Permitting decisions

Variation to permit

We are granting the partial surrender and variation applications for Lower Stumble Hydrocarbon Exploration Site operated by Cuadrilla Balcombe Limited.

The partial surrender and variation numbers are EPR/AB3307XD/V003, EPR/AB3307XD/S004 and EPR/AB3307XD/V005

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

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

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

- Oil storage activities,
- Implementation of the Mining Waste Directive and
- Surrender of the underground Mining Waste Facility.

We also aim to:

- Consolidate permits - all variations to your permit will be brought together into one permit so the requirements will be clearer.
- Formalise changes to monitoring requirements and compliance limits where we have agreed them in writing, for example as the result of a hydrogeological risk assessment review.
- Address site specific issues which result in a change to the current permit, for example incorporating completed improvement conditions into the permit and removing inconsistencies.

Purpose of this document

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

- highlights key issues in the determination
- summarises the decision making process in the decision checklist to show how all relevant factors have been taken into account
- explains why we have also made an Environment Agency initiated variation
- summarises the engagement carried out
- shows how we have considered the consultation responses.

This is a decision document, which accompanies a variation notice.

It explains how we have considered the Applicant's application, and why we have included the specific conditions in the variation notice we are to 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.

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

Brief outline of proposed process

This facility is for the conventional prospecting for oil, without use of hydraulic fracturing techniques. The operator has drilled a vertical and horizontal wellbore (Balcombe 2Z) and intends to carry out well testing from that well. Well testing will take place over 7 days, following which the well will be shut in. Prior to the well testing taking place suspension fluid will be removed and acid treatment will be used for the removal of drilling mud debris from the borehole and cleaning of the immediate wellbore area. Fluids produced during the well test (well suspension fluid, produced water, spent diluted hydrochloric acid wash and natural gas) will be brought to surface, passed through a separator to remove any associated gas, and be temporarily stored pending off-site disposal. Small quantities of methane and non-methane VOCs are released from the oil storage tank via a vent stack. Any oil extracted will be taken to a refinery for processing. Any associated gas, released in the separator, will be combusted on site in a temporary shrouded flare.

The principal releases into the environment comprise of:

(a) Emissions of combustion gases (CO_2, CO, NOx) from the shrouded flare.

(b) Emissions to air of gaseous hydrocarbons from separation of volatiles in storage.

(c) Emissions of gaseous hydrocarbons from the road tanker by displacement on loading.

There are no European designated sites within 10 km of the facility and no SSSIs within 2 km.

Description of the changes introduced by the variation

This is a Partial Surrender and Normal Variation to remove, add or change the following activities:

1. Installation Activity - The loading, unloading, handling or storage of, or the physical, chemical or thermal treatment of crude oil, as an activity listed in Part 2 Schedule 1.2 of the Environmental Permitting (England and Wales) Regulations 2016 as amended will be added to the permit.
2. Mining Waste - This variation also surrenders the underground Mining Waste Facility for non-hazardous waste, arising from the prospecting for oil. The permit is amended to a Mining Waste Operation, as defined by the Mining Waste Directive (2006/21/EC) and Schedule 20 of the Environmental Permitting (England and Wales) Regulations 2016, as amended, relating to the management of extractive waste not involving a Mining Waste Facility. The permit is being varied to include activities specified by the amended and approved Waste Management Plan. This includes flaring of gas (less than 10 tonnes per day) and venting of gas from storage tanks. These are not new activities, and were previously covered by the operator's operating techniques in their existing permit.

Key issues of the decision

This variation is part of a sector wide permit review of onshore oil and gas sites. The variation to the permit is for continued operation of an existing conventional oil and gas exploration site. This variation does not permit any hydraulic fracturing as specified in Schedule 1 of the permit under Table S1.1, activity A2.

Since 1 October 2013 we have taken the view that operators of new onshore oil and/or gas exploration or appraisal facilities require environmental permits where activities include:

• the management of extractive waste, whether or not this involves a waste facility (as a mining waste operation)

• flaring of waste gas using a flare which has the capacity to incinerate over 10 tonnes a day (as an installation)

• a water discharge activity

• a groundwater activity, such as an indirect discharge of pollutants as part of high pressure high volume hydraulic fracturing

• waste being managed that meets the thresholds for radioactivity set out in the 2016 Regulations (as a radioactive substances activity)

We now consider that the same environmental permits are required for existing onshore oil and/or gas facilities, in addition to the permit required for crude oil unloading, handling or storage, or treatment. This permit variation and consolidation brings these permits in line with the new regulations and approach for permits issued since 2013.

