

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Cuadrilla Balcombe Limited
Lower Stumble Hydrocarbon Exploration Site
Off London Road
Balcombe
Haywards Heath
West Sussex
RH17 6JH

Variation application number
EPR/AB3307XD/V005

Permit number
EPR/AB3307XD

Lower Stumble Hydrocarbon Exploration Site

Permit number EPR/AB3307XD

Introductory note

This introductory note does not form a part of the permit

Under the Environmental Permitting (England & Wales) Regulations 2016 (Schedule 5, Part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made.

All the conditions of the permit have been varied and are subject to the right of appeal.

This variation is to add or change -

1. Installation Activity - The loading, unloading, handling or storage of, or the physical, chemical or thermal treatment of crude oil, as an activity listed in Part 2 Schedule 1.2 of the Environmental Permitting (England and Wales) Regulations 2016 as amended will be added to the permit.
2. Mining Waste - This notice also surrenders the underground Mining Waste Facility for non-hazardous waste, arising from the prospecting for oil. The permit is amended to a Mining Waste Operation, as defined by the Mining Waste Directive (2006/21/EC) and Schedule 20 of the Environmental Permitting (England and Wales) Regulations 2016, as amended, relating to the management of extractive waste not involving a Mining Waste Facility. The permit is being varied to include activities specified by the amended and approved Waste Management Plan. This includes flaring of gas (less than 10 tonnes per day) and venting of gas from storage tanks. These are not new activities, and were previously covered by the operators operating techniques in their existing permit. The use of acid treatment for the removal of drilling mud debris from the borehole and cleaning of the immediate wellbore area is now defined as a groundwater activity and is regulated separately to the Mining Waste Activity, in accordance with Schedule 22 of the Environmental Permitting (England and Wales) Regulations 2016 as amended.

The activities on site have not changed significantly from those currently permitted. This permit variation and consolidation is part of an onshore oil and gas sector wide review. There are no other changes to the permit.

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

The principal releases into the environment comprise of:

- (a) Emissions of combustion gases (CO₂, CO, NO_x) from the shrouded flare.
- (b) Emissions to air of gaseous hydrocarbons from separation of volatiles in storage.
- (c) Emissions of gaseous hydrocarbons from the road tanker by displacement on loading.

There are 2 European designated sites within 10 km of the facility, Ashdown Forest SAC and Ashdown Forest SPA, and no SSSI's.

The schedules specify the changes made to the permit.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	Date	Comments
Application EPR/AB3307XD/A001	Duly Made 14/06/13	Application for a Mining Waste permit for the management of non-inert non-hazardous and hazardous extractive waste, with a facility.
Permit determined EPR/AB3307XD/A001	24/07/13	Permit issued to Cuadrilla Balcombe Ltd.
Notice of change of operator registered office address EPR/AB3307XD/V002	12/02/16	Address changed to Cuadrilla House, Unit 6 Sceptre Court, Sceptre Way, Bamber Bridge, Preston, PR5 6AW.
Variation determined EPR/AB3307XD/V002	18/02/16	Variation issued to Cuadrilla Balcombe Ltd.
Application EPR/AB3307XD/V003 (Variation and consolidation under permit review)	Duly Made 24/02/17	Application to update the permit to modern conditions.
Part Surrender Application EPR/AB3307XD/S004	Duly Made 24/02/17	Application for partial surrender to remove underground Mining Waste Facility, leaving Mining Waste Operation in place.
Schedule 5 notice response received	31/10/17 and additional information on 07/11/17	Response to schedule 5 notice – additional information received
Additional information received	25/01/18	Flare Design Drawing.
Application EPR/AB3307XD/V005 (variation and consolidation)	Duly made 01/05/18	Application to vary to add an Installation activity for the loading, unloading, handling or storage of, or the physical, chemical or thermal treatment of crude oil.
Variation determined EPR/AB3307XD/V003	22/08/18	Variation complete.
Part surrender determined EPR/AB3307XD/S004	22/08/18	Part surrender complete.
Variation determined EPR/AB3307XD/V005	22/08/18	Variation complete. This variation includes the changes from V003 and part surrender S004.
Permit variation and consolidation under permit review.	22/08/18	Varied and consolidated permit issued in modern condition format.

Other permits relating to this installation		
Operator	Permit number	Date of issue
Cuadrilla Balcombe Ltd	Bespoke radioactive substances permit for NORM wastes from oil prospecting. PB3439DP	30/09/2013

End of introductory note.

