Cloughton 2 Wellsite

Non-Technical Summary

Environmental Permitting (England and Wales) Regulations 2016

- **Application for a Bespoke Mining Waste Operation**
- **Application for a Bespoke Installation**
- **Application for a Bespoke Groundwater Activity**

Issue Number:	Details:	Prepared By:	Reviewed By:	Authorised By:
250207	Draft for Client Review	Tony Fildes (Zetland Group)	Jamie McGill (Europa)	Alastair Stuart (Europa)
250424	Initial issue for an Application for a Mining Waste Operation with Flare, a Mining Waste Facility and a Groundwater Activity	Tony Fildes (Zetland Group)	Jamie McGill (Europa)	Alastair Stuart (Europa)

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1 PURPOSE AND CONTEXT

This Non-Technical Summary forms part of an application to the Environment Agency to authorise the undertaking of specific 'permitted activities' at the Cloughton 2 Wellsite (herein referred to as the 'Wellsite'). With regards to onshore oil and gas operations, a number of activities are considered applicable to the environmental permitting regime.

The Wellsite within which the 'permitted activities' are undertaken is considered a 'regulated facility' under The Environmental Permitting (England and Wales) Regulations 2016, as amended (EPR2016) [Ref.1]. Throughout the life of the Wellsite, this Non-Technical Summary shall be considered a live 'operating technique' and must be complied with as it forms part of the environmental permit.

The purpose of the Non-Technical Summary is to set out the operations proposed to be conducted at the Wellsite as well as the proposed operations and how they are applicable under EPR2016. It also lays out the management plans and documentation of the application and how they satisfy the requirements of EPR2016.

Europa Oil & Gas Limited is the 'Operator' as defined under EPR2016 and shall herein be referred to as the Operator within this Non-Technical Summary.

The Operator is proposing to construct a wellsite ~0.34 km southeast of Burniston, a village and civil parish in the Scarborough borough of North Yorkshire, England.

The Wellsite will be constructed to accommodate the drilling of an appraisal borehole to evaluate the potential for dry natural gas accumulations within the target formations, namely the Carboniferous Sandstones (primary target formation), and the Permian Brotherton Limestone (Plattendolomite) and the Kirkham Abbey (Hauptdolomite) formations (secondary target formations).

An application to the Environment Agency is being proposed under EPR2016 to apply for a 'Mining Waste Operation and Mining Waste Facility with Fracturing and Flare' and for a 'Groundwater Discharge Activity', as defined by reference 1.8.8 and 1.3.12 respectively of the Environment Agency (Environmental Permitting and Abstraction Licensing) (England) Charging Scheme [Ref.2].

For clarity, domestic legislation derived from European Union legislation such as the Mining Waste Directive (MWD) [Ref.3] and Industrial Emissions Directive (IED) [Ref.4] continue to have an effect in domestic law following the UK's withdrawal from the European Union in accordance with the European Union (Withdrawal) Act 2018 [Ref.5]. European Directives are therefore still applicable to both this Non-Technical Summary and the activities performed by the Operator.

All figures included in this document, for example, volumes, tonnages, distances represent best estimates at the time of document production, and may change, as operations develop.

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2 SCOPE

This Non-Technical Summary is applicable to the Cloughton 2 Wellsite and all operations conducted therein. It is applicable to the Operator, its contractors and subcontractors and can be used to support an application to the Environment Agency for an environmental permit under EPR2016.

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3 ABBREVIATIONS AND DEFINITIONS

