



**BALCOMBE PARISH COUNCIL COMMENTS
TO WEST SUSSEX COUNTY COUNCIL**

ON THE

**PLANNING APPLICATION
BY CUADRILLA RESOURCES LIMITED**

APPLICATION NO. WSCC/040/17/BA

Location: Lower Stumble Hydrocarbon Exploration Site, London Road,
Balcombe, Haywards Heath, West Sussex, RH17 6JH

Proposal: Temporary permission for exploration and appraisal comprising the flow testing and monitoring of the existing hydrocarbon lateral borehole along with site security fencing, the provision of an enclosed testing flare and site restoration.

30 NOVEMBER 2017

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1. INTRODUCTION

1.1. This document has been prepared by Balcombe Parish Council (BPC) in response to West Sussex County Council's invitation to comment on the planning application no. WSCC/040/17/BA, made by Cuadrilla Resources Ltd to West Sussex County Council for temporary permission for exploration and appraisal comprising the flow testing and monitoring of the existing hydrocarbon lateral borehole along with site security fencing, the provision of an enclosed testing flare and site restoration at Lower Stumble Hydrocarbon Exploration Site, London Road, Balcombe, Haywards Heath, West Sussex, RH17 6JH.

1.2 This document was prepared in draft by the Parish Council's Oil Exploration Working Party and has been adopted by the full Parish Council at a Parish Council Meeting on the 29 November 2017.

1.3 Balcombe Parish Council sought the views of the residents of Balcombe by instigating a consultative ballot carried out by Electoral Reform Services in 2013. The Electoral Reform Services results are set out in Appendix E of this document. The response rate was 59.8%.

The results of the poll indicated that Balcombe Parish Council should always oppose such applications. As a consequence of the result of the consultative ballot, Balcombe Parish Council hereby registers its opposition to the application.

1.4. Balcombe Parish Council additionally raises objections to the proposal as a result of missing or incomplete information being provided, in particular as regards the proposed flare, the site of the proposed activity in relation to the village and insufficient environmental impact analysis. The specific grounds for objecting, together with corresponding conditions that are requested, in the event that WSCC decides to grant planning permission, are set out in section 2 of this document.

1.5 This application, making clear as it does that positive results in flow testing will be immediately followed by application for a production licence will mean that Balcombe, a small village in an AONB might gain an inappropriate industrial activity.

1.6 The government has stipulated that Cuadrilla must flow test their Lower Stumble well site by 30 June 2019 in order to retain their rights to drill. Therefore, if West Sussex County Council are minded to grant this permission, it should be restricted to a period of 18 months and not for a period of 2 years as requested by Cuadrilla.

The appendices to this document provide additional and detailed information in support of the Parish Council's specific grounds for objecting.

2. SPECIFIC OBJECTIONS AND CONDITIONS REQUESTED

2.1 Residents' opposition to this application

2.1.1 BPC Objection:

The result of the BPC consultative ballot in February 2014 relating to a previous application concluded that BPC should oppose that application, and future applications. Therefore, we state our position to oppose this current application under this poll result as detailed in Appendix E. There was a simple majority in opposition both to Cuadrilla's previous application, and also to any future application to explore for, or extract oil or gas from sites within the parish. This should be taken as a material consideration by WSCC. Moreover, we acknowledge the stated scope of this application does not include hydraulic fracturing / fracking, and would highlight the results to Question 3 in the BPC Consultative Ballot which also has a simple majority to oppose specifically non-fracking exploration.

2.1.2 BPC requests that the application is refused on this basis.

The application should be refused as residents' views are a material consideration in WSCC's review of the application.

2.2 The Applicant's financial condition (see also Appendix A)

2.2.1 BPC Objection:

The financial statements filed at Companies House and the table in Appendix A, show that Cuadrilla Balcombe Ltd ("CBL") has reported operating losses and net liabilities for each of the last six years. In addition, CBL's parent company, Cuadrilla Resources Ltd ("CRL"), has also reported operating losses and net liabilities for each of the last four years.

Based on the latest available filings, this means that neither of these companies have sufficient equity in their own right to manage any unforeseen liabilities. This would include potential costs associated with an environmental cleanup and any site restoration costs.

The uncertain revenue stream and ongoing exploration expenses means that both companies are dependent for their working capital and medium term funding on their ultimate parent company, Cuadrilla Resources Holdings Ltd ("CRHL").

In the financial statements for the year ended 31 December 2016, CRHL reported net assets of \$138.5m. CRHL meets its day to day working capital requirements and medium term funding requests through shareholder injection.

Standard disclosures included within the financial statements of both CRHL and CRL indicate that support from both companies for their respective subsidiaries will continue and that they will continue to make available such funds as are needed for at least 12 months from the date of approval of the financial statements (23 May 2017).

These disclosures are required in order for the accounts to be prepared on a going concern basis rather than offering specific protection for the community from contingent financial risks that might arise. BPC believes that CBL and CRL hold insufficient financial resources to protect the local community should either their parent or ultimate parent company decide not to support them going forward.

Given this and the limited financial resources within CRL and CBL, CRHL should be required to take out appropriate insurance, provide indemnities/guarantees, performance bonds or place funds in escrow to ensure there are sufficient resources are available to return the site to a satisfactory condition.