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 and 25 of the Environmental Permitting (England and Wales) Regulations 2016 accepts the surrender in part, varies and consolidates

Permit number

EPR/AB3307XD

Issued to

Cuadrilla Balcombe Limited (“the operator”),

whose registered office is

**Unit 6, Sceptre Court,
Sceptre Way
Bamber Bridge
Preston
PR5 6AW**

company registration number 06811588

to operate an installation and a mining waste operation at

**Lower Stumble Hydrocarbon Exploration Site
Off London Road
Balcombe
Haywards Heath
West Sussex
RH17 6JH**

to the extent set out in the schedules.

The notice shall take effect from 22/08/2018

Name	Date
Principle Permitting Team Leader	22/08/2018

Authorised on behalf of the Environment Agency.

Schedule 1

All conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation and surrender in part, and as a result of the applications made by the operator.

The underground Mining Waste Facility has been removed, with the above ground area remaining, as shown in the amended plan in Schedule 7 of the consolidated Permit.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/AB3307XD

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/AB3307XD/V005 authorising,

Cuadrilla Balcombe Limited (“the operator”),

whose registered office is

**Unit 6, Sceptre Court,
Sceptre Way
Bamber Bridge
Preston
PR5 6AW**

company registration number 06811588

to operate an installation and a mining waste operation at

**Lower Stumble Hydrocarbon Exploration Site
Off London Road
Balcombe
Haywards Heath
West Sussex
RH17 6JH**

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Principle Permitting Team Leader	22/08/2018

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

- (a) in accordance with a written management system that identifies and minimises risks of pollution, so far as is practicable, including those risks arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
- (b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of the permit.

1.2 Energy efficiency

1.2.1 For the following activities referenced in schedule 1, table S1.1 (A1) The operator shall:

- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
- (b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
- (c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 For the following activities referenced in schedule 1, table S1.1 (A1) The operator shall:

- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
- (b) maintain records of raw materials and water used in the activities;
- (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
- (d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities;
- (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
- (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 The operator shall:
- (a) review the waste management plan at least every five years from the date of initial approval and submit any written revisions to the Environment Agency for approval.
 - (b) implement the approved waste management plan from the date of approval, unless otherwise agreed in writing by the Environment Agency
- 2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
 - (b) the composition of the waste;
 - (c) the handling requirements of the waste;
 - (d) the hazardous property associated with the waste, if applicable; and
 - (e) the waste code of the waste.
- 2.3.5 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Pre-operational conditions

- 2.4.1 The operations specified in schedule 1 table S1.3 shall not commence until the measures specified in that table have been completed.

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2 and S3.3.
- 3.1.2 The limits given in schedule 3 table S3.1 shall not be exceeded.
- 3.1.3 Subject to any other condition of this permit, periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
 - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.
- 3.2.4 The Operator shall take appropriate measures:
- (a) to prevent the input of hazardous substances to groundwater; and
 - (b) where a non-hazardous pollutant is not controlled by an emission limit, to limit the input of such non-hazardous pollutants to groundwater so as to ensure that such inputs do not cause pollution of groundwater.

3.3 Odour

- 3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.4 Noise and vibration

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
- (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

- (a) point source emissions specified in tables S3.1;
- (b) surface water or groundwater specified in table S3.2;
- (c) process monitoring specified in table S3.3;

3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.

3.5.4 The operator shall carry out:

- (a) regular calibration, at an appropriate frequency, of systems and equipment provided for carrying out any monitoring and measurements necessary to determine compliance with this permit; and
- (b) regular checking, at an appropriate frequency, that such systems and equipment are serviceable and correctly used.

3.5.5 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 table S3.2 unless otherwise agreed in writing by the Environment Agency.

3.5.6 If required by the Environment Agency, the operator shall:

- (a) take such samples and conduct such measurements, tests, surveys, analyses and calculations, including environmental measurements and assessments, at such times and using such methods and equipment as the Environment Agency may specify; and
- (b) keep samples, provide samples, or dispatch samples for tests at a laboratory, as the Environment Agency specifies, and ensure that the samples or residues thereof are collected from the laboratory within three months of receiving written notification that testing and repackaging in accordance with the relevant legislation are complete.