Groundwater activity

A groundwater activity, in general terms, is defined in Schedule 22 of the 2016 Regulations as meaning the discharge of a pollutant that results in the direct input of that pollutant to groundwater, or a discharge of a pollutant in circumstances that might lead to an indirect input of that pollutant to groundwater or any other discharge or activity that might lead to a direct or indirect input of a pollutant to groundwater.

The Operator will undertake acid washing as part of the well test activities by circulating diluted hydrochloric acid as a reagent to remove any residual drilling mud debris from the wellbore and to clean the immediate wellbore area. This will allow the acid to dissolve the debris that is reducing the permeability and restore the natural flow paths. The water and acid wash solution is circulated below fracturing pressure. No high pressure circulation will be used which could create fractures in the reservoir rock. Any penetration of acid wash in to the formation is minimal and limited to the immediate vicinity of the wellbore. The volumes of acid to be used are low and the acid will come into contact with a relatively small area of the reservoir formation and it will react with the formation and fines to produce an inert salt solution and carbon dioxide. The activity is not intended to inject the acid any significant distance into the formation and will be carried out at pressures well below formation fracture pressures. After acid washing the well is lifted with nitrogen from the toes to ensure it is entirely flushed out. There will be no residual product remaining in the reservoir and any groundwater present will be naturally contaminated with hydrocarbon and salts so any impact on this groundwater would be insignificant or trivial. The activity does not require a Groundwater activity permit and is considered de minimis and can be excluded under Schedule 22 3 (3)(b) of EPR 2016. There are no other groundwater activities taking place on site.

Surrender of the underground Mining Waste Facility

The original permit contained an underground Mining Waste Facility for the storage of residual amounts of non-hazardous drilling muds and non-hazardous acid wash, as a precautionary approach in case it was not all recovered to surface.

We no longer require a Mining Waste Facility when there is no intention to leave such wastes in the formation and everything possible has been done to remove it. The acid wash is proposed to be used during the well test process, which has not yet taken place. A Mining Waste Facility is no longer required for the use of acid wash as its use is purely as an engineering material for flushing and cleaning out the borehole following drilling. It is not being used above fracture pressure and there is no intention to leave it in the borehole Nitrogen flushing will be used as a means of artificial lift to recover as much as is feasibly possible to surface and any residual amounts left behind would be neutralised in the formation.

Drilling has already taken place on site and no further drilling is proposed. The operator has therefore applied to surrender the underground Mining Waste Facility as it is no longer needed. Residual amounts of non-hazardous drilling muds may have been left in the borehole at the time of drilling.

A Low Risk Surrender is the most appropriate form of surrender for this Mining Waste Facility. The operator has shown through records and pollution control measures that the legal test has been met:

- All necessary measures have been taken to avoid pollution risk from operations. There were no reported spills of extractive waste on the site during Phase 1 of the operation, the drilling stage. We are not aware of any environmental pollution resulting from the drilling activities. Drilling was carried

out in accordance with good practice and in accordance with the permit. In addition to this the HSE were also satisfied with the drilling programme.

- The site has been returned to a satisfactory state. The Mining Waste Facility is located underground and there is no benefit to be gained from conducting intrusive tests.
- There is no significant risk to people and the environment. The operator has continued to monitor groundwater, surface water and air quality throughout drilling phases and suspension of the site, in accordance with the permit. No issue have been reported or identified during site inspections. The groundwater monitoring did not identify any contamination resulting from the drilling activities. The only substance that was picked up and is still being monitored in the groundwater monitoring borehole is dissolved methane. Extensive investigations and assessment by Cuadrilla have not identified this as coming from their borehole (Balcombe-2). The methane has been typed as thermogenic and is likely to be a result of methane migrating from natural sources from the Kimmeridge strata. Other boreholes in Weald have identified similar elevated levels of methane in groundwater. It does not present a risk to any groundwater or surface water receptors.

Flare Design

We have assessed the proposed design of the flare and are satisfied that it is compliant with the Mining Waste Directive.

