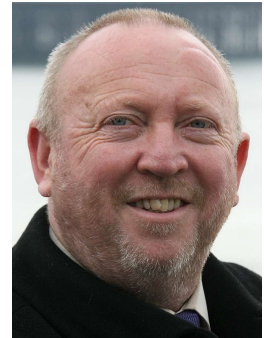


KEITH TAYLOR
Green Party
for the South East of England



Objection to SCC Ref 2018/0152: Horse Hill oil

1. I am the Green MEP for the South East and have been involved in scrutiny of the onshore oil programme in the South East throughout my nine-year term of office. I have also participated in the recent consultations at national level on the planning framework for oil and gas exploration. I have also been an active campaigner for improved air quality throughout my career. As a member of the European Parliament's Committees on Transport and Environment I have an in-depth understanding of the impacts of a project such as this. Therefore, I am writing to object in the strongest terms to the application to put in place a permanent and large-scale commercial oil production facility in the Green Belt in Surrey.
2. The grounds for my objection and the key issues for decision makers on the Horse Hill application are set out below. They centre on the conflict with Government policies on cutting greenhouse gas emissions; the need for the development and the contribution it makes to UK energy supply; the principle of whether a temporary initial permission opens the gateway for long term impacts; the scale and scope of the application which is unclear; the environmental and other impacts of the development and whether the assessment of significance by the developer is correct; the specific impacts on the Green Belt; whether effective and meaningful public consultation has been undertaken and the level of public opposition.

Government Policy on reducing carbon emissions

3. The Strategic Environmental Assessment (SEA) for Onshore Gas Licensing was produced 5 years ago – (published in December 2013)¹. Since then the UK government has signed the Paris Agreement on climate change (2015). In October 2018 the IPCC report on the impacts of 2C versus 1.5C of post-industrial global warming was published². It is clear from this report that greenhouse gas emissions need to be curbed as a matter of urgency to stay within the 1.5C limit. The report says we have only 12 years to steer a course away from catastrophic climate change so a 25-year greenhouse gas intensive project is grossly inconsistent with that advice. The current SEA on onshore oil and gas is therefore out-of-date and should be reviewed before planning permission is considered.

1

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/273997/DECC_SEA_Environmental_Report.pdf

² <http://www.ipcc.ch/report/sr15/>

4. The Government's policies on cutting carbon emissions and shifting to a low carbon economy, in which energy saving and renewables play a major part, are enshrined in law. The current timescale for the Horse Hill proposals is inconsistent with the legally binding target to reduce carbon emissions by 80% of 1990 levels by 2050. If the proposals go ahead they would embed greenhouse gas emissions from the site and in the supply of energy until 2044. This would not be a permission to meet a transitional need but would run for nearly the entire period over which emissions nationally are due gradually to reduce. By the end of the fifth carbon budget in 2032 emissions must be reduced by 57%, with the 2044 figure as yet unpublished but likely to be over 70% less than 1990 levels. By 2044 new petrol and diesel cars will have been banned and the need for fossil fuels in energy supply will have lessened. Although the Developer's Planning Statement takes comfort from the National Planning Policy Framework of July 2018, its approach to onshore oil and gas is: "supporting the transition to a low-carbon economy". It is not about perpetuating reliance on onshore oil and gas, but using it as a stepping stone. 25 years is not transitional.
5. The Environmental Statement of the application states that "the demand for oil and gas is likely to continue until there is a significant reduction in energy consumption or alternative energy and feedstock sources become commercially available." The Department of Business, Energy and Industrial Strategy (BEIS) data used in the statement is from January 2018. The latest data from BEIS, from December 2018, reports not only that primary energy consumption is falling, but also that renewable energy accounted for 33.1% of total energy generation in the last quarter of 2017 – a record³. It needs to be acknowledged that alternative feedstocks and energy sources are commercially available, and will reach grid parity early in the lifespan of this proposed project, meaning there is no need for the exploitation of these non-renewable sources.
6. Surrey County Council is not in a position to undermine the Government's legally binding targets in this way, as its own policies require it to exercise "joined up thinking" on carbon and energy. It aims to reduce carbon emissions in its own operations and plans. It would be less than joined up if it was to promote them in giving planning permission to others⁴.
7. The National Planning Policy Framework of July 2018 states that "plans should take a proactive approach to mitigating and adapting to climate change". The developer's Planning Statement takes a partial approach to the NPPF, focusing instead on the policies promoting fracking and onshore oil and gas exploration. There is a balance to be struck and this application falls on the wrong side of it and should be refused.
8. Note: The NPPF was not subject to SEA as required by European Law and is currently the subject of a legal challenge.

