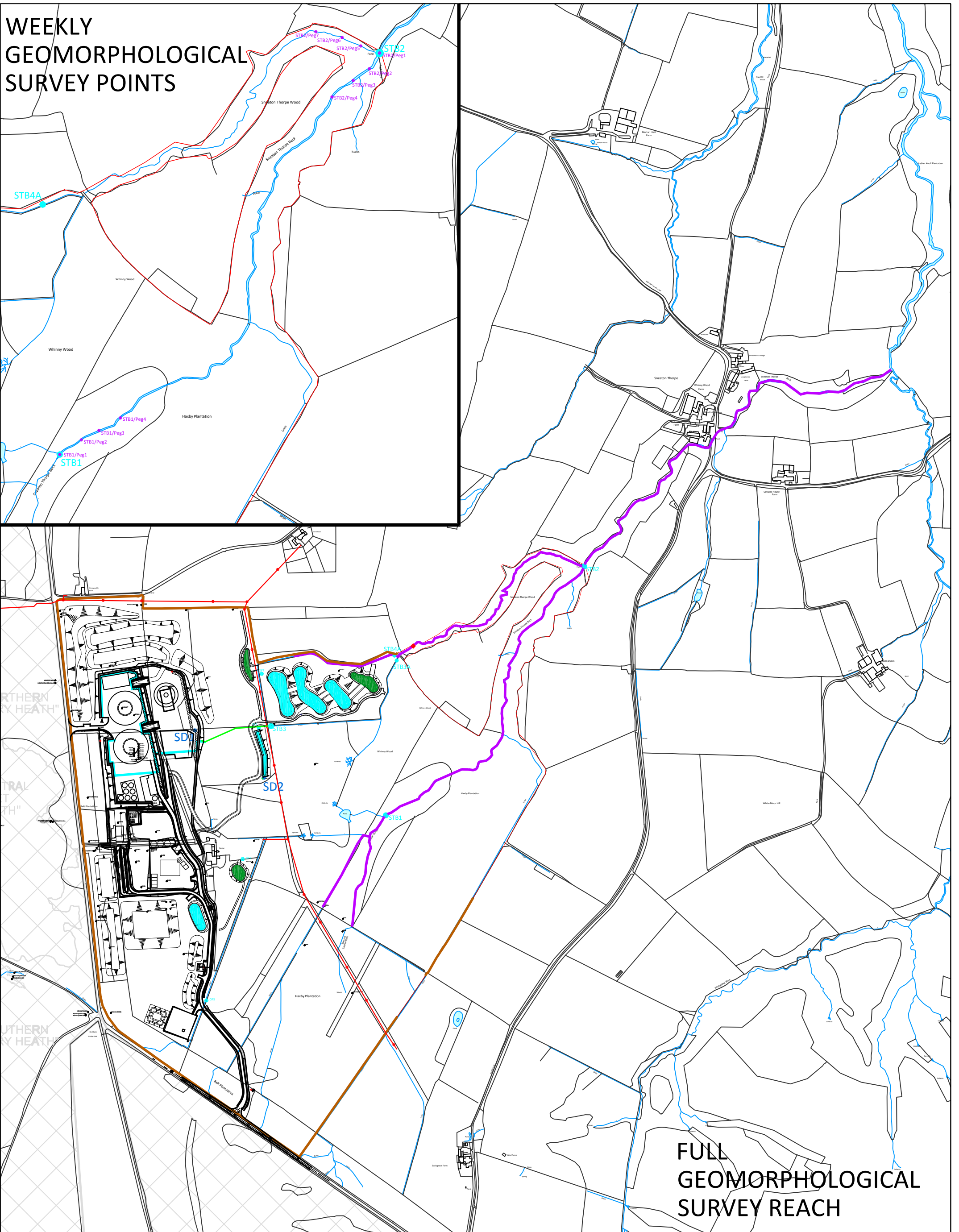
APPENDIX 1.1 – PROCEDURE FOR ADDRESSING TRIGGER VALUE BREACH FOR SURFACE WATER QUALITY

Procedure	Responsibility	Control Trigger Value Breach
		Surface Water Quality
Inspection	Environment Manager	<p>A review will be undertaken of the VSM operations, plant maintenance records and construction water treatment prior to discharge of the construction waters to the Shaft Platform perimeter drain, up to and during the period of breach.</p> <p>The visual inspection of the ongoing construction works will include inspection of the water treatment and Shaft Platform oil separators for evidence of hydrocarbon breaches, inspection of surface drainage and of the Silt Removal facility outfall for evidence of cloudy discharges and to provide a record of the turbidity value recorded.</p>
Consultation with Project Manager and Planning Remedial Actions	Environment Manager/ Project Manager	Evaluate the findings of the plant maintenance record review and review of the monitoring and visual observations to determine the cause of the physical or chemical change in surface water conditions and design the appropriate course of remedial action, if required.
Implementing Remedial Actions	Project Manager/ Environmental Manager/ Environment Manager	<p>Maintenance clearance of oil separators.</p> <p>Maintenance of seals and gaskets on the VSM cutter head and arm.</p> <p>Maintenance of silt buster for silt management and pH augmentation.</p> <p>Maintenance to the construction water treatment including the silt-buster and oil separators.</p> <p>Changes to the pre-treatment methodology for the construction waters generated from the VSM excavation works.</p> <p>Use absorbent spill pads and booms within the Silt Removal Facility to contain and absorb hydrocarbon contamination prior to egress into the main attenuation pond system.</p> <p>Changes to working practices (CEMP).</p>
Reporting	Environment Manager	Report to include details of breach, inspection, and remedial actions
Timescale		1 day to identify the cause, design and implement remedial actions required.


APPENDIX 2

DRAWINGS

WEEKLY GEOMORPHOLOGICAL SURVEY POINTS



FULL GEOMORPHOLOGICAL SURVEY REACH

NOTES / KEY SITE OWNERSHIP BOUNDARY ——— NYM SAC  SURFACE WATER ——— BOREHOLES ⊕ GCBH01 SURFACE WATER MONITORING LOCATIONS ● SD1 GEOMORPHOLOGY SURVEY ———	DRAWING TITLE PHASE 4A SURFACE WATER QUALITY MONITORING POINTS INSET - WEEKLY GEOMORPHOLOGICAL SURVEY REACH	CLIENT SIRIUS MINERALS PLC	FWS Geological & Geo-Environmental Consultants Merrington House Merrington Lane Industrial Estate Spennymoor County Durham DL16 7UT
	PROJECT TITLE NORTH YORKSHIRE POLYHALITE PROJECT	STATUS FINAL	
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