2.2.2 BPC requests that a condition be applied if WSCC decides to grant consent:

BPC requests that any consent should be conditional upon the provision of surety and/or guarantee by CRHL that is/are transparent, adequate and extend to a minimum period of 50 years beyond the life of the well. We ask that the level of indemnity is set to cover all eventualities.

2.3 Environmental Impact Assessment (EIA)

2.3.1 BPC Objection: This application does not include a full Environmental Impact Assessment (EIA) nor is it accompanied by an Environmental Statement (ES). WSCC concluded that an EIA was not required on the grounds that the proposed development does not have the potential to generate significant environmental effects within the meaning of the EIA Regulations. However, this approach does not take into account possible cumulative effects of a series of such exploratory

projects, nor of the potential future production stage should the flow testing reveal that extraction could be viable.

It is noted that the applicant has submitted an Ecological Appraisal and Bat Activity Report. Nonetheless, without a full EIA it is not possible to determine the full extent of any impact on the environment.

2.3.2 BPC requests that a full EIA is undertaken and an ES submitted.

2.4 Traffic (refer to Appendix B)

2.4.1 BPC Objection:

The application fails to fully address the impact of vehicles through the village of Balcombe.

The application fails to detail the types and sizes of vehicles travelling through the village with no details given of abnormal loads such as the work over rig. It fails to adequately address the carriage of hydrochloric acid and hazardous waste through the village. The application fails to justify the avoidance of the route to and from the south for HGV traffic. Whilst measures to reduce the impact of traffic on the village primary school are offered by limiting traffic movement during set down and pick-up times these measures could go further. There is no reduced speed limit proposed through the village for large vehicles as offered in 2013.

BPC strongly contend that a sufficiently detailed Traffic Management Plan/ Traffic Assessment should have been provided with the application due to the presence of large and abnormal loads, the transport of hazardous materials and the proximity of the school to the route.

2.4.2 BPC requests that the following conditions be applied if WSCC decides to grant consent:

BPC welcomes the WSCC Highways requirement to produce a Traffic Management Plan and requests that the following are covered;

- Abnormal loads
- Temporary traffic signage
- Restrictions on times at which site HGVs may travel past Balcombe Primary School.
- Restrictions on times for HGV movements through the village.
- Limits on numbers of site HGV traffic set out to avoid exceeding the estimates made in the application.
- A speed restriction of 20 mph to be imposed on site HGV traffic travelling through the village
- Access to and from the south of the village should be imposed for:
 - All traffic heading to or coming from the south.
 - All site HGV traffic at set-down and pick-up times from the school should it be necessary to enter or exit the site at these times.
 - Any hazardous loads transported to or from the site during school hours, to avoid the possibility of an incident while children are in residence.
- Public engagement (for example advanced notification of any closures, restrictions or abnormal traffic movements).

2.5 Noise

2.5.1 BPC Comment:

RSK (Cuadrilla's new noise consultant) completed a series of background noise level assessments at five locations around the site (including Kemps Farm) in September 2017 and base the noise impact on the average noise levels from these stations.

- The RSK analysis also includes a predicted noise model to assess the possible impact and concludes that the maximum noise level during preparation would be 39dB and 34dB during flow testing. In 2014 the predicted noise levels were 37dB and 31dB respectively.
- The new RSK noise assessment makes no reference to the noise generated by the flare.
- Included within the application (appendix 4.2) is the previous Spectrum Acoustic Consultants noise assessment that states:

'Depending on the outcome of the testing, there may be a requirement for burning of produced gas, commonly referred to as flaring. Noise produced by flaring is variable, being dependent on gas flow rates. Should higher gas flows prevail, noise emission can be controlled by enclosing the flare, throttling back the flow during the sensitive night time period, or a combination of both. As the flare noise is unpredictable, but is controllable at source, the potential contribution from this source has not been included in the prediction.'

2.5.2 BPC Comment:

Cuadrilla states that the flow testing would be for 14 days (Planning Statement 3.2.3). Research suggests that the flare noise at source would be high (the flare will be operating for seven days, 24 hours a day), and as it is positioned 13.7m above ground level, will carry on the prevailing winds.

2.5.3 BPC Objection:

Cuadrilla breached their previous planning conditions in respect to noise. In this application they have provided limited detail regarding their actual noise mitigation strategy. The information provided within the application regarding noise levels and mitigation strategies is incomplete and inaccurate. Noise may create an unacceptable impact on the surrounding environment and residential amenity of Balcombe. On this basis the application does not satisfy the requirements of various parts of Policy 19 of the WSMLP, Policy 60 of the WSMLP, Policy B23 of the MSLP, Policy 18 (Public Health and Amenity) of the draft JMLP and Paragraph 123 of the NPPF and should be refused.

2.5.4 BPC Comment:

The predicted noise level within the application does not include the noise level that would be generated from the flare.

2.5.5 BPC Requests:

The application is not considered until such time that an accurate predicted noise level assessment is included which assumes the flare is run at 100% capacity.

