Planning & Regulatory Committee 26 March 2025 Item No 1

UPDATE SHEET

MINERALS/WASTE MO/2024/1975

DISTRICT(S) MOLE VALLEY

Brockham Wellsite, Land at Felton's Farm, Old School Lane, Brockham, Betchworth, Surrey RH3 7AU

Importation and re-injection of non-site derived produced water into Portland Sandstone beds to support hydrocarbon production.

ADDENDUM

Attached to this Update Report as an addendum is the Environmental Impact Assessment Screening Opinion.

The screening opinion sets out why the application is not considered to be EIA Development.

CONSULTATIONS AND PUBLICITY

Parish Council

Brockham Parish Council – Comments

- No conditions are included in the recommendation for storing waste water on the site.
- Is there clarification on how the imported water will be stored at Brockham and for how long? Will the water remain in the tankers to be used or do they plan on storing unwanted water in another format on site?
- Should the Brockham site close before the mineralised water has all been reinjected, is there a robust plan to dispose of it?

Officer Comment –

- Water is already injected at the site and therefore no additional infrastructure is required as part of this application.
- Water brought to site will be stored in a tank and then injected.
- There are specialist waste disposal facilities where this wastewater can be processed.

Additional key issues raised by public

No received

RECOMMENDATION

Add informative:

In determining this application the County Planning Authority has worked positively and proactively with the applicant by: entering into pre-application discussions; scoping of the application; assessing the proposals against relevant Development Plan policies and the National Planning Policy Framework including its associated planning practice guidance and European Regulations, providing feedback to the applicant where appropriate. Further, the County Planning Authority has: identified all material considerations; forwarded consultation responses to the applicant; considered representations from interested parties; liaised with consultees and the applicant to resolve identified issues and determined the application within the timeframe agreed with the applicant.

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The applicant has been given advance sight of the draft planning conditions and the County Planning Authority has also engaged positively in the preparation of draft legal agreements. This approach has been in accordance with the requirements of paragraph 39 of the National Planning Policy Framework 2024.

Surrey County Council: Environmental Impact Assessment (EIA) Screening Opinion Report

Prepared under Regulation 6 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended)

Site:	**Brockham Wellsite, Land at Felton's Farm, Old School Lane, Brockham, Betchworth, Surrey RH3 7AU**
Scheme:	**Proposed injection of imported produced water into Portland Sandstone Beds to support hydrocarbon production [SCC ref. 2024-0106]**
Proponent:	Angus Energy Weald Basin No.3 Limited
Local Council:	Mole Valley District Council

A Decision and Reasons

A-1 Environmental Impact Assessment (EIA) Decision

1. The proposal to which this Screening Opinion report relates is concerned with the injection of produced water into the underlying Portland Sandstone Beds at the established Brockham wellsite to support the continued production of hydrocarbons (crude oil).

2. The proposal has been evaluated by the Minerals and Waste Planning Authority (MWPA) in line with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) (as amended), and the advice set out in the national Planning Practice Guidance (nPPG) on EIA. The MWPA is of the opinion the proposed development does not constitute 'EIA development'.

A-2 Main reasons for not requiring EIA

3. The main reasons for recommending the proposed development does not require EIA are set out below. Given the scale of the development and taking account of the context of the site it is concluded the proposed scheme would not give rise to significant impacts on the environment.

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3.1 The nPPG on EIA indicative thresholds for Schedule 2, 2(d), 3(e) and 11(b) development advise EIA is more likely required where the site would be more than 5 or 10 hectares in size. The established wellsite is 1.2 hectares in size with no extensions proposed under the current proposal. The development is therefore not of a scale to warrant EIA.

3.2 The nPPG on EIA indicative thresholds for Schedule 2, 2(e) and 3(e) development advise EIA is more likely required where more than 100,000 tonnes of petroleum/fuel per year would be produced or stored. The established wellsite has produced 32,826 tonnes of crude oil between October 2002 and March 2024. Mean annual production was 1,492 tonnes, with a peak of 5,235 tonnes in 2005. The 100,000 tonne thresholds cited for surface installations and for surface storage would not be met. The development is therefore not of a scale to warrant EIA.

3.3 The nPPG on EIA indicative thresholds for Schedule 2, 11(b) development advise EIA is more likely required where new capacity would be created to store more than 50,000 tonnes of waste per year. Up to 25 cubic metres of production water would be imported per day. At 1,000 kg per 1 m^3 (pure water conversion factor) that would be 25 tonnes per day, or 9,125 tonnes per year (365 days). The 50,000 tonne per year threshold for waste disposal facilities would not be met. The development is therefore not of a scale to warrant EIA.

3.4 The proposal would support the continued extraction of crude oil (estimated 300,000 barrels or 40,800 tonnes) from a permitted wellsite. The carbon emissions associated with the extraction and use of the crude oil have been calculated (see paragraphs 44 to 51 of this report) as being of a scale that would not materially affect the achievement of any one of the relevant UK Carbon Budgets. EIA is not required on climate change grounds.

3.5 The wellsite is not located within or in close proximity to any protected areas of national importance for ecology, landscape, or cultural heritage. The wellsite is not situated in an area subject to significant existing environmental issues, such as poor quality or high flood risk. The wellsite is not underlain by any major groundwater resources or protected areas and is not dissected or adjoined by any surface waterbodies. There are a number of residential properties located within 500 metres of the wellsite, with the closest population centre in the settlement of Brockham c.1 kilometre north-east. The wellsite is subject to a range of existing controls covering matters including noise, traffic, surface water and flood management, contamination control, and site restoration. EIA is not required on grounds of impacts on the

natural or manmade environments, natural resources, and supporting environmental systems and processes.

B The Proposed Development

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4. The EIA screening opinion request (section 6, pp.5-6, dated 18 June 2024, prepared by AECOM Limited) provides the following description of the proposed development.