The flare design has been changed to include a physical hard engineered limitation to stay below 10 tonnes per day, as required by the permit. A flare nozzle of 1 1/4" diameter will limit the flow rate to 300,000scfd and stay below the 10 tonnes per day limit.

Conditions and limits have also been added to the permit to ensure the flare is operated correctly.

Gas emissions

The site has a shrouded flare that cannot be monitored directly so condition 3.5.8 has been added requiring composition of the input analysis and flow rate to calculate the emissions. A flare combustion temperature limit of greater than 800 degrees has also been added to ensure correct combustion has taken place in the absence of direct monitoring.

There are point source and fugitive emissions from the flare and storage tank vents.

We are satisfied that flaring emissions predictions are insignificant for all pollutants and Environmental Standards (ES).

We have performed an indicative trade-off analysis to evaluate potential impacts from Sulphur Dioxide (SO_2). We conclude that predicted emissions are insignificant for all relevant ES when Hydrogen Sulphide (H_2S) concentrations are below 164 ppm. However, there is a risk of exceeding the SO_2 short-term ES when the concentration is above approximately 1500 ppm (i.e. 0.15%). A level of 1.5% was measured at the nearby well site in the 1980s but it is not clear if this measurement was for the sulphur content of oil or gas. A gas concentration of 1.5% will therefore exceed the standards. However the flaring of waste gas will only occur for a very short duration (7 days) and the 1.5% H2S concentration was recorded in the 1980 well, this is a single sample result and not supported by data from other local sites targeting similar formations. We are therefore satisfied that the risk of breaching the short term ES for SO2 is very low. The permit includes conditions for the operator to monitor Hydrogen Sulphide in the flare gas emissions as well as sample the feed gas going into the flare. This will allow the Operator to verify the sulphur content of the feed gas. In addition, the Operator has produced an Odour Management Plan (see below) which will control all potential odourous emissions, including the potential for H2S.

Odour Management

The Onshore Oil and Gas Sector Guidance, August 2016, states that an odour impact assessment and Odour Management Plan should be produced if the crude oil being stored or handled contains hydrogen sulphide. As the composition of the gas is still largely unknown, the operator has produced an Odour Management Plan on a precautionary basis. We are satisfied that the Odour Management Plan meets the requirements of Environment Agency guidance document 'H4 – Odour Management'. Guidance document H4 confirms that sniff testing is a common form of odour management and that monitoring results will be

improved when observers have been trained. The Odour Management Plan details sniff testing by trained staff.

Crude handling, storage and management

Installation activity S1.2 A(1)(e)(i) has been added to the Permit authorising The loading, unloading, handling or storage of, or the physical, chemical or thermal treatment of crude oil. This includes separation of crude at surface, storage in tanks and transfer to tanker for removal from site.

Gap Analysis

The operator was required to complete a Gap Analysis assessing how they met the requirements of the Onshore Oil and Gas Sector Guidance, August 2016. This information was used to generate Pre-Operational conditions to address any shortfalls.

Schedule 5 Requests

A Schedule 5 Notice was served on 23 August 2017 requiring further information. The operator responded and supplied additional information on 31 October 2017 and 7 November 2017. This information has been taken into account in our decision.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential.
Consultation	
Consultation	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 because of the high levels of public interest in the onshore Oil and Gas Sector. We consulted the following organisations: Local Authority, Environmental Health, Mid Sussex District Council Food Standards Agency Health and Safety Executive Mineral Planning Authority, West Sussex County Council Director of Public Health Public Health England The comments and our responses are summarised in the consultation section.
Operator	
Control of the facility	We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal operator for environmental permits. We have been notified by the Oil and Gas Authority that the operator of the PEDL license for this area has been transferred to Angus Energy Limited. We have received an application to transfer this permit from the current operator to Angus Energy Limited, which we will process following the issue of this variation.
The facility	
The regulated facility	We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN 2 'Defining the scope of the installation', Appendix 1 of RGN 2 'Interpretation of Schedule 1', guidance on waste recovery plans and permits. The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.
The site	
Extent of the site of the facility	The operator has provided plans which we consider are satisfactory, showing the extent of the site of the facility including emission points. The plan is included in the permit.
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.
Waste management plan	The operator has provided a waste management plan which we consider is satisfactory.