3

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/766776/Press_Notice_December_2018.pdf

⁴ https://www.surreycc.gov.uk/__data/assets/pdf_file/0006/56634/SCC-Carbon-and-Energy-Policy-2015-to-2019.pdf

The need for the development

9. Horse Hill Developments Ltd (HHDL) is arguing that the current Westminster Government (as the devolved administrations do not share this view) seeks to promote onshore oil and gas as a transition to a low carbon energy supply. It claims that the supply from the Horse Hill site will be needed as part of this aspiration and that indigenous oil is essential to security of supply. It says that one of the two most important material considerations is:
“the confirmed discovery of viable hydrocarbon reserves at the Site.”
10. Decision makers about this application will want to be certain not only that viable hydrocarbon reserves are present but that they will make a significant contribution to UK energy supply. If not, the need for the development (under SMP Policy MC14) cannot be justified, given its location and impacts. The need could be met in another way (e.g. following the developer’s argument on the need for indigenous supply – a fossil fuel development elsewhere in the UK – or (my preferred solution) a renewables or energy saving contribution to meeting the energy need).
11. The policy is that minerals can only be extracted where they occur (Planning Statement 4.1.1). Whilst this is apparently true in terms of location of oil present in the geology, it does not follow that in this case the predictions relating to accessible oil are correct. If this was a conventional reservoir or another kind of mineral this claim might be relied on. But HHDL can only estimate what might be commercially available to extract based on past flow test results.
12. They estimate that the site will produce “briefly” 500 tonnes of oil per day (the reason for their EIA assessment) although there is considerable uncertainty about this figure as HHDL make different claims elsewhere. This is not evidence of a “proven and viable hydrocarbon discovery”. There is no reliable statement of how big a contribution the HHDL site will make to national energy supply.
13. Under the plans and given that this is an estimate of what might happen, Horse Hill would make an insignificant contribution to national energy needs and that does not justify the harm that would be caused to the Green Belt in Surrey and the environment.
14. The development could actually make a negative contribution to progress towards zero carbon goals as it would continue to divert investor finance and economic activity away from the transition to a renewable-powered economy.
15. The NPPF says plans and decisions should apply a “presumption in favour of sustainable development”. This means that the environmental and social impacts of an application must be considered in an equal balance to the economic effects. This has not been done. The insignificant contribution to national energy supply does not trump the environmental and social harm of the proposals.

How much oil will Horse Hill produce?

16. It is hard to find the answer in any of the paperwork supplied as part of this planning application, yet an assessment of this is essential to considering whether the proposal can be permitted. Indeed there seem to be a number of statements from the applicant about this, all with different answers.
17. The UK uses 1.4m barrels of oil daily. 21m barrels is in place at the Horse Hill site according to the best estimate prepared for HHDL by Xodus⁵. Under that scenario Horse Hill would supply the UK's energy needs for less than three weeks over 25 years.
18. The issue is also how much can be extracted. HHDL cannot answer the question with any certainty (and does not appear to try in its planning application) – the estimates in the Xodus report are based on a flow test in 2016. That flow test used acidisation (a point that is relevant to the EIA): “The well was acidised to improve production performance and there were several flowing periods and build-ups... The rates were typically between 150 and 300 bopd”.
19. There have been further announcements by UKOG in relation to the 2018 flow test from the Kimmeridge layer (e.g. 10,000 barrels of oil over 30 days) but it is unclear how this relates to a projected future production programme⁶.
20. The only figure provided in the application is HHDL is projecting output “briefly” in excess of 500 bopd.
21. By contrast UKOG and HHDL CEO Stephen Sanderson has recently talked about 2000 bopd from Horse Hill by the end of 2019⁷. This would clearly bring about an entirely different level of environmental impacts, particularly in terms of road haulage, acid use and waste disposal.
22. In order to establish the claims that HHDL use to justify the development based on national need, Surrey County Council will want to be clearer about the production levels before permission could be granted.

⁵ <http://www.ukogplc.com/ul/UKOG%202018%20CPR%20060618.pdf>

⁶ http://irpages2.equitystory.com/websites/rns_news/English/1100/news-tool---rns---eqs-group.html?article=28509410&company=ukog

⁷ <https://www.share-talk.com/stephen-sanderson-chief-executive-of-uk-oil-gas-plc-lonukog-interview/>

The issue of indigenous energy supply

23. There is no guarantee that oil produced at Horse Hill will be used in the UK. Oil is traded on the open market – it is not like local vegetables where the source can be traced and you can gain assurance that your carrot has been produced locally.
24. In 2017, for example, the UK imported approximately 47m metric tons of crude oil and natural gas (the most significant supplier being Norway) and exported 37m metric tons⁸. The equivalent crude oil figures (2016) are 39m metric tons of imports and 31 m metric tons of exports. The UK is the 5th biggest OECD crude oil exporter⁹. There is no significant dependency on EU countries for oil supply so Brexit is not an obvious issue.
25. The UK is on the brink of becoming a net exporter of crude oil thanks to new developments by BP in the North Sea. Government policy, which suggests that home grown onshore oil is needed to contribute to a smooth transition to a low carbon future, has no control over the markets. Unless HHDL is proposing to limit the destination of its oil to the UK then this idea of contributing to “indigenous oil supply” is a spurious claim.
26. The planning authority cannot require this and the proposal therefore does not pass the test of meeting the claimed need for indigenous supply of oil.

