Permitting decisions

Variation

We have decided to grant the variation for Huntingdon Compressor Station operated by National Grid Gas PLC.

The variation number is EPR/DP3139LA/V003.

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 decision document provides a record of the decision making process. It summarises the decision making process in the decision checklist to show how all relevant factors have been taken in to account.

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
- 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 and the variation notice. The introductory note summarises what the variation covers.

Key issues of the decision

Equipment selection - Compressor upgrade

The Operator assessed a number of technical solutions to reduce emissions from the site and have explained why they have chosen one particular solution for this installation. They have chosen to upgrade the existing units to more efficient and low emission gas turbine engines. The existing units are not able to meet the emissions standards achieved by modern 'low emission' gas turbine engines. Following a detailed engineering study and assessment of Best Available Techniques (BAT), it was concluded that replacing the three existing 45 MWth turbines with two 43.25 MWth 'Dry Low Emission' Solar Titan gas turbine drivers represented the best option for the site. We are satisfied that the new units represent BAT for the site.

Details of the assessment carried out by the Operator was submitted with the application in a report referenced Assessment of Best Available Techniques (BAT) for Huntingdon Gas Compressor Machinery Selection (PAC2698).

Prior to commissioning of the new DLE units, the existing turbine units will continue to provide lead and standby duty at the site until commissioning activities are completed.

Assessment of Best Available techniques (BAT)

Table 1 compares indicative BAT taken from our Combustion Activities Sector Guidance Note (EPR 1.01), and the measures proposed in the supporting information to the application.

Table 1: Comparison of Indicative BAT with key measures proposed by the Operator

Indicative BAT	Key measures proposed
Replace existing turbines with more efficient turbines.	The existing turbines are not able to meet the emissions standards achieved by modern low emission gas turbine engines. The Operator is therefore proposing to replace them with two new 'dry low emission' gas turbine driven compressor machinery trains.
In large installations, consider installing more than one smaller turbine to allow for more efficient load following.	The Operator has assessed a number of options and is proposing to install two compressor units. The new units will operate on '50%' basis, whereby a single unit will be run to meet lower station flow requirements, and the two units will be run together in parallel for higher station flow. The three existing units will be retained as back-up.
Consider measures to improve the efficiency of the turbine.	The new gas turbines engines will be fitted with a combustion system which is designed to control a number of key engine parameters, utilising lean premixed combustion techniques to create a uniform air/fuel mixture which can be balanced with a lower maximum flame temperature, reducing the formation of NOx, CO and unburnt hydrocarbons.
Heat should be recovered and used. The design of the system needs to optimize the characteristics of the turbines and boiler to achieve the best overall performance.	Localised waste heat recovery is accommodated via lube oil heat recovery, to make use of waste engine heat, for fuel gas pre-treatment and through use of engine compressor bleed air for air intake filter anti-icing.
Store, handle and transport all waste streams to prevent the release of waste, dust, VOC, leachate or odour.	Waste storage at the site is being reviewed as part of the site upgrade works. The specification and location of any new or revised waste areas will be finalised during the course of detailed site design. We have included a pre-operational measure in the permit to ensure any changes

