

Environment Agency Permitting Decisions

Bespoke permit

The Permit Number is	:	EPR/DB3504XY
The Applicant/Operator is	:	Wingas Storage U.K. Limited
The Site is located at	:	Saltfleetby B Well site Saddleback Road Howdales South Cockerington Louth LN11 7DJ
Duly made	:	2 nd September 2015
Consultation commenced on	:	22 nd September 2015
Consultation ended on	:	20 th October 2015
Permit determined	:	03/10/2016

We have decided to grant a permit for the Saltfleetby B well site operated by Wingas Storage UK Limited.

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.

Purpose of this document

This document explains how we have considered the Applicant's Application, and why we have included the specific conditions in the permit we are issuing to the Applicant. It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position. Unless the document explains otherwise, we have accepted the Applicant's proposals.

This document explains our thinking to the public and other interested parties. We have made our final decision only after carefully taking into account any relevant matters raised in the responses we received. We believe we have covered all the relevant issues and reached a reasonable conclusion.

We try to explain our decision as accurately, comprehensively and plainly as possible.

Preliminary information

We gave the Application the reference number EPR/DB3504XY/A001. We refer to the Application as “the **Application**” in this document in order to be consistent.

The number we have given to the permit is EPR/DB3504XY. We refer to the permit as “the **Permit**” in this document.

The Application was duly made on 02/09/2015.

The site for the proposed mining waste operation is located at Saltfleetby B well site, Saddleback Road, Howdales, South Cockerington, Louth LN11 7DJ.

Use of terms

The Applicant is Wingas Storage UK Limited. We refer to Wingas Storage UK Limited as “the **Applicant**” in this document. Where we are talking about what would happen after the Permit is granted, we call Wingas Storage UK Limited “the **Operator**”.

Flaring

Flaring is a technique used where quantities of flammable gas are burnt in a controlled manner, without use or recovery of the heat generated. The gas flow is ignited under controlled conditions.

Regulated facility

This is the term used in the Environmental Permitting (England and Wales) Regulations. Those regulations provide that any regulated facility must be operated only under and in accordance with an environmental permit. The regulations define this term as to include a “mining operation”. A “mining operation” is further defined so as to include the management of extractive waste whether or not it involves a waste facility. The term “regulated facility” is therefore quite different to the term “waste facility” which is defined in the Mining Waste Directive.

Reservoir

A reservoir is a porous and permeable rock in which oil or gas may be present.

Million standard cubic feet per day (MMscfd)

Million standard cubic feet per day is a standard unit of measurement in the oil and gas industry, equivalent to 1180 Nm³/hr

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

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

Structure of this document

Key issues

1. Summary of our decision
2. How we took our decision
3. Outline of process
4. The legal framework
5. Description of the operation
6. General issues
7. Environmental issues and their control
8. Other legal requirements

Key issues of the decision

This Application is for a permit for the incineration of waste gas in an incineration plant with a capacity exceeding 10 tonnes per day and the management of extractive mining waste resulting from the commissioning of a production well at Saltfleetby B well site in East Lindsey.

1. Summary of our decision

We have decided to grant the Permit to the Applicant. This will allow it to flare waste gas and manage extractive mining waste arising from the commissioning of a borehole as set out in the Waste Management Plan (WMP) and subject to any conditions in the permit.

We consider that, in reaching that decision, we have taken into account all relevant considerations and legal requirements and that the permit will ensure that a high level of protection is provided for the environment and human health.

The Permit contains conditions which were taken from our standard Environmental Permit template including the relevant Annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations, Industrial Emissions Directive, Mining Waste Directive and other relevant legislation.

This document does not therefore include an explanation for these standard conditions. Where they are included in the permit, we have considered the Application and accepted the details are sufficient and satisfactory to make the standard condition appropriate.

We try to explain our decisions as accurately, comprehensively and as plainly as possible.

2. How we took our decision

The Application was duly made on 02/09/2015. This means we considered it was in the correct form and contained sufficient information for us to begin our determination.

We carried out consultation on the Application taking into account the Environmental Permitting Regulations and our statutory Public Participation Statement.

We advertised the Application by a notice placed on our website, which contained all the information required by the regulations, including telling people where and when they could see a copy of the Application.

We placed a paper copy of the Application and all other documents relevant to our determination on our Public Register at Waterside House, Waterside North,

Lincoln, Lincolnshire LN2 5HA. Anyone wishing to see these documents could do so and arrange for copies to be made.

We sent copies of the Application to the following bodies whom we have “Working Together Agreements”:

- Health and Safety Executive
- Public Health England
- Director of Public Health, Lincolnshire County Council
- Public Protection, Regulatory Services in Louth

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly.

We also discussed the proposals with the Minerals Planning Authority, Lincolnshire County Council.

No objections were received from the consultees.

3. The legal framework

The drilling and management of the extractive waste are regulated under different regimes. An Operator will need planning permission from the local Minerals Planning Authority, and a Petroleum Exploration and Development Licence (PEDL) from the Oil and Gas Authority.

The Permit is granted under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010, which regulates facilities whose activities involve water discharges and groundwater activities, radioactive substances, waste, mining waste or which are listed in schedule 1 to the 2010 Regulations. The Environmental Permitting regime is the regulatory framework which requires the Environment Agency to deliver the obligations required by national policy and various EC Directives.

