

Saltfleetby Wellsite Bs

Environmental Permit Variation EPR/JB3107XB/T001
Non-Technical Summary

Angus Energy Weald Basin No3 Limited

Project number: 60625790

60625790-ACM-XX-00-RP-NTS-R03

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Prepared by	Checked by	Verified by	Approved by
			
Nicholas Bell Environmental Consultant	Mike Nutting Independent Technical Advisor	Angela Graham Associate Director	Angela Graham Project Manager

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	1	Angus Energy / Tim Hussain
	1	Angus Energy / Nick Mace

Prepared for:

Angus Energy Weald Basin No3 Limited

Prepared by:

Nicholas Bell
Environmental Consultant
T: 01159 077193
M: 07717304360
E: nick.bell@aecom.com

AECOM Limited
12 Regan Way
Chetwynd Business Park
Nottingham NG9 6RZ
United Kingdom

T: +44 (115) 907 7000
aecom.com

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1. Report Context

1.1 Introduction

AECOM have been commissioned by Angus Energy Weald Basin No3 Limited (“the Operator” or Angus Energy) to prepare an application to vary the existing environmental permit (EPR/JB3107XB/T001) for the mining, extraction and transportation of natural gas and gas condensate from proven underground reservoirs at Saltfleetby Wellsites.

The application is being submitted to cover changes at the existing Gasfield which will facilitate the processing of natural gas to ensure it meets the quality requirements necessary to export the gas into the National Grid.

This document is the Non-Technical Summary for the application and should be read in conjunction with the other application documents.

1.2 Background

1.2.1 Existing Operations

Saltfleetby ‘A’ and ‘B’ (“SFA”, “SFB”) onshore production sites were established in 1999. Both sites produce natural gas, water and condensate with two 6” pipelines connecting the SFA and SFB sites. A 10” pipeline transported hydrocarbons to the nearby Theddlethorpe Gas Terminal (TGT) for processing. Gas production at the site was suspended by then Operator Wingas Storage UK Ltd in 2017 due to the closure of TGT.

In November 2019, Angus Energy farmed into the licence and became the Operator of the field with the intention to restart production from the field following the installation of a new pipeline connection to National Grid transmission system (NTS). To facilitate the resumption of operations, the intention is to:

- Keep suspended three of the remaining wells (SF 5, 6 and 7) with the potential for side-tracking any one or all of them.
- Evaluate the commercial case for continued production from Saltfleetby 8 either with or without side-tracking.
- Examine the possibility of the utilising any two of the remaining wells for geothermal heat recovery; and
- Return the existing two producing wells to natural gas and associated condensate production.

1.2.2 Proposed New Operations

Since 2017, the processing operations at the nearby Theddlethorpe Gas Terminal (TGT) has ceased. Therefore, to ensure the produced natural gas can be exported into NTS, Angus Energy also intend to:

- a) install natural gas and condensate processing facilities at SFB Site. This will indicatively include the modification to the existing first stage separator, a set of compressors, a passive dehydration system to remove water, a solid state Joule-Thomson valve allowing for a drop in pressure and temperature to remove heavy hydrocarbons, a condensate stabilisation tower, a new condensate storage unit, produced water storage, a metering and analysis skid, a fuel gas skid, an enclosed ground flare, and some associated pipework manifolding, comms and electrical ancillaries; and
- b) install up to 750m of pipeline from the existing TGT entry point to the new NTS connection point which is beyond the scope of this permit variation and
- c) Install power generation equipment to support the above facilities.

2. Reason for the Application

2.1 Description of the Proposed Changes

The installation of the gas processing facilities as described in section 1.2.2 above, at the Saltfleetby B wellsite will enable gas production of the remaining reserves of the Saltfleetby gas field to resume after more than 15 years. The gas will be piped using the existing 8km Saltfleetby to Theddlethorpe underground gas pipeline to the National Transmission System entry point at Theddlethorpe operated by NG.