> **6. Outline of the Proposal**
>
> **6.1 Process**
>
> The Brockham Oil Field is located between the towns of Reigate and Dorking in Surrey in licence PL235. The field discovery well, Brockham-1 (BRX-1) was drilled by British Petroleum (BP) in 1987 and found oil in the Portland Sandstone while drilling through to the primary objective in the Great Oolite Limestone. Since this discovery, the Brockham field has produced approximately 490,000 bbls [barrels] of fluid (78,400m^3) in primary recovery mode, resulting in the recovery of between 5% and 10% of oil initially in place (OIIP).
>
> Brockham is now close to the end of that phase with a current recovery of around 8% OIIP. The reservoir pressure has dropped by circa 500 pounds per square inch (psi), which represents a major reduction in reservoir energy. At current reservoir pressure production is only viable for a very limited period of time.
>
> Good reservoir practice would be for secondary recovery, typically through water injection to maintain reservoir pressure, to allow for the production of 20 - 30% OIIP. Brockham has successfully had some minor water injection in the past with re-injection of produced water. Whilst this provides some reduction in the rate of pressure depletion, re-injection of produced water alone does not allow for stabilisation or recovery of reservoir pressure. It is proposed that water injection for pressure support be conducted to restore reservoir pressure to 65-80% of the original pressure, in line with good oilfield practices. Brockham's current reservoir pressure after net fluid extraction of 490,000 bbls of fluid (78,400m^3) is thought to be less than 50% of the original pressure.
>
> Based on a simple estimation of additional recovery that could be achieved through increasing the recovery, incremental production of 300,000 bbls of indigenous-produced oil can be achieved by the injection of produced water into Unit 1 of the Portland Sandstone Beds via the well Brockham 3 (BRX3).
>
> The produced water volume from well BRX2-Y alone is insufficient to restore reservoir pressure to the target pressure. Freshwater is not suitable for water injection and typically, injected water should be of a broadly similar salinity to the water present in the reservoir to avoid swelling and mobilisation of clays and deposition of salts.

An independent review has been conducted to assess the compatibility of other produced waters, which concludes that produced water with salinity in the range between 50,000 and 80,000 ppm would be compatible with reservoir fluids. It is considered that produced water of similar compatibility poses no risk to the reservoir and fluids contained therein.

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Therefore, it is planned to use all produced water from BRX2 for injection purposes. If there is not enough produced water to support hydrocarbon production, which is assumed, Angus Energy will supplement the injection with similar and compatible brines from other producing fields. A maximum limit of 150 bbls or ~25m^3 will be injected over any 24-hour period.

6.2 Access and Movements

To transport fluids from other fields may require up to two (2) HGV tankers per day, Ordinary Goods Vehicle classification OGV 1 or OGV 2, to deliver the fluid to the Site, transferred for storage and then inject it into the target formation.

The Site has the arrangements for the injection of fluid and surface equipment is not expected to change. Delivery and operations would take place during normal operating hours in accordance with conditions outlined in MO06/1294. The duration of the production operation will be until the end of the field life.

The Site will continue to be accessed via an access track that links to Old School Lane, to the east of the wellsite. No changes are proposed to the existing access. In line with previously agreed routeing, all HGVs accessing the Site will do so from the south, thereby avoiding the need to pass through Brockham. Vehicles leaving the Site will turn right (south) along Old School Lane, Bushbury Lane, Roothill Lane, Red Lane and Mill Road to access the A24.

5. The planning history for the wellsite is summarised in Table 4-1 in section 4 ('Planning History', p.3) of the EIA screening request. The key information provided is summarised below.

- Planning permission ref. MO86/1112 granted in 1987 for the: Construction of a wellsite and access road, the drilling of one exploratory borehole and the testing of any hydrocarbon bearing structure encountered.
- Planning permission ref. MO92/0969 granted in 1995 for the: Retention of existing wellsite to further test the existing oil bore and drill up to five additional wells and install production and road tanker facilities.
- Planning permission ref. MO01/1288 granted in 2001 for the: Retention of the wellsite and access road, the erection of production equipment and the production of oil and export by tanker.
- Planning permission ref. MO06/1294 (SCC ref. PL2022) granted on 10 May 2007 for the: Continued use of 1.2ha of land for the production, treatment and export of crude oil from an existing well site without compliance with Condition 4 of planning permission ref: MO01/1288

dated 11 December 2001 such that the development shall cease, and site restoration be completed by 31 December 2036.

- Planning permission ref. MO07/0161 (SCC ref. 2007/0443) granted on 19 June 2007 for the: Installation and operation of a drilling rig on an existing wellsite for: a) workover programme of existing well, and b) the drilling of a new well, for a temporary period until 31 December 2008.
- Planning permission ref. MO08/0894 (SCC ref.2008/0075) granted on 1 September 2008 for: The construction of a concrete hardstanding of some 1841 square metres.
- Planning permission ref. MO/2017/0916 (SCC ref.2017/0089) granted on 15 September 2017 for the: Installation of on-site facilities comprising hardstanding, site office, site toilet facilities, site security office and mess facility; storage containers; lighting units incorporating CCTV equipment; 2.4 metres high palisade fence and gates; electrical control buildings; portable site generator with 2 no. enclosed fuel tanks, and parking area for car/van until 31 December 2036 with restoration to agriculture (retrospective).
- Planning permission ref. MO/2018/0444 (SCC ref.2017/0215) granted on 15 August 2018 for: The retention of the BRX4 well, the regularisation of the BRX4Z sidetrack, and the appraisal of BRX4Z using production plant and equipment within the existing site, for a temporary period of three years (part retrospective).
- Planning permission ref. MO/2021/2103 (SCC ref.2021/0165) granted on17 November 2022 for: The retention of the BRX4 well for reperforation to allow for appraisal and production of hydrocarbons for a temporary period.

C Determining the need for screening

C-1 Is the proposal 'Schedule 1 development'?

6. The proposed development (SCC ref. 2024-0106) does not fall within any of the categories of development listed in paragraphs 1 to 23 of Schedule 1. Paragraph 14 (Extraction of petroleum and natural gas for commercial purposes) is relevant but only applies where extraction of petroleum would be at a daily rate of 500 tonnes.