3.5.7 On a monthly basis; the Operator shall analyse the flare feed gas. The analysis shall include speciation and concentration of organic substances, carbon monoxide, sulphur containing compounds, halogen containing compounds and moisture. A report of the analysis shall be submitted to the Environment Agency within 28 days of completion of each analysis.

3.5.8 The operator shall by calculation determine the emissions of the substances identified in table S3.1, based on the most recent feed gas composition analysis, feed gas flow rate and combustion efficiency of the flare.

4 Information

4.1 Records

4.1.1 All records required to be made by schedules 3, 4 and 5 to this permit shall:

- (a) be legible;
- (b) be made as soon as reasonably practicable;
- (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
- (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall maintain convenient access, in either electronic or hard copy, to the records, plans and management system required to be maintained by this permit.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 For the following activities referenced in schedule 1, table S1.1 (A1) A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
- (b) the annual production /treatment data set out in schedule 4 table S4.2 using the forms specified in table S4.3 of that schedule.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
- (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
- (c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter, if during that quarter the total amount accepted exceeds 100 tonnes of non-hazardous waste or 10 tonnes of hazardous waste.

4.3 Notifications

4.3.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (i) inform the Environment Agency,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
 - (i) inform the Environment Agency, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 The information provided under condition 4.3.1 shall be supported by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

- (a) any change in the operator's trading name, registered name or registered office address; and
- (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

- (a) any change in the operator's name or address; and
- (b) any steps taken with a view to the dissolution of the operator.

In any other case:

- (a) the death of any of the named operators (where the operator consists of more than one named individual);
- (b) any change in the operator's name(s) or address(es); and
- (c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 For the following activities referenced in schedule 1, table S1.1 (A1) where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

- (a) the Environment Agency shall be notified at least 14 days before making the change; and
 - (b) the notification shall contain a description of the proposed change in operation.
- 4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.
- 4.3.7 Where the operator proposes to make an amendment to the approved waste management plan, which is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) the Environment Agency shall be notified at least 14 days before implementing the amended waste management plan in place of the original; and
 - (b) the notification shall contain a description of the proposed amendment.

4.4 Interpretation

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made “immediately”, in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
A1	S1.2 A(1)(e)(i): The loading, unloading, handling or storage of, or the physical, chemical or thermal treatment of crude oil for exploration purposes only.	Production of fluids extracted from the resource formation by rod pump/nitrogen gas flushing, phase separation and storage of products (crude oil) and waste prior to onward transport.	From receipt of prospecting fluids at the wellhead to the despatch of products (crude oil) and waste. Oil shall be stored in vessels which are of sufficient strength and structural integrity to ensure that it is unlikely to burst or leak in its ordinary use. Any road tanker loading systems must be fully contained and the delivery system shall be fitted with dry break couplings.
	Description of activities for waste operations	Limits of activities	
A2	The management of hazardous and non-hazardous extractive waste resulting from prospecting and well testing activities, not involving a waste facility. The management of extractive waste generated by well abandonment.	Permitted waste types shall conform to the description in the approved waste management plan. The activities shall be limited to those described in the approved Waste Management Plan referenced HSE-Permit-BAL-0005 v3.0 The storage of extractive waste is limited to temporary storage in secure containment as part of the collection and transportation of waste from the site. Well stimulation by hydraulic fracturing is not permitted. Flaring of natural gas shall be limited to less than 10 tonnes per day, using a 1¼" diameter flare nozzle to provide a flow rate of 300,000scfd. There will be no reinjection of produced water.	

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application V003 and S004 and Response to Schedule 5 Notice dated 23/08/17	The response to section C5 and E2 of the Application, and additional information provided in the Schedule 5 Notice response, and further clarification in response to the Schedule 5 Notice. Surrender Report reference HSE-PERMIT-BAL-011, Jan 2017 Revised Environmental Risk Assessment HSE-PERMIT-BAL-003 v2	24/02/17 and 31/10/17
Application V003	Completed Gap Analysis Tool response	31/08/17
Application V003 and Response to Schedule 5 Notice dated 23/08/17	Approved Waste Management Plan reference HSE-Permit-BAL-0005 v3.0 Gas Management Plan reference CORP-HSE-GMP-001 v1	07/11/17
Application V003 and Response to Schedule 5 Notice dated 23/08/17	Flare design drawing reference PW-FLARE-GA-01 v3	25/01/18