Aspect considered	Decision
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. We have assessed the application and its potential to affect all known sites of nature conservation, landscape and heritage and/or protected species or habitats identified in the nature conservation screening report as part of the permitting process. We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified. These include Ashdown Forest SAC and SPA and Local Nature Reserves: Rowhill Copse, Ardingly Reservoir. We have not consulted Natural England on the application. The decision was taken in accordance with our guidance. Emissions to air: This is an existing site which has been permitted since 2013 with no increases in air emissions as a result of this variation and consolidation. The data submitted with the application has been assessed and all air emissions have screened out as insignificant. In addition as part of this variation and consolidation operational limits have been set on the flare to ensure any impact is insignificant.
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. There will be no increase in emissions as a result of this variation, and consequently no increase in environmental risk.
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. This includes the requirement for the Operator to provide a waste management plan and the information required within this. A revised waste management plan, including associated documents, was submitted as part of the variation application and has been assessed in accordance with these requirements and is approved subject to conditions. Condition 2.3.1 ensures that the operations are limited to those described in the WMP and in table S1.2. It also ensures that the Operator follows the techniques set out and that any deviation will require our written approval. Any significant changes will require a formal variation of the permit. Where a condition imposes a specific requirement that will take precedence over anything in the plan. In addition we have specified additional pre-operational conditions as part of the permit review to ensure these operations continue to meet the requirements of our Onshore Oil and Gas Sector Guidance, August 2016.
Operating techniques for emissions that screen out as insignificant	Emissions of Nitrogen Dioxide, Carbon Monoxide, Sulphur Dioxide have been screened out as insignificant, and so we agree that the applicant's proposed technique is BAT for the installation. We consider that the operational limits included in the installation permit reflect the BAT for the sector.
Odour management	We have considered potential odour emissions from the activity during our determination. We do not consider that the activity will give rise to significant levels of odour. As the composition of any gas that may be produced is largely unknown, including the Hydrogen Sulphide content, the operator has proposed an Odour Management Plan. This has been explained in further detail above. We have reviewed the odour management plan in accordance with our guidance on odour management. We consider that the odour management plan is satisfactory. We are satisfied that appropriate measures will be in place to manage odour. However, we have included condition 3.3.1 in the permit. This condition enables us to require the Operator to all appropriate measures to prevent odour at levels likely to cause pollution outside of the site. The Operator must carry out the activity in accordance with the approved techniques.

Aspect considered	Decision
Noise management	We have considered emissions from noise and vibration during our determination. Condition 3.4.1 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. If a plan be required in the future, once we have assessed this plan as suitable, it will form part of the permit and the Operator must carry out the activity in accordance with the approved techniques.
Permit conditions	
Use of conditions other than those from the template	Based on the information in the application, we consider that we do not need to impose conditions other than those in our permit template.
Updating permit conditions during consolidation	We have updated permit conditions to those in the current generic permit template as part of permit consolidation. We have also updated permit conditions to make reference to the most modern legislation. The conditions will provide the same level of protection as those in the previous permit(s).
Changes to the permit conditions due to an Environment Agency initiated variation	We have varied the permit as stated in the variation notice. This variation is required as the Environment Agency has a duty, under the Environmental Permitting (England and Wales) Regulations 2016, regulation 34(1), to periodically review permits. As a result of that review we have identified a number of necessary changes we must make to your permit to reflect current legislation and best practice. These changes principally relate to the pre-operational conditions specified in condition 2.4 of the permit
Pre-operational conditions	Based on the information in the application, we consider that we need to impose pre-operational conditions. Due to the time limited operational phase of the exploration activities it is not appropriate to set Improvement Conditions with long compliance deadlines. Therefore, any improvements required have been set as Pre-Operational Conditions. Pre Operational Condition PO1 (Emissions Calculations) has been set to ensure compliance with permit condition 3.5.8 Pre Operational Condition PO2 has been set to review and re-install appropriate containment and site liners. These were removed from site at the start of the suspension period. It is also necessary to ensure that secondary containment systems meet the standards required of a new oil and gas exploration site. This will reduce the likelihood of any uncontrolled polluting discharges to the environment. Pre Operational Condition PO3 for leak protection has been set to address a shortfall from the Sector Guidance, as identified in the operator's gap analysis. The operator requested this as a Pre Operational Condition and not an Improvement Condition as this method is more appropriate for the short lifespan of the site. It is necessary because a leak detection and repair plan is needed to manage fugitive VOC emissions from potential leak points such as seals, flanges, pumps and valves. This standard technique is a method for identifying and prioritising potential sources of leaks, developing a leak detection and repair programme using the monitoring standard EN 15446 including assessing reductions in emissions resulting from the programme and estimation/calculation of any residual emissions. The EN 15446 method is described in the Refineries BREF (2015) as an available method for carrying out monitoring of fugitive emissions. Alternative but equivalent methods can be proposed. Pre Operational Condition PO4 for management systems has been set to ensure the Pollution Incident Plan, proposed in the application, is in place before operations re-commence. Pre Operational Condition PO5 for vapour recovery has been set to address a shortfall from the Sector Guidance, as identified in the operator's gap analysis. It is necessary as the operator does not appear to be currently complying with the requirement to capture and recover all hydrocarbon vapours arising from the loading and unloading of liquid hydrocarbons into vehicles. Vapour recovery is necessary both for safety reasons and also to reduce the environmental impacts of storing, loading, transporting and unloading hydrocarbons.