7. The EIA screening opinion request reports the proposal would deliver up to 300,000 barrels of oil over the remaining operational life of the wellsite (restoration must be completed by 31 December 2036). Using a conversion factor of 0.136 tonnes per barrel (Brent crude oil) the projected 300,000 barrels would give rise to 40,800 tonnes over an 8 to

9 year period. Over an 8-year period average annual production would be 5,100 tonnes, and average daily production would be c.14 tonnes (assuming operation 365 days per year). Over a 9-year period average annual production would be c.4,333 tonnes, and average daily production would be c.11.9 tonnes (assuming operation 365 days per year). Crude oil production from the wellsite would not be of a scale to qualify as EIA development under Schedule 1(14).

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C-2 Is the proposal 'Schedule 2 development'?

8. The proposal involves development that falls within the scope of three categories listed under Schedule 2.

- Paragraph 2(d) – Deep drillings – the relevant screening threshold is a development area of 1 hectare or more.
- Paragraph 2(e) – Surface industrial installations for hydrocarbon extraction – the relevant screening threshold is a development area of 0.5 hectares or more.
- Paragraph 3(e) – Surface storage of fossil fuels – the relevant screening threshold is a new building, deposit or structure with an area of more than 500 square metres or located within 100 metres of controlled waters.
- Paragraph 11(b) – Installations for the disposal of waste (unless included in Schedule 1) – the relevant screening thresholds are: disposal by incineration; development area of 0.5 hectares or more; or development within 100 metres of controlled waters.

9. The proposal affects an established wellsite with an area of c.1.2 hectares. The wellsite operates under planning permissions that require full restoration of the land to be completed by 31 December 2036. No increase in the developed area of the site is proposed. The scheme is concerned with the injection of imported production water via an existing borehole to support the ongoing extraction of crude oil. Reinjection of indigenous production water to support crude oil extraction is already permitted under the extant planning permissions. The proposed scheme is a change or amendment to Schedule 2 development involving activities that could give rise to significant environmental effects. Formal EIA screening is therefore required.

C-3 Is the site in a 'sensitive area'?

10. Regulation 2 of the EIA Regulations lists seven types of 'sensitive areas' to consider when deciding whether a scheme is Schedule 2 development. Where the development is in or close to a sensitive area the screening

thresholds listed under Schedule 2 are disapplied and formal screening is required.

10.1 Sites of Special Scientific Interest (SSSIs): The closest SSSI to the established wellsite is Mole Gap to Reigate Escarpment SSSI c.2.1 kilometres north.

10.2 National Parks: The closest National Park to the established wellsite is the South Downs National Park more than 10 kilometres south.

10.3 The [Norfolk] Broads: The Norfolk Broads is more than 10 kilometres north-east of the established wellsite.

10.4 World Heritage Sites: The closest World Heritage Site to the established wellsite is the 'Royal Botanic Gardens, Kew' (Historic England List ID 1000102) more than 10 kilometres north.

10.5 Scheduled Monuments: The closest Scheduled Monument to the established wellsite is 'Betchworth Castle' (Historic England List ID 1017996) c.1.3 kilometres north.

10.6 Areas of Outstanding Natural Beauty (AONBs): The established wellsite is c.0.9 kilometres east of the Surrey Hills National Landscape (formerly an AONB).

10.7 European Sites: The Mole Gap to Reigate Escarpment SAC commences c.2.1 kilometres north of the established wellsite

11. The development site is not within or adjacent to a sensitive area. The screening criteria cited under the relevant paragraph(s) of Schedule 2 of the EIA Regulations can be relied upon for the purposes of determining whether EIA screening is required.

D Evaluation of likely significant environmental effects

D-1 National Planning Practice Guidance on EIA

12. For schemes covered by Schedule 2, paragraphs 2(d), 2(e), 3(e) and 11(b) national Planning Practice Guidance for EIA offers the following advice.

- Deep drillings (Schedule 2, paragraph 2(d)): EIA is more likely required for drilling operations with a surface site of more than 5 hectares. Key issues to consider include the likely wider impacts on surrounding hydrology and ecology.
- Surface industrial installations for hydrocarbon production (Schedule 2, paragraph 2(e)): EIA is more likely required for development of a site of 10 hectares or more, where production of more than 100,00 tonnes

of petroleum per year is expected. Key issues to consider include the scale of development, emissions to air, discharges to water, the risk of accident and the arrangements for transporting the fuel.

- Surface storage of fossil fuels (Schedule 2, paragraph 3(e)): EIA is more likely required where more than 100,000 tonnes of fuel would be stored, or where hazardous chemicals would be stored. Key issues to consider include the scale of the development, discharges to water, emissions to air, and the risk of accidents.
- Installations for the disposal of waste (unless included Schedule 1) (Schedule 2, paragraph 11(b)): EIA is more likely required where new capacity is created to hold more than 50,000 tonnes of waste per year, or the site is more than 10 hectares in size. Key issues to consider include the scale of the development and the potential for impacts arising from discharges, emissions, or odours.

13. The established wellsite occupies c.1.2 hectares with permission originally granted for commercial oil production in 2001. No change to the physical extent of the established wellsite is proposed. The area based thresholds of 5 and 10 hectares would not be met.

14. The established wellsite has produced 32,826 tonnes of crude oil over its operational life – October 2002 to March 2024, c.22 years (source: North Sea Transition Authority (NSTA) Petroleum Production Reporting System). Mean annual production for that period was 1,492 tonnes, with a peak of 5,235 tonnes in 2005. The 100,000 tonne thresholds cited for surface installations and for surface storage would not be met.

15. The EIA screening opinion request advises a maximum of 25 cubic metres of production water would be imported per day. At 1,000 kg per 1 m^3 (pure water conversion factor) that would be 25 tonnes per day, or 9,125 tonnes per year (365 days). The 50,000 tonne per year threshold for waste disposal facilities would not be met.

