

BPC response to Environment Agency (EA) consultation on Cuadrilla application to vary environmental permit

Balcombe Parish Council would like to object to Cuadrilla's application to vary the environmental permit for Lower Stumble. We are concerned that some specific aspects of the situation at Balcombe have not been taken into account, such as the height of the flare being below the elevation of the village, and, with reference to reclassifying both Produced Water and 'salty water' as non-hazardous, we would rather maintain the cautionary approach and retain the existing classification. We are also concerned that proposed air quality and water monitoring is not sufficiently robust and does not include monitoring of certain emissions such as sulphur dioxide.

1. **Flaring and air quality.** We note the Atkins report commissioned by Cuadrilla concludes that any impact on air quality would be well within the limits considered acceptable for human health. However, the report only refers to oxides of nitrogen and carbon monoxide whereas we believe it likely that, due to the presence of sulphur in the oil (reference attached Conoco oil composition report 1986) there will be sulphur in the waste gases. We note that Public Health England (reference attachments PHE) have raised this issue in their responses to previous planning applications and feel that the issue should be addressed.

In addition, according to details obtained from earthtools.org the well pad is sited at 70m above sea level to the south west of Oldlands Avenue in the village which is 105m above sea level. The flare stack is 14m high. Therefore, the top of the flare stack is about 20m below the village. As noted in the Atkins report, the prevailing wind is from the south west and towards the village.

We ask that Cuadrilla review their air quality modelling to take into account the height and positioning of the flare, and to include the impact of sulphur dioxide as well as the adjustments that Cuadrilla have made to the construction of the flare.

2. **Air quality monitoring.** We are very concerned about air quality monitoring which proved unreliable last time. Laser monitoring is to be welcomed, but rather than being employed on just two occasions for 'up to eight hours' we would prefer continuous monitoring to detect any spikes in the emission data. We also believe monitoring should be for all potentially hazardous emission rather than methane alone.

We request that, if well testing takes place, laser air quality monitoring is continuous, and that monitoring includes nitric oxide, sulphur dioxide, hydrogen sulphide, BTEX and other VOCs.

3. **Produced Water, 'Salty water', reclassification.** Cuadrilla's submission acknowledges that 'the actual composition (of the produced waters) could vary dependent on the precise conditions encountered'. It is likely that returning fluid will contain heavy metals, hydrocarbons and possibly naturally occurring radioactive material (NORMS). We therefore do not believe this waste material can reliably be described as non-hazardous.

We strongly urge EA not to accept the reclassification of Produced Water and 'salty water' as non-hazardous.

- 4. Withdrawal of Mining Waste Facility,** Although Cuadrilla say they would intend not to leave any fluid in the formation, we do not have any evidence to suggest that this is actually possible, considering the nature of the formation.

If any produced water and 'salty water' remain in the formation, Cuadrilla will continue to need a Mining Waste Facility Permit. As the EA has stated it is unreasonable to assume that Cuadrilla can recover all injected fluids. Therefore they should retain the Mining Waste Facility (which applies to substances left behind in the formation).

We request that Cuadrilla should not be allowed to relinquish their Mining Waste Facility.

- 5. Water quality monitoring.** This is obviously of considerable importance, considering the proximity of watercourses and the fact that Balcombe pumping station is an element of South East Water's drought contingency strategy. We are also concerned about the integrity of the well drilled in the 1980s, Balcombe1, and about it potentially acting as a conduit for waste materials or for chemicals harmful to the environment, being only 10m away from Balcombe2. We would value scientific examination of any potential issues in this regard.

We request EA consider the implications of the proximity of the old well and set out a comprehensive water monitoring programme.

- 6. Noise and traffic.** Clause 9.2.3 of the application states that the site is 'not in close proximity to residential properties', and therefore the noise from the flare 'is not expected to be problematic'. We are concerned that, flaring would, if carried out, be a significant disturbance. Cuadrilla's submission makes no mention of receptors identified in previous noise modelling work in particular the neighbouring Kemps Farm. In 2013, residents in both Kemps Farm and Oldlands Avenue experienced noise that was greater than permitted levels. It is not correct to suggest that trees will reduce the impact as trees are not normally taken into account in noise modelling.

Considering the concerns raised about noise in 2013, and the potential for 24 hour flaring, we request improved noise monitoring and that steps will be taken to enforce that noise is kept to an acceptable level.

- 7. Fire prevention.** We note that Cuadrilla's submission states that combustible wastes will not be stored at the site. However, the intention is obviously to extract oil and combustible gases may also be present. There may be a diesel storage tank on site. Returned fluids may themselves be combustible. Furthermore we believe drilling itself to be a fire risk.

We request a comprehensive fire prevention strategy is put in place.

