BALCOMBE PARISH COUNCIL COMMENTS TO WEST SUSSEX COUNTY COUNCIL ON THE PLANNING APPLICATION BY ANGUS ENERGY WEALD BASIN NO 3 LTD APPLICATION NO: WSCC/071/19

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

Proposal: Remove drilling fluids and carry out an extended well test. This proposal is a two-stage activity:
1) Pumping out previously used drilling fluids to ascertain any oil flow (up to 4 weeks)
2) Should oil be seen to flow, an extended well test (EWT) would be carried out over a period of three years.

FEBRUARY 7th 2020

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NOTES

This document was prepared by Balcombe Parish Council's Energy Working Group. It has been adopted by the full Parish Council at an extra Parish Council meeting on February 3rd, 2020.

Background

Angus Planning Application WSCC/040/17/BA

In 2018 Angus Energy received planning permission (WSCC/040/17/BA) for exploration and appraisal comprising the flow testing and monitoring of the existing hydrocarbon lateral borehole at Lower Stumble, Balcombe. Included in this permission was a time limitation: *"Mobilisation, flow-test, pressure monitoring shall be completed and cease within a period of six months from the date of commencement of development."*

Work commenced in September 2018. Water ingress in the well forced Angus to stop flow testing after about a week. They then removed all the equipment and the bund from the site.

Angus has since analysed the water that flooded the well and have stated that it is fluids left over from previous drillings not water from the aquifer.

As a result of Angus informing WSCC [in error] that the operation had been completed and also due to the six month time limit, planning permission WSCC/040/17/BA has expired.

Angus Planning Application WSCC/071/19

The situation is that now Angus need new planning permission to return. Angus are asking permission for an extended well test of three years (a considerable increase from the previous seven days).

Angus assert that water left behind from drilling activity in 2013 is the source of water ingress that stopped their flow testing in 2018. They have therefore included in the borehole preparation stage a process of pumping out the water that has filled the well.

Main Change between 2017 application and 2019

2017	2019
Flow Testing for seven days	Flow testing for three years.
Flare and Emergency Shut Down Equipment provided from commencement of pumping fluids/gases	No Flare or Emergency Shut Down Equipment provided for initial pumping of fluids. This to be provided for once the equipment is returned.
Impermeable membrane across the whole site built at the start of work	Partial Membrane provided for initial pumping of fluids (until dry oil starts to flow)

No mention of pumping out Borehole water	Borehole preparation includes pumping out water from well
Equipment Movement brought onto site once, then removed at completion	Additional traffic movements/site works • All the equipment to be removed at the end of the initial pumping of fluids. • The partial membrane to be removed. • A higher quality membrane to be built across the whole site • All the equipment brought back onto site • Plus a flare and ESD installed for the second stage

The 2017 Planning Statement states:

3.5 Potential Future Production Stage

Should the borehole flow testing and pressure monitoring works reveal that there are hydrocarbon reserves that could viably be extracted in the future, then after stage 1 has been completed the borehole would be temporarily suspended, whilst a new planning application was prepared and submitted for the production stage. During this period all plant and machinery would be removed from the site and the land would effectively lie dormant pending the outcome of the planning application."

2019 Planning Statement states

"8.10 Potential Future Production Stage
Should the borehole flow testing and pressure monitoring works reveal that there are hydrocarbon reserves that could viably be extracted in the future, then after stage 2 has been completed the borehole would be temporarily suspended, whilst a new planning application was prepared and submitted for the production stage. During this period all plant and machinery would be removed from the site and the land would effectively lie dormant pending the outcome of the planning application."

The language is the same in both applications, but the 2017 application states a new planning application for the production stage to be prepared after 7 days of testing; whereas in the current one an application for production would be made after three years of testing.

Objections

1. Planning Matters

1.1. The application – production disguised as "flow testing"

The 3-year flow testing period applied for is not a short one, compared with the lifespan of most unconventional wells. The Environment Agency has stated they '*would not regard more than 1 year of testing as a short term activity'*. By describing the work as "flow testing" for three years, the applicant is avoiding applying for a production licence. Regulations for a production licence are much stricter than those for flow testing. Angus Energy is trying to avoid applying for a production licence by disguising this application as a 'flow test'. This should not be permitted.