Indicative BAT	Key measures proposed
	to waste storage and final design specifications are submitted to the Environment Agency. The Operator has confirmed that the following controls will be considered when finalising waste handling and storage techniques: • Identification of a suitable secure location away from sensitive receptors (including surface drains), sized appropriately for all waste containers required for normal operations. • Provision of impermeable base for new waste area, with no drains or gullies and appropriate drainage controls for any surface water run-off arising. • Waste area containment fencing, to prevent waste being blown away and bins being blown over. • Suitable provision of lidded / covered storage containers for hazardous waste storage. • Waste area roofing, as a minimum to include provision of a covered area for the storage of waste drums and containers. The waste types will be unchanged with the addition of small quantities of scrubber condensate. The condensate tank will be emptied on an 'as required' basis. Materials will be disposed of appropriately by licenced contractor as hazardous waste.
Site drainage including rainwater: Use an efficient oil/water separation/interceptor system. Further treatment may be required to remove dissolved hydrocarbons. Direct discharge to controlled waters will only be allowed where discharges will meet discharge requirements under all conditions.	The existing surface water drainage system collects runoff from all areas of site including; roof drainage and process pits. It is designed to direct water run-off to the site oil/water interceptor prior to release to the local watercourse, the discharge is already included in the permit as has not been assessed as part of this variation. We have included a pre-operational measure within the permit requiring the Operator to submit final details of the drainage for the areas of land added as part of this variation. This includes a site drainage plan and design specification of any containment infrastructure to be installed as part of the drainage system.
Control emissions of NOx by a combination of the following, as applicable: • combustion control systems • combustion temperature reduction • low NOx burners • over fire air (OFA) • flue/exhaust gas recycling • reburn • selective catalytic reduction (SCR) • selective non catalytic reduction (SNCR).	The new gas turbine engines will be fitted with a combustion system which is designed to control a number of key engine parameters and utilises lean premixed combustion techniques to create a uniform air/fuel mixture and lower the maximum flame temperature, reducing the formation of NOx, CO and unburnt hydrocarbons.

Indicative BAT	Key measures proposed
Use dry low NOx burners in new natural gas-fired gas turbines.	The Operator is proposing to install two new Dry Low Emission (DLE) units. Following a comparison of available technologies the Operator concluded these offered the best technical and environmental option for the installation.

Emissions to air

The Operator submitted detailed atmospheric dispersion modelling and an Air Quality Impact Assessment report to assess the installation's potential emissions to air against the relevant air quality standards. The modelling considers the potential impacts associated with the emissions to air from the existing and proposed combustion processes at the site (looking at oxides of nitrogen (expressed as NO_2) and carbon monoxide (CO) emissions). An industry standard atmospheric dispersion model (ADMS version 5.1) was used to model releases of the identified substances.

The site currently comprises three gas turbine driven compressor units, with up to two units providing lead duty at any one time. The proposed compressor machinery train upgrade involves the addition of two DLE gas turbine driven compressors to take the sites lead duty from the existing compressors. The existing units will be retained for back-up purposes.

The Operator has assessed the likely significant air quality effects for the proposed addition of the two new turbines. Modelling was carried out for three different scenarios representing the existing and proposed gas compressor station configurations. The assessment was undertaken to assess the potential impacts for:

- Scenario 1: two of the existing units
- Scenario 2: the two proposed DLE units
- Scenario 3: the two proposed DLE units operating in conjunction with one existing unit (short term only)

A third DLE unit may be installed in the future to provide backup, however this does not form part of this variation and is not considered in the modelling.

Background concentrations of NO_2 and CO were obtained from the Department for Environment, Food and Rural Affairs (DEFRA) Local Air Quality Management (LAQM) website. We are satisfied that the background concentrations used in the modelling are representative.

The proximity of solid structures, such as buildings, to an emission source can affect the dispersion of a plume. Buildings associated with the on-site activities were incorporated into the air dispersion model. We are satisfied that dispersion effects from these structures have been suitably considered in the modelling assessment.

We have audited the modelling and agree with the assumptions used and the conclusions drawn. The results are summarised in the tables below:

Scenario 1 - Existing Turbines

Table 2: air emissions from the existing Turbines (modelled scenario 1)

Pollutant	Reference period	AQS ($\mu g/m^3$)	PC ($\mu g/m^3$)	PC as % of AQS	Background ($\mu g/m^3$)	PEC ($\mu g/m^3$)	PEC as % of AQS
Nitrogen dioxide	1 hour mean (99.79th %ile)	200	26.4	13.2	20.2	46.6	23.3
Nitrogen dioxide	Annual mean	40	0.68	1.7	10.1	10.8	27
Carbon monoxide	Maximum 1 hour mean	30,000	572.2	1.9	202.6	774.7	2.6
PC – Process concentration; AQS - National UK Air Quality Standard; PEC – Predicted Environmental Concentration							

The above table is representative of the current emissions from the existing gas turbine driven compressors and is included here for comparison with the new DLE units set out below. For both long term and short term nitrogen dioxide and carbon monoxide concentrations the results for Scenario 1 are the highest of all of the modelled scenarios.