Temporary to permanent

27. We know about the applicant’s intentions in terms of timescales because the CEO of Horse Hill Developments Ltd, Stephen Sanderson, said last October: “**Permanent** [my emphasis] production at Horse Hill is targeted in 2019¹⁰”.
28. Local authorities must be free to decide on each application as it arises, without being pre-determined by past applications. HHDL says that their application must be approved because of previous permissions.
29. The present position is that each stage of an oil development application is treated separately. At the initial application stage, for exploration, the planning authority is not able to require the assessment of future stages of development. This is a point I made strongly in

⁸ <https://www.statista.com/statistics/381963/crude-oil-and-natural-gas-import-origin-countries-to-united-kingdom-uk/>

⁹

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/743566/Diversity_of_supply_for_oil_and_oil_products.pdf

¹⁰ http://irpages2.equitystory.com/websites/rns_news/English/1100/news-tool---rns---eqs-group.html?article=28118845&company=ukog

my submission to the Government's consultation on the NPPF¹¹ – that all stages of an onshore oil development should be set out in a “whole life” plan for a site with an assessment of the impacts at the earliest possible stage. But this is not the current position.

30. HHDL cannot have their cake and eat it. Their intentions are clear – CEO Stephen Sanderson has clearly stated that he wants to see “back to back wells in an industrial production¹²” . That is what the current application is for. The planning authority was not able to take this into account in 2014 when it granted permission for exploration. Its hands are not tied by that decision. It could not have foreseen or been able to assess adequately the environmental impacts of 25 years of commercial production at the scale described at the site. Nor could the changed environment for carbon emissions have been foreseen at that time, with now dire warnings about the need to restrain fossil fuels extraction [see section on carbon emissions].
31. Oil and gas exploration is the only industry where development is described in planning terms as temporary, even when it spans generations. This status of being “temporary” gets it past the Green Belt restrictions so that, exceptionally, it can win approvals where other development in the Green Belt would fail¹³. This development is as permanent as any other 25-year development.
32. Currently the permission is for 3 years with full restoration at the end of that period. The lease for the site also requires full restoration back to the state the site was in before any work started. Local residents have an existing expectation that the site would be returned to its semi-natural rural nature in the medium term. This long term/permanent proposal will embed change into the landscape and the local environment and the full implications of that should be taken into account. Restoration to semi natural woodland, with intact ancient woodland indicators, was expected and required, and should now take place at the end of the current permission.

Comment on the Surrey Minerals Plan 2011

33. The core strategy document for minerals development is now out of date and not keeping pace with current developments (it preceded development at Horse Hill). It talks about “oil and gas” being produced “in modest quantities in the southern part of the county”. The environmental impacts do not include those from unconventional extraction techniques like acidisation, horizontal drilling and others including water reinjection. It surely must be time for a review as it is not adequate to cope with applications such as this.

¹¹ http://www.keithtaylormep.co.uk/wp-content/uploads/Consultation_response_NPPF_Keith_Taylor_MEP.pdf

¹² https://www.youtube.com/watch?v=Y0Nybav_lcc&feature=youtu.be – February 2016

¹³ <https://drillordrop.com/2019/01/14/guest-comment-how-temporary-is-temporary/#respond>

Impacts on the Green Belt and the need for Green Belt protection

34. The need for protection of the Green Belt is a crucial issue for the area around Redhill and Reigate. It has been central to the Inquiry into the Development Management Plan for Reigate and Banstead in regards to housing. It is a key focus of the All Party Parliamentary Group, chaired by Sir Crispin Blunt, on the London Metropolitan Green Belt. Although the major threat to the Green Belt is from housing and associated services development, industrialisation and loss of its open character is another key factor which is undermining its integrity.
35. The only consideration of impacts to the Green Belt made in the Planning Statement is in regards to positioning of facilities on the site, rather than to address the principle of the presence of a major oil site within the Green Belt. This is because the approach to the proposal is that the principle is already established – we are here and therefore must continue. But the proposal is about making a temporary activity effectively permanent. What is now being proposed is effectively a permanent change and permanent harm to the Green Belt.
36. Surrey County Council has a policy to “use its power to protect the Green Belt”¹⁴ in line with the needs and wishes of Surrey’s residents. Given the huge number of objections to these proposals it cannot be demonstrated to meet that criterion. There is no benefit to Surrey’s residents, only detriment. The shareholders of the company are the beneficiaries, there is no public good to come out of this.
37. Policy MC3 in the Surrey Minerals Plan 2011 states: “Proposals in the Green Belt for mineral development other than extraction and primary treatment, will only be permitted where the applicant has demonstrated that very special circumstances exist to outweigh the harm by reason of its inappropriateness and any other harm”. The failure of the applicant to demonstrate that there are very special circumstances (e.g. it does not meet a national need and there are readily available alternatives) means this application does not pass this test. The harm is significant and the damage to the Green Belt is permanent.
38. The site is in the area of vulnerability for development – on the edge of a built up area but surrounded by countryside and rural businesses. The area is typical of much of the London Metropolitan Green Belt with widely spaced houses, fields, hedges and smaller areas of woodland. It is precisely this sort of area that the Green Belt was created to protect – by stopping urban sprawl into the countryside. The proposals would be a radical change from a relatively rural area to a highly industrialised area with all the associated impacts of an oil development. This cannot be underestimated. It removes openness – what was once a woodland with a pleasant right of way beside it, will be gone in lieu of high fencing, HGVs going in and out and industrial infrastructure. Making these impacts much greater and

