

Permitting decisions

Bespoke permit

We are minded to grant the permit for Holmwood Wellsite operated by Europa Oil & Gas Limited.

The draft permit number is EPR/YP3735YK.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the draft 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:

- 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
- summarises the engagement carried out because this is a site of high public interest
- shows how we have considered the consultation responses

This is a draft decision document, which accompanies a draft permit.

It explains how we have considered the Applicant's application, and why we have included the specific conditions in the draft permit we are proposing to issue 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.

The document is in draft at this stage, because we have yet to make a final decision. Before we make this decision we want to explain our current thinking to the public and other interested parties, to give them a chance to understand that thinking and, if they wish, to make relevant representations to us. We will make our final decision only after carefully taking into account any relevant matter raised in the responses we receive. Our mind remains open at this stage: although we believe we have covered all the relevant issues and reached a reasonable conclusion, our ultimate decision could yet be affected by any information that is relevant to the issues we have to consider. However, unless we receive information that leads us to alter the conditions in the draft permit, or to reject the Application altogether, we will grant the permit in its current form.

In this document we frequently say "we have decided". That gives the impression that our mind is already made up; but as we have explained above, we have not yet done so. The language we use enables this document to become the final decision document in due course with no more re-drafting than is absolutely necessary.

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.

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

Use of terms

Applicant

The Applicant is Europa Oil & Gas Limited. We refer to Europa Oil & Gas Limited as 'the Applicant' in this document. Where we are talking about what would happen after the draft permit is granted, we call Europa Oil & Gas Limited 'the Operator'.

Regulations

In this document the term 'Regulations' refers to the Environmental Permitting (England and Wales) Regulations 2016 No. 1154.

Summary of our proposed decision.

We are minded to issue the permit. This will allow the applicant to operate a mining waste activity under an Environmental Permitting Regulations (the Regulations) permit for the management of extractive wastes arising from prospecting for hydrocarbon resources in accordance with Schedule 20 to the Regulations and other relevant legislation and guidance. We consider that in reaching this decision, we have taken into account all relevant considerations and legal requirements and that the draft permit will ensure that a high level of protection is provided for the environment and human health.

The Holmwood wellsite is proposed to be developed within the Surrey Hills Area of Outstanding Natural Beauty, 1.5km west of South Holmwood. Access to the wellsite will be from Coldharbour Lane pending the construction of a ~230m access track through land currently managed by the Forestry Commission. The authorised mining waste activity will be limited to the area contained within the wellsite and will include the management of extractive mining wastes not involving a waste facility. There will be no permanent storage of extractive wastes onsite and no treatment of extractive wastes before consignment offsite to an authorised facility. The draft permit will also authorise as part of the mining waste activity the flaring of any waste gas arising from well testing. This will be undertaken within a shrouded ground flare over an aggregated fifteen day period with the total mass of gas to be flared not exceeding 10 tonnes per day. As such flaring activities will not fall within the capacity limits set out in the Regulations; Chapter 5, Part A (1), Section 5.1, Incineration and co-incineration of waste. A risk assessment has been submitted with the application which considers the proposed flaring activity, management practices and risks to sensitive receptors. This will be discussed in greater detail below.

The Holmwood wellsite will also operate under standard rules relating to a permit for oil storage (SR2015 No2). This permit authorises an installation operation for gasification, liquefaction and refining activities as described within Part A (1) of Schedule 1.2 to the Regulations. The standard rules permit will operate within the boundary of the mining waste permit. Management practices such as site surfacing and containment considered by the Environment Agency under this application will also apply to this activity.

The Holmwood operations will also involve the circulating of surface fluids exposed to the formation during drilling and / or well testing. This material may contain NORM (naturally occurring radioactive materials) in concentrations exceeding those set out Schedule 23, Part 3, Table 1 of the Regulations. A Radioactive Substances Regulation (RSR) permit will therefore be applied for separately to this application. This permit will describe the requirements for storage, testing, handling and disposal of the waste. This application has been considered separately to the mining waste permit application.

The applicant has not applied for a water discharge or groundwater activity as set out in Schedule 21 and 22 of the Regulations. A full justification for the use of drilling chemicals (oil and water based muds) has been included as part of this application and considered by the Environment Agency. Where relevant, groundwater activities that fall within the exclusions set out under paragraph 3.3(b) of Schedule 22 to the Regulations have been assessed and determined as *de minimis* by the Environment Agency and so will not require formal authorisation under a permit. A technical justification for this stance has been presented in this document.

The bespoke notice contains conditions taken from our bespoke Environmental Permit template, including the relevant annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Regulations, Mining Waste Directive (2006/21/EC) and other relevant legislation and guidance. This document does not include an explanation for these standard conditions. Where they are included in the draft permit notice, we have considered the application and accepted the details are sufficient and satisfactory to make the condition appropriate.

Key issues relevant to this determination have been described in greater detail below. These address the Environment Agency's legal obligations under the Regulations and other relevant legislation and guidance. The Key Issues section also address points raised during the public consultation which is described in further detail later in this document. Following the minded to consultation an additional section will be included to take into consideration consultation responses received and where relevant assess additional information that will inform the determination of this application.

Key issues of the decision

Gas management

Management of waste gas arising from well testing will be undertaken for an aggregated period of no more than fifteen days and will be performed using a PW Well Test Limited (PWWT) shrouded ground flare manufactured to an open pipe flare design of a single 78mm (3.070") open pipe flare within a 356mm (14.015") diameter steep pipe, with a pilot line and air assist line running up the outside.

