

Permitting decisions

Variation to permit

We have decided to issue the variation for Egmonton Oilfield operated by Island Gas Limited

The variation number is EPR/UP3931CS/V002

We have also carried out an Environment Agency initiated variation to the permit.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

This variation is required as the Environment Agency has a duty, under the Environmental Permitting (England and Wales) Regulations 2016, regulation 34(1), to periodically review permits. As a result of that review we have identified a number of necessary changes we must make to reflect current legislation and best practice. These changes principally relate to:

- Implementation of the Mining Waste Directive namely the addition of extractive waste management activities; and
- Oil storage activities; and

The variation also aim to: Consolidate all previous variations to the original permit so as to bring them together into one permit so the requirements will be clearer.

- Formalise changes to monitoring requirements and compliance limits where we have agreed them in writing, for example as the result of a hydrogeological risk assessment review.
- Address site specific issues which result in a change to the current permit, for example incorporating completed improvement conditions into the permit and removing inconsistencies.

Purpose of this document

This decision document provides a record of the decision making process. It:

- highlights [key issues](#) in the determination
- summarises the decision making process in the [decision checklist](#) to show how all relevant factors have been taken into account
- explains why we have also made an Environment Agency initiated variation
- summarises the engagement carried out because this is a site of high public interest
- shows how we have considered the [consultation responses](#).

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit. The introductory note summarises what the permit covers.

Brief outline of the process

The installation covers 12 discrete sites located around the villages of Egmanton and Weston, approximately 16km north of Newark on Trent, Nottinghamshire.

10 of the sites are so called 'silent sites' where the wells are shut in and no production takes place. The remaining two sites, Site 3 and Site 14, continue to produce small quantities of crude oil, approximately 10 barrels per day, which is brought to surface by a beam pump at each site. Once at surface, the co-mingled produced fluid is stored prior to collection by road tanker and delivery to either Welton Gathering Centre or Avington Gathering Centre. The dissociated gas is currently vented to atmosphere by way of a vent stack on the storage tank at each site. Vapour recovery is in place during loading operations.

Site 3 is located approximately 600m south of Weston village. Site 14 is located approximately 500m south west of Weston, and approximately 700m north-west of Site 3. Both sites are very simple operations, with just a single well and bulk storage tank at each site. No other significant surface infrastructure exists at either site.

Routine well maintenance activities

Acid wash, hot oiling and scale removal will be carried out as part of routine maintenance activities to improve the flow of petroleum within the Rough Rock Formation of the Millstone Grit of Well 3 at depths between 893 to 890 metres and 946 metres to 964 metres below ground level and the Eagle Sandstone Formation of the Pennine Middle coal Measures Well 14 at depths between 963 and 969 metres below ground level. We have reviewed and agreed with assessments that have been provided in the waste management plan and environmental risk assessment, which include details of operations and quantities. We are satisfied that the treatments meet de-minimis and will not need to be permitted as groundwater activity activities.

Wax Dissolver Treatment

The maintenance activity is carried out using a wax dissolver Chemiphase A101001 to remove wax deposits that would have accumulated within subsurface tubulars and pipework. Certain crude oils can produce asphaltines and waxes that become deposited on the tubulars and rod strings that are not dissolved when using either hot water or oil. In these circumstances a wax dissolver chemical is used as the dissolving liquid.

About 0.25m³ of the wax dissolver will routinely be used on 3 monthly intervals or as required.

The circulated fluid returns to the oil phase. This operation does not involve the pressurization of the circulating fluids in order to penetrate the reservoir. The treatment remains in the well or near well and is recovered in the oil phase and will be put into the crude oil tank for eventual sale as product.

We have considered the acid wax dissolver treatment as described in the waste management plan and concluded that it meets the groundwater activity exclusion as described in Schedule 22 Paragraph 3.3(b) of the Environmental Permitting Regulations.

Acid Wash

This operation involves the use of diluted acids to remove scale deposits within subsurface tubulars and pipework. The acids to be used include A-SOL, (pre-flush) and dilute hydrochloric acid (DAE 15% HCL+4), with volumes expected of not more than 0.25m³ per well.

During the abstraction process scale from minerals in the produced water mainly calcium carbonate can deposit on rods, tubes, pumps and casing perforations. This scale is typically dissolved from the system by using a 15% solution of hydrochloric acid with water.

The neutralised water carrying the dissolved scale is returned to surface and re-injected for production purposes. This operation does not involve the pressurization of the circulating fluids in order to penetrate the reservoir.

We have considered the acid wash treatment as described in the waste management plan and concluded that it meets the groundwater activity exclusion as described in Schedule 22 Paragraph 3.3(b) of the Environmental Permitting Regulations.