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application V005	The response to section C3 of the Application. Approved Odour management plan reference CBL-EPRA-BAL-OMP-006 v1.0 Site Condition Report reference CBL-EPRA-BAL-SCR-004 v1.0	29/03/18
Additional information	Revised site plans with underground Mining Waste Facility area removed.	03/05/18
Flare emissions calculation method as approved under PO1	All of document.	Date of approval of PO1
Leak detection and repair plan as approved under PO3	All of document.	Date of approval of PO3
Pollution and Incident Plan	All of document	Date of approval of PO4
Vapour Recovery Plan as approved under PO5	All of document.	Date of approval of PO5

Table S1.3 Pre-operational measures for future development		
Reference	Operation	Pre-operational measures
PO 01 Emissions monitoring	Prior to commencement of well test.	The operator shall provide for approval a method for calculating the emissions from the flare as required by condition 3.5.8, and obtain the Environment Agency's written approval to the method.
PO 02 Containment	Prior to commencement of well test.	The operator shall submit a report showing secondary containment systems have been installed to the standards detailed/referenced within CIRIA C736 (2014) where all polluting liquids and solids are being stored, treated and/or handled. This shall include, but is not limited to, the storage vessels, separator, bunds, loading and unloading areas, transfer pipework/pumps, temporary storage areas and liners underlying the site.
PO 03 Leak Detection	Prior to commencement of well test.	The operator shall submit a written 'leak detection and repair plan', and associated procedures and shall obtain the Environment Agency's written approval to it. The plan will identify, measure and reduce emissions of volatile organic compounds and other substances to air, appropriate to their operations and in accordance with European standard EN15446 or an equivalent standard. The plan shall be implemented in accordance with the Environment Agency's written approval.
PO 04 Management system	Prior to commencement of well test.	The operator shall ensure a Pollution Incident Plan is included in the management system (referred to in condition 1.1.1).

Table S1.3 Pre-operational measures for future development		
Reference	Operation	Pre-operational measures
PO 05 Vapour recovery	Prior to commencement of well test.	<p>The operator shall submit a written plan for vapour recovery and shall obtain the Environment Agency's written approval to it. The plan must detail the installation and utilisation of a vapour recovery system during the loading and unloading of [road and/or rail] vehicles. The plan must contain dates for the implementation of the identified improvement measures.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>

Schedule 2 – Waste types, raw materials and fuels

Non-extractive wastes are not accepted as part of the permitted activities and there are no restrictions on raw materials or fuel under this schedule.

Schedule 3 – Emissions and monitoring

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [reference point 17 on site plan in Schedule 7]	Gas flare	Oxides of nitrogen	-	While in operation	Monthly by calculation.	As approved in writing with the Environment Agency in accordance with PO 01
		Carbon monoxide	-	While in operation	Monthly by calculation.	
		Total volatile organic compounds (VOCs)	-	While in operation	Monthly by calculation.	
		Methane	-	While in operation	Monthly by calculation.	
		Hydrogen Sulphide	-	While in operation	Monthly by calculation.	
		Flare gas feed flow rate	<10 tonnes per day	While in operation	Continuous	As approved in writing with the Environment Agency
		Flare combustion temperature	> 800 deg C	While in operation	Continuous	
		Video feed with screen time display of flare	-	While in operation	Continuous	
A2 [reference points 4 and 5 on site plan in Schedule 7]	Storage tank vent	Gas vented	-	-	Monthly	Calculation to determine the quantity of gas vented while tanks in operation

Location or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Surface Water monitoring BAL SW01, BAL SW02, BAL SW3, BAL SW04, BAL SW05, BAL SW06 as shown on the plan in Schedule 7	Ammoniacal Nitrogen, Arsenic, Barium, Boron, Cadmium, Calcium, Chloride, Total Chromium, Copper, Lead, Magnesium, Mercury, Nickel, Potassium, Selenium, Sodium, Zinc, pH, PAH, EPH, GRO, BTEX, COD, TDS, Electrical Conductivity and Alkalinity as CaCO ₃ .	3 monthly while non-operational Weekly while in operation	As specified in condition 3.5.3	

Location or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Groundwater monitoring	Dissolved Carbon Dioxide, Heavy Metals, Strontium, Earth Metals, Dissolved Ethane, dissolved Methane, Dissolved Propane, Dissolved Butane, Ammoniacal Nitrogen, Nitrite and Nitrate, BOD, COD, pH, Salinity, Total Dissolved Solids, Total Petroleum Hydrocarbons, Total Suspended solids.	3 monthly	As specified in condition 3.5.3	