The burning of waste gas within a shrouded ground flare may in certain circumstances be considered best available technique (BAT) in accordance with the Environment Agency's published guidance (<https://www.gov.uk/government/publications/onshore-oil-and-gas-exploration-and-extraction-environmental-permits>), however in determining the appropriateness of this proposal the Environment Agency has considered the technical justification put forward by the applicant and has concluded that appropriate measures will be put in place that will afford a level of protection to the Environment that is consistent with the general requirements of the Mining Waste Directive. The Environment Agency has considered the technical justification put forward by the applicant and concluded that the proposed flaring activity affords an equivalent level of protection to the Environment and is therefore suitable. The PWWT technical flare document (EOG-EPRA-HW-FTD-008) sets out in detail the technical justification for gas management and has been assessed by the Environment Agency and found to be acceptable for the proposed activity.

An initial screening of proposed flaring activities taking into consideration proximity of the site to residential and ecological receptors was undertaken by the applicant and the Environment Agency, through an H1 assessment. As part of our screening we highlighted the proximity of flaring activities to Ancient Woodland (50m from site boundary) and as a result more detailed screening was undertaken by the Environment Agency's Air Quality Modelling Assessment unit.

This assessment considered varying distances from the flare and impacts from flaring activities on the Ancient Woodland. The assessment concluded that there is a potential exceedance of the 24 hour critical level for NO_x, however this is limited to 10m to 20m of the nearest part of the ancient woodland with the majority of the woodland remaining below the critical level for NO_x.

In addition, due to the conservative nature of the assessment tool and the uncertainties of making predictions within such small distances flaring activities can be screened out as insignificant. We have therefore not requested detailed dispersion modelling from the applicant.

Site surfacing and containment

Containment that meets the CIRIA C736 guidance has been proposed by the applicant and detailed within the waste management plan (WMP), site condition report (SCR) and supporting technical diagrams and drawings. These documents are listed in the draft permit under Schedule 1, Table S1.2. The operator is also required to provide a construction quality assurance report (CQA) on site surfacing and containment for approval by the Environment Agency prior to the commencement of drilling operations. These pre-operational conditions are detailed in the draft permit under Schedule 1, Table S1.3.

Briefly, the site will be constructed by the removal of 850m³ of topsoil and the levelling of the land to facilitate site activities. Surplus topsoil and subsoil material will be stored within a temporary screening bund on the northern boundary. This material will provide partial screening of the well site and will be reused during the restoration of the site in accordance with the restoration plan agreed under planning.

The wellsite compound will consist of a 118m by 55m sealed drilling pad with a perimeter drainage ditch, containment drain and infrastructure to collect any surface runoff water and potential contaminants. The compound surfacing will be constructed using a layer of Secutex 401 geotextile, which overlays the exposed subsoil. This membrane is designed to protect the underside of the impermeable membrane (Bentofix Geosynthetic clay liner (Bentofix GCL) which will overlay the Secutex 401 geotextile. The geotextile and membrane will cover the site surface and perimeter drainage to create a sealed system.

As part of the determination of the permit application the Environment Agency raised questions regarding the integrity of the liner proposed to be used across the site. The applicant contacted the manufacturer of the Bentofix GCL to consider the site-specific requirements and hydrogeological conditions. As a result the manufacturer has recommended the use of Bentofix NSP 4900 along with pre-hydration of the liner during installation. The revised waste management plan confirms the operator will adopt the manufacturer's recommendations and the CQA report on site surfacing will be assessed by the Environment Agency to ensure that the manufacturer's installation guidelines are followed and that the liner will provide an effective environmental barrier.

We have taken the product details, the manufacturer's assurances and recommendations into consideration when considering the risks posed to the groundwater from the use of this type of lining system at this specific site. We have considered the proposed short duration of the activity at an exploration site compared with a longer-term proposal at a production site, elsewhere in the country, in making our decision.

The site will be finished using either a Type 3 stone (typically 300mm depth) or ground matting to create a working platform. If Type 3 aggregate is used to complete the surfacing a sand binding layer followed by 300mm of compacted Type 3 aggregate. If ground matting is used in lieu of 300mm Type 3 aggregate the Bentofix GCL will be overlaid with a layer of dense Secutex 201 geotextile and is designed to protect the upper layer of the impermeable membrane, prior to installing the ground matting.

The borehole will be drilled within a concrete chamber which will provide secondary containment for drilling activities in accordance with CIRIA C736. Subsoil will be excavated to a depth sufficient to construct a 2.74m deep well cellar with excavated material stored within the temporary bund to the North of the wellsite. A 300mm thick reinforced concrete base will be set in base of the excavation. A Precast Concrete (PCC) ring will be set into the concrete base, providing a slight overlap. A layer of Bentofix GCL is then laid on top of the concrete base and turned up against the inside walls of the cellar forming a containment barrier. Additional PCC rings are added to line the well cellar back to the surface with the final PCC ring 50mm below the site surface level. Each PCC ring is sealed together using Tockstrip concrete joint sealant and all PCC lifting points will be suitably plugged and sealed. The PCC rings are then encased in a 200mm thick concrete jacket surrounding, set to a depth immediately below the surface construction. The Bentofix GCL and Secutex 1201 protective membranes will be folded upward along the external wall of the well cellar to ensure wellsite integrity.

Where the liner abuts other infrastructure, these aspects will be detailed by the applicant in the Construction Quality Assurance (CQA) plan for the liner and implemented to ensure that the manufacturer's installation guidelines are followed and that the liner will provide an effective environmental barrier.

Once the well cellar has been constructed, an integrity test will be carried out to confirm that it provides suitable and effective containment. Testing will consist of filling the cellar with water and measuring the loss over a 24hr period. If containment loss is measured then further sealing (or repairs) will be made and the test repeated until it's demonstrated to be successful.