In the RSK HRA 2019 4.1.2, the applicant states that: *"The EWT [Extended Well Test] will commence with the well being tested to ascertain whether commercial hydrocarbon rates can be achieved. The well test will involve several flowing and shut-in periods to enable full analysis of the reservoir."*

Balcombe Parish Council (BPC) Request:

- **As a condition to the application, the applicant should define the criteria for achieving commercial success. Without this in place the applicant can produce oil in commercial quantities without restriction and without a production license or planning permission.**
- **As a condition to the application, a similar time constraint as in WSCC/040/17/BA should be imposed on the flow testing stage (i.e. completion after six months of commencement).**

1.2. Co-mingling of Planning Stages

After completion of removal of the formation water and commencement of oil flows, the applicant states that all the equipment will be removed from the site; the bund will also be removed. The fluids produced will be analysed. A decision will be made at this point as to carrying on with a flow test.

BPC believes that once all the equipment and the bund are removed this provides a natural end for the planning application. If the applicant wishes to carry out "testing" and monitoring for oil for three years once the initial oil flow is achieved, this should be in a subsequent application.

BPC Request:

- **A separate application be submitted for conducting testing and monitoring for oil once the initial oil flow is achieved.**

1.3. Emergency procedures

No site response plan has been seen by BPC. The details in respect of the emergency tank of water for fire-fighting are not clear.

If there is an accident involving hydrocarbons during Stage 1, there is no Emergency Shutdown (ESD) system. There should be an ESD during Stage 1 of the operation as well as in Stage 2. Balcombe Parish Council is not aware of any emergency procedures.

BPC Requests:

- **An Emergency Shutdown (ESD) system be provided whenever fluids are being pumped from the well. An emergency site response plan should be provided to BPC including details of where the water for fighting the fire will come from.**
- **BPC should be aware of the emergency procedures.**

1.4. Environment Agency Object due to Insufficient Information

On the 11th November 2019 the Environment Agency objected to the application by Angus. The basis of the objection by the Environment Agency was that there was *"insufficient information"* in the application.

Subsequent to the receipt of this objection from the EA, Angus Energy have commissioned RSK to perform an Hydrological Risk Assessment (RSK HRA 2019), and Zetland Group to prepare a Design Philosophy Statement setting out the basis for the design of an impermeable subbase system for Stage 2.

Frack Free Balcombe Residents Association has commissioned a review of the RSK HRA 2019 report and the Zetland Group Design Philosophy Statement from hydrologist Trevor Muten BSc, MSc, MPhil, FGS, CGeol, CSci, CEnv, C.Wem MCIWEM, EurGeol, of Tapajós Ltd. The Tapajos report has been sent to the EA, WSCC and to Balcombe Parish Council.

BPC has also obtained the Weatherford Interpretation of Cement Bond Log 2013, and The Final Well Report Conoco (UK) Ltd, Balcombe #1 1986. These reports are referred to by RSK in their Risk Assessment. They can be made available to West Sussex County Council by BPC.

1.5. Non Compliance with West Sussex Joint Mineral Plan

The RSK HRA 2019 refers in Section 3.1 to the West Sussex Joint Mineral Plan as policy that is relevant to the assessment of ground water and soils. *"Policy M7a states that proposals for oil and gas exploration and appraisal, including extensions to existing sites will be permitted provided that:"*

"iii) any unacceptable impacts including (but not limited to) those of air quality and the water environment, can be minimised, and/ or mitigated, to an acceptable level

iv) restoration and aftercare of the Site to a high quality would place in account in accordance with Policy M24 whether oil or gas is found or not"

West Sussex Joint Mineral Plan in Policy M24 states that Proposals for mineral extraction will be permitted provided that they are accompanied by comprehensive restoration and after case schemes that *"make provision for high quality and practicable restoration, management, and aftercare."*

The only reference to site restoration in the application is in the Angus Planning Statement *"8.9.1 Stage 3 involves removing all of the plant and equipment from the site and restoring the land back to its former use in accordance with best practice and the requirements of the extent environmental permit(s). This will happen at the End of the Extended Well Test."*

This is insufficient detail.