16. The proposal does not warrant classification as 'EIA development' on grounds of its type or scale.

D-2 Population and Human Health

17. Baseline and context: The established wellsite is situated in a rural setting, amongst agricultural land c.1 kilometre south-west of the settlement of Brockham near Dorking. Average population density in the vicinity of the wellsite is relatively low - 338 residents per square kilometre for Mole Valley district cf. Surrey average of 724 residents per square kilometre. The most densely populated areas in the wellsite's

near vicinity are Brockham (north-east), Strood Green (south-east), and Dorking (west). The closest residential properties are c.500 metres from the wellsite, to the north-east, east, south-east, and south-west. A number of residential properties are close to the access road linking the wellsite to Old School Lane to the east, and along the HGV route from the wellsite to the A24 to the south and west.

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18. Relevant development characteristics: The current proposal is concerned with the import and reinjection of production water into the Portland Sandstone reservoir at the Brockham wellsite. The aim of the water reinjection operations is to improve well pressure and support the continued extraction of crude oil. The wellsite benefits from an Environmental Permit that allows the reinjection of imported production water. The proposal will result in additional HGV movements to and from the wellsite, of up to 2 HGV loads (4 movements) per day for the remaining operational life of the wellsite.

19. Impact analysis: The proposal would generate up to additional 4 HGV movements per day. The wellsite is currently subject to an HGV routing agreement that prevents vehicles from travelling through the nearby settlement of Brockham. In the current case the likely effects of the proposal are not of a magnitude to warrant requiring EIA on grounds of changes in traffic movements and associated emissions that could be harmful to human health.

20. Water reinjection is already undertaken onsite, via the BRX3 well, using indigenous production water. The operations required to inject water into the Portland Sandstone geological structure are an established part of the noise generating activities undertaken within the established wellsite. The wellsite is subject to a number of conditions relating to the control of noise emissions and effects on nearby sensitive residential premises. Those controls would apply to the current proposal.

21. Mitigation measures: No additional mitigation measures would be required with respect to impacts on human health and population.

D-3 Biodiversity

22. Baseline and context: The established wellsite compound is situated within an agricultural field south-west of the settlement of Brockham. The wellsite compound does not coincide with any international, national or local nature conservation designations. The closest SSSI and SAC, Mole Gap to Reigate Escarpment SSSI and SAC, are 2.1 kilometres north. The closest Site of Nature Conservation Importance (SNCI), Chart Park SNCI, is c.0.95 kilometres west of the wellsite compound. The closest

area of Ancient Woodland is c.200 metres north-west beyond agricultural land. The closest area of Priority deciduous woodland habitat is c.160 metres north-west. The specified HGV route linking the wellsite to the A24 includes existing road links that pass through or within 250 metres of areas of Ancient Woodland, Priority deciduous woodland habitat, Priority wood pasture and parkland habitat, and good quality semi-improved grassland habitat.

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23. Relevant development characteristics: The current proposal is for the import and reinjection of production water into the Portland Sandstone reservoir at the Brockham wellsite. No extension of the existing wellsite compound would be necessary and no additional plant, equipment or wells would be required. The development would result in additional vehicle movements to the wellsite, of up to 4 movements per day for the remainder of the facility's operational life.

24. Impact analysis: The reinjection of production water via the BRX3 well is already undertaken using indigenous production water and is subject to monitoring and control under the site's Environmental Permit. The change to reinjection of imported production water would not present any specific risks of significant impacts to nearby sensitive habitats.

25. The proposal would result in additional vehicle movements to and from the existing wellsite, at a level of up to 4 HGV movements per day. Those movements would involve vehicle travelling on roads passing through or within 250 metres of habitats sensitive to changes in air quality (nutrient nitrogen or acid deposition). A change in vehicle movements of 1,000 AADT (annual average daily traffic flow) or more typically equates to a change in nutrient nitrogen or acid deposition sufficient to result in a noticeable reduction in the ecological integrity of a sensitive habitat(s). The proposal would not result in a change in vehicle movements of that level and is not likely to contribute to significant impacts on the ecological interest and integrity of nearby sensitive habitats. EIA is not required on ecological grounds.

26. Mitigation measures: No additional mitigation measures would be required with respect to impacts on ecology.

D-4 Land and Soil

27. Baseline and context: The established wellsite is situated on c. 1.2 hectares of land within an agricultural holding, on land of Grade 3 (good to moderate) quality under the Agricultural Land Classification system. The extant planning permission requires restoration of the wellsite to a condition suitable for agriculture. Soils stripped from the land prior to

the construction of the wellsite are stored onsite in bunds for use in the restoration of the land.

28. The established wellsite includes measures to protect the surface water environment from accidental contamination, such as spills of oils or production water. The wellsite is underlain by an impermeable membrane with areas of concrete hardstanding around the wells. A reinforced concrete bunded area contains all process equipment and is used to store all liquids (e.g. crude oil, produced water and any fuels/chemicals).

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29. Relevant development characteristics: No change is proposed to the physical extent or composition of the established wellsite and no new wells would be drilled. Permission would be sought for the injection of production water into the Portland Sandstone Beds via the existing Brockham-3 well (BRX3). The Environmental Permit for the site allows for the reinjection of indigenous and imported production water into the Portland Sandstone geological structure.

30. Impact analysis: The reinjection of indigenous production water is already undertaken via the BRX3, subject to monitoring and control under the site's Environmental Permit. The change to reinjection of imported production water would not present any contamination risks to land or soil resources not already addressed by conditions attached to the extant planning permissions and the Environmental Permit. The physical extent of the wellsite would be unchanged, and no further wells would be drilled as part of the proposal.

31. Mitigation measures: No additional mitigation measures would be required with respect to impacts on land and soils.

D-5 Water

32. Baseline and context: The established wellsite does not coincide with any areas of marine, coastal, river or wetland habitat. The wellsite is within the drainage catchment of the 'Tanners Brook (Holmewood to River Mile confluence at Brockham)' (EA Waterbody ID GB106039017570). That water course is classed as exhibiting 'moderate' ecological status (2022 reporting cycle). The wellsite is c.460 metres west of the Tanners Brook watercourse. The wellsite is situated on land classed as Zone 1 (<0.1% annual event probability) for fluvial flood risk. The permitted wellsite is not immediately underlain by any groundwater bodies, public water supply aquifers or designated groundwater source protection zones.

