

Objection to Environment Agency draft permit decision EPR/BB3300XG/V007, March 2022



This response is submitted on behalf of the [Weald Action Group](#), an umbrella for local groups campaigning against all forms of oil and gas extraction across the Weald and the Isle of Wight in the Southeast of England.

In summary – we do not agree with the Environment Agency’s draft permit decision for the following reasons:

- The applicant has not demonstrated operator competency.
- The Cost Benefit Analysis of options within the Waste Gas Management Plan, which concludes that flaring is BAT, appears to use unrealistically low forecasts of gas volumes and out of date electricity and gas prices, hence undermining the case for gas to wire.
- We are aware of no new evidence in the form of recent seismic surveys etc. provided as part of HHDL’s application. Hence there is no substantiated evidence that shows that existing geological faults will not become pathways of transmission for groundwater contamination.
- The regulatory process has to date failed to properly assess the risk of further seismic activity in the known critically stressed geological zone around Horse Hill. This is particularly worrying given that the EA is minded to approve water reinjection into two wells which could alter the pressure of the surrounding geology. Small pressure changes within critically stressed faults may be sufficient to trigger an earthquake.
- No volume cap and pressure limit regarding the use of acid at the site is currently proposed by the EA, risking that well stimulation may take place under the guise of acid washing.
- Six monthly monitoring of fugitive emissions will potentially allow leaks to go unnoticed and unaddressed for extensive periods of time, posing risks to public health and the wider environment.

In detail –

We do not consider that the applicant has demonstrated operator competence, on the contrary:

- We understand that the EA recently issued a Local Enforcement Position (LEP) to HHDL in respect of flaring. In addition, we have been made aware that the EA stated in response to several FOI requests that the monitoring required under the current permit has not been fully complied with. We have also been made aware that a complaint which details the alleged past regulatory failings by the EA was lodged with the Office for Environmental Protection on 6th January 2022.
- It is crucial that these issues are considered when assessing the operator’s competence. Indeed, as a minimum we consider that the EA should have made consultees aware of the LEP. **Failure to share this information with consultees raises questions regarding the integrity of this consultation, particularly considering the EA’s comment that “there is no known reason to consider the applicant will not comply with the permit conditions”.**

We do not agree with the decision to allow the incineration (flaring) of natural gas:

- **If our calculations are broadly accurate then the Cost Benefit Analysis in the [Waste Gas Management Plan](#) uses unrealistically low forecasts of gas volumes (equating to roughly 0.2**

tonnes per day in 2021¹ and declining annually), and out of date electricity and gas prices which undermines the case for gas to wire. Gas volumes in early 2020 were around 1.5-2 tonnes per day and recent volumes are lower because of a lack of activity. It is reasonable to assume that gas volumes will return to at least these early 2020 levels when multiple wells are being drilled and tested and will likely be higher. **The cost benefit analyses should be re-run using more realistic gas forecasts and current electricity and gas prices. This may fundamentally change the BAT outcome. Other uses of the gas, for example to generate heat energy, should also be investigated and the costs and benefits assessed.**

- In any case it is unacceptable for any gas, potentially increasing to up to 10 tonnes per day as would be allowed under the EA's draft decision, to be wasted when we face not only a climate but now an energy crisis.

Existing geological faults may become pathways for groundwater contamination; and the risk of earthquakes in this critically stressed zone has not been addressed:

- In the Surface Water Management Plan (page 72), consultants Envireau say: *"It is unlikely that faulting will provide a direct pathway for transmission of fluids between the deep, Jurassic water bearing units and shallow groundwater systems, as evidenced by a review of local seismic data and faulting carried out by HHDL and through differences in water quality between units."* **What review of local seismic data and faulting has been carried out by HHDL? This review must be made available as part of this consultation.** David Smythe, a geologist and Emeritus Professor of geophysics, clearly showed in [the objection he submitted to the EA last year](#) that HHDL's maps are inaccurate and that the 2D geological seismic studies that have been provided date back to before 1980. If Envireau's conclusions are based on these old surveys therefore they do not provide reassurance that groundwater contamination will not take place.
- UK Oil & Gas, the owners of HHDL have themselves [acknowledged](#) that *"the oil field's geology has proved unexpectedly complex"*.
- We also remain seriously concerned about the failure of the regulatory process to properly assess the risk of seismic activity **in a known earthquake zone**. The environment and the public are being put at risk. Issues surrounding seismicity still appear to fall between the regulators. The EA have claimed that any issues surrounding earthquakes are the responsibility of the Oil and Gas Authority (recently renamed the North Sea Transition Authority). However, any damage caused by earthquakes could have disastrous public health and environmental effects if it caused polluted wastewater to migrate into aquifers, and any clean-up would fall within the remit of the EA. We are aware that the regulators have *"Working Together Agreements"*, but we have not seen any evidence to show that this arrangement is working robustly when it comes to seismicity concerns.
- **Prior to the consideration of the issuance of any permits we strongly urge the EA to collaborate with the North Sea Transition Authority and request that HHDL produce new seismic and geological studies, ideally 3D; detailed well schematics; and up-to-date detailed contour maps and cross sections of the areas it proposes to drill through, including the intended paths of every well and side-track.**

In relation to the seismicity concerns stated above any water reinjection must be refused based on the application of the Precautionary Principle:

- Water reinjection which causes pressure changes has been established to be a main driver for increases in earthquakes in [other countries](#) – particularly in the United States. In the area around

¹ Authors own calculations based on estimated gas volumes given for 2021 on page 135 of the Waste Gas Management Plan of 14.8m³/hour = 355m³/per day. Based on a methane density of 0.68kg/m³ on page 134 = 241kg per day = 0.2 tonnes.

Horse Hill, earthquake damage has already been caused to property and led to a lot of anxiety for local people. In this critically stressed fault zone, small pressure changes can be enough to set off an earthquake.

- Andy Chadwick a scientist at the British Geological Survey and honorary professor at the University of Edinburgh has [observed](#) that “*Relatively small changes of in situ stress or fluid pressure will trigger [fault] reactivation*”.
- Indeed, a recent RNS from UK Oil & Gas PLC (the owners of HHDL) regarding geothermal energy appears to acknowledge that water injection can induce seismic activity. The RNS [reads](#): “...*Unlike most conventional geothermal wells, the closed-loop system requires no injection or circulation of water within the rocks between boreholes, eliminating the possibility of **induced seismic activity***” [our emphasis].
- We are aware that the EA has said that water reinjection must not exceed 90% of the formation fracture pressure. **What reassurances can the EA give that this will not trigger earthquakes?**

We urge the EA to cap the volume and limit the pressure of any proposed use of acid to ensure that no well stimulation is allowed, and that all actual volumes and pressures are properly recorded at the site:

- Acid treatments are a continuum, depending on injection pressure, from well wash through acid squeeze up to acid fracking. The last two are forms of stimulation which should not be needed in a conventional reservoir which the applicant asserts is the case.
- We note that in Revision 9 of the Waste Management Plan, it was proposed to use no more than 15m³ of 15% dilute hydrochloric acid, and no more than 15m³ of 15% dilute acetic acid. However in Revision 11, these volumes had more than tripled to no more than 48m³ of each. No explanation is offered for the increase. **We urge the EA to cap the volume at 15m³ of each fluid.**

Six monthly self-monitoring inspections of emission leaks of natural gas is not acceptable:

- HHDL’s application claims within the Waste Gas Management Plan that “*Fugitive releases of natural gas, principally methane, are considered unlikely to be significant*”. However, in October 2021 the Clean Air Task Force (CATF) [found emissions](#) of methane and other toxic gases coming from five separate sources at Horse Hill.
- [HHDL’s Environmental Risk Assessment](#) states that “*Gas detection units are provided at site for early detection of methane*” but their [Leak Detection and Repair Plan](#) states that a methane detector has only so far been proposed for the site (page 9). Which is it?
- HHDL also [states](#) that self-monitoring of fugitive gas (via infrared detection) will only take place every 6 months and suggests that this could even be reduced to annually if the EA agree.
- **In line with the Clean Air Task Force [recommendation](#) we strongly urge the EA to make it a condition of the permit that HHDL monitor any emission leaks monthly and set a time limit for these to be rectified and re-checked by the EA on regular site visits.**

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