2.2 Permit Conditions to be Modified

Site operations are currently regulated through an existing environmental permit (EPR/ JB3107XB/T001), and it is anticipated that the following permit conditions will need to be modified

Table 1 Permit EPR/ JB3107XB/T001 – Conditions Requiring Modification

Condition No	Subject	Anticipated Change																												
Status Log	Status	<ul style="list-style-type: none"> Updated to reflect this variation. 																												
Signature Box	Issue date	<ul style="list-style-type: none"> Issue date to be updated for new variation. 																												
Modify Schedule 1	Table S1.1 Activities	<p>Modify Table S1.1 to reflect the addition of the new gas processing activities, and associated combustion of gas in site generators.</p> <table border="1"> <thead> <tr> <th>Activity Reference</th> <th>Activity</th> <th>Description</th> <th>Limits of the Activity</th> </tr> </thead> <tbody> <tr> <td colspan="4">Installations</td> </tr> <tr> <td>A2</td> <td>S1.2 A (1)(e)(f): The loading, unloading, handling or storage or, or the physical, chemical or thermal treatment of crude oil.</td> <td>Production of fluids extracted from the resource formation, phase separation and storage of products (crude oil) and waste prior to onward transport.</td> <td>From receipt of production fluids at the wellhead to the dispatch of products (condensate) and waste.</td> </tr> <tr> <td>A4</td> <td>S1.2 A (1) (a): "Refining of Gas Where This is Likely to Involve the Use of 1,000 or More Tonnes of Gas in a 12 Month Period"</td> <td>Processing of natural gas incorporating separation, compression and dehydration prior to export from the site to NTS</td> <td>From receipt of the natural gas at the wellhead to the export of gas to NTS.</td> </tr> <tr> <td colspan="4">Directly Associated Activities</td> </tr> <tr> <td>A5</td> <td>Use of produced gas in generator to produce electricity.</td> <td>Combustion of produced gas in engines permitted under the MCPD.</td> <td>From the receipt of gas into the generators to the dispatch of combustion gases.</td> </tr> <tr> <td>A6</td> <td>Processing of natural gas during the well testing phase only.</td> <td>Involves the processing of the extracted natural gas during the well testing activity operations.</td> <td>Well test spread and associated pipework to flare system.</td> </tr> </tbody> </table>	Activity Reference	Activity	Description	Limits of the Activity	Installations				A2	S1.2 A (1)(e)(f): The loading, unloading, handling or storage or, or the physical, chemical or thermal treatment of crude oil.	Production of fluids extracted from the resource formation, phase separation and storage of products (crude oil) and waste prior to onward transport.	From receipt of production fluids at the wellhead to the dispatch of products (condensate) and waste.	A4	S1.2 A (1) (a): "Refining of Gas Where This is Likely to Involve the Use of 1,000 or More Tonnes of Gas in a 12 Month Period"	Processing of natural gas incorporating separation, compression and dehydration prior to export from the site to NTS	From receipt of the natural gas at the wellhead to the export of gas to NTS.	Directly Associated Activities				A5	Use of produced gas in generator to produce electricity.	Combustion of produced gas in engines permitted under the MCPD.	From the receipt of gas into the generators to the dispatch of combustion gases.	A6	Processing of natural gas during the well testing phase only.	Involves the processing of the extracted natural gas during the well testing activity operations.	Well test spread and associated pipework to flare system.
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	Table S1.2 Operating Techniques	<p>The contents of this table should be modified to reflect the updating/addition of relevant documents as follows:</p> <ul style="list-style-type: none"> Waste Management Plan WG-WMP-F.01 and Waste Management Plan WSUKL/SFB-7X/EA/WC/WMP_001 (Rev 3) to be completely superseded by Waste Management Plan (60625790-ACM-XX-00-RP-WMP-R03, April 2021) submitted with this application. Site Condition report (WG-EPRA-SF-SCR-006) to be completely superseded by Site Condition and Baseline Report (60625790-ACM-XX-00-RP-SCR-R03, April 2021). 																												