2.5.6 BPC Comment:

The predicted noise level that is included within the planning application is incorrect as it is comparable to the noise level predicted in 2014 which was inaccurate during the works at that time. Whilst the applicant was in breach of the planning conditions associated with noise levels in 2014 and installed additional measures of noise mitigation, on this occasion, no details have been provided of the additional noise mitigation measures that are necessary to undertake the works.

2.5.7 BPC Requests:

The applicant should provide a noise and vibration management plan that clearly outlines the mitigation strategy to reduce the noise level associated with each phase of the works.

2.6 Air Pollution (refer to Appendix D)

2.6.1 BPC Comment:

The top of the flare is below the height of the village. The village is in the direction of the prevailing wind. Many inhabitants of Balcombe live less than half a mile from the site.

2.6.2 BPC Comment:

The Air Dispersion Study submitted by Cuadrilla in support of an application for planning consent for well pre-test and testing operations at the Lower Stumble Hydrocarbons Exploration Site has been scrutinised and reviewed.

2.6.3 BPC Comment:

It would appear that RSK air dispersal modelling document has not been given approval by the Environment Agency. The Environment Agency have not put the RSK document out for public consultation. Does this make the application invalid?

2.6.3 BPC Objection:

On the basis of inspection and appraisal of the details provided, further information is needed. The applicant has presented an air dispersion study of carbon monoxide (CO) and oxides of nitrogen (NO_x) emissions from flaring affecting properties in the prevailing wind from the flare. Other important toxic emissions from the flare have not been considered.

2.6.4 BPC Objection:

Important technical specifications of the flare are not given. The model should be stated. The type of flare (shrouded or not) and the exit gases temperature must be confirmed for an assessment to be made. Higher temperature flares produce more oxides of nitrogen than cooler flares. Also, the flare efficiency must be stated. The proposed flare has not been properly identified. There is no picture, nor are there adequate specifications for the flare.

2.6.5 BPC Objection:

If the flare does not operate efficiently high levels of toxic emissions can be produced so it is crucial to monitor the flare efficiency during operation. This has not been considered. RSK say there is no need to mitigate any emissions. This is not true. Constant monitoring of the efficiency of the flare is absolutely vital due to the fact that if the flare efficiency falls below 95%, the flare will start to emit serious amounts of toxins, which will be transported on the prevailing wind towards nearby houses and the village.

2.6.6 BPC requests that the following conditions be applied if WSCC decides to grant consent:

Flaring of gases is all too hazardous, and poses unacceptable risks to village inhabitants near the site and further in the village. If WSCC permits this application, BPC recommends that rather than flaring, a condition should be imposed that Cuadrilla should collect and compress the gas recovered from the well, and remove it from the Balcombe site by road.

2.7 Drainage, Flood Risk and Water Pollution (refer to Appendix D)

2.7.1 BPC Objection: The application does not fully explain the pollution control measures put in place. The Environmental Report refers to the previous Planning Statement 2013 (App 9.1) and Drainage Strategy 2013 (App 9.2) however several points conflict between the two documents.

2.7.2 BPC requests that an updated, comprehensive, drainage and pollution control strategy should be prepared for the application.

2.7.3 BPC requests that the purpose, operation and outfall for the interceptor is clarified.

2.7.4 BPC requests that a condition be applied if WSCC decides to grant consent: Ensure that the bunded area extends to all areas where there is a risk of spillage.

2.7.5 BPC requests that a condition be applied if WSCC decide to grant consent: A robust crisis management plan that includes emergency communication with South East Water in case of spillage. Reference is made to the Pollution Prevention Plan. This should be made public and a condition imposed that this plan is agreed before works commence.

2.7.6 BPC requests that the referenced Spill Plan, Pollution Incident Plan, Pollution Prevention Plan which are not included in the application should be available for reference. These plans should be agreed before works commence.

2.8 Ecology

2.8.1 BPC requests that, if WSCC decides to grant consent, conditions are applied to prevent disturbance outside the work's footprint.

BPC notes that the preliminary ecological appraisal carried out by RSK on behalf of Cuadrilla Resources Limited identified at least 110 protected or noteworthy species that were recorded within 2 km of the site. While the site's footprint itself, being a hard-standing, is largely unsuitable for protected or notable species, it is essential to ensure that there is no impact or disturbance outside the work's footprint which might affect these 110 species. Bats are one of the protected species, as noted below.

2.9 Bat Survey

2.9.1 BPC requests that conditions are applied in order to prevent disturbance of foraging and commuting bats if WSCC decides to grant consent. As proposed in the RSK Bat Activity Report, the following mitigation measures should be implemented:

- measures to prevent light spill beyond the works footprint, including task-based lighting, inward facing lights and lighting cowls
- daily working hours limited so as to avoid night time working and cease work by dusk
- works limited to November to April only, in order to avoid the more active bat seasons

Furthermore, BPC requests that bat surveys are undertaken during any works to ensure operations do not have an effect on bat populations or habitats

The RSK bat survey notes that the site's footprint is surrounded by suitable bat roosting and bat foraging habitat, and that bat species were regularly noted flying along the perimeters. Identified bats included the Serotine bat and Myotis species as well as Common and Soprano Pipistrelle. It is essential to prevent light spill beyond the work's footprint so as not to disturb these protected species. To reiterate the mitigation factors in the RSK report, light mitigation is particularly important for bat species that are less tolerant of artificial light, such as the Myotis species which were frequently encountered during the site surveys.