Hot Water Operation

The hot water operation involves the use of hot water to remove wax deposits within subsurface tubulars and pipework. Produced water is mostly used for this operation.

Water, either potable or produced, is heated to 90°C and pumped down the well annulus and returns to the surface via the tubing. During this activity the well pumping system is operating. This process dissolves wax that is deposited on the rods and tubulars. The melted wax returns to the oil phase.

All water is returned to surface and separated and is subsequently reinjected for production purposes. The melted wax is returned to the oil phase and will be put into the crude oil tank as product. During this activity the circulated fluids remains within the well casing and tubulars and will potentially contact the surface of the reservoir. This operation does not involve the pressurization of the circulating fluids in order to penetrate the reservoir.

We have considered the hot water operation as described in the waste management plan and concluded that it meets the groundwater activity exclusion as described in Schedule 22 Paragraph 3.3(b) of the Environmental Permitting Regulations.

Hot oil wash

This process is the same as Hot Water Washing but uses heated crude oil from the well being treated as the dissolving liquid. Crude oil is used were the face of the reservoir could be damaged if hot water was to be used. The crude oil is heated using specifically designed mobile plant known as a "hot oil truck". Crude oil is pumped from the delivery truck to the hot oiler were the temperature is raised from ambient to 90°C. This is achieved by passing crude oil through a coil which is situated in a heater chamber. A diesel fuelled burner raises the temperature within the chamber which then increases the temperature of the crude oil as it passes through the coil. Once the set temperature has been achieved the heated crude oil is delivered to the well via flexible hoses. Hot oil is then circulated down the well and back to surface pipelines which carries the heated fluids back to oil storage tanks. Any Volatile Organic Compounds being released through the heating process will be vented to atmosphere via the designated emission point along with gas associated with the oil production.

We have considered the hot oil wash as described in the waste management plan and concluded that it meets the groundwater activity exclusion as described in Schedule 22 Paragraph 3.3(b) of the Environmental Permitting Regulations

Well workovers

Despite the preventative maintenance measures taken above there will be instances where a well workover is required and a workover rig is temporarily installed on site to workover the well. These operations may generate extractive mining waste. We have varied the permit to allow the operator to carry out a mining waste operation involving the management of extractive waste from production activities, not involving a waste facility. The operation will include the management of extractive waste generated by well workover.

Description of the changes introduced by the variation

This is a variation to add a Mining Waste Operation, as defined by the Mining Waste Directive and Schedule 20 of the Environmental Permitting (England and Wales) Regulations 2016, as amended, relating to the management of extractive waste not involving a Mining Waste Facility. The permit is being varied to include activities specified in the approved Waste Management Plan and these include management of extractive mining wastes from near well-bore treatments involving acid-squeeze, hot oil wash, and scale removal and well workover operations.

The original permit was issued for an Industrial Emission activity as defined by the Industrial Emissions Directive and Part 2 Schedule 1.2 of the Environmental Permitting (England and Wales) Regulations 2016, as amended, relating to the loading, unloading, handling and storage of crude oil.

Key issues of the decision

For clarity a permit subject to the Mining Waste Directive covers the management of extracted waste and not the oil extraction process. This variation does not permit any hydraulic fracturing. We have specified this limit in Schedule 1 of the permit under Table S1.1, activity A3.

The Operator may also undertake near wellbore treatments during the lifetime of hydrocarbon production from the well, as part of routine maintenance activities. These will include hot water washing, hot oil washing, wax dissolver treatment and acid treatment.

The purpose of hot water washing and hot oil washing is to remove the build-up of paraffin precipitates. The process involves circulating hot oil or heated produced water down the well, to the production tubing above the perforations and is circulated back to the surface. Paraffin precipitates dissolved in the hot water or hot oil at the surface are passed through a free phase separator and directed to on-site storage tanks. The hot water wash and hot oil wash does not have any contact with the reservoir formation and does not pose a risk to groundwater.

We have considered all the proposed near wellbore treatments as described in the waste management plan and concluded that it meets the groundwater activity exclusion as described in Schedule 22 Paragraph 3.3(b) of the Environmental Permitting Regulations.

Improvement Programme

We have imposed improvement conditions for the following reasons

IC1 - Secondary and Tertiary Containment Review

Improvement condition IC1 is necessary to ensure that secondary and tertiary containment systems meet the standards required of a new oil and gas site. This will reduce the likelihood of any uncontrolled polluting discharges to the environment.

IC2 - Leak Detection and Repair Plan

Improvement condition IC2 is necessary because a leak detection and repair plan is needed to manage fugitive VOC emissions from potential leak points such as seals, flanges, pumps and valves. This standard technique is a method for identifying and prioritising potential sources of leaks, developing a leak detection and repair programme using the monitoring standard EN 15446 including assessing reductions in emissions resulting from the programme and estimation/calculation of any residual emissions. The EN 15446 method is described in the Refineries BRef (2015) as an available method for carrying out monitoring of fugitive emissions. Alternative but equivalent methods can be proposed.