Condition No	Subject	Anticipated Change
		<ul style="list-style-type: none"> Written Management System provided under IC2 to be completely superseded by Site Management Plan (60625790-XX-00-RP-MMP-R02, February 2021) submitted with this application. Environmental Risk Assessment (NG-EPA-SF-ERA-007) AND to be superseded by the Impact Assessment Report and associated appendices (60625790-ACM-XX-00-RP-IAR-R02, February 2021).
Schedule 7	Site Plan	<ul style="list-style-type: none"> Update with new site plan showing the proposed layout plan for Wellsite B and Wellsite B Extension.

In addition to the main permit, the new gas generators will be regulated via SR2018 No 7 – Standard Rules new, stationary Medium Combustion Plant between 1 to < 20 MWth.

3. Application Summary

3.1 Background to the Application

The Saltfleetby Gas Field is located in licence PEDL 005, east of Louth in Lincolnshire. The field was discovered in 1996 and produced gas from both the Westphalian Sandstones and Namurian reservoirs and was, upon discovery, the largest onshore gas field in the UK. Production began in 1999, with produced gas being piped via a 10" pipeline to the nearby TGT where it was processed and sent into the National Grid.

TGT is split into two main parts: the National Grid Facility where gas enters the grid, and the former ConocoPhillips facility now under the ownership by Chrysaor, where gas was previously processed from Saltfleetby and other fields based in the North Sea. In 2017 the decision was made to decommission the terminal. No gas goes to it and the Site is in the process of being demolished.

In January 2020 Angus Energy became the 51% licence owner and operator of the field, with Saltfleetby Energy (previously WINGAS UK Limited) holding the remaining 49% at the time of writing. Angus Energy, now as operator, intends to continue production from the field following the successful reconnection to the national grid in 2020. Production is programmed to last approximately 12-16 years.

3.2 Site Operations

3.2.1 Existing Site Operations

The gas field consists of 3 well sites, with facilities for 8 individual wells. The sites in question are:

- Saltfleetby A (SFA) Site, which is located off Saddleback Road, close to the junction of Saddleback Road with North End Lane. The wellsite is quadrilateral in shape, covering an area of approximately 0.8ha and was constructed in 1996. The site is accessed via tall gates and an industrial security fence is erected around the perimeter of the wellsite and an earth bund which is approximately 2m in height surrounds the majority of the wellsite. Trees and shrub vegetation has been established on the bund. Infrastructure present includes two wells (A1 long term suspended and A4 due to be brought back into production), chemical injection grid, air compressors, control building and an empty 10,000 galling methanol tank and associated road tanker off-loading facility;
- Saltfleetby B (SFB) Site is also located off Saddleback Road, approximately 1km northeast of the Saltfleetby A wellsite. The site is quadrilateral in shape and was constructed in 1998. An earth bund surrounds the north, west and south sides of the site. Access to the wellsite is gained from Saddleback Road, along a Tarmac access track leading to a bridge over the eastern boundary drain. The entrance is secured by an entry control barrier. The site comprises an open parking area, office and control portacabins, storage tank previously used for methanol, injection skid, manifold skid, test separator, security lighting columns and three gas production wellheads.
- SFB Site Extension was constructed in 2001, to accommodate the drilling of Saltfleetby 6. It is larger in area than the original B wellsite and comprises a broad open platform that is bounded to the south east by the Woofen Drain. A further deep drain, which bisects Saltfleetby B wellsite, delineates the platform on its north west and south west sides. The platform is surfaced with aggregate, tarmac and concrete. This is fenced with industrial security fencing, within which there are three gas wellheads. Three well heads are present in the extension area.

SFA and SFB extension are connected to the SFB' site by a 6" pipeline. When previously operational produced gas and condensate from the wellsites was transported via a 10" single pipeline direct to ConocoPhillips Theddlethorpe Gas Terminal (TGT) from Saltfleetby B Site where processing took place prior to export of the gas in the national grid.