33. Reinjection of site derived production water into the Brockham 3 (BRX3) well currently takes place under the extant planning permissions for the wellsite.

34. The Environment Agency are the main regulator for operations affecting groundwater resources. The Environment Agency has granted an amendment to the Environmental Permit for the Brockham Wellsite to allow re-injection of processed water into the Portland Sand Formation via well BRX3 (emission point W2) for production support. The amendment to the Environmental Permit allows re-injection of waters resulting from oil extraction from the Portland Sand Formation and the Kimmeridge Clay Formation, and re-injection of imported processed water from other wellsites.

35. Relevant development characteristics: The proposal would involve the reinjection of production water, arising on-site and imported from other established oil and gas wellsites, to support oil extraction at Brockham. The screening opinion request reports that water with a salinity range of between 50,000 and 80,000 parts per million (ppm) would be compatible with the fluids present in the oil reservoir. In the first instance produced water from the BRX2 well would be used to support oil production from the BRX4 well. Should those fluids be insufficient to achieve the required oil reservoir pressure compatible brines from other producing fields would be imported to supplement on-site provision. The screening request reports that up 150 barrels / 25 cubic metres of produced water would be injected over any 24 hour period.

36. The established wellsite includes measures to protect the surface water environment from accidental contamination, such as spills of oils or production water. The wellsite is underlain by an impermeable membrane with areas of concrete hardstanding around the wells. A reinforced concrete bunded area contains all process equipment and is used to store all liquids (e.g. crude oil, produced water and any fuels/chemicals). The wellsite drains to an interceptor ditch to the west and south which collects all surface drainage and rainfall from the lined wellsite footprint.

37. Impact analysis: The proposal would make use of existing wells, there would be no additional penetration of the underlying soils and geological strata, including water-bearing strata. The reinjection of production water into the oil reservoir at Brockham is already permitted under the extant planning permissions, where that water is produced on-site. The Environment Agency has granted an amendment to the existing Environmental Permit to allow the reinjection of imported production water into the Brockham oil reservoir. That amendment would not have

been granted if the reinjection of production water from other wellsites would lead to significant adverse effects on the water environment. In the current case the likely effects of the proposal are not of a type or scale to warrant requiring EIA on water quality grounds.

38. Mitigation measures: The proposed limit (150 bbls / 25 cubic metres) for the volume of water to be reinjected over any 24 hour period could be secured by condition should planning permission be granted. Any requirements attached to the Environmental Permit will be monitored and periodically reviewed by the Environment Agency.

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D-6 Air Quality

39. Baseline and context: The established wellsite is situated in an area benefitting from low levels of background air pollution. No Air Quality Management Areas (AQMAs) have been declared within Mole Valley district. The site is more than 250 metres from any major 'A' road, the A24 (Deepdene Avenue) is 1.4 kilometres west, and more than 500 metres from any motorway, the M25 is 7.6 kilometres north. The closest residential properties are c.500 metres from the wellsite, to the north-east, east, south-east, and south-west.

40. Background concentrations of key pollutants – nitrogen dioxide (NO_2), particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) – for the 1x1 kilometre grid square in which the site is located for the years 2025 and 2030 (predicted on a 2018 base year) (source: Defra Local Authority background maps website) do not exceed the relevant National Air Quality Strategy objectives (see Table D-1). The Defra projections do not go beyond the year 2030.

Table D-1: Background air quality for the site

Grid Square	Key Features	Total Annual Mean Concentrations µg m^{-3}					
		Nitrogen Dioxide – NO_2		Particulate Matter – PM_{10}		Fine Particulate Matter – $PM_{2.5}$	
		2025	2030	2025	2030	2025	2030
518500 148500	Wellsite	7.8	7.1	13.3	13.3	8.6	8.6
Relevant National Air Quality Objective for protection of human health (NO_2, PM_{10}, $PM_{2.5}$)		40		40		25	

41. Relevant development characteristics: The permitted wellsite is situated in an area with no existing significant air quality issues. Background air quality is compliant with key air quality objectives for human health. Operations associated with the wellsite that could give rise to pollutant emissions include vehicle movements, on-site use of plant and equipment, and fugitive emissions from the active wells.

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42. Traffic arising from the wellsite is subject to a specified HGV route secured through a Section 106 Legal Agreement. Traffic arising from the wellsite is routed south and east to the A24. That routing agreement prevents wellsite traffic from travelling through the settlement of Brockham.

43. Impact analysis: The proposed import for reinjection of production water from other wellsites would not substantially alter the established emissions profile of the existing wellsite. The proposal would generate up to additional 4 HGV movements per day, which does not exceed the 100 movement threshold cited in the Institute of Air Quality Management (IAQM) guidance for planning as the level above which detailed air quality assessment would be required for sites outside designated AQMAs. The wellsite is located in an area where background air quality is compliant with relevant air quality objectives for human health, which situation would not be altered by the proposal. The wellsite is subject to an HGV routing agreement that prevents HGVs from travelling through the nearby settlement of Brockham. In the current case the likely effects of the proposal are not of a magnitude to warrant requiring EIA on air quality grounds.

44. Mitigation measures: No additional mitigation measures would be required with respect to impacts on air quality.

D-7 Climate

45. Baseline and context: Planning permission for oil production at Brockham wellsite was originally granted in 2001 (ref. MO01/1288). According to NSTA published data some 32,826 tonnes of crude oil has been produced at the wellsite between October 2002 and March 2024 (c. 22 years). Mean annual production was 1,492 tonnes, with a peak of 5,235 tonnes in 2005. Associated emissions (well to tank + combustion) as tonnes of carbon dioxide equivalent (t $CO_{2(e)}$) over the wellsite's operational life stand at 129,618.1 t $CO_{2(e)}$ or c.0.13 million tonnes (Mt) $CO_{2(e)}$ (see paragraph 46 for conversion factors). Production has decreased in the last 5 years, with 152.6 tonnes produced in 2022.