- 8. Previous Monitoring Results.** The application documents make reference to ongoing water and air monitoring required by the Environment Agency during the ongoing period of suspension. The Parish Council would like to review the data collected during this period and therefore request that the Environment Agency make this information available to them.

EA to provide the results of ongoing (suspension period) monitoring to the Parish Council.

9. Maximum level of monitoring

Although Balcombe Parish Council is committed to opposing oil exploration at Lower Stumble, we would like to propose that, in the event that further testing goes ahead, EA take the opportunity to undertake extensive and thorough testing of all potential hazards. In the event that any longer-term activity is proposed at the site, it would be of significant importance to have full, factual and reliable records of actual air quality, water quality, noise, composition of wastes.

We therefore urge EA to require that the maximum level of monitoring take place.

Balcombe Parish Council dated 25th April 2017

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DATE 19/11/86
TIME 12:37:26
REF. 02300
19/11/86

TELEX NO. 47-11

TO THE JEFFERIES CONGEO. LONDON
FROM MOORE, BARRETT AND REDWOOD ABERDEEN

SUBJECT BALCOMBE NO 1
DST NO 4
DEAD STOCK TANK CRUDE OIL

ANALYSIS RESULTS

TEST	METHOD	RESULT
WATER CONTENT (% VOL)	IP350	0.0
SEDIMENT (% WT)	IP53	0.11
SALT CONTENT (MG/L)	IP265	1.875
OIL AFTER DEHYDRATION		
DENSITY AT 15 DEG C	ASTM D4052	0.8645
OIL GRAVITY AT 15 DEG C	CALCULATED	75.1
SULPHUR CONTENT (% WT)	IP235	1.02
POUR POINT (DEG C)	IP15	424
ASPHALTENES (% WT)	IP147	0.32
ASH CONTENT (% WT)	IP4	0.11
WAX CONTENT (% WT)	GRAVIMETRIC AT -32 DEG C	70 FOLLOW
KINEMATIC VISCOSITY		
AT 50 DEG F (CST)	IP71	N/A
AT 100 DEG F (CST)	IP73	13.79
AT 140 DEG F (CST)	IP75	7.46
TOTAL ACID NUMBER	ASTM D644	TO FOLLOW
VANADIUM (MG/KG)	P.E.S.	TO FOLLOW
NICKEL (MG/KG)	P.E.S.	TO FOLLOW
CONRADSON CARBON RESIDUE (% WT)	IP13	1.00

DISTILLATION (ASTM D86) ON DEHYDRATED OIL

% VOL. RECOVERY	TEMP (DEG F)
IBP	95
10	166
15	190
20	200
25	230
30	240
40	325
50	345
60	360
70	(CRACKED AT 363 DEG C)

WATER ANALYSIS

TEST	RESULT
SPECIFIC GRAVITY 60/60 DEG F	1.113
RESISTIVITY OHMS/CM 60/60 DEG F	0.07
PH	7.2
BICARBONATE (MG/L)	NOT DETECTED
CARBONATE (MG/L)	NOT DETECTED
CHLORIDE (MG/L)	87.450
SULPHATE (MG/L)	1.400
BARIUM (MG/L)	90
CALCIUM (MG/L)	32.300
MAGNESIUM (MG/L)	1.480
SODIUM (MG/L) CALCULATED	17.400

REGARDS
STEWART KEPP
MOORE, BARRETT AND REDWOOD, ABERDEEN

739294 MBRABN G
REEDITED FROM RETRY

NNNN



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04 March 2014

Dear Ms Jane Moseley

Planning application for: Cuadrilla Balcombe Limited, Lower Stumble Exploration Site, London Road, Balcombe, Haywards Heath, West Sussex, RH17 6JH
Reference: WSCC/005/14/BA

Public Health England (PHE) welcomes the opportunity to provide comment on the above planning application submitted to the West Sussex County Council by the Cuadrilla Balcombe Limited. It is understood that the application is seeking temporary permission for further exploration and appraisal, comprising the flow testing and monitoring of the existing hydrocarbon lateral borehole drilled at the above location along with site security fencing, the provision of an enclosed testing flare and site restoration. It is stated in the application that the applicant does not seek permission to undertake hydraulic fracturing under this planning application (nor in the future).

The site is located in a predominantly rural area, lying directly parallel to a railway line which runs northward to Balcombe village. The closest residential receptors to the site are at Kemp's house approximately 350m to the northwest of the proposed site boundary. Residential properties are also located approximately 600m east; 500m to the southwest; with the village of Balcombe located approximately 700m north of the site boundary. Balcombe village features schools, GP surgeries and numerous residential dwellings.