Scenario 2 - Proposed DLE Units

Table 3: air emissions from the proposed DLE Units (modelled scenario 2)

Pollutant	Reference period	AQS ($\mu g/m^3$)	PC ($\mu g/m^3$)	PC as % of AQS	Background ($\mu g/m^3$)	PEC ($\mu g/m^3$)	PEC as % of AQS
Nitrogen dioxide	1 hour mean (99.79th %ile)	200	3.5	1.8	20.2	23.8	11.9
Nitrogen dioxide	Annual mean	40	0.14	0.4	10.1	10.3	25.6
Carbon monoxide	Maximum 1 hour mean	30,000	14.2	0.05	202.6	216.8	0.7
PC – Process concentration; AQS - National UK Air Quality Standard; PEC – Predicted Environmental Concentration							

When operated under scenario 2 (proposed DLE units alone) we are satisfied that the emissions will not cause an exceedance of any human health air quality standard. The new units are an environmental improvement when compared to the current emissions from the existing gas turbine driven compressors; giving a reduction in both the short and long term emissions of NO_2 and emissions of CO:

Nitrogen dioxide (NO_2)
The short term modelling results at offsite receptors demonstrate that NO_2 can be considered insignificant according to our H1 criteria as the PC is less than 10% of the short term environmental standard.

The long term modelling results demonstrate that NO_2 can also be considered insignificant according to our H1 criteria as the PC is less than 1% of the long term environmental standard.

Carbon monoxide (CO)
The short term modelling results at offsite receptors demonstrate that CO can be considered insignificant according to our H1 criteria as the PC is less than 10% of the short term environmental standard.

Scenario 3 - Proposed DLE Units with one existing Turbine (short term only)

Table 4: air emissions from the proposed DLE Units operating together with one existing Turbine (modelled scenario 3)

Pollutant	Reference period	AQS ($\mu g/m^3$)	PC ($\mu g/m^3$)	PC as % of AQS	Background ($\mu g/m^3$)	PEC ($\mu g/m^3$)	PEC as % of AQS
Nitrogen dioxide	1 hour mean (99.79th %ile)	200	17.4	8.7	20.2	37.6	18.8
Carbon monoxide	Maximum 1 hour mean	30,000	356.7	1.2	202.6	559.2	1.9
PC – Process concentration; AQS - National UK Air Quality Standard; PEC – Predicted Environmental Concentration							

Scenario 3 considers the short term impacts of the two proposed DLE units operating in combination with one of the existing units. This operating scenario would only take place for a short period of time (a running changeover with three units running). Based on the above modelling results we are satisfied that this still represents an environmental improvement when compared to the two existing units operating on their own (scenario 1).

Nitrogen dioxide (NO_2)
The short term modelling results at offsite receptors demonstrate that NO_2 can be considered insignificant according to our H1 criteria as the PC is less than 10% of the short term environmental standard. Therefore we are satisfied that the emissions from the site for this scenario will not cause an exceedance of the AQS.

Carbon monoxide (CO)
The short term modelling results at offsite receptors demonstrate that CO can be considered insignificant according to our H1 criteria as the PC is less than 10% of the short term environmental standard.

We consider that the changes to the gas compressors represent an environmental improvement. The results set out in the above tables indicate that there are predicted to be reductions in all pollutants compared to the existing operations (scenario 1) and there are predicted to be no exceedances of the AQSs for any of the assessed pollutants under any of the modelled scenarios.

Emissions to air - ecological impacts

There is one Site of Special Scientific Interest (SSSIs) located within two kilometres of the installation.

The Air Quality Impact Assessment report submitted with the application considers the potential impact on the SSSI from the installation. The report considers the predicted annual mean and maximum daily mean NO_x concentrations at the protected site for three different scenarios representing the existing and proposed gas compressor station configurations.