We consider that the permit will ensure that the operation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

4. Description of the operation

4.1 Site location

The site for the proposed mining waste operation is located at: Saltfleetby B Well Site, Saddleback Road, Howdales, South Cockerington, Louth, Lincolnshire, LN11 7DJ.

4.2 What the regulated facility does

As part of the efforts to increase productivity at the site, the operator will drill a sidetrack borehole from an existing well, Saltfleetby 7Y. A separate permit, permit number EPR/DB3406CS, was issued for the management of extractive waste associated with this drilling process. Before connecting the new sidetrack borehole to the pipeline that links the wells to the refinery nearby, the borehole will need to be cleaned so as to ensure that the gas produced is of acceptable quality. The cleaning process will generate some extractive mining wastes that include waste gas which will need to be managed. The gas will be flared and the extractive mining waste generated will be disposed.

The operation involves two classes of “regulated facility” as defined in the Environmental Permitting (England and Wales) Regulations 2010 (EPR), namely a mining waste operation and an installation.

The permit will authorise the operation of a regulated facility, namely mining waste operation for the management of extractive waste not including a waste facility. This will allow the operator to carry out an operation to clean a side track borehole that has been drilled. The clean up operation is necessary to ensure that only gas of acceptable quality is collected from the borehole.

The clean up process will involve flaring of waste gas. As well as being a mining waste operation involving the management of extractive waste the flaring of the waste gas is an installation activity as it involves the incineration of hazardous waste, namely gas, in flare with a capacity of more than 10 tonnes a day.

By virtue of the Environmental Permitting (England and Wales) Regulations 2010, an environmental permit is required for the operation of a regulated facility.

4.3. Waste management activities

4.3.1. The wastes that may need to be managed on site are:

Natural gas

- Wastes from mineral non-metalliferous excavation (16 05 04*) – Hazardous

Produced fluid/gas condensate

- Aqueous liquid wastes destined for off-site treatment other than those mentioned in 16 10 01

Clean up fluids

- Aqueous liquid wastes destined for off-site treatment other than those mentioned in 16 10 01

Nitrogen

4.3.2. The following text is a description of how the wastes arise and what will happen to them

Natural gas

The cleaning operation will involve flowing the well to remove any drilling fluids and debris that remained in the well through temporary facilities, subsequently flowing clean gas to surface. The cleaning operations will require the use of temporary equipment which includes an arrangement of pipe work, tanks and a flare. The cleaning operation will commence with the reduction of hydrostatic pressure in the well through the introduction of nitrogen to enable gas to flow naturally to surface. The gas will flow through the commissioning equipment package and will be incinerated as waste gas in the flare.

Gas flow rate will be limited to the technical specification of the flare. Flaring operations will be stopped as soon as the gas quality is acceptable to route to the production facilities. Thereafter, the well will be connected to existing production facilities to continue commercial production.

It is not feasible to recycle and reuse any of the extracted gas through an onsite generator, due to operational constraints and in particular the impact on commissioning the well. Due to the inherent risk of finding producible gas and the high cost of an onsite generator, it is not warranted at this stage for an operation that will last for up to 7 days.

Furthermore, it is difficult to identify a suitable generator which is appropriate for processing the produced natural gas, since the composition of the natural gas will not have been fully confirmed at the clean up stage.

The gas can not be vented into the atmosphere as this poses a risk of creating a flammable atmosphere.

Flaring of gas is the best available option to manage the waste gas that will be produced during the clean up operation.

Produced fluid/condensate

A typical by-product of producing natural gas is the production of fluid, typically brine. As the well is flowed, gas and fluid will be lifted to the surface. This is flowed through the commissioning equipment, which includes a separator that removes the gas from the fluid before the gas is flared. The fluid is then stored in tanks onsite for up to a month.

Due to the temporary and short term nature of the commissioning phase, the most suitable option for disposing the produced fluid is to remove it from the storage tanks via road tanker. The waste will be disposed at a licensed disposal facility. The tanks used to store the fluids onsite are subject to weekly visual inspections to confirm their integrity. This fluid will be separated from the gas at surface and stored temporarily in tanks onsite.

Clean up fluid

If the well is not able to flow having been displaced with nitrogen, it may be necessary to clean up the wellbore to allow any natural gas within the reservoir to flow.

This will involve circulating a small quantity of hydrochloric acid which is diluted with water to provide a 15% solution. It is designed to react with the reservoir rock and any drilling muds, which may have lined the wellbore.

Any clean up fluids which are pumped into the wellbore will be reverse circulated out of the wellbore back to surface for subsequent disposal. These fluids will be

flowed from the well and directed back to the storage tanks. It is anticipated that up to 10m³ of hydrochloric acid will be used.

Nitrogen

Nitrogen is an inert gas that has been extracted from the atmosphere. The Nitrogen will be vented back into the atmosphere and no treatment is proposed.

The use of nitrogen can be considered as a closed loop system, since it is originally extracted from the atmosphere. The nitrogen is vented back into the atmosphere as the well is flowed. Only a relatively small volume (about 150m³) is likely to be required and only the necessary amount will be pumped to initiate the flow.

Nitrogen is required to reduce the hydrostatic pressure in the wellbore, which then allows the reservoir gas to flow under its own pressure. Nitrogen is pumped from surface through an inner coil tubing string in the completion tubing. Nitrogen is pumped down the inner string taking returns outside the inner string back to surface. The nitrogen allows the well fluids and reservoir gas to be lifted to surface.