Secondary containment will be required around all waste storage tanks on site, including those authorised under the Oil Storage Permit (SR2010 No15) in line with CIRIA C736. All secondary bunding will provide at least 110% capacity of the total volume of each storage tank or aggregated grouping. Daily monitoring of containment capacity of the site including the site surfacing, drainage ditches and banded tanks will be undertaken to ensure that the site can cope with adverse weather conditions. All waste water accumulating within containment structures will be removed by a licenced waste carrier to a permitted waste facility.

The Environment Agency concluded that site surfacing and containment as described in the Site Condition Report and Waste Management Plan are sufficient to mitigate risks to surface and groundwater receptors.

Noise

The applicant has considered possible noise nuisance from site works including flaring activities within the Environmental Risk Assessment (EOG-EPRA-HW-ERA-007) and Flare Technical Document (EOG-EPRA-HW-FTD-008). With respect to flaring activities, the applicant has estimated sound power level from the flaring activities across a range of flow rates expressed as million standard cubic feet per day (mmscfd) which is reported to be <115.5dB(LWA). Condition 8 of the planning decision notice provides the following requirements, relating to noise emission from the development:

'The level of noise arising from any operation, plant or machinery on site, at a height of 1.2m above ground level and at least 3.5m from the façade of any residential property or other noise-sensitive building most exposed to noise from the site shall not exceed the limits in the table below. Such noise levels may be measured directly at the relevant location(s) or may be calculated according to a method previously agreed in writing with the County Planning Authority.'

To comply with the planning condition 8 the operator has proposed a noise monitoring plan for approval by Surrey County Council. Where noise limits set under planning cannot be met the operator has committed to reduce the flow rate at the choke manifold, which in turn will reduce the inlet flow rate of hydrocarbon gas to the flare, resulting in a reduction in sound power level and impact at receptors. The Environment Agency consider this approach to be satisfactory and have not imposed further monitoring conditions within the draft permit.

Groundwater protection - Well design

Prior to the permit application being made, during the planning application and planning appeal process, the applicant provided sufficient information to show that the risks to the groundwater environment from the proposed design and specification of the well had been considered and were acceptable. This included the production of a revised hydrogeological risk assessment including agreement to drill the conductor casing with only air or fresh water and to extend the conductor casing through the full length of the Lower Greensand (Hythe Beds and Atherfield Clay) principal aquifer and to seal the base of any rat hole / mouse hole developed prior to drilling, to protect the groundwater environment. In doing so they provided sufficient information to show that the risks from the proposed activity would be acceptable. Adequate information had been submitted to show how the groundwater immediately beneath the site, the groundwater that feeds to the local Pipp Brook and that provides water to local springs, private supplies and, indirectly, to public water supplies, would be protected. As a result of the hydrogeological risk assessment already submitted we were satisfied that the broader risks to groundwater had been addressed.

When the permit application was made there were two key issues regarding the well design that we felt needed further, more detailed, explanation and clarification at the permit application stage:

- In the permit application the trajectory (route) of the proposed well below ground and the proposed casing depths varied in comparison to those submitted at the planning application stage. The revised trajectory is referred to as "Path 8". The surface casing went to a much shallower depth and the angle of the drilling near the ground surface had changed. The applicant provided additional information, a detailed explanation of the changes and a justification. By changing the angle of the upper part of the well bore they can get across the identified faults in the geological sequence while they are still in the Weald Clay, and still reach the target formations that they wish to drill through and investigate. This will enable them to provide a better natural seal as the clay prevents the migration of drilling fluid and seals against the well casing better. In order to get the angles right and to maintain safe drilling practices they have had to decrease the proposed depth of the surface casing, but it still keys in to an impermeable layer. This proposal for well design and trajectory, Path 8, is deemed acceptable.

- Within a few weeks of the permit application, based on existing geological maps of the adjacent area, we found information that lead us to query our original understanding of the depth of the Weald Clay present in the vicinity of the site. As the Weald Clay is an important protective layer it was vital to clarify this uncertainty. The applicant carried out additional work to interpret seismic profiles of the geological layers at their site, linking it in with newly acquired data from the latest well results from Horse Hill 1. They were able to show us that the latest information confirms that there should be over 400 metres depth of Weald Clay available to protect the Tunbridge Wells Sand Formation within the Hastings Beds. This additional work confirmed that the information submitted and assessed at the time of the planning application was accurate and that there were no further requirements from an environmental permitting perspective.

The Environment Agency have considered the revised well design as described in the WMP and the SCR and conclude that it meets the expected requirements. Further assessment of the risks posed to the groundwater from this aspect of the activity does not require further work, or trigger the need for a groundwater activity permit.

Groundwater protection - Chemical additives

Chemical additives including water and oil based drilling muds, contingency chemicals, wellbore clean up solutions and chemicals to be used at the surface have been considered by the Environment Agency as part of the application and are listed fully within the Waste Management Plan, Appendix 6.

We have considered the Hydro-geological Risk Assessment provided by the applicant and have reviewed this against our information and conceptual understanding of the location.

We have evaluated whether an environmental permit for a groundwater activity is required. Based on the information presented, we have determined that an environmental permit for a groundwater activity is not required for the proposed activity, which is limited to drilling a wellbore for exploratory purposes, as set out below.

We consider that the use of the proposed water and oil based drilling muds does not amount to a groundwater activity and so will comply with the groundwater activity exclusion under the EPR 2016 (paragraph 3.3(b) of Schedule 22), in that any discharge to groundwater that may occur would be of a quantity and concentration so small as to obviate any present or future danger of deterioration in the quality of any receiving groundwater. Therefore no permit for a groundwater activity will be required at the site.