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
A1 gas flare	Flare gas feed flow rate	Continuous while in operation	As approved in writing with the Environment Agency	-
	Flare combustion temperature	Continuous while in operation	As approved in writing with the Environment Agency	-
	Video feed with screen time display of flare	Continuous while in operation	As approved in writing with the Environment Agency	-
Perimeter Air Quality Monitoring	Methane	3 Monthly while non-operational	As approved in writing with the Environment Agency	-
	Nitrogen Dioxide, Sulphur Dioxide, Hydrogen Sulphide, Methane, VOC's, BTEX	Spot sample while flare in operation		
Returned fluid prior to separator	Flash point, Heavy metals, Total semi-volatile organic compounds, Total organic compounds, pH, COD	Spot sample while separator in operation	As approved in writing with the Environment Agency	-

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1.	A1, A2 (Flare, storage tank vents)	Within 1 month of commencing flaring and then every month thereafter until cessation of flaring activities.	-
Perimeter air quality monitoring Parameters as required by condition 3.5.1	Perimeter air monitoring	Every 3 months when non-operational. Every 1 month when operational.	1 January, 1 April, 1 July, 1 October
Surface water monitoring Parameters as required by condition 3.5.1	As Table S3.2	Every 3 months when non-operational. Every 1 month when operational.	1 January, 1 April, 1 July, 1 October
Groundwater water monitoring Parameters as required by condition 3.5.1	As Table S3.2	Every 3 months	1 January, 1 April, 1 July, 1 October
Flare Temperature Gas feed flow rate Summary of video feed	A1 (Gas Flare)	Every 1 month or as required by the Environment Agency.	1 January, 1 April, 1 July, 1 October

Parameter	Units
Methane Flared	Standard cubic feet
Average Water Cut	% production
Average Gas to Oil Ratio	scf / bbl

Media/parameter	Reporting format	Date of form
Air	Form air 1 or other form as agreed in writing by the Environment Agency	08/08/18
Water and Land	Form water 1 or other form as agreed in writing by the Environment Agency	08/08/18

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	EPR/AB3307XD
Name of operator	Cuadrilla Balcombe Limited
Location of Facility	Lower Stumble Hydrocarbon Exploration Site
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“approved waste management plan” means a plan of the type described in Article 5(1) of Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC, approved as part of the grant or variation of an environmental permit and as revised from time to time.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“Competent Authority” means, in relation to –

- (a) London, the London Fire and Emergency Planning Authority;
- (b) an area where there is a fire and civil defence authority, that authority;
- (c) the Isles of Scilly, the Council of the Isles of Scilly;
- (d) an area in the rest of England, the county council for that area, or where there is no county council for that area, the district council for that area;

“disposal”. Means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

“extractive waste” means waste resulting from the prospecting, extraction, treatment and storage of mineral resources and the working of quarries, excluding waste which does not directly result from these operations.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Hazardous property” has the meaning in Annex III of the Waste Framework Directive.

“Hazardous waste” has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005 (as amended).

“Industrial Emissions Directive” means Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions

“inert waste” means waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater. All of the criteria listed in Article 1 of Commission Decision 2009/359 must be fulfilled.

“List of Wastes” means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“mining waste facility” means a waste facility as defined in Article 3(15) of Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC, where a mining waste operation is carried out.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes and in relation to hazardous waste, includes the asterisk.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste

“year” means calendar year ending 31 December.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 KPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

Where the following terms appear in the waste code list in Table S3.2 they have the meaning given below.

“hazardous substance” means a substance classified as hazardous as a consequence of fulfilling the criteria laid down in parts 2 to 5 of Annex I to Regulation (EC) No 1272/2008

“heavy metal” means any compound of antimony, arsenic, cadmium, chromium (VI), copper, lead, mercury, nickel, selenium, tellurium, thallium and tin, as well as these materials in metallic form, as far as these are classified as hazardous substances

“polychlorinated biphenyls and polychlorinated terphenyls” (‘PCBs’) means PCBs as defined in Article 2(a) of Council Directive 96/59/EC’.