4.3.3. Storage arrangements

Table 1 below shows the storage arrangements for waste types produced on site

Table 1: Storage arrangements for waste types produced on site

Type of waste	Quantity	Storage capacity	Type of containment	Storage duration
Natural gas	Up to 7mmscf/d (135 tonnes)	None, gas to be flared	None, gas to be flared	Flaring for less than 2 weeks
Produced fluid/gas condensate	50m ³	240m ³	Storage tanks	Up to 1 month
Clean up fluids	10m ³ per squeeze	1m ³ Intermediate bulk container (IBCs)	Intermediate bulk container	14 days
Nitrogen	150m ³	Not applicable	Vented to air	Less than 2 weeks

5. General Issues

5.1 Administrative issues

We are satisfied that the Applicant is the person who will have control over the operation of the facility after we issue the permit in line with our Legal operator and competence requirements : environmental permits : www.gov.uk/guidance/legal-operator-and-competence-requirements-environmental-permits and that the Applicant will be able to operate the regulated facility in compliance with the conditions included in the permit.

5.2 Management

Having considered the information submitted in the Application, we are satisfied that appropriate management systems and management structures will be in place.

5.3 Financial competence and relevant convictions

We are satisfied that sufficient financial resources are available to the Operator to ensure compliance with the permit conditions.

The Operator does not have any relevant convictions.

5.4 External Emergency Plan

As the activity does not involve a waste facility, there is no requirement for an External Emergency Plan.

5.5 Site security

Having considered the information submitted in the Application, we are satisfied that appropriate infrastructure and procedures will be in place to ensure that the site remains secure. This is part of the written management system of the permit, condition 1.1.1 a.

5.6 Accident management

Having considered the information submitted in the application, we are satisfied that appropriate measures will be in place to ensure that environmental accidents that may cause pollution are prevented but that, if they should occur, their consequences are minimised. This is part of the written management system of the permit, required by condition 1.1.1 a.

5.7 Well decommissioning, site closure and reinstatement.

On completion of the clean up operations, the flare and other commissioning equipment that will have been used for the clean up operation will be removed from the site and the well will be put into production.

After the well has completed its life span and the flow rates have declined to commercially unviable levels, the well will be decommissioned in accordance with methods approved by the Health and Safety Executive and Oil and Gas Authority UK. The borehole site will be restored back to agricultural use, except a small amount of landscape planting which may remain. A period of aftercare will be carried to ensure successful restoration in accordance with the planning permissions.

The decommissioning process and site reinstatement process has been catered for within the Waste Management Plan approved under permit EPR/DB3406CS, and will be regulated under that permit.

5.8 Surrender of the permit

When the Operator wants to surrender their permit, they have to satisfy us that the necessary measures have been taken to:

- Avoid any on-going pollution risk resulting from operation of the facility; and
- To return the site to a satisfactory state, having regard to the state of the site before the activity was put into operation.

We will not grant any application for surrender unless and until we are satisfied that these requirements have been complied with.

5.10 The site and its protection

5.10.1 Well site construction

The well site is underlain by an impermeable alluvium, which consists of soft silty clay with layers of sand, gravel and peat, to a depth of 20 metres.

The design and operation of the permitted site has incorporated a number of elements to protect the environment. These include:

- A surface water containment area around the equipment and area used to store extractive waste;
- Well site constructed from aggregate stone, tarmac and concrete
- Reinforced concrete cellar around the well, providing containment. Each of the well cellars has been constructed from pre-cast concrete rings.

The cellar forms a containment area from which the well operations can be conducted, whilst also housing the wellhead. The impermeable membrane is incorporated into the cellar to maintain the integrity of the impermeable membrane.

- A bunded area for the storage of oil, chemicals and fuel. These will be stored in accordance with Control of Pollution (Oil Storage) (England) Regulations 2001.

5.10.2 Site condition report

As part of the Application, the Operator submitted a site condition report. This report contains the baseline information on the condition of the site at the time the Application was made. The report will be updated to include any changes in condition as a result of the proposed clean up operation. This baseline will be used as a comparison, to establish whether there has been any deterioration of the land as a result of the permitted activities, when the Operator applies to surrender their permit.

The Operator must keep accurate records throughout the lifetime of their permit to clearly demonstrate that their activity has not adversely affected the site. This record will be used, in conjunction with the baseline data described above, to support any surrender application.

5.10.3 Pollution prevention measures

We have considered the location of the site, actual and potential emissions, the sensitivity of receptors and the nature of the activity to decide what appropriate pollution prevention measures need to be in place.

As part of our assessment of the application we have carefully considered the risk assessment and all associated documents provided by the Applicant. We consider that these cover all the potential risks and sets out appropriate measures by way of mitigation.

5.10.4 Storage arrangements

Storage of the extractive wastes will take place on an impermeable membrane.

5.10.5 Emissions to air

The ability to prevent or minimise the production of natural gas is extremely limited during this operation as it is intended to flow and get rid of gas which contain contaminants. Given that the operation is for a short duration, it is not economically viable and practicable to install the infrastructure required to capture the gas for sale and transportation for reuse as a fuel or other means of generating energy.

Natural gas is separated from produced fluids at surface and diverted via temporary pipe work for the flow rate to be tested. It will then enter a shrouded flare located onsite for incineration.

When in operation, the flare will be supervised 24 hours a day to ensure its effectiveness to incinerate the natural gas. In addition air emissions from the flare will be monitored by calculation. The flare activity is proposed to last for up to 14 days only.