For all of the assessed scenarios the results show that there are predicted to be no exceedances of the annual mean and maximum daily mean critical level for NO_x at the SSSI. For scenarios 2 and 3, which represent the new gas compressor station configurations, the results show that there is a reduction in the predicted concentrations of NO_x when compared to the current operation. We have audited the modelling and agree with the assumptions used and the conclusions drawn. We are satisfied that the proposed changes to the installation are not likely to damage the SSSI.

There are also other habitats sites within two kilometres of the installation, including five local wildlife sites and six areas of ancient woodland. For the reasons described above we are satisfied that the proposed changes to the installation represent an environmental improvement and that there will be no adverse effect on the protected sites.

Emission Limits and Monitoring Requirements

The new turbines have lower pollutant emission concentrations and are more efficient. The application states that when comparing existing process contributions against the proposed upgrade scenarios there is a decrease in nitrogen dioxide (NO_2) and carbon monoxide (CO) emissions. An Air Quality modelling assessment was conducted to verify this conclusion and is discussed in the emissions to air section above.

To reflect the process improvements, the limits for the new turbines have been set lower than those already in the permit for the existing turbines (see table below).

All of the gas turbines at the installation have an individual thermal input of less than 100MW and are therefore not required to have Continuous Emissions Monitoring Systems (CEMs). As with the existing units, the Operator has proposed to monitor emissions of NOx and CO via a continuous Predictive Emission Monitoring System (PEMS) with periodic extractive emissions testing for validation. PEMS monitors key engine operational parameters to predict real time emissions levels from a model based on previous stack emission results.

We have included limits and monitoring requirements for emissions to air from the two new gas turbine engines, as follows:

Table 5: new emissions limits and monitoring requirements set in the permit as part of variation EPR/DP3139LA/V003

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Oxides of nitrogen (NO and NO_2 expressed as NO_2)	50 mg/m^3	Daily average	Continuous	Predictive Emissions Monitoring as described in the application or otherwise agreed in writing by the Environment Agency
	50 mg/m^3	95% of validated hourly averages within a calendar year	Continuous	
Carbon monoxide (CO)	40 mg/m^3	Daily average	Continuous	
	40 mg/m^3	95% of validated hourly averages within a calendar year	Continuous	

A new standby generator will be installed, replacing the existing generator currently on site. In the event of an electrical supply failure the diesel fuelled standby generator will automatically start and restore power supplies. Its functionally is also tested monthly as part of the maintenance regime to ensure it is kept in working order and available for use. Based on this mode of operation we have not set any emission limits or monitoring requirements in the permit for the generator.

Emissions sampling locations

A permanent sampling and access platform will need to be constructed for the new turbine units. The Operator has confirmed that the extent and outline design of the sampling platform has been determined having regard to the Environment Agency's Technical guidance Note (TGN) M1 on emissions monitoring.

The emissions testing platform has been designed to allow sampling upstream and downstream of the exhaust silencer with sampling ports installed in both the lower and upper stack. If compliant emissions tests can be achieved, the Operator's preference is to use the lower emissions sampling ports for emissions testing. The lower sampling points offer a reduction in working at height requirements for site operatives, as well as lessening the visual impact of the scheme due to a reduction in the requirement for high level emissions platforms and stairways.

As part of the design process a Computational Fluid Dynamics (CFD) study was undertaken to examine velocity distribution in the stack gasses in the potential lower sampling zone. The CFD study indicated that there may still be zones of turbulence in the area. However, the Operator has stated that in their experience the power of the turbine combined with high exhaust velocities enable very good mixing of exhaust pollutants, the Operator therefore proposes to carry out further testing.

The final sampling methodology and preferred sampling location has yet to be determined. However, adopting low level sampling may result in some deviations from the specifications set out in TGN M1, in relation to flow conditions at the sampling point. We have therefore included a pre-operational measure in the permit to ensure the Operator carries out a gas homogeneity test in line with BS EN 15259 and submits proposals and justification for ongoing monitoring strategy and practices.