Aspect considered	Decision
Emission limits	We have considered emissions to air during the determination of the application. Fugitive emissions associated with the proposed activities will be at insignificant levels which are unlikely to cause negative impact on nearby receptors. The Operator has provided environmental risk assessments and consideration in the WMP and GMP for the management of waste gas and we have found these to be satisfactory. ELVs equivalent parameters have been set for the following substances in Schedule 3 of the permit. Oxides of Nitrogen (calculation method) Carbon Monoxide (calculation method) Total volatile organic compounds (VOCs) (calculation method) Hydrogen Sulphide (calculation method) Methane (calculation method)
Monitoring	We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified. Condition 3.5 of the permit requires the Operator to monitor emissions to air from the flare, storage tank vents. The operator will continue to monitor groundwater, surface water, perimeter air quality and emissions to air. The Operator will keep records of the data collected, which must be submitted to the Environment Agency on a regular basis. We made these decisions in accordance with the requirements of our Onshore Oil and Gas Sector Guidance, August 2016 and the Groundwater Directive and to baseline report required under the Industrial Emissions Directive. Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate as required under 3.5.3 of the permit.
Reporting	We have specified reporting in the permit. The reports will enable information on trends to be assessed and interventions to be carried out when required. We made these decisions in accordance with the requirements of our Onshore Oil and Gas Sector Guidance, August 2016 and the Groundwater Directive and to baseline report required under the Industrial Emissions Directive.
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. The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.
Relevant convictions	The Case Management System has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.
Financial competence	There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.
Financial provision	The underground Mining Waste Facility has been surrendered and remove from the permit. By virtue of paragraph 9(3) of Schedule 20 to the Environmental Permitting (England and Wales) Regulations 2016 the requirements mentioned in Article 2(3) of the MWD are waived and no financial provision is required to be put in place.

Aspect considered	Decision
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 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.
Further Legislation	
Schedule 22 to the EPR 2016 – Water Framework and Groundwater Daughter Directives	To the extent that it might lead to a discharge of pollutants to groundwater (a "groundwater activity" under the EPR 2016), the Permit is subject to the requirements of Schedule 22, which delivers the requirements of EU Directives relating to pollution of groundwater. The Permit will require the taking of all necessary measures to prevent the input of any hazardous substances to groundwater, and to limit the input of non- hazardous pollutants into groundwater so as to ensure such pollutants do not cause pollution, and satisfy the requirements of paragraph 6 of Schedule 22 and Article 6(1) Groundwater Daughter Directive.
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 we consider that existing conditions are sufficient in this regard, and no other appropriate requirements have been identified.

Consultation

The application was publicised on the GOV.UK website because of the high levels of public interest in the onshore Oil and Gas Sector. The application itself is NOT high public interest.

We consulted the following organisations:

Local Authority, Environmental Health, Mid Sussex District Council

Food Standards Agency

Health and Safety Executive

Mineral Planning Authority, West Sussex County Council

Director of Public Health

Public Health England

No objections were received from the all the Statutory consultees whom we consulted.