BPC Objects

- **To the current application as it does not meet the requirements of the West Sussex Joint Mineral Plan.**
- **The RSK HRA 2019 does not show how unacceptable impacts to the water environment can be minimised or mitigated. This is dealt with in the next section.**

2. Hydrogeology Issues

2.1. RSK Hydrological Risk Assessment

Lack of information, oversimplification and subjective misleading statements invalidate the RSK Hydrological Risk Assessment. As a result, it cannot be relied on as an assessment of possible risks to groundwater quality.

2.2. Contradiction between RSK Risk Assessments 2017 and 2019

The two hydrological risk assessments prepared by RSK disagree in their description of the geology. The RSK HRA 2017 states that *"no superficial deposits are present in the [Lower Stumble Exploration] Site."* However, the RSK HRA 2019 determines that the [Lower Stumble Exploration] Site is underlain by Head deposits" Head deposits are generally classed as *superficial deposits.*

2.3. Incomplete information

RSK HRA 2019 states that the Head deposits present "beneath the site" are classified as a secondary (undifferentiated) aquifer" and this *"is typical of units that have a variable hydraulic conductivity and where it is has not been possible to fully characterise the rock"*. Trevor Muten in his report suggests that *"the absence of detailed site specific reference to the Head Deposit indicates that the RSK HRA 2019 may not be as thorough or complete as it should be and therefore, undermines some confidence in the assessment of risk"*.

RSK HRA 2019 simplifies the hydrogeology of the Wadhurst Clay by stating that the *"Wadstone Clay is understood to act as an aquiclude, confining groundwater within the underlying Ashdown Formation which is classified as a secondary aquifer at a regional scale"*. [presumably "the Wadstone Clay" is a misspelling.]

The decision to characterise the Wadhurst Clay as a homogeneous impermeable continuous clay has influenced the attitude to risk to the ground water and to their monitoring strategy. As a result, there has been no targeted ground water monitoring of the Wadhurst Clay. This is a significant absence because it means that the RSK HRA 2019 does not provide any understanding of whether or not there are potential pathways within and through the Wadhurst Clay which could provide risk to the ground water.

RSK HRA 2019 describes the *"hydrology of the Ashdown Formation as complex and not well understood."* They state that the highly variable hydrology and the *"lack of correlation of water levels even between closely situated borehole is a further indication of a patchy, multi-layered aquifer, without a single water table."* Furthermore, there are springs in the area – locally referred to as chalybeates. The presence of variable hydrology and complex recharging systems, including ephemeral and perennial springs makes understanding the hydrogeology of the Ashdown Beds challenging.

BPC Requests:

- **A detailed field-based assessment be performed to determine the risks to the ground water including ground water monitoring of the Wadhurst Clay.**

2.4. Misleading and Inadequate Ground Water Sampling

It is important that ground water samples are taken before any drilling activity in order that baselines can be established.

RSK HRA 2019 states

"The Conoco well, drilled in 1986 (Balcombe 1) identified that the Ashdown Beds contained groundwater that has a relatively high methane and ethane concentration.
The following results were reported:
** methane (CH4) – 54,000ppm (38.54 mg/l)*
** ethane (C2H6) – 1,335ppm (1.79 mg/l)*
In addition, the BGS has undertaken a survey of UK groundwater to establish background dissolved methane concentrations. The reported concentrations for the Ashdown Formation are approximately 0.05mg/l (70ppm), which is less than the concentration reported from the Conoco boreholes and from GGS in 2013."

RSK use these results taken from the Conoco Well Report 1986 to argue that the Ashdown Beds (our aquifer) are poor quality for drinking.