In the event that a homogenous flow is not realised in practice, the sampling platform has been designed to include a second vertical emissions testing port at each of the high and low positions, this allows grid sampling techniques to be used if required.

Noise and Vibration

The new compressor units, exhaust stacks and other new or replacement ancillary plant represent an alteration to the noise sources on site. The Operator has confirmed that noise mitigation has been a key focus through the design process and they have selected low noise equipment where possible. It is also anticipated that the new compressors will be quieter than the compressors they replace.

Nine sensitive receptor locations were identified by the Operator, with the closet receptor located approximately 415 metres from the site boundary. The site is currently operational and there have been no known noise complaints received in relation to the current operations.

A detailed analysis of the potential noise emissions from the installation was carried out during the design stage. Specific examples of noise and vibration mitigation at the site include the following:

- installation of bespoke high performance acoustic enclosures surrounding the main compressor units
- inclusion of high performance mufflers in the combustion exhaust stack
- inline vent stack silencers installed in each vent line to mitigate noise from gas flows
- low noise variants of ancillary equipment selected where possible (for example the fuel gas skid)
- the standby generator will be located within an acoustic enclosure
- installation of low noise ventilation systems for site buildings
- high sensitivity vibration monitoring on compressor machinery train linked to an automated unit trip

- commitment to regular site housekeeping audits and inspections with a planned preventative maintenance programme in place

The Operator has also submitted a copy of a guarantee from the manufacturers confirming that noise emission levels from the proposed plant will be such that a defined 'rating noise level' of 38 dB will not be exceeded at the closest sensitive receptor.

As part of their application the Operator submitted a risk assessment, which identifies potential sources of noise and sensitive receptors, and considers possible pathways. The risk assessment concludes that with the implementation of the measures described above there will be no significant adverse impact on surrounding sensitive receptors. We agree that the mitigation measures outlined above represent best available techniques (BAT) for the installation and will act to minimise noise and reduce the risk of impact from noise at sensitive receptors. However, as discussed in the noise impact assessment section below, we have been unable to rule out adverse noise impacts outside of the permit boundary during our assessment. We have therefore included improvement condition IC7, part of which requires the Operator to submit a noise management plan, including proposals for the further attenuation and/or management of noise, should further monitoring show that noise could have a significant adverse impact at the sensitive receptors.

In the event of the new plant being taken off line, for example due to equipment failure or malfunction, they will revert back to the present scenario utilising the existing turbines. The Operator has committed to ongoing maintenance programme which will keep the existing turbine units in fully serviced, working order. Therefore we are satisfied that should the existing turbines be required the impact from noise is not expected to be greater than that of the current site operations, for which there have been no complaints received.

Noise impact assessment

As part of the application the Operator provided a noise impact assessment which identifies sensitive receptors, potential sources of noise from the installation and noise attenuation measures.

The assessment used BS4142:2014 to assess the impact of noise emitted from the two new gas compressors in combination with existing noise emitting plant onsite. BS4142 assesses the impact of industrial and commercial sound on residential receptors by subtracting the measured background from the rating level. BS4142 states: "A difference of +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context." and "A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context."

The site currently comprises three gas turbine driven compressor units, with up to two units providing lead duty at any one time. The proposed compressor machinery train upgrade involves the addition of two DLE gas turbine driven compressors to take the sites lead duty. It is expected that the new compressors will be quieter than the compressors they replace, which will result in a reduction of noise emissions from the site.

The plant will be operational during peak gas demand, which could occur during any time of day or night and on any day of the week. The noise impact assessment considered the impact from the facility during both the day and night. It also assumed that the existing plant and both proposed gas compressors will be running simultaneously. We consider this to be appropriate as it reflects worst case scenario.