An air dispersion assessment has been carried out to assess the likely impacts of flaring. Our assessment of the environmental risks associated with the proposed flaring has been that the environmental risks will be low and will be for a short term as the flaring will be for about seven days at most.

The operator has provided an air dispersion modelling report that assesses the likely impact of flaring. The expected composition of any natural gas that may arise from the activities is approximately 90% methane with the remainder a mixture of ethane, propane and butane. We are satisfied that the combustion of this natural gas will not result in pollution or harm to human health and that it is not necessary to set emission limits as the operating controls will ensure effective combustion. Air quality management is discussed in detail in section 6.2

We have reviewed the information submitted and we are satisfied that the design of the flare is appropriate.

Monitoring requirements are detailed in section 6.8.

6. Environmental Issues and their control

This section of the document explains how we have approached the critical issue of assessing the likely impact of the operation on human health and the environment. It also details the measures we require to ensure a high level of protection. The principal potential emissions are those to air, water and land.

The key issues arising in relation to human health and the environment during this determination were:

- Emissions to air;
- Nature conservation;
- Protection of groundwater;
- Odour;
- Noise;
- Contamination of land;

The detail in this section relates to how we determined these issues.

6.1 Assessment of environmental impacts

We are satisfied that the Operator has properly assessed the risk posed by the proposed activity. The risks identified are detailed in the Operator's risk assessment. This covers assessments of risks to surface, ground and air. We have reviewed the Operator's assessments of the environmental risk from the operations. The Operator's risk assessments are satisfactory.

6.2 Emissions to air

During the determination of this application, we considered emissions to air that will arise from the flaring and the potential impact of these emissions on human health and ecological receptors. The Applicant submitted an air quality assessment as part of their application which we then assessed.

The applicant has provided a procedure describing how the flare will be operated. The procedure describes how the gas flow and pressure to the flare will be controlled in order to establish a consistent flow, control flame height so it is not visible and optimise the combustion temperature.

We have included monitoring conditions in the permit requiring the Operator to monitor for temperature, volume of gas going into the flare from which the emissions of oxides of nitrogen, carbon monoxide, total Volatile Organic Compounds (VOCs) and methane can be calculated, and to provide reports of the results.

We have not included a limit for minimum temperature of combustion. We consider it inappropriate to set numeric limits for temperature as this will be difficult to measure accurately.

We have also included a requirement to video the flare continuously whilst it is operational (connected and the pilot light is on). This is to gather information on the flare performance at different feed gas flow rates

A methodology for risk assessment of point source emissions to air, which we use to assess the impacts of air emissions, is set out in our Horizontal Guidance Note H1 and has the following steps:

- Describe emissions and receptors
- Calculate process contributions
- Screen out insignificant emissions that do not warrant further investigation
- Decide if detailed air modelling is needed
- Assess emissions against relevant standards
- Summarise the effects of emissions

The H1 methodology uses a concept of "process contribution (PC)", which is the estimated concentration of emitted substances after dispersion from the facility into the receiving environmental media at the point where the magnitude of the concentration is greatest. The guidance provides a simple method of calculating PC primarily for screening purposes and for estimating process contributions

where environmental consequences are relatively low. It is based on using dispersion factors. These factors assume worst case dispersion conditions with no allowance made for thermal or momentum plume rise and so the process contributions calculated are likely to be an overestimate of the actual maximum concentrations.

Once short-term and long-term PCs have been calculated in this way, they are compared with Environmental Quality Standards (EQS) referred to as “benchmarks” in the H1 Guidance. Where an EU EQS exists, the relevant standard is the EU EQS. Where an EU EQS does not exist, our guidance sets out a National EQS (also referred to as Environmental Assessment Level - EAL) which has been derived to provide a similar level of protection to Human Health and the Environment as the EU EQS levels.

National EQSs do not have the same legal status as EU EQSs, and there is no explicit requirement to impose stricter conditions than BAT in order to comply with a national EQS. However, national EQSs are a standard for harm and any significant contribution to a breach is likely to be unacceptable.

PCs are considered Insignificant if:

- the long-term process contribution is less than 1% of the relevant EQS; and
- the short-term process contribution is less than 10% of the relevant EQS.

The long term 1% process contribution insignificance threshold is based on the judgments that:

- It is unlikely that an emission at this level will make a significant contribution to air quality;
- The threshold provides a substantial safety margin to protect health and the environment.

The short term 10% process contribution insignificance threshold is based on the judgments that:

- spatial and temporal conditions mean that short term process contributions are transient and limited in comparison with long term process contributions;
- the threshold provides a substantial safety margin to protect health and the environment.

Where an emission is screened out in this way, we would normally consider the Applicant’s proposals for the prevention and control of the emission to be BAT. That is because if the impact of the emission is already insignificant, it follows that any further reduction in this emission will also be insignificant. However, where an emission cannot be screened out as insignificant, it does not mean it will necessarily be significant.

The Applicant has submitted full air dispersion modelling as part of their application. Air dispersion modelling enables the process contribution to be predicted at any environmental receptor that might be impacted by the operation of the flare.

For those pollutants which do not screen out as insignificant, we determine whether exceedances of the relevant EQS are likely. This is done through detailed audit and review of the Applicant's air dispersion modelling taking background concentrations and modelling uncertainties into account. Where an exceedance of an EU EQS is identified, we may require the Applicant to go beyond what would normally be considered BAT for the Installation or refuse the application. Whether or not exceedances are considered likely, the application is subject to the requirement to operate in accordance with BAT.