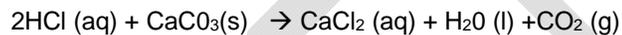
Groundwater protection - Acid wash and squeeze

The initial application for the acid wash and for the acid squeeze was assessed with respect to the potential impact on groundwater. The initial proposal suggested that the acid wash would be to clear any formation damage caused during the drilling and that the acid squeeze would travel further back in to the target formation (possibly up to 14 metres) and may result in “stimulation” of flow. While the Environment Agency were satisfied that the acid wash would result in no impact on the groundwater environment in the target formations we raised further questions around the risk to the groundwater environment from the proposed acid squeeze. We asked the applicant to clarify the details of the proposed “acid squeeze” at this specific site. The applicant has explained that their only intention is to clear any damage in the target formations caused by drilling, that the pressures to be exerted will not be at a level to cause fracturing of the rocks, that their intention is to clear the drilling damage near the well bore (approximately 1 metre) and that all of the dilute acid solution will return to the surface once it has reacted, leaving no discernible trace of product in the groundwater. They have reviewed their submission, decreased the expected distances that the acid may travel in to the formation (which relates the amount of pressure they can apply when the acid is applied) and revised their Waste Management Plan accordingly. The following comments have been made in line with the revised submission.

The Waste Management Plan describes the applicants proposal to improve the flow of petroleum within the well and formation after drilling. The intention is to remove damage to the formation as a result of drilling activities, which will improve flow in the near wellbore formation. The applicant has proposed two products listed in the Chemical Inventory – Waste Management Plan, Appendix 6.

- Protekt-15 Plus HCl (15% HCl acid with inhibitors); and
- Protekt-7 Plus HCl (7% HCl acid with inhibitors).

The waste management plan (WMP) describes two procedures to clean out the wellbore contents, perforation and borehole facing which have been potentially blocked as a result of the initial drilling operations. These are listed as acid wash and acid squeeze. Both procedures promote the dissolution of calcite (CaCO₃) within the formation through the following reaction shown below. Once the acid has fully reacted it is described as spent, with the products of the reaction escaping to the atmosphere as gas (Carbon Dioxide) or present in aqueous forms (Calcium Chloride) within the solution which are returned to the surface and stored prior to offsite disposal.



An acid wash is defined as the application of acid under low pressure and will be used primarily to clean the near wellbore environment to remove damage from drilling activities. This activity will precede any further acid squeeze.

Acid squeeze is defined as the application of acid under pressure that does not exceed the fracture pressure of the formation. The pressure that the acid can be applied at, so that it does not exceed the fracture pressure of the formation will be established by pressure testing during drilling operations. The acid squeeze is designed to clean the natural pores and fractures of the near wellbore environment (i.e. 1m radius from the well) which may have been damaged by drilling operations. Depending on the extent of existing fractures within each formation acid may pass beyond 1m radius of the borehole, but will be recovered as production water when pumped back to the surface.

It is anticipated that a total of 95m³ of HCl will be pumped into the formation over a maximum of three acid wash and squeeze operations in the following targeted formations; the Portland Sandstone, Kimmeridge Micrites and the Corallian Sandstone and possibly the limestone in the Great Oolite Group.

The Environment Agency have assessed the chemicals in the Protekt 15 and Protekt 7 Plus products, according to the materials safety data sheets (MSDS) within Appendix 6 of the WMP for the acid wash and squeeze activities. These are considered to be of a quantity and concentration so small as to obviate any present or future danger of deterioration in the quality of any receiving groundwater and that a permit will not be required.

The Environment Agency has considered the acid wash and squeeze activities as described in the waste management plan and concluded that they meet the groundwater activity exclusion set out in Paragraph 3.3(b) of Schedule 22 to the Regulations.

Hydraulic Fracturing

Permitted activities at the Holmwood wellsite do not include hydraulic fracturing or activities that require a permit under Schedule 22 to the Regulations. Where hydrochloric acid is used to improve the performance of the near wellbore environment this is done in accordance with the requirements for an exclusion from a groundwater activity, often referred to as meeting the requirements for 'de-minimis' as set out in our published guidance (<https://www.gov.uk/government/publications/groundwater-activity-exclusions-from-environmental-permits/groundwater-activity-exclusions-from-environmental-permits#de-minimis>).

Environmental Monitoring – Air Quality

Air Quality monitoring including parameters, frequency, limit values and testing methods is defined within Schedule 3 of the draft permit and includes monitoring for oxides of nitrogen, carbon monoxide, total volatile organic compounds, methane (inlet concentration), temperature and the flare gas feed flow rate. Section 9 of the Flare Technical Document (EOG-EPRA-HW-FTD-008) provides further technical detail on proposed air quality monitoring at the flare emission point. The Environment Agency has considered the proposed monitoring in line with our published guidance and consider it to be satisfactory to control air quality emissions.

Environmental Monitoring – Water Quality

Groundwater and Surface Water monitoring including locations, parameters, limit values, monitoring frequency and testing methods is defined within Schedule 3 of the draft permit, and includes monitoring for water level, pH, temperature, electrical conductivity, sodium, potassium, calcium, chloride, bicarbonate, sulphate, total petroleum hydrocarbons and methane (dissolved). Proposed groundwater and surface monitoring is defined in more detail within Appendix 2 – Groundwater monitoring strategy of the applicants site condition report (EOG-EPRA-HW-SCR-006). This includes on-site monitoring boreholes, monitoring of the water course both up and down hydraulic gradient of the site, as well as offsite monitoring of private wells around the site. The Environment Agency has considered the proposed monitoring in line with our published guidance and consider it to be satisfactory to control the risk of site activities to groundwater and surface waters.

Habitats

The Holmwood Wellsite is located near designated and non-designated sites which require consideration under the Wildlife and Countryside Act 1981 (Sites of Special Scientific Interest - SSSI) and the National Planning Policy Framework (Ancient Woodland). Specifically the Leith Hill SSSI is located approximately 600m south west of the proposed Holmwood Wellsite and there are Ancient Woodlands at a distance of <50m from the western site boundary. Ancient woodlands to the east of the site boundary are separated by Coldharbour Road which runs northwards towards the town of Dorking.