¹⁴ At its meeting on 19 March 2013, the County Council unanimously resolved to use its power to protect Surrey’s Green Belt, support the National Planning Policy Framework (section 9 – paragraphs 79 to 92) and the Government’s policy of protecting the Green Belt, to make Surrey’s MPs and the County’s Districts and Boroughs aware of this resolution and for any Green Belt development in the County to be in line with the needs and wishes of Surrey residents.

making them permanent would constitute a major breach of Green Belt policy and is in conflict with the policies of Surrey County Council and Reigate and Banstead Council¹⁵.

39. This is a need that can clearly be met in other ways and that, even at its full potential will only meet a tiny proportion of the national need for energy, and will cause long term harm to the Green Belt and the policies that govern it.

Scope of the application

40. The EIA sets out the scope of the application and what will happen at the site over time. However if the County Council approves the application in its current form the scale of development underground will not be constrained. The application is for four wells and one reinjection well. However these wells could have sidetracks as stated here:
“Should a sidetrack be necessary in either HH-4, HH-5 or HH-6 to enable the recovery of further reserves the well in question would be plugged back and a whipstock run to 1,300ft–1,400ft MD in the 13 3/8” casing.” (EIA para 54).
41. Following on from the Brockham case (where a sidetrack was drilled without planning permission) any permission should be clear about what is permitted and that any new development underground will require a separate permission. These “possible” sidetracks should either be part of this application or there should be a clear requirement that a new application will be required for each.

Environmental Impacts

42. The extraction of hydrocarbons in a commercial operation at the scale described cannot be achieved without significant impacts – you cannot have one without the other. The impacts include:
- Huge detrimental change to this rural area and permanent change to the Green Belt
 - Increase in lorry movements
 - Reduction in air quality with evidence of impacts on human health
 - Soil pollution with evidence of impacts on animal health and neighbouring businesses
 - Unknown impacts on water quality and from carbon and methane emissions (as not reported publicly)
 - Risks associated with drilling and reinjection of water in an area of unstable geology
 - Impacts on ancient woodland

New impacts from the move to commercial production will include:

- The use of acidisation to enable full commercial extraction of oil from the Kimmeridge layer – 3 of the new wells are targeting the Kimmeridge.
- Groundwater degradation and possible seismological impacts from water reinjection

Acidisation

¹⁵ Reigate & Banstead Core Strategy, Policy 3 “Planning permission will not be granted for inappropriate development in the Green Belt unless very special circumstances clearly outweigh the potential harm to the Green Belt”. http://www.reigate-banstead.gov.uk/downloads/file/3073/adopted_core_strategy_july_2014

43. This term is not to be found in the EIA for the development, even though the scoping request by the County Council identifies it as an issue and Xodus (in its competent person's report¹⁶) states that acidisation will be required for commercial production. Given that the development is predicated on targeting the Kimmeridge, the County Council will need to identify the impacts rather than rely on an Environmental Permitting process which will follow. If these impacts are unsustainable planning permission should not be granted or should be limited to exclude the Kimmeridge. As this is not something the Environment Agency is required to consider this is something that Surrey County Council should consider. Full transparency on this subject should be required from the applicant.
44. There is no assessment of the use of acid in the wells at Horse Hill over 20 years of production, although it is reassuringly described as being like household vinegar. Using the technique of horizontal drilling is also part of an "unconventional" process, affecting local properties as the drills pass underneath them and potentially disrupting the already unstable geology¹⁷. The application should be much clearer about the techniques that will be used to extract commercial quantities of oil from the target. There is also uncertainty about water reinjection and any risk from that to the geology. This is not assessed (see below on groundwater).
45. The EIA should assess what is measurable e.g. the quantity of acid in the process (rather than being vague about the concentration – 15% hydrochloric acid in multiple wells over 20 years of operation should be quantifiable); be clear on the types of fluids being used (as these are not specified in this report); assess any risks in relation to the use of acid through the process of slanted drilling through natural fractures (e.g. to drinking or surface water) and to any problems that might be encountered in the retrieval of the acid (as experienced at UKOG's other site Broadford Bridge where acid stayed underground for much longer than predicted¹⁸); waste products from the acidisation process (which are toxic, highly saline and radioactive) and the risk from well failure in relation to acid leakage.
46. The EIA does not consider the potential risks of using dilute acid in quantity over time, and at the volumes required.
47. There is a detailed study of acidisation which can be accessed here:
<https://drillordrop.com/everything-you-always-wanted-to-know-about-acidising-detailed-study-by-kathryn-mcwhirter/>
48. Surrey County Council should be clear that this is not an application for conventional drilling, with impacts that are predictable. This is an unconventional and protracted operation which will require very careful monitoring. The regulators have found it difficult to monitor