2.10 Timeline

2.10.1 BPC objection:

The 7 day notice prior to works commencing seems very short and BPC are concerned that adequate time is allowed for the relevant authorities to initiate and check all protective procedures are in place prior to any work commencing. A longer notice period allows the authorities more preparation. A longer notice period should be provided.

There is public concern about the health impacts of flow testing and /or flaring.

2.10.2 BPC requests that a condition be applied if WSCC decides to grant consent:

For the applicant to provide a minimum of 28 days' notice prior to commencement of work. In addition, also provide sufficient advance notice of flow testing and /or flaring.

2.11 Site Restoration

2.11.1 BPC objection:

There needs to be more detail about the length of the aftercare period, i.e. the time following these works that Cuadrilla will be required to remedy any subsequent issues.

2.11.2 BPC requests that a condition be applied if WSCC decides to grant consent:

The aftercare period should involve appropriate monitoring, to be determined by WSCC and for a minimum of 50 years.

2.12 Baseline Studies

2.12.1 BPC Objection:

BPC is aware of public concern over the methods used in the summer of 2013 for baseline and subsequent testing.

2.12.2 BPC requests that a condition be applied if WSCC decide to grant consent:

WSCC should stipulate a schedule of full and independently verified testing, monitoring and publication for noise, air and water.

2.14 Landscape and Visual Impact.

2.14.1 BPC objection:

BPC believe that the visual impact of flaring black smoke has not been demonstrated in this application, nor the visual impact of the lighting and how this may affect motorists on London Road at night.

2.14.2 BPC requests that a condition be applied if WSCC decides to grant consent:

Cuadrilla must demonstrate, prior to commencement, that the visual impact of light, and smoke from the flare should be assessed and be acceptable to WSCC.

2.14.3 BPC objection:

Site lighting levels are not defined adequately in the application.

2.14.4 BPC requests that a condition be applied if WSCC decides to grant consent:

The lighting pollution to be measured and monitored at suitable receptor points with reference to the railway, Kemps House (being the nearest dwelling), and the public highway, and levels set by WSCC at the lowest reasonable levels.

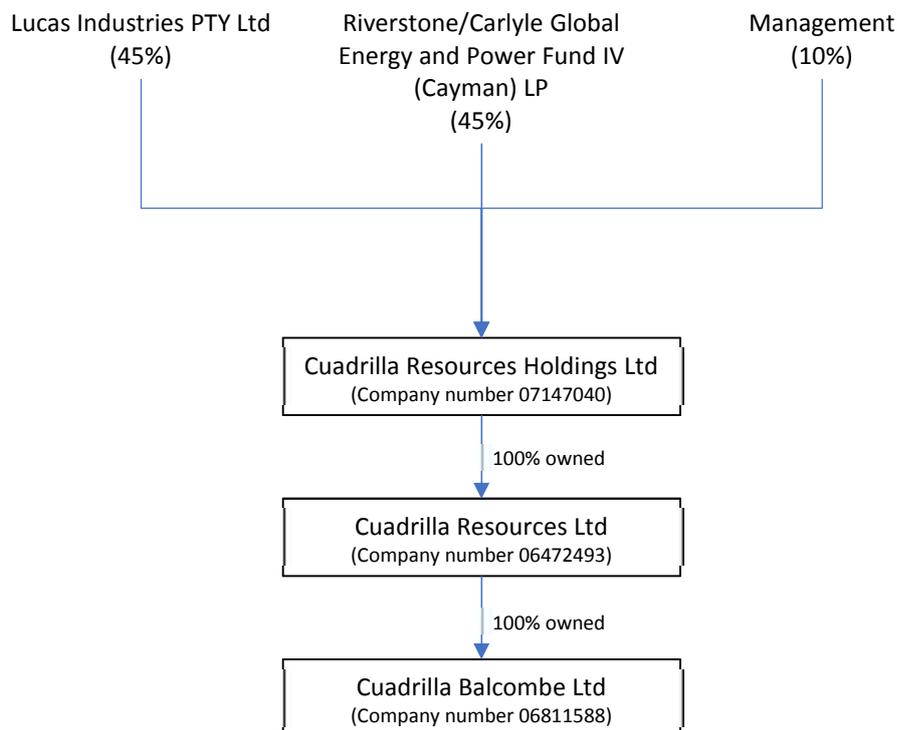
2.15 Community Engagement:

2.15.1 In 2014, one of the conditions imposed by WSCC to allow Cuadrilla's application to flow test Balcombe 2z was the 'establishment of a local liaison group to include representation from the site operator, WSCC and local residents'.

2.15.2 BPC Condition: BPC requests that WSCC ensures that a local liaison group is formed and operating at least three months in advance of any planned work and that this condition is strictly adhered to.

APPENDIX A - FINANCIAL CONDITION

A simplified structure of the Cuadrilla group along with summarised financials are presented below.