IC3 - Environmental Management System Review

Improvement condition IC3 is necessary as based on the information submitted with the application we have identified a number of procedures that do not appear to be in place.

This improvement condition requires the relevant procedures to be written into the Operator's management system, and to be adhered to. The management system will be subject to usual compliance audit in future.

IC4 - Gas management

Improvement condition IC4 is necessary as the operator does not appear currently to be applying appropriate measures for the management of waste gas arising from their production of hydrocarbons.

Gas management is required as the impact of releasing large quantities of uncombusted hydrocarbons leads to a significant environmental impact which can be readily mitigated using available techniques.

We have included improvement condition 4 which requires the operator to submit for written approval a plan identifying their identified method for reducing the impact of gas emissions to atmosphere.

Gas management is necessary to reduce the environmental and human health impacts of emitting natural gas directly to atmosphere.

IC5 - Air emissions monitoring

Improvement condition 5 is necessary as the site features emissions to air with the potential to cause pollution. We have applied improvement condition 5 to require the operator to undertake appropriate emissions monitoring from each of the emission points on the site to understand the current performance of the process / equipment which gives rise to the emission. We will use the results of this monitoring to determine whether the operator's processes and equipment minimises the emission to air to as low as reasonably achievable in line with best available techniques. We expect the Operator to use these monitoring results when responding to IC 4 to ensure they are applying best available techniques for the management of waste gas arising from their production of hydrocarbon.

Where appropriate, we will use these monitoring results to set appropriate assessment levels or compliance limits for the operator to comply with in future.

We consider this condition necessary as although the volume of each individual emission is comparatively small, the quality of combustion employed in each case can significantly alter the levels of various pollutants ultimately present within the emission. By requiring ongoing emissions monitoring, this condition will ensure that the operator achieves, and then continues to operate their processes and equipment to an acceptable standard, and commensurately reduces their environmental impact to as low a level as is reasonably practical.

IC6 - Site Condition Report Review

Improvement Condition IC6 is necessary because the operator is required to produce a Site Condition Report where there is a possibility of soil and groundwater contamination from activities that involve the use, production or release of a relevant hazardous substance, as defined in the Industrial Emissions Directive.

The Operator has not provided a Site Condition Report with baseline data to confirm the current state of any soil and/or groundwater contamination, or confirmed that existing soil and groundwater data for the site enables a baseline to be defined for the site.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential.
Consultation	
Consultation	<p>The application was publicised on the GOV.UK website because of the high levels of public interest in the onshore Oil and Gas Sector. The application itself is NOT high public interest.</p> <p>We consulted the following organisations:</p> <p>Local Authority, Environmental Protection- Nottinghamshire County Council; Food Standards Agency; Oil and Gas Authority;</p> <p>Health and Safety Executive and Mineral Planning Authority- Nottinghamshire County Council</p>
Operator	
Control of the facility	We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal operator for environmental permits.
The facility	
The regulated facility	<p>We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN 2 'Defining the scope of the installation', Appendix 1 of RGN 2 'Interpretation of Schedule 1', guidance on waste recovery plans and permits.</p> <p>The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.</p>
The site	
Extent of the site of the facility	The operator has provided plans which we consider are satisfactory, showing the extent of the site of the facility. The plans are included in the permit.
Site condition report	<p>The operator has provided a description of the condition of the site. We have assessed the site condition report and concluded that it will need updating in order to comply with requirements of Article 22 of the Industrial Emissions Directive. We have therefore imposed an improvement condition IC7 requiring the operator to review and update their site condition report include at least the following:</p> <ul style="list-style-type: none"> i) consideration of oil storage areas including oil storage vessels, bunds, loading and unloading areas and other potential sources of contamination as shown in the site location plan. ii) reference to any historical spillages, the chemicals involved and locations baseline soil sample results and groundwater data. We have included an improvement condition (IC7) in the permit to review the site condition report to ensure Article 22 of the Industrial Emissions Directive is complied with.