¹⁶ <http://www.ukogplc.com/ul/UKOG%202018%20CPR%20060618.pdf>

¹⁷ <http://www.earthquakes.bgs.ac.uk/research/SurreyEarthquakes2018.html>

¹⁸ "In the light of results and analyses from tests 5 and 6, together with learnings from test 7 in KL5, the Company and its consultants are currently investigating the possibility that zones 5 and 6, originally perforated in summer 2017 and acidised during the original test programme, were damaged by a combination of the long residence times of spent acid within the reservoir prior to current testing and the perforating technique utilised" – UKOG RNS 20 February 2018 .

operations effectively in Surrey (e.g. at Brockham). If the County Council is minded to permit this application a regime should be put in place which links up the regulators and provides for adequate resources for monitoring (particularly air, water and soil). This would need to be in place for the lifetime of the permission. This should be discussed with the Environment Agency in the round before any permission is given. In the absence of a rigorous “gold standard” regime for regulation as the Government suggests exists for these sites, the permission should be refused.

Groundwater Protection

49. Groundwater impacts should consider both re-injection of water and impact of using different acid types considered on site (acetic, hydrochloric). The injection well is said to be for putting the water back "from whence it came" (3.2 of the scoping study for the EIA). This does not appear to be the case with the target for drilling being different from the target for the reinjected water¹⁹. Clarity is necessary on this point (i.e. about what is the target and where the reinjected water will go).

50. Injection wells are the most common cause of induced seismicity, an area of great topical importance at Horse Hill. The intended target formations are the Conventional (porous) Portland Formation and the Unconventional Kimmeridge Clay Formation (KCF). As the Kimmeridge cannot be a candidate for injection due to its characteristic low porosity and low permeability, any formation water from the KCF will have to be reinjected into a different formation. This cannot be described as putting it back "from whence it came". If HHDL intend to avoid the Kimmeridge for oil extraction that should be clear in the permission if it is given. Any injection well anywhere would be a potential seismic hazard but drilling one in such close proximity to the Newdigate Swarm area raises the risk profile to another level²⁰. These potential risks including to water should be fully assessed and the right information provided by the applicant.

Earthquakes

51. The environmental assessment does not touch on the issue of seismological disturbance, following the nearby swarm of earthquakes in Surrey in 2018. One of these was strong enough to raise alarm as far away as Abinger Hammer. It is acknowledged by the scientific community that both oil drilling, fracturing of rocks and water reinjection (as proposed here), in particular, can cause changes to the underlying geology. Horizontal or slanted drilling used to penetrate across natural vertical fractures in the rock can lead to seismic shifts. Provision needs to be made for the long term monitoring of the effect this proposal could have on geological stability. HHDL has not made available the data needed for a correlation to be made between its operations and seismological activity. This should be part

¹⁹ diagram on p.16 section 28 of the Environmental Statement

²⁰ <https://eos.org/features/fluid-injection-wells-can-have-a-wide-seismic-reach>

<https://theconversation.com/injecting-wastewater-underground-can-cause-earthquakes-up-to-10-kilometers-away-102008>

of the measures proposed to ensure any adverse impacts can be immediately mitigated if the plans are approved. The assessment by the Oil and Gas Authority, which concluded that the quakes were not human induced, did not include Horse Hill in its analysis as it wrongly said there was no activity at Horse Hill at the time (based on no data being provided by the operator). Yet normal faulting running North West/South East connects the drill site with the quake swarm epicentre.

52. The most common cause of manmade earthquakes is waste water injection. Oklahoma now has more earthquakes than California, following the use of reinjection wells for waste water in connection with fracking from 2009²¹.
53. If there are doubts about the safety and risk in relation to water reinjection in particular, that should not form part of the permission. Although the Environment Agency will be looking at this in terms of environmental permitting, Surrey County Council is being asked to approve a water reinjection well. The assessment of risk needs to be taken together by all the relevant regulators before any permission can be given – it needs to be joined up from the outset. This important matter of the risk of water reinjection and its correlation with seismicity must be properly regulated, not least to alleviate the concerns of local residents. The application should be turned down if there is any risk of future seismological disturbance which might cause undesirable impacts under the traffic light system set up by the regulators to mitigate induced seismicity²².