%:	Percentage
~:	Approximately
AOD:	Above Ordnance Datum
BAT:	Best Available technique
EPR2016:	The Environmental Permitting (England and Wales) Regulations 2016, as amended
Groundwater Activity:	Has the meaning given within Regulation 2 of EPR2016
Groundwater Discharge Activity:	Has the meaning given within Regulation 2 of EPR2016
ha:	Hectare
HDPE:	High Density Polyethylene
IED:	Industrial Emissions Directive
Installation Activity:	Has the meaning given within Regulation 2 of EPR2016
JAGDAG:	Joint Agencies Groundwater Directive Advisory Group
km:	Kilometre
m^3:	Cubic Metre
m:	Metre
mm:	Millimetre
Mining Waste Facility:	Has the meaning given within Regulation 2 of EPR2016
Mining Waste Operation:	Has the meaning given within Regulation 2 of EPR2016
MWD:	Mining Waste Directive.
Operating Technique:	Documents approved by the regulator to ensure compliance with the issued permit
Operator:	Has the meaning given within Regulation 7 of EPR2016
Permitted Activities:	Any activity or operation defined within Schedule 1 to 29 of EPR2016
Regulated Facility:	Has the meaning given within Regulation 8 of EPR2016
UK:	United Kingdom
WR11:	Environment Agency's form for 'Notice of the intention to drill for minerals'

Table 1: Abbreviations and Definitions

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4 Site Details

The proposed wellsite is located in the countryside in the county of North Yorkshire. It is centred on grid reference TA 02081 92802 and located at the following address:

Cloughton 2 Wellsite
Land east of The Mill Yard
Burniston Mill
Coastal Road
Burniston
Scarborough
YO13 0DB

Figure 1: Cloughton 2 Wellsite – Proposed (Source: Google Earth 28/08/2024)

4.1 Site Location Plan and Site Layout Plan

A number of site plans have been provided within Site Plans (04 – Site Plans) and details the extent of the Wellsite, including its location, site layouts and point source emissions.

A copy of the following plans are provided within the Site Plans document (04 – Site Plans) provided in support of the environmental permit application.

- 04A – ZG-EOG-CLTN-EPR-04-01 Location Plan 10000 Scale A3
- 04B – ZG-EOG-CLTN-EPR-04-02 Location Plan 2500 Scale A3
- 04C – ZG-EOG-CLTN-EPR-04-03 Site Layout Plan - Indicative Construction Phase 500 Scale A3
- 04D – ZG-EOG-CLTN-EPR-04-04 Site Layout Plan - Indicative Drilling Phase 500 Scale A3
- 04E - ZG-EOG-CLTN-EPR-04-05 – Site Layout Plan - Indicative Proppant Squeeze Phase with Workover Rig 500 Scale A3
- 04F - ZG-EOG-CLTN-EPR-04-06 – Site Layout Plan - Indicative Proppant Squeeze Phase with Coil Tubing Unit 500 Scale A3
- 04G – ZG-EOG-CLTN-EPR-04-07 Site Layout Plan - Indicative Well Testing Phase 500 Scale A3
- 04H – ZG-EOG-CLTN-EPR-04-08 Extent of Mining Waste Facility Plan 10000 Scale A3

5 PERMITTED ACTIVITIES

5.1 Permitted Activities

The proposed Wellsite has yet to be constructed and does not currently hold an environmental permit. No permitted activities are authorised under EPR2016.

5.2 Current Operational Status (Pre-Application)

The proposed Wellsite currently comprises farmland adjacent to an existing ground-mounted solar photovoltaic array. The Wellsite lies to the south east of the village of Burniston and is accessed from the A165 Coastal Road. The Wellsite falls within Burniston Parish Council and covers an area of approximately 1.2 ha.

The Wellsite lies within a rural area. However, there are a number of industrial units served by the existing access track to the south. An animal feed mill, served by a separate access, lies 200m to the southwest of the Wellsite.

The Wellsite is partially screened by existing woodland on its southern boundary and intermittent (gappy) hedgerows to the wider field boundaries to the north sides.

The Wellsite lies at approximately 57m AOD on the northern edge of the Wellsite and falls in a southerly direction to around 49m AOD in the southern part of the Wellsite.

The closest residential receptors are:

- Wayside Farm – 280m; and
- Burniston – 310m.

The proposal is to construct a temporary Wellsite within an enclosed and secure compound to drill an appraisal borehole. Should natural gas be encountered as predicated, the drilling rig will be demobilised from the Wellsite and the intention is then to undertake a production test. If natural gas is not encountered during the drilling phase, the appraisal borehole will be decommissioned (abandoned) in accordance with industry guidance, the drilling rig and associated equipment then removed from the Wellsite and the Wellsite restored to its former condition.