Cuadrilla Resources Holdings Limited						
\$000	31 Dec 2016	31 Dec 2015	31 Dec 2014	31 Dec 2013	31 Dec 2012	31 Dec 2011
Net assets/(liabilities)	138,483	131,132	127,372	127,464	152,999	102,250

Cuadrilla Resources Limited						
\$000	31-Dec-2016	31-Dec-2015	31-Dec-2014	31-Dec-2013	31-Dec-2012	31-Dec-2011
Operating profit/(loss)	(4,540)	(1,440)	(5,716)	(17,206)	94	120
Net assets/(liabilities)	(8,496)	(4,090)	(2,697)	(2,927)	26,089	26,165

Cuadrilla Balcombe Limited						
\$000	31-Dec-2016	31-Dec-2015	31-Dec-2014	31-Dec-2013	31-Dec-2012	31-Dec-2011
Operating profit/(loss)	(151)	(269)	(616)	(802)	(19)	(1)
Net assets/(liabilities)	(2,170)	(2,025)	(1,750)	(1,140)	(338)	(319)

APPENDIX B - TRANSPORT (also refer to traffic objection in section 2)

Summary of details in the Application;

Traffic Movements

Each of the site HGV traffic movements given is a two-way movement (as stated in Table 8.1, para 8.6.3 and Appendix 8.2 of the Environmental Report). So the numbers of actual HGV and car movements to and from the site are twice those shown in the graph in Appendix 8.2. The maximum number of 23 HGVs on Day 3 of Week 2 is 46 actual journeys through the village. This exceeds the WSCC Transport Assessment Guidance limit of 20 one-way movements as the baseline for production of a Transport Assessment. This also equates to a vehicle every 10 to 15 minutes through the 11 hour working day.

Average numbers of site HGVs are not significant in Highways terms when set against the current average daily flows of about 120 HGVs per day. But there are three days (two in the first week, one in the second) when the number of predicted site HGVs significantly exceeds the average.

On Day 3, the predicted number is 40 site HGV movements, resulting in an increase of 25% to the average number of HGV movements, on Day 6, 34 movements, an increase of 22%, and on Day 9, 46 movements, an increase of 28%. On these three days, these are far greater percentage increases in total HGV journeys than suggested by the average figures in the table given in the WSCC Highways response of percentage increases in HGV traffic, averaged out over each week.

Activity	South (005791)	Duration (days)
Mobilisation	8%	7
Flow Test	5%	14

Although the application states in Working Hours (para 2.5.3 of the Environmental Report) that 'movements of all HGVs to and from the site will be undertaken during standard working hours i.e. 07.30 to 18.30 Monday to Friday; and 08.00 to 13.00 on Saturdays', in so far as it is possible to discern on Appendix 8.2 (above), there seems to be HGV movements planned seven days a week for Weeks 1, 2 and 3. BPC would like the assurance that this will not be the case.

Vehicle Type/ Abnormal & Hazardous Loads

Vehicle types are not specified, and it is not possible to assess how many 'abnormal' or large loads make up the site HGV traffic stated. Or how many loads of hazardous waste will be generated.

Special measures for abnormal loads such as the crane and work over rig are not discussed in the application.

Route Restrictions and Balcombe Church of England Primary School

The route outlined in the Application is not the only route from the M23 and A23 to the site at Lower Stumble. As well as the route from the north, down the B2306 and through Balcombe village, there is an alternative route, from the A23 to the south, accessing the site via the B2115, and B2114 and Whitemans Green. This route can accommodate normal HGVs and tankers with ease. There is no weight restriction on this route and it is used extensively by such vehicles at present. Only the largest articulated vehicles would be unable to negotiate the mini-roundabout at Whitemans Green and would be precluded from this route.

The southern route passes no more houses than coming from the north through Balcombe and does not pass a school. To restrict HGV traffic to using the northern route rather than sharing the load with the southern one as well makes no sense.

On days when hazardous materials, including hydrochloric acid and material controlled by the Mining Waste Permit and the Radioactive Substances Regulations are to be transported during school hours, BPC requests that site HGV movements be confined to the southern route, bearing in mind the proximity of the school to the northern route.

On the three days of much higher HGV movements, BPC requests that the site HGV movements be shared between the northern and southern routes, to halve HGV movements on each route.

BPC notes that this application has mandated restrictions on travelling past Balcombe Primary School at drop-off and pick-up times (para 8.5.3 of the Environmental Report, last bullet point). BPC requests that both Cuadrilla contractors and Sussex Police stick to this condition rigorously. There were occasions in 2013 when they did not.

Transport Assessment

The necessity for a Transport Assessment does not rely solely on the number of vehicles but also on type, load and route. Neither type of vehicle, material carried, nor route seem adequately detailed or considered in the application.

Traffic Management Plan (TMP) and Signage

Insufficient detail on Traffic Management is given in this application with much left for a post application Traffic Management Plan.

Recommendations:

A Traffic Management Plan and/ or Traffic/Transport Assessment should be provided due to the presence of large and abnormal loads, the transport of hazardous materials and the proximity of the school to the route.