The Environment Agency undertook a risk assessment of the proposed activity in accordance with the requirements of Section 281 of the Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act (CRoW) 2000. This document referred to as an Appendix 4 notice assessed the risk of activities likely to damage sites of special scientific interest (SSSI).

As part of this assessment the Environment Agency identified the following 'operations requiring consent' that may cause damage and were relevant to the proposed works. Operations requiring consent are listed on Natural England's 'designated site view' [website](#) and in the Environment Agency's judgment include the following.

- | | |
|-----------|--|
| 8 | Burning |
| 11 | The destruction, displacement, removal or cutting of any plant or plant remains including tree, shrub, herb, hedge, dead or decaying wood, moss, lichen, fungus, leaf-mould and turf |
| 22 | Storage of materials |
| 23 | Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling |

The Appendix 4 notice sent to Natural England as part of the public consultation assessed each of these operations requiring consent and provided details on the management practices proposed by the operator to mitigate the risk to designated sites. The Appendix 4 concluded that the proposed permissions are not likely to damage any of the flora, fauna or geological or physiological features which are of special interest to the Leith Hill SSSI.

There was no response from Natural England to the Appendix 4 notice issued by the Environment Agency as part of the public consultation. However it should be noted that Natural England have been involved with the planning application which is dealt with by the local planning authority who were also a consultee to the application.

The applicant has submitted a H1 air emissions assessment with the application to estimate the impact of flaring activities undertaken on the site. This screening tool developed by the Environment Agency identifies a potential exceedance of the daily critical level of NO_x within ancient woodlands that are protected under the National Planning Policy Framework. As a result the Environment Agency's Air Quality Modelling Assessment unit undertook further screening of predicted emissions, including an assessment of critical level exceedances at varying distances from the flaring activity. The assessment concluded that although emissions from the proposed flaring activity exceeded the daily critical level of NO_x the exceedance was limited to 10-20m from the boundary of the site and that the majority of the Ancient woodland to the west of the site boundary would remain unaffected. As the proposed flaring activities will be undertaken for no more than an aggregate of fifteen days it was concluded that more detailed modelling was not necessary and that the activity could be considered low risk and not likely to damage the ancient woodland.

With respect to the Surrey Hills AONB the Environment Agency have considered their duty as set out in Section 85 of the Countryside and Rights of Way Act 2000 and other duties in Section 7(1) of the Environment Act 1995. The effect of site operations on the AONB has also been considered as part of planning and is detailed within the high court re-determined appeal decision document which can be found [here](#).

Briefly, this decision notes that there would not be a viable alternative site for prospecting outside of the AONB and that based on the areal extent and the temporary nature of the proposed operation that development cannot be considered to have a significant effect on the enjoyment of the special qualities of the Surrey Hills. The restoration plan put forward by the applicant will return the site to its previous use and the overall visual disturbance will be reversed over time.

With respect to this permit application the operator would be obliged under any permit to return the site to its pre-existing state in accordance the Environment Agency's guidance on surrendering an environmental permit which can be viewed [here](#). At the point of permit surrender the Environment Agency will assess site compliance and evidence put forward by the operator and request if necessary further information including site investigations to demonstrate that the land has been returned to a satisfactory state. The Environment Agency therefore concur with the high court decision that the proposed activity will not affect the overall integrity or enjoyment of the AONB and that any disturbance will be for a limited time only and mitigated by restoration of the site which is controlled through extant planning.

Non-regulated issues

The following issues have been raised as part of the public consultation but have not been considered as part of permit application EPR-YP3735YK. Where relevant the reader should direct comments towards the local mineral planning authority, in this case Surrey County Council for;

- Traffic management
- Visual Amenity

Other issues that fall outside of the regulatory scope of the Environmental Agency and local mineral planning authority have not been considered further and the reader should direct comments towards the Department of Environmental, Food and Rural affairs and Department of Business, Energy and Industrial Strategy.

- Sustainability
- Climate change

Seismic Hazards

Concerns over increased seismicity were raised as part of the public consultation. The proposed activities at the Holmwood Wellsite are not expected to increase the risk of seismic activity in the area through the reactivation of faults at depth. As noted earlier hydraulic fracturing is not permitted under this permit application.

Radioactive Substance Regulations

A standard rules environmental permit (SR2014 No 4) will be applied for by the applicant to allow the operator to carry on the accumulation and disposal of radioactive waste containment natural occurring radioactive material (NORM) arising from the production of oil and gas.

The rules allow NORM wastes to be accumulated and disposed of, in the form of gaseous waste, aqueous waste and solid waste. The rules limit the amount of aqueous radioactive waste that can be held on site at any one time and require aqueous and solid wastes to be disposed of within 3 months. The rules authorise these wastes to be disposed of by transfer to operators who are themselves permitted to receive and dispose of these radioactive wastes. The rules allow direct disposal of gaseous wastes to the environment.

In addition, the rules authorise:

- The disposal of any residual well stimulation fluids, containing NORM, which have remained underground rather than returned to the surface after use;
- The disposal to the underground strata of NORM present in water brought to the surface from the production of oil and gas.

For clarity, this is NORM that was present in the underground rock before the industrial activity took place, and has either remained there throughout or has been returned underground after being brought to the surface in the oil or gas abstracted from the rock.