We carried out check calculations and modelling using CadnaA (version 2017 MR 1) based on the sound power levels, sound reduction values and other parameters contained in the assessment and modelling files supplied by the Operator. We do not agree with the predicted sound pressure levels at sensitive receptors and we cannot completely verify the conclusions of the assessment. However, we took the following contextual considerations into account when we considered the impact assessment:

- the low background noise levels at night
- the absolute levels in the night time are unlikely to reach levels that could interfere with sleep
- the much higher residual levels in the daytime that imply that the specific sound from the compressors will be less likely to be perceptible
- the site is currently operational and there have been no known noise complaints received in relation to the current operations
- it is anticipated that the new compressors should be quieter than the compressors they replace

Based on these contextual considerations we have concluded that the impacts are unlikely to result in an 'adverse impact'. However we cannot rule out 'adverse impacts' based on context alone. Our predictions and conclusions are based on the sound powers found within the Operator's modelling. The stated sound power levels must therefore be achieved upon commissioning of the plant. In order to establish this is the case we have included an improvement condition (IC7) in the permit to ensure the Operator carries out additional noise monitoring once the new items of plant are operational. The improvement condition also requires the Operator to submit a noise management plan and proposals for the further attenuation and/or management of noise, if the monitoring shows that noise could have a significant adverse impact:

> *In order to validate the assessment provided within the application, the Operator shall prepare and submit a comprehensive noise assessment report undertaken by an experienced and suitably qualified person in accordance with BS4142:2014 (Methods for rating and assessing industrial and commercial sound). The assessment shall identify and assess the impact of noise emissions upon surrounding sensitive receptors arising from the operation of items of new plant associated with variation EPR/DP3139LA/V003.*
>
> *In the event that the report shows that noise could have a significant adverse impact at the sensitive receptors, the operator shall submit a noise management plan which shall include proposals for the further attenuation and/or management of noise and timescales, to be agreed with the Environment Agency, for the implementation of the proposed measures. Any proposals shall be implemented within the agreed timescales.*

We have set a completion date of 30 April 2020 for this improvement condition. This date corresponds to 6 months after the current proposed 'Operational Acceptance' date (the point that functional testing is complete and the unit is considered operationally ready). It therefore allows for the commissioning tests to be completed and for the first 'operationally available' running season (autumn/ winter period).

We consider that the infrastructure and controls in place on site will minimise the potential for noise. We are satisfied that the standard noise conditions already in the permit, together with the additional requirements imposed by Improvement Condition IC7, are sufficient and no other measures are necessary at this time.

Odour

The type of activity carried out at the installation is unlikely to give rise to odour and we do not expect odour levels to be increased by the proposed changes covered by this variation.

Natural gas in the National Transmission System is not odourised and none of the waste or raw materials in current or future use are considered to be odorous.

Based upon the information in the application, we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise pollution from odour. We are satisfied that the standard conditions, relating to odour pollution prevention and control, already in the permit are sufficient and no additional measures are necessary at this time.

Containment and site drainage

The site drainage system will be modified to manage the runoff from additional hardstanding areas. We have included a pre-operational measure within the permit requiring the Operator to submit final details of the drainage for the areas of land added as part of this variation. This includes a site drainage plan and design specification of any containment infrastructure to be installed as part of the drainage system.

The Operator has stated that the design of the extended installation is intended to prevent or minimise the release of potentially polluting substances to surface water, land or groundwater. The main potential for contamination would be through accidental spillage, leakages or failure of the containment measures, this has been considered in the risk assessment submitted with the application. The Operator has a formal procedure for inspection and maintenance of site surfacing, bunds and drains. Tanks at the site are inspected monthly by site personnel and all inspections are recorded in the site log.

The underground pipework which links the existing diesel tank to the standby generator has the potential to cause pollution due to leaks. As part of the proposed changes at the installation this diesel tank and generator will be removed and replaced with new equipment. As the replacements will be located adjacent to each other

an underground pipeline will no longer be required, this will reduce the risk of pollution. We are satisfied that this represents BAT.

Liquid hydrocarbon condensates from gas will now be produced on site. It is estimated that the emptying of condensate tanks will only be required once every five years, so the volumes of waste produced are extremely low. The scrubber units will be fitted with level gauges, high level alarms and over pressurisation protection and pressure relief valves to monitor and control condensate volumes. In addition, the tanks will be bunded with a 125% capacity. We are therefore satisfied that the risk of ground or water pollution from the production and storage of this waste stream is low.