The applicant has identified a number of air quality parameters i.e. nitrogen dioxide; sulphur dioxide; hydrogen sulphide; methane; Volatile Organic Compounds (VOCs) and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) related to proposed operations at the site. The applicant states that a contractor has been employed to undertake air quality monitoring prior to, during and after the proposed well testing operations. However, the application, does not appear to enclose the air quality

monitoring data stated to have been undertaken prior to well testing operations. The Planning Statement (section 4.14) states that a report of such monitoring will be issued to the Environment Agency as part of the Mining Waste Directive permit condition.

Modelling has been undertaken on potential emissions of nitrogen oxides and carbon monoxide from flaring which indicated that the emissions would not affect the achievement of the relevant short-term air quality objectives. The application does not appear to provide a clear justification for only selecting nitrogen oxides and carbon monoxide as potential emissions from flaring. Sulphur dioxide emissions appear to have been discounted on the basis that no sulphur dioxide is present in the extracted gas however it does not appear that the monitoring data to justify this has been included within the application. The planning authority may wish to seek the assessment of sulphur dioxide emissions from flaring activities.

The applicant has considered the potential impacts of increased traffic emissions but due to the low number of proposed vehicle movements per day, no quantitative assessment of potential emissions has been conducted.

The application appears limited in its consideration of the potential for fugitive release of volatile organic compounds (VOCs) into atmosphere either directly or as a result of incomplete combustion during flaring. The planning authority may wish to request that the applicant considers the potential for impacts from fugitive VOC emissions and other combustion emissions and undertakes baseline air quality monitoring for VOCs. The results of such monitoring could then be compared to monitoring results during operations to provide an accurate assessment of air quality impacts due to the proposed operations.

The applicant suggests there will be minimal risk to ground and surface water from the proposed operation due to a combination of measures employed such as the use of an impermeable membrane placed around the site to contain any spill, protective casing of wells and removal of all on-site waste including contaminated water to suitably licensed off-site treatment facilities. The planning authority may wish to confirm that proposed control measures and site management plans provide adequate measures to mitigate the risks to ground and surface water and that these are supported by any environmental permits issued by the Environment Agency.

The applicant has included risk assessments for potential off site impacts due to noise, odour and light nuisances. For noise, the applicant expects that the plant and equipment involved in the proposed flow testing operations will be less noisy than the preceding drilling operations and consequently noise emissions would comply with the same limits imposed at the site under previous planning consent. In light of the 24 hour nature of the operations the planning authority may wish to consider whether the existing noise limits remain suitable. Regarding the odour, although the applicant expects emissions to be minimal, there is the potential for off site emissions due to venting of raw gases. Given the nature of the proposed operations, it is recommended that the planning authority discusses the potential for the prospective operations to cause nuisance with the environmental health department of the local authority .

Summary

Based solely on the information contained in the application provided, PHE has no significant concerns regarding risk to health of the local population from potential emissions associated with the proposed activity, providing that the applicant takes all appropriate measures to prevent or control pollution, in accordance with relevant technical guidance or industry best practice.

PHE would like to suggest that:

- Wider emissions monitoring may be required to better assess the impact the on the environment from any development
- The planning authority consult the local authority environmental health department for matters relating to noise, odour, dust and other nuisance emissions
- The planning authority considers matters relating to on site impacts arising from the potential for flooding
- The planning authority also consult the Director of Public Health for matters relating to wider public health impacts

Any additional information obtained by the planning authority in relation to these comments should be sent to PHE for consideration. Such information could affect the comments made in this response.

Yours sincerely



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CCs: Surrey and Sussex PHE Centre
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David Wolfe QC
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12 November 2014

Dear Mr Wolfe

Thanks for your email seeking clarification on the PHE response to the West Sussex County Council planning application WSCC/055/14/BA. The summary section of the PHE response notes that it was based solely on the information contained in the planning application document.

The summary statement also noted that PHE has no significant concerns regarding the risk to health of the local population from potential emissions associated with the proposed activity, providing that the applicant takes all appropriate measures to prevent or control pollution in accordance with relevant technical guidance or industry best practice.

PHE stated that wider emissions monitoring may be required to better assess the impact on the environment from any development. The aim was to highlight to the planning authority the need to clarify potential omissions of data requirements from the planning application, highlighted in the main section of the response.

The rationale within the planning application documents to justify the exclusion of measurements of sulphur dioxide within the flare emissions remained unclear. Similarly on the basis of the low numbers of vehicle movements potential emissions from traffic were not quantitatively assessed. The planning authority may have found it helpful to clarify or confirm the basis for these decisions.

The planning application also did not include the air quality monitoring data undertaken prior to well testing operations, which would provide useful baseline data against which any future operational emissions could be compared. The applicant stated that this information would be available to the Environment Agency, however it may also have been helpful to the planning authority.

I hope this response is helpful

Yours sincerely

A handwritten signature in black ink, reading "John Harrison". The signature is written in a cursive style with a large, prominent initial "J".

Dr John Harrison
CRCE Director