The following summarises the responses to consultation with other organisations, 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
Mid Sussex District Council
Brief summary of issues raised
Mid Sussex District Council requested the application and enforcement of the same detailed conditions for noise, that air quality and control of odour is maintained and that groundwater is protected. They also asked to be informed should any difficulties arise.
Summary of actions taken or show how this has been covered
The wording of condition 3.4 for noise management has not changed. An odour management plan has now been put in place and is referred to in condition 3.3.1 and Table S1.2 of the permit. The same level of groundwater protection is required and groundwater monitoring will continue under condition 3.5.1. We will be keeping the Local Authorities informed should any difficulties arise on site.
Public Health England
Brief summary of issues raised
Public Health England requested that the permit contain conditions to ensure the products of combustion and VOCs from the flaring process do not impact on public health. They gave a recommendation that the operator produces an accident management plan, as one was not included with the application. They also suggested we consult with the Local Authority, FSA and the Director of Public Health.
Summary of actions taken or show how this has been covered
Operational limits are set for these parameters under condition 3.1.2. Pre-operational condition 4 for management systems has been set to ensure the Pollution Incident Plan, proposed in the application, is in place before operations re-commence. The suggested bodies have been consulted.

Representations from councillors and parish/town community councils

Response received from
Balcombe Parish Council
Brief summary of issues raised
Balcombe Parish Council objected to the variations on the following grounds: 1) Lack of detail in the Site Condition Report: a) No monitoring for baseline data has been included. b) No geological information has been included. c) The condition of the 1980's well drilled by Conoco has not been included. d) Flare emissions will be blown towards Balcombe Village. e) Proximity to several manmade structures and natural areas. 2) The proposed shrouded flare is a change from the enclosed flare included in the original application.
Summary of actions taken or show how this has been covered
1) a) Monitoring of surface water, groundwater and perimeter ambient air quality has been undertaken and reported to the Environment Agency since the original permit was issued. Baseline data has been established for the site, even if not evident from the submitted Site Condition Report. b) Full geological information for the site is contained within the Hydrogeological Risk Assessment. c) The well drilled in the 1980 is not part of the Environmental Permit and has not been assessed as part of this application. d) We have assessed the data available and are satisfied that flaring emissions predictions are insignificant for all pollutants and Environmental Standards (ES). e) The location of the site is a planning issue and outside the scope of the permit. 2) We accept the justifications made by the operator for the use of the proposed shrouded flare. Additional conditions have been added to the permit to ensure sufficient combustion takes place.
Ardingly Parish Council
Brief summary of issues raised
Ardingly Parish Council objected to the variations due to its proximity to Ardingly reservoir, the possibility of water contamination, environmental factors and being in an AONB.
Summary of actions taken or show how this has been covered
We are satisfied that the risks from the site have been mitigated with permit condition and pre-operational requirements. There are no direct discharges to surface water from the site.

Consultation responses from Members of the Public and Community Organisations

A total of 632 responses were received from:

- No fracking in Balcombe Society (No FIBs)
- Frack Free Balcombe Residents Association (FFBRA)
- Frack Free Essex
- Frack Free Somerset
- Frack Free UK
- Markwells Wood Watch
- Society of Arts Hurstpierpoint
- Ecotricity
- Balcombe CE (C) School Governers
- Transition Town Hastings
- Individual members of the public

A few responses were received after the close of the consultation periods. However they have been taken into consideration as part of our determination process.

Summaries of the consultation responses and how we have addressed them are as follows:

Point source and fugitive emissions to air from the flare and storage tank vents

Concerns have been raised on how fugitive emissions and point source emissions from the proposed flare and storage tank vents would be controlled. Please see the gas emissions comments in the Key Issues section above.

We recognise that flaring of gas needs to be controlled and we have included monitoring conditions in the permit requiring the Operator to monitor the flare feed gas flow rate and combustion temperature. This can be used with the feed gas composition analysis to calculate the emissions of substances including oxides of nitrogen, carbon monoxide, Volatile Organic Compounds, methane and hydrogen sulphide. The operator is required to provide monthly reports of these calculation results to the Environment Agency.

The permit conditions also require the operator to monitor, by calculation, the quantity of gas vented from storage tank vents.