This is not the end of the risk assessment, because we also take into account local factors (for example, particularly sensitive receptors nearby such as a SSSIs, SACs or SPAs). These additional factors may also lead us to include more stringent conditions than BAT.

If, as a result of reviewing of the risk assessment and taking account of any additional techniques that could be applied to limit emissions, we consider that emissions would cause significant pollution, we would refuse the Application. The Applicant has assessed the potential emissions to air from the flaring activity against the relevant air quality standards, and the potential impact upon local conservation and habitat sites and human health. These assessments predict the potential effects on local air quality from the flare using the ADMS 5.0 dispersion model, which is a commonly used computer model for regulatory dispersion modelling.

We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably conservative. The Applicant has modelled the concentration of key pollutants at a number of specified locations within the surrounding area.

The way in which the Applicant used dispersion models, its selection of input data, use of background data and the assumptions it made have been reviewed by the Environment Agency's modelling specialists to establish the robustness of the Applicant's air impact assessment. The output from the model has then been used to inform further assessment of health impacts and impact on habitats and conservation sites.

Our review of the Applicant's assessment leads us to agree with the Applicant's conclusions. We have also audited the air quality and human health impact assessment and similarly agree that the conclusions drawn in the reports are acceptable.

Emissions modelled

The air dispersion modelling considered the potential impacts of the main pollutants that could be emitted from the combustion of natural gas based on its expected composition:

- Oxides of nitrogen / nitrogen dioxide (NO_x / NO₂),
- Carbon monoxide (CO)
- Sulphur dioxide (SO₂)
- Benzene (a volatile organic compound, VOC).
- PAH emissions (with reference to Benzo-a-pyrene)
- Particulate matter (PM₁₀)

We are satisfied with the extent of the emissions modelled by the operator.

Conclusions

We are satisfied that the Environmental Risk of the proposal is understood and that it is acceptable. Information provided by the applicant indicates that no Air Quality Standards will be breached.

We have also examined whether the risk assessment and proposed controls take account of modeling uncertainty. The applicant has modelled a range of combustion efficiency, including combustion at lower than expected temperatures. This is a conservative approach and gives a high factor of safety to the modelling results. We are therefore satisfied that the likely range of uncertainty is taken account of, and this gives us a high confidence in our conclusion for no breach of air quality standards, if the applicant controls the flare as they have stated.

Nature Conservation

We have considered the location of the site, the activity taking place and the materials likely to be present within the extractive waste in order to set suitable conditions and limits in the permit.

The site is about 3.7 kilometres away from Humber Estuary Special Area of Conservation (SAC), Humber Estuary Ramsar and Saltfleetby-Theddlethorpe Dunes and Gibraltar Point Special Area of Conservation (SPA). The Humber Estuary SPA is about 4.2 kilometres away.

A full assessment of the application and its potential to affect the Humber Estuary SAC, Humber Estuary Ramsar and Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC and Humber Estuary SPA showed that the proposed activities were not likely to have a significant effect on these sites or any of their designated interest features. The proposed activity does not have a potential or is of such magnitude that it will likely not cause a significant effect on the designated sites or any of its interest features.

We are satisfied that the flare operations will not have a significant impact on ecological receptors.

6.3 Waste Management Plan

Under the Mining Waste Directive (Article 5) an Operator of a mining waste operation must draw up a waste management plan (**WMP**) for the minimisation, treatment, recovery and disposal of extractive waste. We have assessed the Applicant's waste management plan. The waste management plan references other documents which together fulfil requirements of Article 5 of the MWD and ensure that the requirements in Article 4 are also met. We have approved the plan as whole, subject to conditions in the permit. We are satisfied the permit requirements including the WMP will protect the environment and that Article 4 and 5 of the MWD are met.

Wastes arising from the activities will be recovered where possible. It also characterises each waste type. We are satisfied that waste is correctly characterised taking into account the definition in Article 3 of the Waste Framework Directive.

The WMP including any associated documents are incorporated into the permit by means of condition 2.3.1 and table S1.2. The WMP needs to be reviewed every 5 years but in the unlikely event that the activities give rise to pollution, condition 2.3.1 enables us to require a revision of the plan to be submitted to us for approval and thereafter implemented. Condition 2.3.2 is a standard condition and refers to an extended time period.

6.4 Setting permit conditions

We have set conditions in the permit in accordance with our Regulatory Guidance Series, No RGN 4 – *Setting standards for environmental protection (version 3.0)*. This guidance note explains how we determine the requirements that should apply to a particular activity. Permit conditions specify certain key measures for that type of activity to protect the environment. Other measures may be required through outcome-based conditions. Outcome based conditions specify what we want the Operator to achieve, but do not tell them how to achieve it.

We have used the relevant generic conditions from our bespoke permit template along with other, activity-specific conditions to ensure that the permit provides the appropriate standards of environmental protection.

Our generic conditions allow us to deal with common regulatory issues in a consistent way and help us to be consistent across the different types of regulated facility. We have included our generic conditions on fugitive emissions, odour and noise/ vibration to control emissions from the facility.

6.5. Protection of groundwater

We have evaluated whether a Groundwater Activity Permit is required. Based on the information presented, we have determined that a Groundwater Activity Permit is not required for the proposed activities covered by this permit as these will not include well stimulation.

We have carefully considered the risk assessment provided by the Applicant and consider that it covers all the potential risks and sets out appropriate measures by way of mitigation.

6.6. Odour

We carefully considered potential odour emissions from the activity during our determination. 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.