Aspect considered	Decision
	The decision was taken in accordance with our guidance on site condition reports and baseline reporting under the Industrial Emissions Directive.
Waste management plan	The operator has provided a waste management plan which we consider is satisfactory.
Biodiversity, heritage, landscape and nature conservation	The application is not within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.
Environmental risk assessment	
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>The operator's risk assessment is satisfactory.</p> <p>There will be no increase in emissions as a result of this variation, and consequently no increase in environmental risk.</p>
Operating techniques	
General operating techniques	<p>We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility. The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit. This includes the requirement for the Operator to provide a waste management plan and the information required within this. The waste management plan, including associated documents, has been assessed in accordance with these requirements and is approved subject to conditions. Condition 2.3.1 ensures that the operations are limited to those described in the WMP and in table S1.2. It also ensures that the Operator follows the techniques set out and that any deviation will require our written approval. Any significant changes will require a formal variation of the permit. Where a condition imposes a specific requirement that will take precedence over anything in the plan.</p> <p>In addition have inserted additional improvement conditions as part of the permit review to ensure these operations continue to meet the requirements of our Onshore Oil and Gas Sector Guidance, August 2016.</p>
Odour management	<p>We have considered potential odour emissions from the activity during our determination. We do not consider that the activity will give rise to significant levels of odour. Condition 3.3.1 in the permit requires that emissions from the activities shall be free from odour at levels likely to cause pollution outside the site.</p> <p>We are satisfied that appropriate measures will be in place to manage odour. However, we have included condition 3.3.2 in the permit. This condition enables us to require the Operator to submit a specific odour management plan, should odour become a problem. If a plan be required in the future, once we have assessed this plan as suitable, it will form part of the permit and the Operator must carry out the activity in accordance with the approved techniques.</p>
Noise management	We have considered emissions from noise and vibration during our determination. Condition 3.4 in the permit requires that emissions from the activities shall be free of noise and vibration at levels likely to cause pollution outside the site.

Aspect considered	Decision
	<p>We have included condition 3.4.2 in the permit. This condition enables us to require the Operator to submit a specific noise and vibration management plan, should noise and vibration become a problem. If a plan be required in the future, once we have assessed this plan as suitable, it will form part of the permit and the Operator must carry out the activity in accordance with the approved techniques.</p>
Permit conditions	
Use of conditions other than those from the template	<p>Based on the information in the application, we consider that we do not need to impose conditions other than those in our permit template.</p>
Updating permit conditions during consolidation	<p>We have updated permit conditions to those in the current generic permit template as part of permit consolidation. The conditions will provide the same level of protection as those in the previous permit(s).</p>
Changes to the permit conditions due to an Environment Agency initiated variation	<p>We have varied the permit as stated in the variation notice.</p> <p>This variation is required as the Environment Agency has a duty, under the Environmental Permitting (England and Wales) Regulations 2016, regulation 34(1), to periodically review permits. As a result of that review we have identified a number of necessary changes we must make to your permit to reflect current legislation and best practice. These changes principally relate to the improvement programme specified in condition 2.4 of the permit.</p>
Improvement programme	<p>Based on the information on the application, we consider that we need to impose an improvement programme.</p> <p>Based on the information on the application, we consider that we need to impose an improvement programme.</p> <p>We have imposed an improvement programme for reasons we have outlined in "key issues" above.</p>
Emission limits	<p>The Operator has provided environmental risk assessments and consideration in the WMP for the management of waste gas and we have found these to be satisfactory. Acidification and Toxic Contamination could occur from the potential release of H₂S into the atmosphere during venting.</p> <p>ELVs equivalent parameters have been set for the Hydrogen sulphide in Schedule 3 of the permit.</p> <p>Hydrogen Sulphide</p> <p>We have also required the operator to monitor emissions to air, and if trends shown an increase in emissions, then the Environment Agency will require the operator to implement a plan to manage emissions</p>
Monitoring	<p>We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified. Condition 3.5 of the permit requires the Operator to monitor emissions to air from the oil gas vent and changes in groundwater quality attributable to reinjection of produced water. The Operator will keep records of the data collected, which must be submitted to the Environment Agency on a regular basis.</p> <p>We made these decisions in accordance with the requirements of our Onshore Oil and Gas Sector Guidance, August 2016 and the Groundwater Directive and to baseline report required under the Industrial Emissions Directive.</p>

Aspect considered	Decision
	Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.
Reporting	<p>We have specified reporting in the permit.</p> <p>The reports will enable information on trends to be assessed and interventions to be carried out when required.</p> <p>We made these decisions in accordance with the requirements of our Onshore Oil and Gas Sector Guidance, August 2016 and the Groundwater Directive and to baseline report required under the Industrial Emissions Directive.</p>
Operator competence	
Management system	<p>There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.</p> <p>The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.</p>
Relevant convictions	<p>The Case Management System and National Enforcement Database have been checked to ensure that all relevant convictions have been declared.</p> <p>No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.</p>
Financial competence	There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.
Financial provision	The financial provision arrangements satisfy the financial provisions criteria.
Growth Duty	
Section 108 Deregulation Act 2015 – Growth duty	<p>We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.</p> <p>Paragraph 1.3 of the guidance says:</p> <p>“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”</p> <p>We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.</p> <p>We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.</p>

Consultation

No objections were received statutory consultees and members of the public.