Air Quality impacts

54. It is extremely concerning that Air Quality is not addressed in the Environmental Statement. There are a number of factors raised in the Environmental Statement and associated documents that warrant further investigation. These include:
- The methods and models used for calculation of impacts
 - The make up of dust on site
 - The impact on the health of personnel on site, and members of the public and animals exposed to extremely dangerous levels, even for a short time span
 - Some activities described in the Environmental Statement need more clarification and investigation (maintenance gas flaring, fugitive emissions, side tracking and duration of drilling, for example)
 - Heavy Duty Vehicle (HDV) movements alone are not sufficient to calculate the impact of these vehicles on air quality – the age and type of the vehicle determine the impact.
 - More information about the HDV holding area is required, as this will have an air quality impact elsewhere than the site.
 - Predicted spacing of HDV movements is arbitrary and does not factor in reduced operation hours at the weekend.
55. The methodologies used which suggest that air quality will not be an issue for the site are not fool proof and the actual impact could be significantly higher than the models suggest. Absolute figures should be stated in the assessment, not just the percentage of the

²¹ <http://earthquakes.ok.gov/what-we-know/>

²² https://www.ogauthority.co.uk/media/3860/traffic-light-system-doc-for-website_final.pdf

environmental standard that the process contribution under each of the scenarios would generate. A more definitive explanation of what the scenario conditions are and how they were conceived is required. Without this information, scrutiny of the accuracy of the predictions is difficult, which could lead to impacts being much higher than the modelling is suggesting. Also, as particular elements of the weather data were not included in the investigation, the background and baseline levels were developed without using actual monitoring on site, the impact on areas both inside and outside the boundary could be higher than the numbers cited in this report. It is unclear whether the 2016 data takes into consideration any activity on site (and therefore are not true baseline levels) or not. Discounting Sulphur Dioxide and PM2.5 from further screening assessments is a dangerous decision to make given the long term nature of the project. Periodic screening, even if levels are low is a much safer approach to take.

56. Dust is considered in the assessment, but significantly the composition of the dust is not. More information is required about the make up of the drilling muds and other substances to be used on site. Bentonite is one constituent element mentioned – a known respiratory irritant²³. Which additives will the drilling muds contain? For example, will they contain silica, a known carcinogen? There is a need to be more transparent about the risks of these elements of the development too as these factors potentially have an impact, not just on the dust assessment, but also on the health of workers who will be on site.

57. Indeed, working from the basis that only public health needs to be factored in is very short sighted. Some of the levels of pollutants for particular parts of the project are indeed in excess of Environment Agency screening criteria and indeed of legal and safe standards. This is especially pertinent when the "contribution" of benzene, P10 particulates, Nitrogen dioxide and carbon monoxide exceed the screening limits several times over in areas close to the site. Despite the calculations that over the course of the project long term and short term exposures are within the percentage point thresholds they need to be in order to avoid the need for a plan, there will nonetheless be times at which exposure to these levels of air pollution are incredibly dangerous for the people on site and this needs to be addressed.

58. As explained in the Transport Statement, staff may be staying on site to limit the amount of traffic movements. As operations are likely to be 24 hours a day, the exposure of these individuals to pollutants will be much higher and potentially extremely dangerous. It is not sufficient to consider the impact of only members of the public; there is also a need to consider personnel or visitors to site.

59. There is also no mention of the risk to livestock - and it is deemed acceptable that footpath walkers will be able to manage high concentrations of these pollutants as long as they are infrequent users of the adjacent footpaths. We know that horses kept near to the site previously suffered respiratory disorders and are no longer able to be grazed on fields adjacent to it. This has had a serious impact on the livery business next to the site.

²³ Environmental Working Group (2015), California's Fracking Fluids: The Chemical Recipe, https://static.ewg.org/reports/2015/california_fracking/california_s_fracking_fluids_the_chemical_recipe_ewg_2015.pdf