1. Details of temporary traffic signage should be provided to avoid collisions with turning vehicles at the site entrance.
2. A speed restriction of 20 mph should be imposed on site HGV traffic travelling through the village
3. There should be restrictions on times at which site HGVs may travel through the village
4. Restrictions on hours past the school for site HGVs should be made, although smaller, non-hazardous site HGVs could be permitted
5. There should be limits on numbers of site HGV traffic to avoid exceeding the estimates made in the application.
6. The restriction on access from the south should be removed for normal site HGV traffic, and access to and from the south of the village should be imposed for:
 - All traffic heading to or coming from the south.
 - All site HGV traffic at set-down and pick-up times from the school should it be necessary to enter or exit the site at these times.
 - All hazardous loads transported to or from during school hours, to avoid the possibility of an incident while children are in residence.
 - Half the significantly increased HGV movements on the Days 3, 6 and 9

APPENDIX C – DRAINAGE & POLLUTION CONTROL

The new application details measures and methods of control for surface water and pollution control. The new application relies upon and cross references documents submitted with the 2013 application.

Comments on the 2017 Application;

The advice of WSCC in 2013 (ref WSCC/063/13/BA) was for the applicant to provide a drainage strategy. Although this has been done several listed issues seem not to have been addressed in either the 2013 or the 2017 update. Drainage maintenance has not been detailed. It is unclear if

discharge rates and volume of run off from either rainfall or an event has been calculated which is significant as any necessary containment/attenuation of run off is not detailed. There is no evidence to show that the pollution control system is designed to cope with excessive infiltration/flow rates.

There are discrepancies between the 2013 and 2017 strategies. The Drainage Strategy 2013 (App 9.2) refers to surface water being contained and removed from site with no discharge to adjoining watercourse however the Environment Report 2017 describes the normal condition the French drain ultimately discharges 'via a trickle' to the watercourse.

2017 Environment Report sections 9.5.6 & 9.6.6 – Discussion on use of Oil Interceptor. The Oil Interceptor seems to be used as a bypass separator under normal conditions but as a full retention interceptor during the operation phase of the flow test when the outlet (butterfly) valve will be closed. Has the capacity of the tank been calculated for the retention phase? If not, the result could be an exceedance of the capacity of the unit and a back up to the French drain and a flush of oil from the interceptor back into the surrounding area. Has the combination of rainfall and likely spill volume be considered? Has an upstream holding tank been considered to mitigate a high flow of surface water in combination with a spillage?

2017 Environment Report sections 9.5.10 & 9.6.5 – Drainage from the bunded area - How frequently will the sump pump and cellar be emptied in order to allow for maximum catchment during a spillage? What is the role of the 'existing oil interceptor' in draining the bunded area? The interceptor is linked to the perimeter French drain and plays no part in draining the bunded area so the relative position of the interceptor and sump are irrelevant and this reference is misleading.

2017 Environment Report sections 9.6.6 – implies that the French drain provides storage/attenuation of surface water during wetter periods. Has this capacity been calculated?

2017 Environment Report section 10.5.25 and the 2013 Environment Statement in App 9.2 seem to differ in frequency of water sampling. The 2017 document states a minimum of monthly, the 2103 weekly.

The previous 2013 application referenced a Pollution Prevention Plan which is now absent from this 2017 application.

Previous Observations on Appendix 9.2 – Drainage Strategy & Environment Method statement 2013

Appendix 9.2 in the 2017 application appeared as Appendix E in the 2013 application and was prepared in August 2013 for the revised flare application. The following comments made by BPC in 2014 still therefore apply to Appendix 9.2 of this application

General comments on Appendix 9.2 (Appendix E 2013)

The Spill Management section refers to method statement in appendix 2, which does not exist in this application but assumedly refers to the previous, now withdrawn, application.

There is ambiguity as to the water abstraction protection zone used. Is this 2km from well head or the western end of the horizontal bore?

The application has 2 areas of drainage. The test area which is bunded and membrane and drained to both a sump and the cellar and from which any spillage and surface water is recycled or removed from site. The remainder of the site drains to a perimeter French drain and to an interceptor. There are no details given as to where the interceptor outfalls to in this application. Section 6.1 describes how the interceptor will be closed off during operation of the site but this takes no account of volume of storage or containment of the interceptor to accommodate surface water. An interceptor would normally hold back hydrocarbon contaminants but allow through flow of water. If this is the case the application should state where this outfalls.

Plans referred to are a Spill Plan, Pollution Incident Plan, Pollution Prevention Plan. Are these available for reference?

Specific Comments on Appendix 9.2 (Appendix E 2013):

This report was prepared in August 2013 for a previous flare application not specifically to this application.

2.0 – Flooding from the Site

- All surface water to cellar from membrane

3.0 – Site Set up/ Impermeable Membrane Description of a bunded, edged wrapped, membrane with a sump and aco drains. Needs better sketch the description is complicated and figure 1 out of date.

- All fluids from bund are recycled or taken off site.

4.2 – Baseline Information

- points 4&5 - No abstraction greater than 20m³ a day or less than 20m³ a day in vicinity or within 2km of the site. The horizontal bore goes 520m west. Is the 2km from the outer limit of that 520m reach or from the well head? WSCC should check the measure has been made 2.5km from vertical bore.
- point 6 – Not strictly correct households & Industries are only topped up from Ardingly reservoir via the river Ouse which is also supplied by boreholes, although not from the Balcombe aquifer. The Ouse is overpumped into Ardingly Reservoir to keep levels high.