Article 2(a) says that ‘PCBs’ means:

- polychlorinated biphenyls
- polychlorinated terphenyls
- monomethyl-tetrachlorodiphenyl methane, Monomethyl-dichloro-diphenyl methane, Monomethyldibromo-diphenyl methane
- any mixture containing any of the above mentioned substances in a total of more than 0,005 %by weight

“transition metals” means any of the following metals: any compound of scandium, vanadium, manganese, cobalt, copper, yttrium, niobium, hafnium, tungsten, titanium, chromium, iron, nickel, zinc, zirconium, molybdenum and tantalum, as well as these materials in metallic form, as far as these are classified as hazardous substances

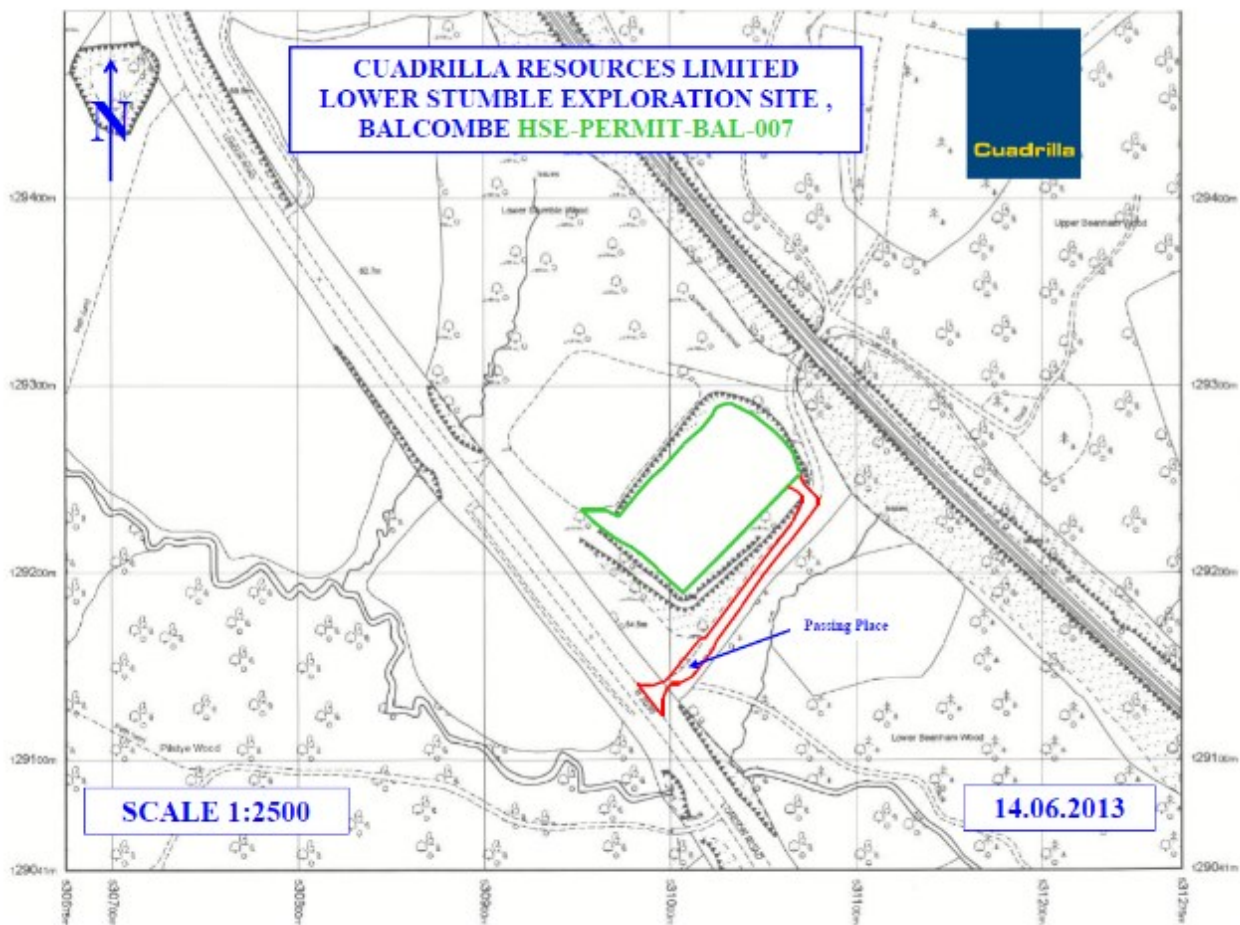
“stabilisation” means processes which change the hazardousness of the constituents in the waste and transform hazardous waste into non-hazardous waste