5.3 Proposed Development

The Operator is proposing to undertake four (4) phases of development as illustrated within Table 2.

Phase	Description	Approximate Timescale
Phase 1	Construction of the Wellsite	7 weeks
Phase 2	Operational Phase (Includes the drilling phase and demobilisation on completion of drilling operations)	8 weeks
Phase 3	Operational Phase (Testing)	(up to) 17 weeks
Phase 4	Site Restoration	6 weeks

Table 2: Phases of Development

Phase 1 – Wellsite Construction

Construction of the Wellsite will be undertaken during Phase 1 and will include construction of an access track, site clearance works, well cellar and hard standing construction.

The active area of the Wellsite hardstanding will be constructed with a perimeter containment ditch and underlaid with a fully welded HDPE environmental membrane. The environmental membrane and perimeter containment ditch ensures that any accidental spillages that may occur during the subsequent phases of operation are contained within the Wellsite.

Phase 2 – Drilling Operation

The second phase of the development is the drilling of an appraisal borehole, which will penetrate the soils from the well cellar. The appraisal borehole will be drilled to the target formations, taking rock samples as the drilling progresses and geophysical logging will then be acquired. If natural gas is encountered and is considered suitable for further testing, production casing will be installed in the borehole.

Phase 3 – Production Testing

Contingent upon natural gas being encountered during the drilling phase, the third phase of the development is to undertake a proppant squeeze to stimulate the well by creating new localised fractures near to the wellbore, improving the formations permeability.

The proppant squeeze will involve pumping of 300m^3 to 500m^3 of carrier fluid (predominantly water) and proppant into the target reservoir followed by a short period of flowback (proppant carrier fluid recovery) and well clean up.

The proppant squeeze, falls within the definition of a 'groundwater activity under Schedule 22 of EPR2016 and will be considered a groundwater activity for the purpose of EPR2016, namely the injection of any substance into groundwater to increase the flow of fluids or gas to a well or borehole in connection with the extraction or use of any energy source. As such, the proppant squeeze will require a permit.

Mining Waste Facility

During the proppant squeeze, ~50% to 70% of the proppant carrier fluid will be retained within the target formation, having been adsorbed on the charged, high surface area minerals.

As the proppant carrier fluid is retained within the formation, an application for a mining waste facility is being applied for. For clarity, the mining waste facility will not be located at the Wellsite, it will be located in excess of 2.0 Km below ground and up to 1.6 Km distance (deviated borehole). It will extend c.80m in height, c.200m in length and 1 – 2mm in width within the target formation where the proppant fluid will remain.

Phase 4 Wellsite Restoration

The fourth phase of the development is wellsite restoration.

6 ENVIRONMENTAL LEGISLATION AND APPLICABILITY

The proposed Wellsite has yet to be constructed and does not currently hold an environmental permit. No permitted activities are authorised under EPR2016.

6.1 Proposed Permitted Activities

The Wellsite will be the subject of several activities which, under current environmental legislation, requires an environmental permit. The Environment Agency regulate all permitted activities under the Environmental Permitting (England and Wales) Regulations 2016, as amended (EPR2016). Under EPR2016, Operators are required to submit environmental permit applications to the Environment Agency to seek approval to undertake such activities.

Onshore oil and gas developments are the subject of the environmental permitting regulations, and as such a number of environmental permits will be required to be obtained from the Environment Agency.

This Non-Technical Summary provides details on the proposed operations to be conducted at the Wellsite and provides an explanation as to which permitted activities will be required/applied for.

6.2 Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency regulates all permitted activities under EPR2016 and require Operators to submit environmental permit applications to seek approval to undertake such activities. The Operator has assessed the activities associated with the proposed operations and considers certain activities to fall in scope of EPR2016 and therefore require the necessary environmental permits.

6.2.1 Industrial Emissions Activity

Schedule 1, Part 2 of EPR2016 details a number of activities that are classified as an Industrial Emissions Activity including 'Energy Activities' (Chapter 1) and 'Waste Management' (Chapter 5). Energy Activities include the storage of crude oil, whilst Waste Management includes the incineration of waste.