46. Relevant development characteristics: The proposal would involve the injection of production water into the Portland Sandstone Beds via the existing Brockham-3 (BRX3) well. The purpose of the scheme is to improve pressure within the oilfield to enable the extraction of a further 300,000 barrels (bbls) of crude oil over the remaining period covered by the extant planning permission (to 31 December 2036).

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47. Impact analysis: Carbon emissions from the production and use of the 300,000 bbls (40,800 tonnes) of crude oil reported in the EIA screening opinion request were calculated on the following basis.

- Barrels converted to tonnes using a factor of 0.136 tonnes per barrel of Brent Crude oil.
- A production period of 11 years is assumed. No production is assumed in 2024 as planning permission for injection of production water has yet to be secured. Restoration of the site is required by 31 December 2036 no production is assumed for 2036 to enable compliance with that requirement.
- Production is assumed to be evenly distributed across the 11 year period.
- Conversion factors for $CO_{2(e)}$ emissions from the production, processing, and transport (well to tank) and combustion of produced fuels sourced from UK Government Greenhouse Gas Conversion Factors for Company Reporting 2023.
- An average factor of 0.80064 tonnes $CO_{2(e)}$ per tonne of oil is used for well to tank emissions. The UK Government's GHG conversion factors for company reporting cover 17 different types of liquid hydrocarbon fuels with associated $CO_{2(e)}$ emissions per tonne ranging from 1.132 t $CO_{2(e)}$ for 'processed fuels oils – residual oil' to 0.349 t $CO_{2(e)}$ for 'refinery miscellaneous'.
- An average factor of 3.148 tonnes $CO_{2(e)}$ per tonne of oil is used for combustion emissions. The UK Government's GHG conversion factors for company reporting cover 17 different types of liquid hydrocarbon fuels with associated $CO_{2(e)}$ emissions per tonne ranging from 3.245 t $CO_{2(e)}$ for 'marine gas oil' to 2.807 t $CO_{2(e)}$ for 'petrol average biofuel blend'.
- Crude oil is traded on the international market however use within the UK of all products manufactured from the extracted crude oil is assumed.
- Emissions associated with the produced oils use are evaluated against the UK Carbon Budgets (fourth 2023-2027, fifth 2028-2032, and sixth 2033-2037) relevant to the wellsite's remaining operational life.

- A worst case scenario is assumed with all extracted crude oil combusted.

48. Use of the extracted oil is calculated to result in the following emissions of carbon dioxide equivalent (see Annex 1 for details).

- Fourth Carbon Budget period (2023-2027): oil combustion would give rise to 43,900 tonnes (0.0439 Mt $CO_{2(e)}$), accounting for 0.002% of the UK carbon budget of 1950 Mt $CO_{2(e)}$.
- Fifth Carbon Budget period (2028-2032): oil combustion would give rise to 73,200 tonnes (0.0732 Mt $CO_{2(e)}$), accounting for 0.004% of the UK carbon budget of 1725 Mt $CO_{2(e)}$.
- Sixth Carbon Budget period (2033-2037): oil combustion would give rise to 43,900 tonnes (0.0439 Mt $CO_{2(e)}$), accounting for 0.005% of the UK carbon budget of 965 Mt $CO_{2(e)}$.

49. The proposal involves the import of production water from other wellsites to support oil production at the Brockham wellsite. The EIA screening opinion request reports that up to 2 HGV tankers per day (4 HGV movements) would be required. Carbon emissions (see Annex 2) associated with the transport of production water to the wellsite have been calculated on the following basis.

- A production period of 11 years is assumed. No production is assumed in 2024 as planning permission for injection of production water has yet to be secured. Restoration of the site is required by 31 December 2036 no production is assumed for 2036 to enable compliance with that requirement.
- Assumed the wellsite will be serviced by 2 HGV loads (4 HGV movements) per day 365 days per year for a period of 11 years.
- Assumed there will be 1,460 movements per year of which 50% (730) will be empty vehicles and 50% (730) will be fully laden vehicles.
- Assumed that suitable production water for import to the Brockham wellsite will be sourced from other Weald basin wellsites, due to the need for chemical and saline compatibility.
- Assumed the distance from the donor to receptor wellsites is 100 kilometres. This is based on the distances separating the Brockham wellsite from the Goodworth wellsite (operated by Star Energy) south of Andover (c.80 kilometres west) and the Lidsey wellsite (operated by Angus Energy) north of Bognor Regis (c.70 kilometres south-west).
- Assumed that all vehicles travel to the Brockham wellsite fully laden and return to the donor wellsite empty.

- Conversion factors for $CO_{2(e)}$ emissions from loaded and unloaded HGVs sourced from UK Government Greenhouse Gas Conversion Factors for Company Reporting 2023.
- An average factor of 0.64258 kg $CO_{2(e)}$ km was used for journeys made by empty HGVs.
- An average factor of 0.98496 kg $CO_{2(e)}$ km was used for journeys made by fully laden HGVs.
- Emissions associated with the produced oils use are evaluated against the UK Carbon Budgets (fourth 2023-2027, fifth 2028-2032, and sixth 2033-2037) relevant to the wellsite's remaining operational life, and against similarly relevant carbon budgets for the county of Surrey. The latter are sourced from work undertaken by the Tyndall Centre for Climate Change Research at the University of Manchester.

50. Transport of the production water to the Brockham wellsite from donor sites is calculated to result in the following emissions of carbon dioxide equivalent (see Annex 2 for details).

- Fourth Carbon Budget period (2023-2027): transport of production water would give rise to c.360 tonnes (0.0004 Mt $CO_{2(e)}$), accounting for 0.000018% of the UK carbon budget of 1950 Mt $CO_{2(e)}$. When compared with the relevant Surrey level carbon budget (13.2 Mt $CO_{2(e)}$) transport emissions account for 0.0027% of the county carbon budget.
- Fifth Carbon Budget period (2028-2032): transport of production water would give rise to c.600 tonnes (0.0006 Mt $CO_{2(e)}$), accounting for 0.000034% of the UK carbon budget of 1725 Mt $CO_{2(e)}$. When compared with the relevant Surrey level carbon budget (6.6 Mt $CO_{2(e)}$) transport emissions account for 0.0090% of the county carbon budget.
- Sixth Carbon Budget period (2033-2037): transport of production water would give rise to c.360 tonnes (0.0004 Mt $CO_{2(e)}$), accounting for 0.000037% of the UK carbon budget of 965 Mt $CO_{2(e)}$. When compared with the relevant Surrey level carbon budget (3.2 Mt $CO_{2(e)}$) transport emissions account for 0.0111% of the county carbon budget.