If high levels of hydrogen sulphide are found in emissions, the borehole could be temporarily shut in while additional control and abatement measures are agreed with the Environment Agency.

Human Health Impacts

We have assessed the emissions from the site and are satisfied that flaring emissions predictions are insignificant for all pollutants and Environmental Standards (ES).

Public Health England have raised no objection and we are satisfied that the activities we are permitting will not give rise to significant pollution or harm to human health.

Impacts from noise, vibration, odour and dust

Concerns were raised about the impact of noise, vibration, odour and dust on local residents and wildlife.

Please see the comments on Odour in the Key Issues section and in the Operating Techniques part of the Decision Checklist above. An Odour Management Plan has been agreed as a precautionary measure to minimise impacts from odour from the site.

Please see the comments on Noise in the Operating Techniques part of the Decision Checklist above. Condition 3.4 of the permit controls Noise and Vibration and requires that emissions are minimised. If the activities give rise to pollution due to noise or vibration outside the site, a noise and vibration management plan shall be submitted to the Environment Agency for approval and then be implemented.

We are satisfied that the activities, if carried out as per the waste management plan and odour management plan, will not cause noise, vibration, dust or odour pollution.

Potential impact on surface water, groundwater, drinking water supplies and precautionary principle

Concerns were raised during consultation that groundwater and public water supplies may be contaminated.

A full review of the groundwater risk assessment was carried out which concluded that the activities do not pose a risk to groundwater.

We are satisfied that any residual extractive wastes left underground will remain in or within the immediate vicinity of the wellbore and will pose no risk to the groundwater in the underlying geological strata.

There are no direct discharges to surface water from the site and no discharges of returned waters to groundwater. Liquid waste will be taken off-site for treatment or disposal at a suitably permitted site.

The operator has and will continue to carry out surface and groundwater monitoring, as required by the Permit, to ensure that there is no pollution of surface or groundwater that could affect drinking water supplies.

Storage and containment is discussed below.

We are satisfied that we have fully assessed the risk to surface water and groundwater and that there will be no unacceptable impact or risk of pollution. The precautionary principle is therefore not applicable.

Surrender of the underground Mining Waste Facility

Concerns were raised that the surrender of the mining waste facility is inappropriate. Please see the comments on Surrender of the underground Mining Waste Facility in the Key Issues section above.

Acidisation

Concerns were raised about the risks from carry out acid washing of the well during the well test. Please see the comments on Groundwater Activity in the Key Issues section above. We do not consider acid wash to be a well stimulation method. We do consider other methods such as matrix acidisation, acid squeezing and fracture acidisation to be forms of well stimulation, but these methods are not proposed or permitted to take place at this site.

Well integrity and well failure

Concerns were raised about potential future well integrity issues and well failure and the associated pollution risks from such an event.

Whilst the operation and maintenance of a well is important to the assessment of risk from the site, the Health and Safety Executive and the Department for Business, Energy and Industrial Strategy (BEIS) are responsible for the structural integrity.

Storage and Containment

Concerns were raised about potential pollution from storage of waste materials on site and inadequate site containment.

All extractive wastes, with the exception of natural gas and waste nitrogen gas which will go through the flare, will be stored in secure containers on an impermeable surface.

The operator has proposed storage and containment in line with the Onshore Oil and Gas Sector Guidance. As it has been some time since the site was in operation and structures can deteriorate over time a pre-operational condition (PO 02) has been added to the permit requiring the operator to review and install secondary and tertiary containment, where appropriate, before operations re-commence.

We are satisfied that these methods are appropriate and that the risk of pollution from spillages from the activities will be minimised.

Use of large amounts of water

Concerns have been raised that the activities on site will use large amounts of water and that is not a sustainable approach.

No water used in the site processes will be abstracted directly from local groundwater sources. Water will imported to the site via road tankers and then stored and used in the processes and its use will be kept to a minimum. The operations do not include any hydraulic fracturing and therefore the quantities of water required will be low.

Operator competence

Concerns were raised about a lack of trust in the operator's ability to competently run the site.

The permit requires the operator to have an appropriate management system that the Environment Agency will be ensuring they comply with as part of our ongoing compliance work. We have no reason to believe that they would not be able to comply with this permit requirement.

Area of Outstanding Natural Beauty

Concerns were raised that the site is located in an Area of Outstanding Natural Beauty.