6.1 – Surface Water Management

- Emergency response procedure for spillages on the access track. Spill kits with transport off site.
- Interceptor outfall for general site drainage seems inadequately explained.

6.2 – Diesel, Chemical Storage and re-fuelling

- Pollution Incident Plan. Transfer of fuel/ Chemicals not on membrane? Mixing of acid and water not on membrane. The description in 6.2 may not be specific to the Flow Test. Appendix E has the refueling operation on drip trays and there seems to be discrepancy?

7.1 – Fire Fighter Water – what is this?

7.2 – Spill Management

- refers to the Method Statement contained in Appendix 2. Which doesn't exist in this application.
- Says membrane will contain large spill but transfer / mixing doesn't all happen on the bund? Activities off the well pad area seem to rely on individual trays and spill kits.
- The location of the physical pipe work connections to tanker transport is outside the bunded area of the site.
- Mixing on site of HCl is also mentioned and, although not stated, it is shown to be mixed off the bunded area.

BPC requests that a condition be applied if WSCC decides to grant consent:
Ensure that the bunded area extends to all areas where there is a risk of spillage.

Ardingly Reservoir

In Appendix E 2013 - (App 9.2 2017) of the application it is stated that
"The water supply for households and industry etc. in the area is supplied from abstractions taken from Ardingly reservoir and the River Ouse"

However in the sections on Pollution Prevention & Drainage and Emergency Preparedness & Response there is no mention of mitigations to prevent pollution to Ardingly reservoir.

There are two adjacent streams to the well site, and both feed into the River Ouse. Two miles downstream the Ouse is joined by the outflow from Ardingly reservoir. At this point South East

Water has a facility that enables them to pump water from the Ouse into the reservoir. A facility which they have used several times in the last few years. Therefore there is a minor risk of a pollution if a spill incident were to occur at the same time that South East Water are pumping into the reservoir. The drilling site must have a 24 hour ability to contact South East water so that pumping could be immediately stopped before any pollution reaches their pumping point. Also this would enable South East water to react in a timely manner further downstream at their Barcombe facility.

BPC requests that a condition be applied if WSCC decide to grant consent:

A robust crisis management plan that includes emergency communication with South East Water. Reference is made to the Pollution Prevention Plan. This should be made public and a condition imposed that this plan is agreed before works commence.

APPENDIX D - AIR POLLUTION

Further information is needed from the applicant on other toxic emissions not considered by the applicant and which may breach National Air Quality Objectives:

i) Sulphur Dioxide (SO₂)

At room temperature, sulphur dioxide is a non-flammable, colourless gas with a very strong, pungent odour and is heavier than air. Inhalation is the major route of exposure to sulphur dioxide. Most exposures are due to air pollution, and this has both short-term and chronic health consequences for people with lung disease. Inhaled sulphur dioxide readily reacts with the moisture of mucous membranes to form sulphurous acid (H₂SO₃), which is a severe irritant. People with asthma can experience increased airway resistance with sulphur dioxide concentrations of less than 125 micrograms/m³ when exercising.

At this time the applicant is very likely to have data on the complete chemical composition of the wet gas entering the flare (not just the hydrocarbon components) and so accurate air dispersion calculations for sulphur dioxide should be undertaken. The gas feed entering the flare stack may be wet gas and sulphur rich as it is a solution gas coming out of the Kimmeridge oil.

The flare is at a level below Balcombe village and sulphur dioxide may accumulate at ground level in the vicinity of residences.

(ii) Polyaromatic Hydrocarbons

Polyaromatic hydrocarbons are by-products arising from incomplete combustion of organic matter that are frequently released into our environment. They are produced in flares. Many Polyaromatic hydrocarbons are strong carcinogens and have been linked to increased incidences of various types of cancer in humans for which there is no known safe threshold concentration or exposure time.

Rough estimates put the polyaromatic hydrocarbon concentrations in the vicinity of the residences located within about 400 metres from the flare (at Kemps House and Holts House) at around 6 ng/m³. This is 24 times the National Air Quality Objective for Polyaromatic hydrocarbons (0.25 ng/m³) and so air dispersion calculations of this are necessary.

(iii) Particulate Matter (PM)

Nano-sized soot particles are generated in the flare which are detrimental to public health. Further air dispersion calculations of PM generation are necessary, and the results added to emissions from generators and traffic.

In particular, if the flare does not operate efficiently high levels of PMs can be produced so it is crucial to monitor the flare efficiency during operation. This does not seem to have been considered.

(iv) Dioxins

Can the operator please provide information on expected dioxin levels in the flare gas. Dioxins are formed when incinerating chlorine containing organic substances. Dioxins are very toxic and known human carcinogens and endocrine disruptors.

As the operator is pumping considerable amounts of dilute HCl into the well, it is possible that the 'waste' gas will contain chlorine.

A study conducted in the Netherlands reports the presence of dioxins in flared landfill gas, biogas and chlorine containing industrial gas. (National Institute of Public Health and Environmental Protection & Netherlands Organization for Applied Scientific Research, Report 770501018, Emissions of Dioxins in the Netherlands, February 1994).

The dioxin levels of the flare gas should be monitored and contingency plans should be put in place should dioxins be detected in the flare gas.