6.2.1.1 Incineration of Natural Gas

Schedule 1, Part 2 of EPR2016 transposes the requirements of the Industrial Emissions Directive, which requires an environmental permit to authorise an installation operation for the incineration and co-incineration of waste, as detailed within Section 5.1.

Part A(1)

- The incineration of hazardous waste in a waste incineration plant or waste co-incineration plant with a capacity exceeding 10 tonnes per day.

The proposed production testing phase may involve the incineration of natural gas exceeding 10 tonnes per day and therefore an installation permit is being applied for.

6.2.2 Mining Waste Operation including a Mining Waste Facility

Schedule 20 of EPR2016 defines a mining waste operation as being the management of extractive waste, whether or not it involves a waste facility. Under EPR2016, an environmental permit is required to authorise a mining waste operation.

In order to drill, test and undertake well treatments from the proposed Cloughton-2 Well, it is necessary to apply for an environmental permit for a mining waste operation (which includes a flare, mining waste facility and a small fracture operation).

The 'mining waste operation' will consider the extractive waste volumes and waste streams created as a result of both the drilling process and any subsequent testing and well treatment operations.

In addition, the Operator is proposing to undertake a proppant squeeze, which will also require a 'mining waste facility' which permits the permanent storage of waste at the Wellsite, which in the case of the proposed development is the permanent disposal of proppant carrier fluid into the target formation.

6.2.3 Groundwater Activity

Under Schedule 22 of EPR2016, an activity that could involve the discharge of pollutants into groundwater must be notified to the Environment Agency, together with the nature of these pollutants, under EPR2016. The Environment Agency will then determine whether the groundwater activity needs to be permitted.

There is a need, due to the low permeability of the primary and secondary target formations, to undertake a proppant squeeze to stimulate the well by creating new localised fractures near to the wellbore, improving the formations permeability.

The proppant squeeze will involve pumping of 300m^3 to 500m^3 of carrier fluid (predominantly water) and proppant into the target reservoir followed by a short period of flowback (proppant carrier fluid recovery) and well clean up.

The proppant squeeze, falls within the definition of a 'groundwater activity under Schedule 22 of EPR2016 and will be considered a groundwater activity for the purpose of EPR2016, namely the injection of any substance into groundwater to increase the flow of fluids or gas to a well or borehole in connection with the extraction or use of any energy source. As such, the proppant squeeze will require a permit.

This activity falls within the definition of a 'groundwater activity under Schedule 22 of EPR2016. The proppant squeeze has been designed such that it will be confined to the saturated formations, which contain hydrocarbons.

The proppant squeeze is a 'groundwater activity', namely the injection of any substance into groundwater to increase the flow of fluids or gas to a well or borehole in connection with the extraction or use of any energy source, therefore, a groundwater activity permit is being applied for.

6.3 Water Resources Act 1991 (as amended by the Water Act 2003)

Under Section 199 of the Water Resources Act 1991 (as amended by the Water Act 2003), a notice of the intention to construct or extend a boring for the purpose of searching for or extracting minerals must be submitted to the Environment Agency using form WR11.

The WR11 requires that a method statement, including drilling and casing designs, together with storage and use of chemicals and drilling muds, accompanies the WR11 application form.

The Cloughton-2 Well will be the subject of an individual WR11 application.

7 RISKS POSED TO THE ENVIRONMENT AND HUMAN HEALTH

The risks posed by the proposed operations have been assessed as part of the application for an environmental permit.

The risks posed by the proposed 'permitted activities' have been considered within the Environmental Risk Assessment which forms part of any application to the Environment Agency and is considered an 'operating technique'.

The Environmental Risk Assessment (which is qualitative) considers activities that have the potential to cause harm to the environment and human health (pollution damage).

In addition, the Operator has employed the services of specialist consultants to address the risks posed specifically to air, groundwater, surface water and noise. Each impact assessment / risk assessment will be verified by the Environment Agency as part of the permit determination process.