Operations on each wellsite are currently suspended and will be brought back into production status once the additional gas processing plant is installed and commissioned and the new gas export pipeline extension is installed to allow pumping of gas direct to the national grid.

3.2.2 Proposed Additional Processes

Angus Energy proposes to install new processing facilities on the Saltfleetby B Site itself. The equipment to be installed includes:

- compressors, blowers and fans;

- pumps;
- exchangers;
- air coolers;
- vessels, columns and reactors;
- three gas-powered generators;
- burners, seals, basins and packages; and
- pipework and cabling.

It is proposed to install all the required infrastructure on the existing hardstanding present within the Site, on the 'B Site Extension', with the exception of the three generators which will be installed on mown species-poor improved grassland to the south of the screening bund in the Site's south eastern corner. These units will be raised on small concrete pillars and screened by 3m high acoustic fencing and tree and hedgerow planting. The scheme will also require the installation of new pipeline at the existing bridge crossing over the drain between the two halves of the Site.

Condensate production from the processing of the produced gas is expected to peak in 2022 with a low/mid/high case production rate of 77.08/82.51/86.43 oilfield barrels (bbl) per day respectively. This will be stored in an existing storage tank on the 'B' site which has previously been used for the storage of methanol. The condensate will be removed by tanker up to four times per week. The condensate will be transferred to the tanker whilst it is parked on an existing tanker loading concrete plinth.

The individual elements of the proposed new process activities are described further in the Technical Plan (ref: 60625790-ACM-XX-00-RP-TECH-R03) in Section 4 of the application.

3.3 The Operator

Angus Energy is an independent onshore oil and gas development company focused on advancing its portfolio of licensed UK assets. Founded in 2009, Angus Energy is an Oil and Gas Authority (OGA) approved operator and member of the United Kingdom Onshore Oil and Gas (UKOOG) – the representative body for the UK onshore oil and gas industry.

The company is currently an operator in three licences in the Weald Basin in the south of England:

- Brockham in PL235;
- Lidsey oil field near Bognor Regis (PL241); and
- Balcombe near Crawley (PEDL244).

Angus Energy also has an interest in PEDL143 in Surrey.

3.4 The Site

3.4.1 Site Location and Description

The Saltfleetby Gas Field is located onshore UK in licence PEDL 005, east of Louth, Lincolnshire as shown on plan AE-GEN-001 (Location Plan).

The SFB wellsite where the new processing plant is being installed is located:

- ~ 270m to the south of Saddleback Road;
- ~ 2.1 km to the north of the village of Saltfleetby St Peter;
- ~ 2.9 km and 4.8 km to the north west of the villages of Saltfleetby All Saints and Theddlethorpe All Saints respectively;
- ~ 4 km west of Saltfleetby village, on the coast; and
- ~ 7 km north west of the TGT and the proposed Theddlethorpe Pipeline extension.

SFB is a 2.81 ha area within the green installation boundary shown on Plan AE-SFB-EPR-001 (Installation Boundary).

The site comprises gas wellsite infrastructure and is dominated by hardstanding of concrete, tarmac or compacted gravel. The site is surrounded by a security fence and contains several buildings of typical portacabin (i.e. pre-fabricated within a flat roof) and the surface water drainage management system.

There are six well heads present alongside processing/utilities equipment and portacabins for control and security purposes. There is an existing private access road to the site with a control barrier in place.

Details regarding the condition of SFB and the associated SFA well site which is also located off Saddleback Road approximately 1km to the south west is provided in the Site Condition and Baseline Report (ref: 60625790-ACM-XX-00-RP-SCR-R03 in Application Part 7) and relevant plans and drawings are provided in Application Part 10.

3.4.2 Surroundings

The site is located within an area of predominantly open, expansive agricultural land interspersed by drainage dykes and water courses (see Location Plan AE-GEN-001). The site is screened by earth mounds and mixed planting of trees and shrubs.