51. For the remaining operational life of the wellsite (to 31 December 2036) emissions associated with the production, processing and use of the crude oil and the transport of production water to the wellsite would account for less than 0.1% of each relevant UK Carbon Budget. The transport emissions would also account for less than 0.1% of each relevant Carbon Budget for the county of Surrey. The IEMA guidance on greenhouse gas emissions in EIA (2nd edition, 2022) recommends a

threshold of 5% of the relevant carbon budget in the applicable time period as the magnitude above which an individual project's emissions could materially affect achievement of the carbon budget. In the current case the projected emissions are not of a magnitude to warrant requiring EIA on climate change grounds as achievement of the relevant carbon budgets would not be materially affected by the proposed scheme.

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52. Mitigation measures: Development specific mitigation is not required in this case due to the likely non-material effect of the development on the achievement of the relevant carbon budgets.

D-8 Material Assets (Built Services and Infrastructure)

53. Baseline and context: The wellsite is an established facility with a total site area of 1.2 hectares, covering the compound, bunds and access track. The wellsite compound area is c.0.5 hectares in size underlain by an impermeable membrane surfaced as hardstanding with concrete cellars for the existing wellheads (BRX1, BRX2 and BRX4). A sidetrack from BRX1, denoted BRX3, is used for the reinjection of production water.

54. Access to the wellsite is achieved by a track linking to Old School Lane to the east. The wellsite is subject to an HGV routing agreement requiring vehicles to travel between the facility and the A24 via the road network south and west of the site. Wellsite traffic is prohibited from travelling north through the settlement of Brockham.

55. Relevant development characteristics: No change is proposed to the established wellsite infrastructure. The proposal would result in an increase in vehicle movements, with up to 2 HGV tanker loads (4 movements) of water required daily to support oil production.

56. Impact analysis: During the determination of planning permission ref. MO/2021/2103 dated 17 November 2022 for the production of oil from the BRX4 well the County Highway Authority concluded the scheme would not result in significant highway impacts. That assessment was made on the basis of the development generating up to 15 two-way HGV movements per day for short periods of time (drilling rig mobilisation and demobilisation) and up to 3 two-way HGV movements during the well perforation and production phases.

57. The current proposal would generate up to 2 two-way HGV movements per day (4 trips). The predicted change in vehicle movements would be of a scale equivalent to that associated with the production of crude oil

from the BRX4 well. Such a change would not result in significant impacts on highway capacity along the specified HGV route. EIA is not required on grounds of impacts on built services and infrastructure.

58. Mitigation measures: No additional mitigation measures would be required with respect to impacts on material assets.

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D-9 Cultural Heritage

59. Baseline and context: The established wellsite does not coincide or adjoin any heritage assets of national or local significance. The closest Scheduled Monument is 'Betchworth Castle' (Historic England List ID 1017996) c.1.3 kilometres north set within a golf course, and also designated a County Site of Archaeological Importance (CSAI MV011). That Scheduled Monument and CSAI is bounded by an Area of High Archaeological Potential (AHAP MV045). The Brockham Conservation Area, which also coincides with an AHAP (MV109) commences c.0.7 kilometres north-east of the wellsite. A Grade II* Registered Park and Garden ('The Deepdene (including Chart Park), Historic England List ID 1000143) is c.0.9 kilometres west, separated from the wellsite by intervening agricultural land and woodland, and a rail line. Much of that Registered Park and Garden has been developed as a golf course. The closest Listed Buildings to the wellsite are the Grade II 'Feltons Farm Cottage' (Historic England List ID 1229427) located off Old School Lane c.0.6 kilometres east, and the Grade II 'Dolly Farmhouse and Yew Tree Cottage' (Historic England List ID 1228833) c.0.8 kilometres north-east.

60. Relevant development characteristics: The proposal concerns the import and injection of production water to support crude oil extraction at an established wellsite. The proposal will result in additional HGV movements to and from the wellsite, of up to 2 HGV loads (4 movements) per day for the remaining operational life of the wellsite. HGVs travel to and from the wellsite along a specified route secured through a legal agreement.

61. Impact analysis: No change is proposed to the established wellsite in terms of its physical extent and use. The extant planning permissions include conditions that limit emissions of noise, which could be harmful to the context and setting of heritage assets in the surrounding area. The existing legal agreement relating to the routing of HGV traffic to the A24 via roads to the south and west of the wellsite prevents vehicles from travelling through the Brockham Conservation Area to the north.

62. The wellsite is screened from the north and east by established bunds with grass and tree cover, with established hedgerows and tree belts to the west and south. During standard operations, excepting well workovers when a drilling rig would be present on-site, the wellsite would not be a prominent feature in the local landscape. The closest heritage asset, the Grade II Listed 'Feltons Farm Cottage' to the east is separated from the wellsite by intervening arable agricultural land, land in equestrian use including a sand and fibre surfaced arena, private gardens, and hedgerows and tree lines associated with those diverse uses. Inter-visibility between the Listed Building and the wellsite would therefore be limited and no significant impacts would arise from the proposal. EIA is not required on grounds of impacts on cultural heritage assets.

63. Mitigation measures: No additional mitigation measures would be required with respect to impacts on cultural heritage assets.

D-10 Landscape

64. Baseline and context: The established wellsite is not within or close to any landscapes of national significance. The Surrey Hills National Landscape commences c.0.9 kilometres west, separated from the wellsite by intervening agricultural land, woodland, roads and a rail line. The boundary of the Surrey Area of Great Landscape Value (AGLV) is contiguous with that of the National Landscape. The wellsite is located amongst arable agricultural land, screened from the north and east by established bunds with grass and tree cover, with established hedgerows and tree belts to the west and south. The HGV route specified for the development uses roads within the National Landscape to the south and west of the wellsite, including the A24.