We are satisfied that appropriate measures will be in place to manage odour.

We do not consider that the activity will give rise to significant levels of 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. Should 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.

6.7. Noise and vibration

We carefully 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.

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. Should 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.

6.8. Monitoring

Condition 3.5 of the permit will require the operator to monitor the input to the flare and assess by calculation the emissions to air. The condition contains separate requirements for groundwater and surface water monitoring.

Direct monitoring of emissions from a flare stack is not possible because the length of the flare stack is insufficient for the stack gases to cool sufficiently so as not to

damage the sampling equipment. For this reason the Operator will use surrogate parameters to calculate the emissions. The stack emissions can be calculated from the combustion chemistry using the feed gas composition, feed gas flow rate and combustion efficiency.

As a pre-operational condition, the permit requires the Operator to submit their proposed method for calculating the emissions for written approval by the Environment Agency prior to flaring any gas.

The Operator is required to continuously monitor the feed gas flow rate and analyse periodic samples of the feed gas to determine its composition.

Using the parameters above, the Operator is required to assess point source emissions which will be released into the air from incineration of gas, and will also undertake ambient air monitoring for comparison against a baseline. The Operator will keep records of the data collected, which must be submitted to the Environment Agency on a regular basis.

The Operator will undertake a baseline study of ambient air quality around the proposed site prior to operations commencing. Once operational the Operator will continue to monitor air quality in the same locations that the baseline measurements were taken. The results of the monitoring will be made available by the Operator.

We are satisfied that assessing the emissions from the flare using the feed gas flow rate, the feed gas composition and the flare efficiency is appropriate considering that direct monitoring of the flare is not technically possible. This level of assessment will demonstrate whether the combustion is working at the correct level of efficiency to minimise harmful emissions.

Annex II of the Industrial Emissions Directive (IED) lists a number of air pollutants that emission limits could be set for. We have considered the relevant pollutants listed in the IED Annex II that would result from this activity and are satisfied that it is not necessary to set emission limits, as the operating controls will ensure effective and efficient combustion.

We will be reviewing the assessment of point source emissions as part of our compliance work and if we have reason to believe that emissions limits are required, we have the power to vary the permit to impose such limits. If appropriate monitoring methods/techniques are developed for monitoring point source emission from flares, we will review the activities and may vary the permit to change the monitoring requirements.

When in operation, the flare will be supervised by the Operator 24 hours a day to ensure its effectiveness to incinerate the natural gas. Condition 3.5.1. (c) screen time display. Should a problem arise the flare can be shut off, on site or remotely.

7. Other legal requirements

7.1. Mining Waste Directive 2006/21/EC

In this section we explain how we have addressed other relevant legal requirements, to the extent that we have not addressed them elsewhere in this document.

Article 4 – General requirements

Article 4 sets out requirements for the protection of the environment and human health which apply to the management of extractive waste. Under the EPR 2010 an environmental permit is required for a mining waste operation which is defined as the management of waste whether or not it involves a waste facility. It is through the permit and the conditions imposed that we are satisfied that the provisions of Article 4 will be met.

Article 5 - Waste management plan

This outlines 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 satisfactory. Condition 2.3.1 ensures that the operations are limited to those described in the WMP which is part of the approved operating techniques specified in table S 1.2. It also ensures that the Operator follows the techniques set out and that any deviation will require our written approval.

Article 6 – Major accident prevention

The permit does not authorise a waste facility.

Article 7 – Application for a permit

The permit covers the incineration of waste gas in an incineration plant with a capacity exceeding 10 tonnes per day and the management of extractive mining waste resulting from the commissioning of a production well at Saltfleetby B well site in East Lindsey.

Article 8 – Public participation

The permit covers the management of extractive waste that does not involve a waste facility. However, we have provided the public with the ability to express comments and opinions to us before a decision has been taken. No objections were received during the consultation period.

Article 9 – Classification system for waste facilities

The permit covers the management of extractive waste that does not involve a waste facility.

Article 10 - Excavation voids

There is a requirement under this article of the Mining Waste Directive for the Operator to take appropriate measures in order to secure the stability of the extractive waste, prevent the pollution of soil, surface water and groundwater and ensure the monitoring of the extractive waste and the excavation void when placing extractive waste into excavation voids.

We are satisfied that the Operator will comply with these requirements based on the information provided and the conditions in the permit.

Article 11- Construction and management of facilities

The permit covers the management of extractive waste that does not involve a waste facility.

Article 13 - Prevention of water status deterioration, air and soil pollution

We are required, as the competent authority, to be satisfied that the Operator has taken the necessary measures in order to meet environmental standards, particularly to prevent deterioration of current water status.

We are satisfied that the Operator will comply with these requirements based on the information provided and the conditions in the permit.

Article 14 - Financial guarantee

The permit covers the management of extractive waste that does not involve a waste facility and therefore there is no requirement for financial provision.

7.2. Further legislation

Section 4 Environment Act 1995 (pursuit of sustainable development)

Consideration has been given as to whether the granting of an environmental permit meets our principal aim of contributing to attaining the objective of sustainable development under section 4 of the Environment Act 1995. It is felt that the proposed conditions are appropriate in providing effective protection of the environment and in turn sustainable development, in accordance with Section 4 of the Environment Act 1995 and the Department of Environment, Food and Rural Affairs statutory guidance.