We have a duty to have regard to the purpose of conserving and enhancing the natural beauty of an area of outstanding natural beauty. This is an issue mainly pertaining to land use and visual amenity issues which are addressed through planning however we have reviewed this as part of our determination.

The proposed activities are only temporary in nature. The drilling of the borehole is now complete and the rig has been removed from site. The flare will only be required during the well test period, which will last for approximately 7 days.

If the operator decides to abandon (decommission the well), they will have to apply to surrender their permit. The surrender of a permit will only be accepted once we are satisfied that the site is in a satisfactory state and that there are no residual risks of pollution.

It is not considered that the management of the activities on site will have an adverse impact and that all appropriate measures will be in place to minimise the impact.

Proximity to Ancient Woodlands and protected sites

Concerns were raised that the site is situated in close proximity to Ancient Woodlands and several statutory sites.

Please see the comments in the Biodiversity, heritage, landscape and nature conservation part of the Decision Checklist above. We have assessed the risk from the activities on site as part of our determination and we are satisfied that the activities will not pose a significant risk to the Ancient Woodlands located in the vicinity of the site or to any protected species that may be present. We have also imposed monitoring conditions which will ensure any impacts identified as soon as possible to prevent detrimental effects.

Inadequate Risk Assessments

Concerns have been raised that some of the risk assessments submitted with the application do not contain adequate levels of information.

As part of the determination process, where we find a document lacking in detail or information we ask the operator for further information or amendments to documents submitted with the application so we can complete our assessment.

We have assessed the Waste Management Plan, including the amendments asked for, and are satisfied that it now contains the necessary information.

We have assessed the Site Condition Report, including the amendments asked for. Although it does not contain results of monitoring data, which the Environment Agency have been sent previously, it contains the necessary information.

Inadequate consultation

Concerns were raised that a document referred to in the application titled 'Atkins Air Quality Technical Report' was not available to view on Citizen Space. Once this issue was raised the document was added to Citizen Space.

This document was originally submitted during the original application for the site in 2013 and was consulted on at that time. It has since been available on public register. No changes had been made to the document.

No additional time was added to the consultation period for this application.

Radioactivity

The operator has a separate Radioactive Substances Permit for the handling and removal of any Naturally Occurring Radioactive Material (NORM) wastes that may arise from the oil prospecting on site. No changes were required to this permit as a result of the application.

Impact on property value

Concern was raised that the activities on site will have a negative impact on the property values in the local area.

Whilst property prices are not directly relevant to determining a permit application, based on the impacts from the permitted activities authorised by the permit there is no reason why property process should be affected.

Other matters outside of the scope of this permit application that the public have commented on

Many of the responses comment on matters outside of the scope of this permit and the variations being applied for. We can only consider comments relevant to the applications. Matters outside of the scope of the permit applications and beyond our regulatory control include:

Hydraulic fracturing ("fracking")

The operator is not permitted to carry out hydraulic fracturing at this site. Condition 2.1.1 and table S1.1 specify that "well stimulation by hydraulic fracturing is not permitted".

Earth Tremors

The permit does not allow hydraulic fracturing to take place at the site nor does the proposed method of prospecting include hydraulic fracturing. There is therefore no risk of induced seismicity.

Location of the site

Decisions over land use are matters for the planning system. The location of the site is a relevant consideration for Environmental Permitting, but only in so far as it's potential to have an adverse environmental impact on communities or sensitive environmental receptors. The environmental impact has been assessed as part of the determination process.

Vehicle access to the site and traffic movements

These are relevant considerations for the grant of planning permission but do not form part of the Environmental Permit decision making process, except where there are established high background concentrations contributing to poor air quality and the increased level of traffic might be significant in these limited circumstances. This is not the case at this location.

Climate Change, Global Warming and Energy Policy

Policy is made by the Government. The policy states “We aim to maximise the economic recovery of oil and gas from the UK’s oil and gas reserves, taking full account of environmental, social and economic objectives”.

Industry Self-Regulation

Industry self-regulation is one of the many ways that the requirements of Environmental Permits are met. The Environment Agency use a variety of methods to assess compliance including audits, site inspections, sampling, reviewing operator records and procedures and check monitoring. Additionally the Regulations are also enforced by the Health and Safety Executive and BEIS.