65. Relevant development characteristics: The proposal concerns the import and injection of production water to support crude oil extraction at an established wellsite. The proposal will result in additional HGV movements to and from the wellsite, of up to 2 HGV loads (4 movements) per day for the remaining operational life of the wellsite.

66. Impact analysis: The wellsite is an established feature in the local landscape, with no change proposed to the physical extent or character of the wellsite and associated infrastructure as a result of the proposed development. The reinjection of imported production water to support crude oil extraction would not introduce any new activities to the wellsite and would not require the redrilling of the existing wells. The proposal would not alter the scale or visual appearance of the established wellsite.

67. The proposal would result in an increase in HGV traffic to the wellsite of up to 4 movements per day. Those vehicles would travel along the specified HGV route which includes roads within the boundaries of the Surrey Hills National Landscape. The small number of additional vehicle movements would not be of a magnitude sufficient to significantly impact on the landscape character, visual amenity or tranquillity of the National Landscape. EIA is not required on grounds of impacts on the landscape.

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68. Mitigation measures: No additional mitigation measures would be required with respect to impacts on landscape character and visual amenity.

E Summary

69. The proposal relates to the reinjection at the established Brockham wellsite near Dorking in Surrey of imported production water to support crude oil extraction. An estimated 300,000 barrels of crude oil would be extracted over the wellsite's remaining operational life with water reinjection. The proposal would make use of the existing BRX3 well, already in use for the reinjection of indigenous production water. Imports would be made to the site by means of HGV tanker, with up to 2 loads per day required. The wellsite benefits from an Environmental Permit that allows the reinjection of imported production water.

70. The proposal would support the continued extraction of crude oil from a permitted wellsite. The carbon emissions associated with the extraction and use of the crude oil have been calculated (see paragraphs 45 to 52 of this report) as being of a scale that would not materially affect the achievement of any one of the relevant UK Carbon Budgets.

71. The wellsite is not located within or in close proximity to any protected areas of national importance for ecology, landscape, or cultural heritage. The wellsite is not situated in an area subject to significant existing environmental issues, such as poor quality or high flood risk. The wellsite is not underlain by any major groundwater resources or protected areas and is not dissected or adjoined by any surface waterbodies. There are a number of residential properties located within 500 metres of the wellsite, with the closest population centre in the settlement of Brockham c.1 kilometre north-east. No additional built infrastructure is required for the proposal. The wellsite is subject to a range of existing controls covering matters including noise, traffic, surface water and flood management, contamination control, and site restoration.

72. Considering all available information about the existing wellsite and the proposed development, the requirements of the EIA Regulations and associated guidance, the MWPA concludes the scheme would not result in significant environmental effects. EIA is not required in respect of the proposed development.

7

Annex 1: Projected carbon emissions from oil use

Year	Estimated average annual production tonnes	Well to Tank (WTT) Emissions $CO_{2(e)}$ tonnes (Average conversion factor 0.80064 t $CO_{2(e)}$ per tonne)	Combustion emissions $CO_{2(e)}$ tonnes (average conversion factor 3.148 t $CO_{2(e)}$ per tonne)	Combined emissions $CO_{2(e)}$ Mt	Total $CO_{2(e)}$ emissions (Mt) per UK Carbon Budget period	Total $CO_{2(e)}$ emissions as % relevant UK Carbon Budget	Relevant UK Carbon Budget $CO_{2(e)}$ Mt
2025	3709	2969.6	11676.2	0.0146			
2026	3709	2969.6	11676.2	0.0146			
2027	3709	2969.6	11676.2	0.0146	0.0439	0.002%	1950
2028	3709	2969.6	11676.2	0.0146			
2029	3709	2969.6	11676.2	0.0146			
2030	3709	2969.6	11676.2	0.0146			
2031	3709	2969.6	11676.2	0.0146			
2032	3709	2969.6	11676.2	0.0146	0.0732	0.004%	1725
2033	3709	2969.6	11676.2	0.0146			
2034	3709	2969.6	11676.2	0.0146			
2035	3709	2969.6	11676.2	0.0146	0.0439	0.005%	965

Annex 2: Projected carbon emissions from production water transport to Brockham

Year	HGV Load	Annual HGV Movements	HGV distance (km)	HGV emissions (all trips) kg CO2(e)	HGV emissions (all trips) tonnes CO2(e)	HGV emissions (Mt $CO_{s(e)}$) per UK Carbon Budget period	HGV emissions as % relevant UK Carbon Budget period	Relevant UK Carbon Budget Mt	HGV emissions as % relevant Surrey Carbon Budget period	Relevant Surrey Carbon Budget Mt
2025	Empty	730	73000	46908.34	46.91					
	Full	730	73000	71902.08	71.90					
2026	Empty	730	73000	46908.34	46.91					
	Full	730	73000	71902.08	71.90					
2027	Empty	730	73000	46908.34	46.91					
	Full	730	73000	71902.08	71.90	0.0004	0.000018%	1950	0.0027%	13.2
2028	Empty	730	73000	46908.34	46.91					
	Full	730	73000	71902.08	71.90					
2029	Empty	730	73000	46908.34	46.91					
	Full	730	73000	71902.08	71.90					
2030	Empty	730	73000	46908.34	46.91					
	Full	730	73000	71902.08	71.90					
2031	Empty	730	73000	46908.34	46.91					
	Full	730	73000	71902.08	71.90					
2032	Empty	730	73000	46908.34	46.91					
	Full	730	73000	71902.08	71.90	0.0006	0.000034%	1725	0.0090%	6.6
2033	Empty	730	73000	46908.34	46.91					
	Full	730	73000	71902.08	71.90					
2034	Empty	730	73000	46908.34	46.91					
	Full	730	73000	71902.08	71.90					
2035	Empty	730	73000	46908.34	46.91					
	Full	730	73000	71902.08	71.90	0.0004	0.000037%	965	0.0111%	3.2