The Health and Safety Executive regulates activities involving work with ionising radiation under the Ionising Radiation Regulations 1999 for the protection of the workforce. Those regulations cover accidents and contingency arrangements in the event of accidents involving radioactive materials and waste, including any off-site effects and response.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	<p>A claim for commercial or industrial confidentiality has not been made.</p> <p>The decision was taken in accordance with our guidance on confidentiality.</p>
Identifying confidential information	<p>We have not identified information provided as part of the application that we consider to be confidential.</p> <p>The decision was taken in accordance with our guidance on confidentiality.</p>
Consultation	
Consultation	<p>The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement.</p> <p>The application was publicised on the GOV.UK website.</p> <p>We consider this application to be of high public interest and so the Kent and South London Area team have advertised with the following persons and groups during the planning process and through the determination of the permit application:</p> <ul style="list-style-type: none"> • Sir Paul Beresford MP • Leith Hill Action Group • Norwood Hill Action Group • Brockham Oil Watch • General enquires from members of the public (n=15) • Surrey County Council • Public Health England • Sutton and East Surrey Water (now SES Water) • Locally elected members of Surrey County Council and Mole Valley District Council • Capel Parish Council • Coldharbour Parish Council <p>As part of the determination of the permit application the National Permitting Service consulted the following:</p> <ul style="list-style-type: none"> • The application was advertised in the Surrey Mirror. • Mole Valley District Council • Surrey County Council • Public Health England • Health and Safety Executive • Oil and Gas Authority • Forestry Commission • Sutton and East Surrey Water (now SES Water)

Aspect considered	Decision
	<ul style="list-style-type: none"> • Natural England • Leith Hill Action Group <p>The comments and our responses are summarised in the consultation section.</p>
Operator	
Control of the facility	We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal operator for environmental permits.
The facility	
The regulated facility	<p>We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN 2 'Defining the scope of the installation', Appendix 1 of RGN 2 'Interpretation of Schedule 1', guidance on waste recovery plans and permits.</p> <p>The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.</p>
The site	
Extent of the site of the facility	The operator has provided plans which we consider are satisfactory, showing the extent of the site of the facility. The 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.
Waste management plan	The operator has provided a waste management plan which we consider is satisfactory.
Biodiversity, heritage, landscape and nature conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.</p> <p>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.</p> <p>We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified.</p> <p>We have not consulted Natural England on the application. The decision was taken in accordance with our guidance.</p>

Aspect considered	Decision
Environmental risk assessment	
Environmental impact assessment	<p>In determining the application we have considered the Environmental Statement.</p> <p>We have also considered the planning permission and the committee report approving it.</p>
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>The operator's risk assessment is satisfactory.</p> <p>The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment, all emissions may be categorised as environmentally insignificant.</p> <p>Please see key issues section for further details on mitigation measures proposed for the site.</p>
Operating techniques	
General operating techniques	<p>We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility.</p> <p>The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.</p>
Odour management	<p>We have reviewed the odour management plan in accordance with our guidance on odour management.</p> <p>We consider that the odour management plan is satisfactory.</p>
Noise management	<p>We have reviewed the noise risk assessment and management practices outlined in the applicants Environmental Risk Assessment (EOG-EPRA-HW-ERA-007) and Section 8.3 – Environmental Performance of the Flare Technical Document (EOG-EPRA-HW-FTD-008) in accordance with our guidance on noise management.</p> <p>We consider that the management practices outlined in the aforementioned documents are satisfactory.</p>
Permit conditions	
Pre-operational conditions	<p>Based on the information in the application, we consider that we need to impose pre-operational conditions.</p> <p>Further information on pre-operational conditions can be found in the key issues section. Briefly these cover:</p> <ul style="list-style-type: none"> - Requirement to submit a method for calculating air emissions of oxides of nitrogen, carbon monoxide and TVOCs as set out in Schedule 3, table 3.1 of the permit. - Requirement to submit a CQA plan on site surfacing, secondary and tertiary containment at the wellsite. - Requirement to submit a CQA validation report on site surfacing,

Aspect considered	Decision
	<p>secondary and tertiary containment at the wellsite.</p> <ul style="list-style-type: none"> - Requirement to submit baseline groundwater monitoring results and a report proposing compliance limits. - Requirement to submit a report detailing proposals for monitoring key indicators of chemical additives, including proposed compliance limits.
Emission limits	<p>Emissions limits for point source emissions to air have not been set within the permit with the exception of limits on temperature and flare gas feed flow rate. Oxides of nitrogen, carbon monoxide and TVOC will be calculated by the operator based on measurements made at the well head. Screening of the flaring activities undertaken by the operator and assessed by the Environment Agency have concluded that the impact to sensitive receptors is considered to be insignificant and that detailed or specific limits are not required.</p> <p>Environmental limit values for groundwater monitoring parameters will be agreed in advance of drilling operations commencing on site. These values will be based on baseline groundwater monitoring and will be regulated within the permit by a pre-operational condition (PO-3) set in Schedule 1, Table 1.2 of the permit.</p>
Monitoring	<p>We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.</p> <p>These monitoring requirements have been imposed in order to monitor the efficacy of the site containment systems and effect of drilling operations on surface and ground water quality.</p> <p>A baseline monitoring program is currently being undertaken by the operator which will inform environmental limit values. This program will be completed prior to drilling operations commencing at the site and will be regulated through the permit.</p> <p>We made these decisions in accordance with the following guidance.</p> <p>https://www.gov.uk/government/publications/onshore-oil-and-gas-exploration-and-extraction-environmental-permits</p> <p>Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have where available either MCERTS certification or MCERTS accreditation as appropriate. If MCERTS certification or accreditation is not available the operator must seek approval from the environment agency prior to undertaking monitoring.</p>
Reporting	<p>We have specified reporting in the permit.</p> <p>Reporting frequencies specified for emissions to air, process monitoring and groundwater and surface monitoring are appropriate for the duration of the proposed activities and restoration of the site prior to permit surrender.</p>