60. There are a number of elements mentioned in the Environmental Statement that need clarification, as the impact on air quality may be significant but not clearly defined in the scope of the operations described. Firstly, it is stated that the gas to power generators will have 'roof mounted exhaust stacks' to mitigate air emissions. There is no explanation of how this will be achieved, how pollutants will disperse in this context, how much emissions will be mitigated. This statement needs further quantifying. Importantly, in the Environment Statement it is stated that gas flaring will only be used in emergency situations or 'for maintenance'. There is no explanation of what constitutes an emergency, nor the frequency, nature or duration of maintenance flaring. Maintenance flaring is not mentioned anywhere in the Air Quality Assessment, therefore has not been factored in to calculations. Moreover, the stance that fugitive gases are not problematic is dangerous. Clarity is needed to understand what the worst-case impacts of such gas escape could be and this needs to be factored in to calculations. Finally, the Air Quality Assessment does not take into consideration the impacts of side tracking (neither the timeframe nor the impact). Most worryingly there are discrepancies in the document about the duration of the drilling period. Both a 15 month and an 18 month timeframe are mentioned for drilling in the same document – the impact of these timeframes are not the same and given that this is the most harmful element of the project from an air pollution perspective and that a lot of the calculation bringing the project under the threshold for Environment Agency screening criteria at 15 months, these calculations must be run again with the additional 3 months accounted for.
61. The air quality impact stemming from transport, particularly HDVs, is calculated solely using the number and frequency of movements. This is insufficient. It doesn't just matter how many lorries will be on site, the age of the vehicle is fundamental to calculations, as this is the true determinant of the actual emissions that will be coming from them. A Euro V standard HDV engine like those described in the Transport Statement is 56% more polluting in terms of NO_x than a Euro VI vehicle. Similarly Euro VI PM emissions are up to half that of Euro V emissions – so unless the newest vehicles are being driven for all movements, the impact may be much more significant than accounted for. Moreover, because Euro standards only cover engines, there is no consideration of the brake or tyre dust that is also impacting the local air either. It cannot be predicted whether these vehicles will all be the latest models, compliant with Euro standards (especially following Brexit), therefore much more careful consideration of the emissions from these vehicles over the 20 year lifespan of the project is needed.
62. Off-site HDV holding areas, or lorry parks in local areas are mentioned in the Transport Statement, but no mention of these are made in the Environmental Statement or Air Quality Assessment – where will these be, how big will they be, what will the impact be to local traffic?
63. The whole process will see 39,150 HDV movements in total, an average of 8,304 a year. The assumption is made that HDV flows will be evenly spaced throughout the day, in reality even with the best planning, external factors may prevent this from happening. These assumptions of 2 lorry movements per hour were also made on the basis of 12 hour blocks

of time, but as noted in all the documentation, Saturdays see just a 4 hour block of time for vehicle movements, so calculation on this assumption is an error.

64. Because of these failings to assess air quality impacts correctly the proposals should be turned down pending a thorough assessment of the issues, with errors corrected or missing information provided and considered in full.

Impact on ancient woodland - Ecological Impact Assessment

65. The issue of the impact of emissions to air from oil drilling and the impact it can have on ancient woodland is important. We know there are ancient woodland indicators on the site and ancient woodland nearby (a significant fragment is shown in Horse Hill in the Surrey County Council Ancient Woodland Revision of 2011²⁴ although it is not included in the ecological assessment). The only comment is on the woodland on site: “The mature woodland through which the access track passes is evaluated as being of Site nature conservation value on the basis that it is an example of mature secondary woodland with a number of ancient woodland indicator ground flora”.
66. Ancient woodland is a scarce habitat in Surrey and nationally – 7.1% of the total land area in the county. In Reigate and Banstead it is under even more pressure with only 4.5% remaining. One of the main purposes of the revised inventory was to: “assist planners in making decisions about development within Surrey, ensuring that the effects of any development proposals on ancient woodlands can be properly assessed and considered”.
67. We know this is an important consideration because the impact of emissions from the proposed oil drilling site at Leith Hill on adjacent ancient woodland was ultimately fatal to the ambitions of Europa Oil and Gas. A statement on behalf of the Environment Secretary, Rt Hon Michael Gove MP, in September 2018 said: “Because of the potential impact on nearby ancient woodland, the Environment Secretary has decided not to extend Europa Oil and Gas’ lease to carry out activity in Forestry Commission land”²⁵.
68. The pollutants even from the planned small-scale oil exploration site on Leith Hill were rated as sufficiently damaging to cause the Environment Secretary to intervene in a planning matter. 25 years of commercial exploration at Horse Hill, whose impacts have not been fully considered in this regard (or at all) is a very significant consideration in the planning decision making and should be given due weight.

²⁴ https://www.surreycc.gov.uk/_data/assets/pdf_file/0018/34830/Surrey-Ancient-Woodland-revision-2011.pdf

²⁵ <https://drillordrop.com/2018/09/04/environment-secretary-blocks-oil-drilling-in-the-surrey-hills-to-protect-ancient-woodland/>

69. The impact on adjacent ancient woodland should be assessed before the application is considered (which has not been done) and in the absence of that, the application should be turned down.