That guidance is 'The Environment Agency's Objectives and Contribution to Sustainable Development: Statutory Guidance (December 2002)'. That document:

"provides guidance to the Environment Agency on such matters as the formulation of approaches that the Environment Agency should take to its

work, decisions about priorities for the Environment Agency and the allocation of our resources. It is not directly applicable to individual regulatory decisions of the Environment Agency.”

The guidance contains objectives in relation to the Environment Agency’s operational functions and corporate strategy. Some of these objectives relate to the Agency’s wider role in waste management and strategy. In respect of the management of extractive waste, the guidance notes state that the Agency should pursue the following objective:

“to prevent or reduce as far as possible any adverse effects on the environment as well as any resultant risk to human health from the management of waste from the quarrying and mineral extraction industries.”

In respect of water quality, the Agency is required to: *‘protect, enhance and restore the environmental quality of inland and coastal surface water and groundwater, and in particular:*

- *To address both point source and diffuse pollution;*
- *To implement the EC Water Framework Directive; and to ensure that all relevant quality standards are met.’*

The Agency has had regard to these objectives. We are satisfied that the imposition of conditions on the permit will mean it is operated in a way which protects the environment and human health.

Section 5 Environment Act 1995 (preventing or minimising effects of pollution to the environment)

We are satisfied that our pollution control powers have been exercised for the purpose of preventing or minimising, or remedying or mitigating the effects of pollution of the environment in accordance with section 5 of the Environment Act 1995.

Section 6 Environment Act 1995 (conservation duties with regard to water)

Consideration has been given to our duty to promote the conservation and enhancement of the natural beauty and amenity of inland waters and the land associated with such waters, and the conservation of flora and fauna which are dependent on an aquatic environment.

We do not feel that any additional conditions are required.

Section 7 Environment Act 1995 (pursuit of conservation interests)

Section 7(1)(c) of the Environment Act 1995 places a duty on us, when considering any proposal relating to our functions, to have regard amongst others to any effect which the proposals would have on the beauty and amenity of any urban or rural area.

We do not feel that any additional conditions are required.

Section 81 Environment Act 1995

The site is not within a designated Air Quality Management Area.

We consider that we have taken our decision in compliance with the National Air Quality Strategy and that there are no additional or different conditions that should be included in this permit.

Section 40 Natural Environment and Rural Communities Act 2006

Section 40 places a duty on us to have regard, so far as it is consistent with the proper exercise of its functions, to conserving biodiversity. 'Conserving biodiversity' includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat. We have done so and consider that no additional or different conditions are required.

Water Environment (Water Framework Directive) (England and Wales) Regulations 2003

Consideration has been given to whether any additional requirements should be imposed in terms of the Environment Agency's duty under regulation 3 to secure compliance with the requirements of the Water Framework Directive through (inter alia) environmental permits, but it is felt that existing conditions are sufficient in this regard and no other appropriate requirements have been identified.

Human Rights Act 1998

We have considered potential interference with rights addressed by the European Convention on Human Rights in reaching our decision and consider that our decision is compatible with our duties under the Human Rights Act 1998. In particular, we have considered the right to life (Article 2), the right to a fair trial (Article 6), the right to respect for private and family life (Article 8) and the right to protection of property (Article 1, First Protocol). We do not believe that Convention rights are engaged in relation to this determination.

Countryside and Rights of Way Act 2000 (CROW 2000)

Section 85 of this Act imposes a duty on the Agency to have regard to the purpose of conserving and enhancing the natural beauty of the area of outstanding natural beauty (AONB). There is no AONB which could be affected by the mining waste activity.

Wildlife and Countryside Act 1981

Under section 28G of the Wildlife and Countryside Act 1981 the Environment Agency has a duty to take reasonable steps to further the conservation and enhancement of the flora, fauna or geological or geographical features by

reason of which a site is of special scientific interest. Under section 28I the Environment Agency has a duty to consult Natural England in relation to any permit that is likely to damage SSSIs. There are no SSSIs that could be affected by the proposed operations.

The Conservation of Habitats and Species Regulations 2010

We have assessed the Application in accordance with guidance agreed jointly with Natural England and concluded that there will be no likely significant effect on any European Site.

The site is not within the 10 kilometre relevant distance criteria for European site.

Annex 1: Consultation and web publicising

Summary of responses to consultation and web publication and the way in which we have taken these into account in the determination process.

A) Advertising and Consultation on the Application

The Application has been advertised and consulted upon in accordance with the Environment Agency's Public Participation Statement. The way in which this has been carried out along with the results of our consultation and how we have taken consultation responses into account in reaching our decision is summarised in this Annex. Copies of all consultation responses have been placed on the Environment Agency and Local Authority public registers.

The Application was advertised on the Environment Agency website from 25/08/2015 to 19/09/2015. Copies of the Application were placed in the Environment Agency Public Register at Waterside House, Waterside North, Lincolnshire, LN2 5HA.

No comments were received from members of the public

The following statutory and non-statutory bodies were consulted:

- Local Planning Authority – Lincolnshire County Council
- Public Health England
- Director of Public Health – Lincolnshire County Council
- Health and Safety Executive (HSE)
- Mineral Planning Authority – Lincolnshire County Council
- Public Protection Regulatory Services

No objections or concerns were received from Local Planning Authority, Mineral Planning Authority and Public Protection Regulatory Services.