Aspect considered	Decision
Operator competence	
Management system	<p>There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.</p> <p>The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.</p>
Relevant convictions	<p>The Case Management System has been checked to ensure that all relevant convictions have been declared.</p> <p>No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.</p>
Financial competence	<p>We have carried out the standard checks that we are required to undertake when assessing a permit application. These include a check of the details held on the applicant at Companies House. The application for a mining waste activity not classified as a Category A facility as described within the Mining Waste Directive and relevant guidance and therefore does not require financial provision to be in place to ensure that there are sufficient funds to complete restoration works or remedial works. There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.</p>
Growth Duty	
Section 108 Deregulation Act 2015 – Growth duty	<p>We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.</p> <p>Paragraph 1.3 of the guidance says:</p> <p>“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”</p> <p>We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.</p> <p>We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.</p>

Consultation

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

Responses from organisations listed in the consultation section

Response received from
Surrey County Council
Brief summary of issues raised
<p>The County Planning Authority has no views to make on the technical detail submitted for the permit application. However they note the following:</p> <ol style="list-style-type: none"> 1. That no permit is being sought for the Incineration of Natural Gas as the applicant states that the incineration of natural gas will not exceed 10 tonnes per day. 2. Paragraph 6.5.1 of the Non-Technical Summary, paragraph 5.3.1 of the WR11 Notification Document² and paragraph 5.3.4.1 of the Waste Management Plan³ all titled “Acid Wash and Squeeze” states that “to improve the flow of petroleum within the Permian formation, an acid,[...]”. However the CPA note that in paragraph 6.4.2 ‘Main Drilling Operation’ under section Hole Section 6” it states that drilling will be down to the Corallian sandstone which is within the Upper Jurassic. The CPA believes the reference to ‘Permian’ is a typo and clarification sought from the applicant. 3. Paragraph 5.4 “Environmental Setting” of the Site Condition Report⁴ states “An Ecology assessment was undertaken in support of the Planning Application East Riding of Yorkshire Council, [...] being of relevance to the proposed Holmwood wellsite”. The application site is within the County of Surrey. The Environmental Setting does not mention the Plantation on Ancient Woodland Sites (PAWS) which immediately abuts the western boundary of the application site. 4. Appendix 2 – Groundwater Monitoring Strategy by envireau water (July 2016) does not include the additional Technical Note (dated 23 September 2016) that was submitted to the County Planning Authority and forms part of the Scheme of Groundwater and Surface Water Baseline Quality and Monitoring pursuant to Condition 15 of appeal ref: APP/B3600/A/2166561 (planning application ref: MO/2016/1292 approved 21 October 2016) 5. Paragraph 5.3 “Waste Generating Activities” in the Waste Management Plan⁵ outlines that for clarity the target formations would include the Portland Sandstone, Micristic Limestone within the Kimmeridge Clay, Corallian Sandstone; and Great Oolite Group. However on reviewing the application documents for planning permission MO/2014/1006 which was for the ‘Undergrounds drilling corridor of an exploratory hydrocarbon borehole’, the drawings and information provided as part of that application state that the “The Holmwood Prospect has two main hydrocarbon objectives, the Portland Sandstone and the Corallian Sandstone, both Jurassic in age” (paragraph 1.25 page 7, Chapter 1 of the Environmental Statement November 2014). Paragraph 1.27 provides further information on this point as well. Figure 1.10 in Chapter 1 also shows the trajectory to the target as being to these formations and no lower i.e. to the Oolite Group. 6. Paragraph 8.5 ‘Dispersion’ of the Odour Management Plan⁶ refers to meteorological monitoring taking place to assist in local modelling for any air dispersion from the West Firsby wellsite. The CPA believes this reference is a typo and clarification sought from the applicant. Additionally it is unclear whether the metrological monitoring would take place on site or off site.

7. Figure 5a “Well Construction Concept” within the Scheme of Monitoring for Exploratory Hydrocarbon Borehole (envireau water, July 2016) is different to figure 5a “Well Construction Concept” within the Hydrogeological Risk Assessment (envireau water March 2015) in terms of the depth of
- the drilling - the 2016 5a drawing goes to the Oxford Clay and Kellaways Formations yet the 2015 drawing goes to the Corallian Group
 - the surface casing 13 3/8” goes between 0 – 171m TVD yet on the 2015 drawing it goes between 0 – 460m TVD
 - the 2016 drawing shows a casing to 7” production liner yet in the 2015 drawing it shows open hole at 8 ½”
 - the 2016 shows drilling to a deeper depth to 1688m TVD yet the 2015 drawing shows drilling to 1450m/.

Summary of actions taken or show how this has been covered

Inconsistencies in the application as identified in the public consultation response from Surrey County Council have been noted and addressed through a Schedule 5 notice served to the applicant on the 19/06/2017. The response to this notice which was completed in full on the 05/01/2018 and a complete list of these documents has been made available on the relevant GOV.UK site as part of the minded too consultation and available through the public register.

Representations from community and other organisations

Response received from
Leith Hill Action Group
Brief summary of issues raised
<p>Financial. In short, the financiers of the drilling are technically insolvent.</p> <ol style="list-style-type: none"> 1. An assessment of the companies’ finances has been provided and concludes that there is a significant risk that the operator may not be able to fulfil the restoration or remediation of the site if the company goes bankrupt prior to an application surrender the permit. 2. A concern has been raised over the standard rules application with respect to finances. <p>Water. There are a number of respects in which EOG’s application appears deficient.</p> <ol style="list-style-type: none"> 1. Risk to Groundwater Is Greater Than We Thought in 2015 The applicant has not made an application for permits concerning a Groundwater Activity. This means they have made neither an application for Groundwater Activity (point source) nor for Groundwater Activity (discharge onto land). 2. EOG Has Not Applied For A Permit Regarding Water Discharge Activity The applicant has not made an application for permits concerning a Water Discharge Activity. Based on the application it is expected that an application should be made for this activity.