“solidification” means processes which only change the physical state of the waste by using additives without changing the chemical properties of the waste

“partly stabilised wastes” means wastes containing, after the stabilisation process, hazardous constituents which have not been changed completely into non-hazardous constituents and could be released into the environment in the short, middle or long term

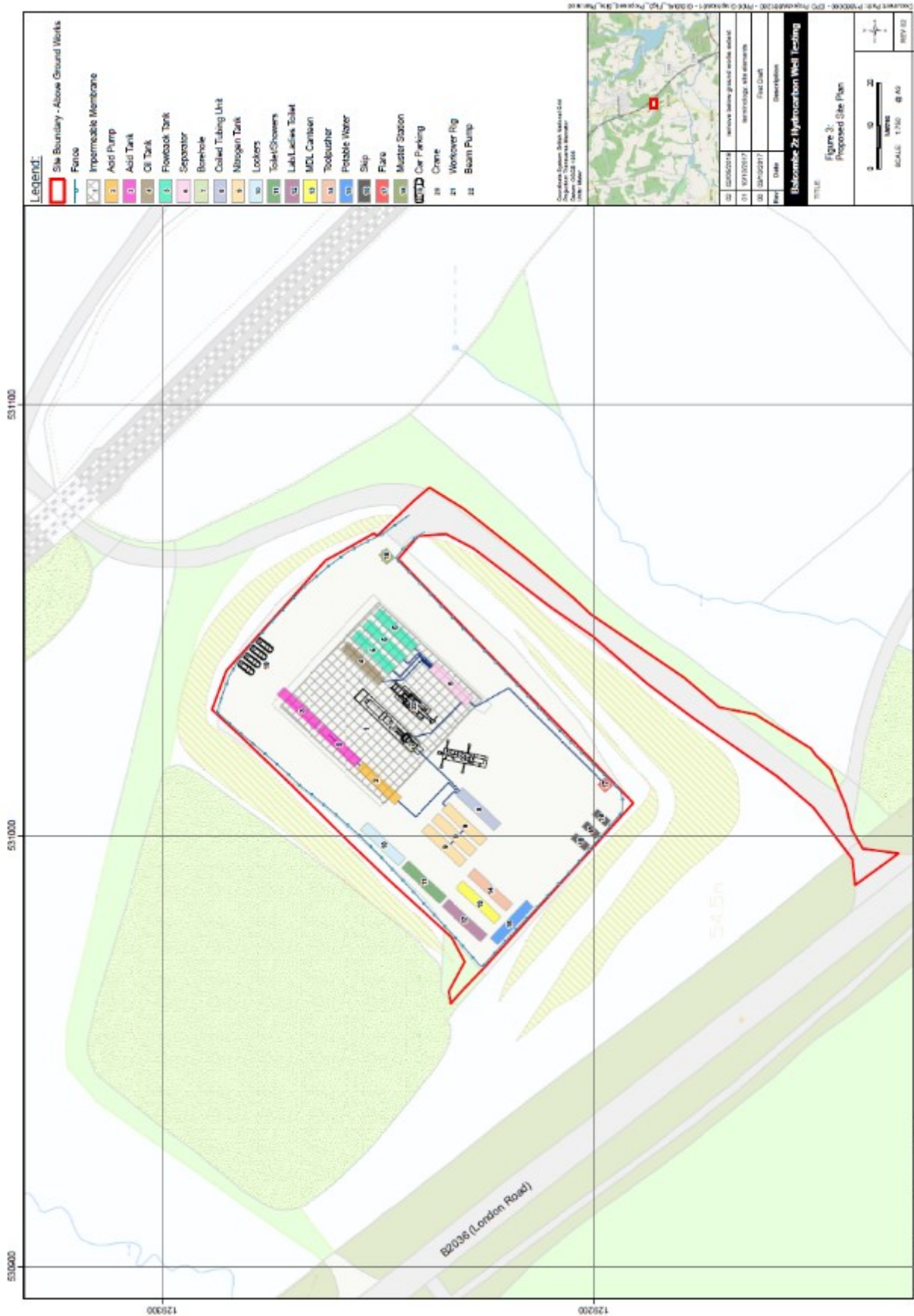
Schedule 7 – Site plan

Site Boundary Plan



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Site Layout Plan



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Surface Water Monitoring Locations



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END OF PERMIT