HSE responded to our consultation and raised the issues below

<p>Issue raised Loss of containment risk arising from erosion of process plant</p>
<p>HSE expressed concern on the risk of erosion of the process plant. They noted that it was not clear to what extent sand or other erosive materials may be present within the well fluids being processed during the well clean-up activity. The presence of such materials, flowing at high velocities, can give rise to very rapid rates of erosion of process plant, particularly at restrictions or bends. In the extreme, and over time, this could give rise to a loss of containment of the well fluids.</p> <p>The risk of such erosion should be assessed and appropriate measures taken to control this. Such measures may include appropriate well, pipework and vessel design, including line sizing and material selection to minimise any potential wear rate. An appropriate pre-use and in-service inspection regime should also be in place to ensure that any deterioration in the condition of the process plant that could lead to an unsafe condition, can be detected and remedied in good time.</p> <p>HSE advised that activities must adhere to Management of Health and Safety at Work Regulations, 1999, Regulations 3&5 Provision and Use of Work Equipment Regulations, 1998, Regulation 6</p>
<p>Summary of action taken/ how this has been covered</p>
<p>The flaring will be for a short duration and it is expected that the equipment will be inspected and maintained regularly and any arising erosion will be observed and managed.</p> <p>Operating techniques approved in condition 2.3 and specified in table S1.2 requires the operator to ensure that the procedure for operating the flare shall conform to that described in the Technical Note “Well clean up procedure using a flare” – reference TN-001 and dated 17/05/2016. This procedure stipulates that when the well is flowing, the well test package will be continuously manned and periodic checks of the flare undertaken, including temperature and flame condition. Wingas intends to use the “PW Well Test” clean up package, which has been designed in accordance with industry engineering standards and recommended best practice. Standards complied with include; Calculations (API 520, API RP 14E, API 2000, GPSA), Drawings (API 500), Safety systems (API RP 14C).</p> <p>The Applicant has been made aware of the HSE’s comments in respect of the relevant legislation that must be complied with, i.e. Management of Health and Safety at Work Regulations, 1999, Regulations 3&5 Provision and Use of Work Equipment Regulations, 1998, Regulation 6.</p>
<p>Issue raised Thermal radiation and noise risks arising from flare operations</p>
<p>Although the flare is shrouded, HSE noted that it is not clear to what extent this will reduce and control the quantity of thermal radiation to personnel who may be present local to the flaring operations involved in control and</p>

operation of the equipment. It is identified on page 20 that 'a safe working area has been designated around the flare whilst in operation, in accordance with API521. The flaring operation will also generate noise, with the potential for health impact to the same personnel working in the vicinity of the flare. The risks arising to personnel in the vicinity of the flare stack should be assessed and appropriate preventive and protective measures taken.

Management of Health and Safety at Work Regulations, 1999, Regulations 3&5
Control of Noise at Work Regulations 2005

Summary of action taken/ how this has been covered

In section 6.7 above, we have outlined how we have addressed the issue of noise. We have specified in the permit, condition 3.4.2. which will require the operator to provide for approval a noise management plan in the event the activities are noted to cause noise pollution beyond the site boundary. The Operator will be expected to carry out activities in accordance with the noise management plan that may be approved under condition 3.4.2.

The Applicant has been made aware of HSE's comments in respect of the relevant legislation that must be complied with, i.e. Management of Health and Safety at Work Regulations, 1999, Regulations 3&5 Control of Noise at Work Regulations 2005

Issue raised

Accumulation of flammable gas

It is important that during flaring operations, measures are in place to ensure that risks arising from unwanted accumulation of unburnt flammable gas, either in the flare, or in the vicinity of it are eliminated, or reduced so far as is reasonably practicable. Any such accumulation could form an explosive mixture on mixing with air in the right proportion, and if it finds a source of ignition, give rise to a fire and explosion with risk to nearby personnel. The application describes the use of a pilot light and automatic ignition system to ensure a continuous flame and ignition of any gas which is flowed. The application does not describe the use of an automated system, or any other measures, to shut down the flow of gases from the well, in the event of the flare becoming unlit.

Dangerous Substances and Explosive Atmospheres Regulations 2002

Summary of action taken/ how this has been covered

The Applicant has provided a document on the appraisal and design of the flare and we have specified this as part of the approved operating techniques in table S1.2 and have referenced this as WSUKL/SFB-7X/EAWC/FAD-001 rev2. This document provides a document approach to the management of extractive wastes generated during the well operations to minimise any impact on the environment. The document provides a summary of the commissioning phase and detailed information regarding the flaring of waste gas from the well. The permit conditions stipulate that there will be no venting allowed except for safety reasons.

The applicant has been made aware of HSE's comments in respect of the relevant legislation that must be complied with, i.e. Dangerous Substances and Explosive Atmospheres Regulations 2002.

Issue raised

Risk assessment of process plant design and operation

Risks associated with the design and operation of the process plant should be assessed, and measures taken to reduce those risks to as low as reasonably practicable. It is not clear what form of risk assessment has been carried on the process plant, and hence whether this has been suitable and sufficient. All necessary actions arising from the assessment should be completed prior to commencement of the operation. The appropriate form of risk assessment for process plant is typically a hazard and operability study (HAZOP).

Management of Health and Safety at Work Regulations, 1999, Regulations 3&5

Summary of action taken/ how this has been covered

The permit limits the activities of managing waste gas to flaring only. However a provision has been made to allow for venting to be done when necessary for safety reasons.

The applicant has been made aware of HSE's comments in respect of the relevant legislation that must be complied with, i.e. Dangerous Substances and Explosive Atmospheres Regulations 2002