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8 OPERATING TECHNIQUES AND SUPPORTING DOCUMENTATION

A number of 'operating techniques' are required as part of a submission to the Environment Agency for approval. Any revision to these documents also requires approval from the Environment Agency prior to implementation. Typical 'operating techniques' associated with onshore oil and gas operations include those described below, and are tailored to the proposed development.

8.1 Application Forms

Application Forms accompany any application to the Environment Agency. The Application Forms provide details on the Operator, the 'regulated facility', the activities to be undertaken and the limits of those activities.

8.2 Environmental Risk Assessment

The Environmental Risk Assessment is an 'operating technique' and principal document ensuring that the risk posed to the environment by wellsite operations is reduced to as low as possible, so far as reasonably practicable. The Environmental Risk Assessment follows the Environment Agency guidance using the Source-Pathway-Receptor model. The mitigation provided within the Environmental Risk Assessment shall be implemented at the Wellsite.

8.3 Site Location and Site Layout Plan

Wellsite Plans are provided to illustrate the location of the 'regulated facility', together with an indicative layout plan. Emissions points and monitoring points are also illustrated on the plans together with any additional information as requested by the Environment Agency.

8.4 Waste Management Plan (Extractive Waste)

The Waste Management Plan is an 'operating technique' and principal document ensuring that the Operator complies with the conditions of the issued permit. It provides information on the 'mining waste operation' to be conducted and the waste management arrangements for the extractive waste streams.

8.5 Site Condition Report

The Site Condition Report is an 'operating technique' and principal document ensuring that the Operator has provided a record of the site condition prior to the commencement of 'permitted activities'. It will continue to be updated as the development progresses to record any changes to the environment upon permit surrender. A Site Condition Report is required for applications concerning 'installation activities' in accordance with EPR2016.

8.6 Chemical Inventory and Well Schematic

The Chemical Inventory and Well Schematic (together with Safety Data Sheets) is an 'operating technique' detailing the chemicals proposed as part of the development i.e. down the wellbore or within the installation process. It outlines the chemical products (i.e. drilling fluid and treatment additives) to be used within the proposed operations and details the location where they are to be used.

8.7 Waste Gas Management Plan

The Waste Gas Management Plan is an 'operating technique' and principal document ensuring that the Operator complies with the management arrangements for waste gas for the Wellsite. The Waste Gas Management Plan demonstrates to the Environment Agency that the Operator has considered the Best Available Techniques (BAT) for the management of waste gas. It also provides a drawing highlighting the point source emissions to air.

8.8 Surface Water Management Plan

The Surface Water Management Plan outlines the management arrangements for the collection of surface run-off water within the Wellsite. It details whether a discharge can take place or whether discharges are not permitted to be undertaken.

The Surface Water Management Plan also outlines when restrictions are enforced upon the Wellsite to prevent the discharge of rainwater when there is a higher chance of contamination taking place.

8.8.1 Surface Run-off Water

Surface run-off water contained within the perimeter ditch will be tested prior to being transported offsite by a licensed road haulier to an Environment Agency licensed waste water treatment / waste water disposal facility.

If the results of the test identify that the surface run-off water is contaminated from any site spillages, arrangements will be made for the surface run-off water to be transported offsite by a licensed road haulier to a relevant Environment Agency permitted waste treatment facility.

REFERENCES

1. The Environmental Permitting (England and Wales) Regulations 2016

   Available at: https://www.legislation.gov.uk/uksi/2016/1154/contents/made

2. Environment Agency (Environmental Permitting and Abstraction Licensing) (England) Charging Scheme

   Available at: https://www.gov.uk/government/publications/environmental-permits-and-abstraction-licences-tables-of-charges

3. Council Directive 2006/21/EC on the management of waste from extractive industries and amending Directive 2004/35/EC

   Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02006L0021-20090807&from=EN

4. Council Directive 2010/75/EU on the industrial emissions (integrated pollution prevention and control)

   Available at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010L0075&from=EN

5. European Union (Withdrawal) Act 2018

   Available at: https://www.legislation.gov.uk/ukpga/2018/16/contents/enacted