The closest residential properties are adjacent to Saddleback Road, ~ 0.3 km from the site.

There are seven listed buildings, Grade 1 – II* within 2 km of the site, the closest being the Grade I West Tower of the former Church of St Peter, ~ 1.5 km from the site.

There are no public rights of way within or in close proximity to the site. The closest footpath SaSP 58/1 runs through Saltfleetby St Peter, ~ 1.6 km south of the site.

There are no statutory designated sites of ecological importance within 1 km of the site. The nearest are the Humber Estuary (RAMSAR, Special Area of Conservation (SAC), Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI)) and the Saltfleetby-Theddlethorpe Dunes and Gibraltar Point (RAMSAR, National Nature Reserve (NNR), SAC, SPA and SSSI), both of which are located ~3.2 km east of the site.

Skidbrooke Ings Lane (West) Local Wildlife Site (LWS) is located 0.3 km to the north west and Ings Lane Verges LWS located approximately 1.3 km to the north.

The site is located within Flood Zone 3a, which is an area of high probability of flooding (1 in 100 year or greater probability of river flooding or a 1 in 200 or greater annual probability of sea flooding in any year). The site is bisected by a drain.

The site is not located within an Air Quality Management Area (AQMA) and the nearest declared AQMA is in Grimsby over 15 km north of the site.

3.4.3 Site History

The historical maps for the site from 1889 - 1999 consistently identify the land at which the wellsites reside upon as being an area of undeveloped land, considered likely to be of agricultural use given the presence of farm buildings in close proximity to the land.

Following a review of the historical maps it has been considered that there is a low likelihood that the soil and/or groundwater may have been affected by contamination. However, the possibility does exist that the soil and groundwater may have been affected by fertiliser and farm chemical usage both onsite and in the immediate vicinity.

Specific details of the historical land use are provided in the Site Condition and Baseline Report (ref: 60625790-ACM-XX-00-RP-SCR-R03 in Application Part 7).

3.5 Management and Operational Control

The facility is operated by Angus Energy Weald Basin No3 Limited and an environmental management system (EMS) has been implemented at the site which meets the requirements of the Environment Agency "Develop a Management System: Environmental Permit" guidance.

The system defines operational and maintenance procedures, coupled with requirements to be met in the event of an accident or incident. The site management techniques including training and development which are used are detailed in the Site Management Summary Report (ref: 60625790-ACM-XX-00-RP-MMP-R02 in Application Part 3).

3.6 Emissions Management

The application includes 4 point source releases to air, namely:

- A1 Emergency ground flare; and
- A2 - A4 Generator exhaust stacks;

There are no point source releases to water or sewer.

Emissions management at the facility will be achieved by:

- Good housekeeping standards;
- General operational control;
- Operator training and awareness; and
- Plant maintenance.

Site operational emissions management techniques are summarised in the management plans in Appendix A of the Impact Assessment (ref: 60625790-ACM-XX-00-RP-IAR-R02 in Application Part 5).

3.7 Impact Assessment

An assessment of the environmental impact associated with the site activities was completed and is presented in Application Part 5.

The assessment shows that:

- There were no anticipated significant environmental impact issues associated with site activities; and
- There were no anticipated human health impacts associated with the site activities.

3.8 Assessment of Best Available Technique (BAT)

The proposed additional processes meet the relevant requirements of the Environment Agency Technical Guidance "Onshore Oil and Gas Sector Guidance" (January 2020). An assessment of BAT is presented in Application Part 9.

4. Application Type

This application is for a variation to the existing Environmental Permit (EPR/JB3107XB/T001) to:

- add a new gas processing (refining) plant at wellsite SFB; and
- add new medium combustion plant (MCP) / specified generator at wellsite SFB.

The application is made under the Environmental Permitting (England and Wales) Regulations 2016, as amended and has been prepared as:

- a bespoke variation application for the main changes; and
- a standard rules permit SR2018 No 7 for the new MCP/specified generator.