(v) Volatile Organic and Inorganic Chemicals and Synergy of Emissions

Residents near to the flare will be exposed to benzene, ethyl benzene, xylene, toluene, pyrene, benzanthracene, anthracene, NOx, sulphur dioxide, carbon monoxide, radon, soot and many other combustion emissions. WSCC nor the Environment Agency have no idea at all about the risk of simultaneous exposure to such a cocktail of chemicals.

Government emissions standards are typically based on the exposure of a grown man encountering relatively high concentrations of a chemical over a brief time period, for example, during occupational exposure. They do not address the issue of low-level chronic exposure to many chemicals simultaneously i.e. synergy. Laboratory investigations to determine safety limits typically measure exposure to one chemical at a time, while real-life conditions entail simultaneous exposure to a number of volatile chemicals, with interactions that cannot be predicted

Hence, the synergy of the components of flaring emissions needs to be considered.

(vi) Fugitive Emissions

Fugitive emissions from the produced water and crude storage tanks could include methane dissolved in the water and volatile organic compounds in the oil (including benzene, a carcinogen). They could include H₂S. Fugitive emissions from the tanks are particularly important due to the site location relative to Balcombe village.

There is no information provided in the application on the venting arrangements for the tanks. Cuadrilla needs to provide details of the vapour recovery system.

If no vapour recovery system is present, emissions from the tanks should be included when considering impacts on air quality. Further, regular monitoring of the tanks should be undertaken and contingency plans should be put in place in case of fugitive emissions from the tanks exceeding anticipated levels, or H₂S being present.

(vii) Monitoring and Mitigation of Emissions

The Environment Agency has issued a flaring permit to the applicant which does not set limits for toxic air emissions from the flare.

One monthly spot test is required and the results of this communicated to the Environment Agency. It is not at all evident that such a monitoring regime is appropriate for this application. A strategy needs to be in place for continuous monitoring of all toxic emissions from the flare at Kemps House and Holts House. These residences are about 400 metres from the flare in the direction of the prevailing wind.

The method of monitoring should not be based on canisters or sorption tubes but on methods which can record spikes in emissions levels and reflect fluctuations in concentrations of emissions.

If it is found that any emissions levels breach safe limits a strategy must be in place to immediately remedy this situation.

RSK say there is no need to mitigate any emissions. This is not true. Constant monitoring of the efficiency of the flare is absolutely vital. If the flare efficiency falls below 95% the flare will start to emit serious amounts of toxins, which will be transported on the prevailing wind towards nearby houses and the village.

Below comparison is made of text from the EA permit EPR/AB3307XD issued in 2013 and the Cuadrilla RSK submission now being considered. Cuadrilla seem to have abandoned any intention of emissions mitigation which is required in the above EA permit.

EA 2013 permit

The Draft Permit Number is:	EPR/AB3307XD
The Applicant / Proposed Operator is:	Cuadrilla Balcombe Limited

We have specified air quality, surface water and groundwater monitoring in the permit and the Waste Management Plan and Risk Assessment contains appropriate mitigation measures.

RSK submission 2017

The assessment has concluded that the air quality impact of the proposed development is considered as not significant. As this assessment has determined that the operational phase impacts on local air quality are not significant, additional mitigation measures have not been recommended and the residual impacts are considered to be acceptable.

APPENDIX E Report by Electoral Reform Services on the BPC Consultative Referendum



20th February 2014

BALCOMBE PARISH COUNCIL LOCAL REFERENDUM

Our report of voting for the above ballots which closed yesterday at noon is as follows:

Number of eligible voters:	1507
Total number of votes cast:	901
Turnout:	59.8%

Question 1

Cuadrilla has made a new application to West Sussex County Council for planning permission to flow test the exploratory well that it drilled during the summer of 2013. This includes security fencing, an enclosed testing flare and site restoration. Further information is available on the Balcombe Parish Council website or from the Parish Clerk. Balcombe Parish Council has been asked whether it wishes to make any comment on this application.

How should Balcombe Parish Council (BPC) respond to this application?

Number of votes found to be invalid/blank	4
Total number of valid votes to be counted:	897

Result

"BPC should support this application"	309
"BPC should oppose this application"	536
"BPC should make no comment"	16
"I am not sure how BPC should respond" ...	36

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Question 2

In future Balcombe Parish Council may be invited to comment on other applications made to various authorities for planning permission or permits to explore for or extract oil or gas from sites within the parish.

If an application does or may involve hydraulic fracturing (fracking), how should Balcombe Parish Council (BPC) respond?

Number of votes found to be invalid/blank	3
Total number of valid votes to be counted:	898

Result

“BPC should always support such an application”	133
“BPC should always oppose such an application”	548
“BPC should treat each application on its merits”	201
“I am not sure how BPC should respond” ...	16

Question 3

If an application does not involve hydraulic fracturing (fracking), how should Balcombe Parish Council (BPC) respond?

Number of votes found to be invalid/blank	4
Total number of valid votes to be counted:	897

Result

“BPC should always support such an application”	198
“BPC should always oppose such an application”	463
“BPC should treat each application on its merits”	221
“I am not sure how BPC should respond” ...	15