Community engagement and public opposition

70. There is huge opposition to these plans from the local community and concerned residents living further afield. For example villagers in Newdigate have been active in engaging with the plans following an earth tremor which was felt in the village. Residents as far afield as Dorking and Sussex, who have been part of opposition to the expansion of oil drilling in Surrey and Sussex, have visited the site and attended a public meeting in Horley. Despite questions during visits HHDL has not provided the necessary information about acidisation at these meetings.
71. UKOG has an active injunction against peaceful protest at the Horse Hill site which has been targeted at local people (despite being against persons unknown) which means many people are fearful of visiting the site, assessing the impacts for themselves, walking the local paths or monitoring what is currently going on. An injunction is the very opposite to community engagement as many people who object to the plans feel unable even to visit the site. In the first version of the injunction UKOG sought to ban “lawful” opposition to their plans – which could have meant not being able to object at a planning committee. That was withdrawn after local people came forward at the High Court and pointed out the far-reaching extent of such a prohibition and the high penalties for breaching an injunction. The Order now bans what it defines as “unlawful” protest and still targets “persons unknown”. Leave to appeal has been granted and the case will be heard at the Court of Appeal next June.
72. I have researched the approach of oil and gas companies to community engagement and am pressing the Government (as part of its consultation on the matter) to introduce a statutory duty for fossil fuel companies to engage at the earliest possible stage of planning with local residents²⁶. Last October (when HHDL invited people on site visits) was too late. Their plans were already formulated and advanced. This was not a consultation exercise, it was telling people what they planned to do. There was no possibility of local residents changing the plans. That responsibility is now in the hands of Surrey County councillors.
73. There are further impacts to local residents which are not outlined in the 97 documents submitted to the Planning Committee. Property prices are being badly hit. Comments from a local estate agent have been reported to me that the proposals are affecting house prices as energy and infrastructure searches are being required. The property next to the site has been particularly adversely affected with losses to the business and plans now to move away.

²⁶ <https://www.keithtaylormep.org.uk/index.php/publication/how-have-oil-and-gas-firms-south-east-engaged-affected-communities>. At the time Leith Hill was the most active site in terms of a planning application (hence the high level of responses from that area).

74. The current situation is that the company is not forthcoming with information about its plans, particularly in regards to acidisation and the environmental impacts of that process, and is not required to disclose it (as it is not defined as fracking in law). Therefore local people are not being given the information they need to come to their own conclusions about the plans.
75. The development will have a major impact on local residents for the long term. It is not in their best interests and there is no overriding national need which means their interests need to be over-ridden. The application should be refused.

The Need for a Bond

76. If Surrey County Council is minded to approve the proposal there should be a condition for a bond to be put in place for restoration, and/or for the remediation of pollution, at the end of the plan period or when the developer ceases to use the site, whichever is sooner²⁷. HHDL is a new company and (pardon the pun) a one trick pony. It is relying on an untried reservoir to yield its riches and it has a low level of funding with low levels of confidence. This might change over time, of course, but it is not worth the risk to the Surrey countryside if there was to be a default. UKOG, one of the main shareholders in HHDL, has recently had an enforcement notice against it to restore Markwells Wood in the South Downs National Park. A bond would ensure resources would be available for clean up and restoration, which will be a major project in itself.

Conclusion

77. The application should be refused (*inter alia*) because:
- A 25 year fossil fuel permission would be in direct conflict with the Government's legally binding commitments to reduce greenhouse gas emissions
 - It does not provide for a transitional measure as the time required for it exceeds the timescales for cuts required by the legally binding carbon budget setting process
 - The suite of policies around onshore oil and gas are not keeping pace with the expansion of the industry or the requirements to cut greenhouse gas emissions. The SEA on onshore oil and gas is out of date and the current NPPF has not been subject to SEA as required by EU law, which is now the subject of legal challenge. Surrey County Council's policy on oil and gas exploration is out of date also
 - Acidisation is not caught by any of these policies, yet will be used at Horse Hill. The regulators are not working together to address this loophole in regulation. Full transparency on this should be required of the operator

²⁷ In light of Minerals Policy 1.23 on restoration in the Minerals Plan 2011: "Restoration and aftercare should provide a means to maintain – or enhance – the long term quality of land and landscapes taken for mineral extraction. This will be to the benefit of local communities and ensure that a valuable natural asset is passed on to future generations".

- The contribution to national energy supply from Horse Hill will be insignificant on any of the estimates of production provided, which are themselves unclear. There is no national need for oil from Horse Hill which would override other interests
- No condition can be made which would limit the oil produced to be used in the UK
- The application makes permanent a temporary activity, embedding its environmental impacts including greenhouse gas emissions for the long term
- There was no earlier opportunity for Surrey County Council to assess these long term impacts, so the applicant cannot rely on the position that an earlier permission for its temporary, short term presence establishes a right to a permanent presence
- The beneficiaries are the shareholders not local residents who will suffer serious impacts on their local environment and property prices
- The full impacts on air quality have not been assessed accurately due to missing information on a number of the elements of the plan
- Ecological impacts, particularly to ancient woodland, have not been assessed
- The connection between water reinjection and induced seismicity is not addressed. The risks connected with the proposed water reinjection well should be properly assessed
- There are major impacts to the Green Belt from industrialisation of a rural area and loss of openness