Nature of application. Not in spirit of what the planning permission was granted.

3. Concern has been raised over the use of acid at 'higher levels than one would normally expect from any kind of 'conventional' drilling'. Specifically the response states that 'acid fracking' occur and that this is analogous to hydraulic fracking. This the response stated could lead to increased risks of seismic disturbance and pollution of groundwater and other water courses with toxic chemicals.
4. Request that specific chemicals to be used, the percentages of these chemicals and whether they include hydrofluoric acid should be made available to the general public.
5. Detailed information should be provided on the handling of chemicals on site, whether the waste is to be reinjected or removed from the site and if the latter where it is to be treated.
6. Concern raised of potentially carcinogenic air pollution from flares.
7. Long term risks from toxic waste in the abandoned well.

Radioactive Substances.

8. Concern of local residents that operatives might be dispersing radioactive substances that have remained undisturbed for millions of years. Specifically concerns have been raised about harmful levels of radioactive uranium in the waste products of the 'flow back'.

Summary of actions taken or show how this has been covered

Points raised by the Leith Hill Action Group have been considered on their own merit. Where concerns raised have been addressed in the key issues document the reader is directed to the relevant section.

1. The application for a mining waste activity not classified as a Category A facility as described within the Mining Waste Directive and relevant guidance (<https://www.gov.uk/government/publications/environmental-permitting-guidance-the-mining-waste-directive>) does not require financial provision to be in place to ensure that there are sufficient funds to complete restoration works or remedial works. The applicant has completed the appropriate declaration in part F of the application which requires that the applicant state whether the operator is subject to any insolvency procedures. The Environment Agency have no reason to suspect that the operator is not a fit and proper person to operate a permit.
2. There is no requirement for the standard rules permit to consider the financial solvency of the operator beyond what is considered in Part F of the application form. The Environment Agency has no reason to suspect that the operator is not a fit and proper person.
3. The proposed activities at the Holmwood Well site as described in the application and additional information received in response to the Schedule 5 notice have been considered with respect to Schedules 21 and 22 to the Regulations, which cover groundwater protection. Further discussion on exemptions have been included in the Key Issues section at the start of this document.
4. The proposed site activities do not include a water discharge activity. The site will be sealed from groundwater and surface water receptors through site surfacing that meets the CIRIA C736 guidance. A construction quality assurance (CQA) report undertaken by a third party independent assessor is required to be submitted prior to drilling operations commencing. This will be reviewed and assessed by the Environment Agency. All formation water and recirculated drilling fluids stored at the site surface will be removed off site to a licenced facility. Where testing shows that material stored on site exceeds the thresholds listed in Schedule 23 of the Regulations these will be handled in accordance with the RSR standard rules permit which has been applied for separately to the mining waste permit described herein.

5. Acid wash and squeeze activities as described in the applicants waste management plan have been assessed by the Environment Agency, have been amended to ensure that the activity is purely to clear damage caused by drilling, and are now considered low risk. A discussion on this point has been made in the Key issues section at the start of the document.
6. A complete list of chemicals and proposed volumes have been made available by the application in Appendix 6 of the waste management plan (Rev7). This document is available for viewing on the public register and will form part of the minded too consultation. Where appropriate MSDS that cover propriety chemicals have bene excluded from the public register for commercial reasons. The chemicals have been assessed by the Environment Agency and their use is considered to fall within the exclusions set out in Schedule 22, paragraph 3.3(b) to Regulations.
7. Information on containment on site is discussed in detail within the Key issues section of this document. The Environment Agency consider that the management practices put in place by the operator will ensure that the risk to ground water and surface water bodies is minimal. The applicant has also committed to consigning material off site to authorised facilities. There will be no treatment of waste material on site which will be stored for offsite disposal or where relevant recovery.
8. The risk from flaring activities has been considered by the applicant and screened out as insignificant. The Environment Agency have undertaken their own assessment of the risk from flaring activities and conclude with this approach. Further information can be found in the key issues section at the start of this document.
9. The operator is require to undertake the restoration of the site in accordance with planning. Prior to surrender of the permit the operator must demonstrate that the site has been returned to a satisfactory state and that it meets the legal test of surrender as set out in RGN9.
10. The control, handling and disposal of naturally occurring radioactive materials will be covered under a standard rules permit. This is a precautionary management practice to mitigate the risk to receptors which is considered low. There will be no injection of radioactive materials or tracers as part of this application.

Representations from individual members of the public.

Responses from members of the public received during the consultation period have been grouped into common classes to aid in assessment and response. It is not considered appropriate to respond in detail to each representation as a total of 183 responses were received, with a large proportion of the responses citing multiple reasons.

Public responses have been grouped into common classes as outlined in the tables below. Of the fifteen common classes identified these have been where relevant grouped together. The rationale for this grouping is that emissions and control measures are common for these class types and aid the response in the key issues of the decision document. The grouped classes are listed in the table below.

All common grouped classes have been addressed within the relevant section of the key issues document. Where errors or emissions to the original submission have been noted as part of the public consultation these issues have been addressed through the determination of the permit.

Holmwood Public Responses – Common issues

Habitat Concerns
Support Proposal
Radioactivity
Not supportive
Hazardous Emissions
Groundwater
Surface Water
Drinking Water
Sustainability
Acid wash, acid squeeze and Oil Wash
Visual Amenity
Traffic
Liability
Seismic Hazards
Fracking

Holmwood Public Responses - Grouped classes

Deterioration of habitat
Supportive
Emissions (Radioactivity and Well Stimulation)
Not supportive (no reason cited)
Groundwater and Surface Water
Concerns outside of permitting
Seismic Hazards and Fracking