Site condition report

As part of this variation the site boundary has been extended (to the north-west and south-west). The Applicant provided a site condition report which contains information on the previous land use and details of the geological setting of the site. We are satisfied that the site description is representative of the new land to be included within the site boundary.

Soil and groundwater samples were collected in 2015 and the chemical analysis results have been used as the baseline data for the new parts of the installation. No significant contamination was noted during this investigation.

Historical landuse maps show that prior to the development of the site as a gas valve compound in the early 1980s (and later a gas compressor station) the installation and surrounding area were predominantly agricultural or open land.

The bed rock underlying the extended site consists of Oxford Clay Formation comprising grey mudstone with sporadic beds of limestone. The Oxford Clay Formation is approximately 40m thick in the vicinity of the site and is classified as an unproductive aquifer under the requirements of the Water Framework Directive. Superficial deposits of Oadby Member overlay the bedrock; groundwater vulnerability maps show this is classified as an unproductive aquifer. The installation does not lie within a groundwater source protection zone.

A drainage ditch, which drains into Diddington Brook, is present along the northern boundary of the land under National Grid ownership. There are three other drainage ditches located between 95 and 105 metres to the south-east of the installation boundary, these also drain into Diddington Brook. Diddington Brook ultimately drains into Grafham Water.

All surface water drainage from the site is currently discharged, via an on-site oil/water interceptor, to a local watercourse (the discharge is already included in the permit as has not been assessed as part of this variation). The site drainage system will be modified to manage the runoff from additional hardstanding areas. We have included a pre-operational measure within the permit requiring the Operator to submit final details of the drainage for the areas of land added as part of this variation.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made. The Secretary of State has given notice that aspects of the application shall not be placed on the public register for reasons of national security.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be commercially or industrially confidential. The decision was taken in accordance with our guidance on confidentiality. The Secretary of State has given notice that aspects of the application shall not be placed on the public register for reasons of national security.
Consultation/Engagement	
Consultation	The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement. The application was publicised on the GOV.UK website. We consulted the following organisations: • Public Health England and the Director of Public Health • Health and Safety Executive • The local authority The comments and our responses are summarised in the consultation section.
The site	
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extended site boundary. The Operator is required to carry on the permitted activities within the site boundary.
Site condition report	The operator has provided a description of the condition of the site, which we consider is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under the Industrial Emissions Directive. See key issues section for more information.
Biodiversity, heritage, landscape and nature conservation	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat. There are no Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or Ramsar sites within 10 kilometres of the installation.

Aspect considered	Decision
	There is one Site of Special Scientific Interest (SSSI) and five Local Wildlife Sites located within two kilometres of the installation. A full assessment of the application and its potential to affect the sites has been carried out as part of the permitting process. We consider that the application will not affect the features of the sites. See key issues section for more information. We have not formally consulted Natural England on the application. The decision was taken in accordance with our guidance. An Appendix 4 form was completed, concluding that the permission is not likely to damage the site (SSSI). The form was saved to our Electronic Document and Records Management System in accordance with our guidance.
Environmental risk assessment	
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory. The Operator has submitted modelling for emissions to air this is discussed in the key issues section.
Operating techniques	
General operating techniques	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. Key operating techniques proposed by the Operator are discussed throughout the key issues section of this document.
Operating techniques for emissions that screen out as insignificant	Emissions to air have been screened out as insignificant, and so we agree that the applicant's proposed techniques are BAT for the installation. We consider that the emission limits included in the installation permit reflect the BAT for the sector.
Noise management	We consider that the activities carried out at the site have the potential to cause noise and/or vibration that might cause pollution outside the site and consider it appropriate to impose specific measures. We have included an improvement condition to ensure the Operator carries out additional noise monitoring once the new items of plant are operational. The improvement condition also requires the Operator to submit a noise management plan, including proposals for the further attenuation and/or management of noise, if the monitoring shows that noise could have a significant impact. See the key issues section for further information.
Permit conditions	
Pre-operational conditions	Based on the information in the application, we consider that we need to impose pre-operational measures for future development. We have imposed pre-operational measures to ensure that:

Aspect considered	Decision
	➢ finalised design information for the new or modified waste and raw materials storage areas are submitted. ➢ emissions monitoring procedures are updated to include site specific requirements for periodic extractive exhaust emissions testing. ➢ final details of the drainage for the areas of land added as part of this variation are submitted. This includes a site drainage plan and design specification of any containment infrastructure to be installed as part of the drainage system (see key issues section for further information). ➢ The results of the homogeneity test together with proposals and justification for ongoing monitoring strategy and practices are submitted (see key issues section for further information).
Improvement programme	Based on the information on the application, we consider that we need to impose an improvement programme. We have imposed an improvement condition (IC7) to ensure that the Operator carries out additional noise monitoring once the new items of plant are operational. The improvement condition also requires the Operator to submit a noise management plan, including proposals for the further attenuation and/or management of noise, if the monitoring shows that noise could have a significant impact. See the key issues section for further information.
Emission limits	We have decided that emission limits should be set for the parameters listed in the permit. See key issues section for more information. We consider that the emission limits included in the installation permit reflect the BAT for the sector.
Monitoring	We have decided that emission limits should be set for the parameters listed in the permit. See key issues section for more information. We consider that the emission limits included in the installation permit reflect the BAT for the sector.
Reporting	We have specified reporting in the permit.
Operator competence	
Management system	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.
Growth Duty	
Section 108 Deregulation Act 2015 – Growth duty	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. Paragraph 1.3 of the guidance says: "The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of

Aspect considered	Decision
	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." 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. 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.

Consultation

The following summarises the responses to consultation with other organisations and our notice on GOV.UK for the public and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from
Huntingdonshire District Council, Environmental Health. Email dated 20 October 2016
Brief summary of issues raised
Huntingdonshire District Council are satisfied with the results of the noise and air quality reports submitted with the application provided they take into account the nearest sensitive receptors. They also confirmed that they have not received any complaints about the installation.
Summary of actions taken or show how this has been covered
The noise and air quality reports are discussed in the key issues section of this document. We are satisfied that the operator has considered the closest sensitive receptors in their assessments. An Improvement condition for further noise monitoring has been included in the permit as part of this variation, see the key issues section for further information. No further action is required.

Response received from
Public Health England (PHE), letter dated 25 October 2016
Brief summary of issues raised
PHE recommended that any Environmental Permit issued for this site should contain conditions to ensure that the following potential emissions do not impact upon public health: point source emissions to air (for example nitrogen dioxide (NO2) and carbon monoxide (CO)). PHE has no significant concerns regarding risk to health of the local population from this proposed activity, providing that the applicant takes all appropriate measures to prevent or control pollution, in accordance with the relevant sector technical guidance or industry best practice. PHE recommended that the environment agency also consult with the local authority and the Director of Public Health.
Summary of actions taken or show how this has been covered
The Operator submitted detailed atmospheric dispersion modelling and an Air Quality Impact Assessment report to assess the installation's potential emissions to air against the relevant air quality standards (looking at nitrogen dioxide (NO2) and carbon monoxide (CO) emissions). The results indicate that there are predicted to be reductions in all pollutants compared to the existing operations and there are predicted to be no exceedances for any of the assessed pollutants under any of the modelled scenarios. We have audited the modelling and agree with the assumptions used and the conclusions drawn. See key issues section for further information. We have reviewed the techniques used by the Operator and compared these with the relevant guidance notes. Based upon the information in the application, we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise pollution. We are satisfied that the standard conditions for pollution prevention and control already in the permit (relating to odour, noise and vibration, and other fugitive emissions) are sufficient and no additional measures are necessary at this time. Key

operating techniques proposed by the Operator are discussed throughout the key issues section of this document.

The application was advertised on the Environment Agency's website from 04/10/2016 to 01/11/2016, no comments were received in response to the publication.

We also consulted the Health and Safety Executive and the Director of Public Health, however no response has been received.