However, the Conoco Well Report 1986, which has been obtained by BPC, stated:

"Background gas averaged 1.25 units and consisted of C1 and C2 down to 540 ft below where only C1 was present. At 178 ft the well flowed 150 bbls of formation water and associated with this was a gas peak of 280 units consisting of 54910 ppm C1 and 1335 ppm C2". Section 2. Ashdown Beds. 154 ft to 850 ft. Lower Cretaceous"

RSK HRA 2019 incorrectly implies that the Conoco Well Report in1986 found the whole of the aquifer has 54,000 ppm of methane (C1) and 1,335 ppm of ethane (C2).

Whereas, in fact the Conoco Well Report stated that these levels referred to a short peak of gas at 178 ft.

The background gas reported by Conoco in 1986 in the formation water from the aquifer was on average 224 times less than stated in the RSK Risk Assessment. And from 540 ft to 830 ft the amount of ethane (C2) was zero.

This shows that the water quality of the aquifer did not have high methane and ethane concentrations in 1986 when the first well was drilled on the site. This is contrary to the statement made by RSK in their risk assessment in which they have overstated the methane content by a factor of 224 times (22,400%).

The aquifer has a long history of supplying water to our area and we can find no evidence of methane related problems. The aquifer is now a secondary reserve for the area but this is due to its limited flow rate not its quality.

BPC Requests:

- **Angus Energy and the Environment Agency revisit the Conoco Well Report from 1986 in order to correctly represent the baseline composition of gases in the aquifer.**

2.5. Longer Data Set Required

The RSK HRA (2019) of groundwater quality is based on a fairly limited and infrequent groundwater monitoring and sampling from the Ashdown Beds aquifer by Ground Gas Solutions (GGS). GGS took ground water samples in 2013 four times over the period July 2013 to August 2013. This is not sufficient to account for seasonal variability. And they did groundwater monitoring comprising two rounds in 2015, one round in 2016, three rounds in 2017, four rounds in 2018 and three rounds in 2019.

BPC Requests:

- **A much longer data set be obtained and then assessed before drawing conclusions about the baseline conditions.**

2.6. Inadequate Water Sampling and Testing

The testing of water samples has not been sufficient to establish baseline figures for continuing water monitoring. There was no analysis of methane, CO_2 and ethane in 2015, 2016, 2017 and 2018. In 2019, water samples were taken only twice, which is insufficient for a meaningful range of figures to be presented in comparison with historic ones. However, the higher measurement of methane in the 2019 range is over 40% higher than in 2013, the CO_2 measurement in 2019 is almost three times the 2013 figure, and the ethane 2019 figure over twice the 2013 figure.

These increases are far beyond what might be expected from natural variation. This is almost certainly due to the well-drilling and associated operations started in 2013. If these unconventional operations have already had this effect on the ground-water samples, we are concerned about the impact of continuing pollution. The risks to groundwater are too great to allow these operations to continue.

The dissolved CO2, ethane and methane concentrations in the 2019 groundwater samples show that the change is outside the bounds of natural variation and that it has not recovered in the 6 years since the drilling operations.

Therefore, in Table 1 of the RSK HRA 2019 the impact to groundwater should have been classified as "moderate". This is because "*A change outside the bounds of natural variation to a large area or an area remote from the development, which will recover over a medium period of time 5-10 years.*

Water samples have never been tested for the presence of propane and butane, and an inverted Volatile Organic Analysis (VOA) sampling method was not used in 2019 (this was used in 2013). Without this VOA equipment, dissolved gases were allowed to escape. No wonder one of the 2019 samples found no methane or ethane present!

In addition, the isotopic analysis of the methane promised in 2013 has not been presented. This would permit enquirers to determine if the methane was formed biogenically (by the action of bacteria decomposing plant materials on the surface) or thermogenically (underground, from a hydrocarbon deposit formed millions of years ago).

This isotopic analysis must be done in order to determine if the methane present in the groundwater samples is the result of rotting plant materials at the surface or leaks from hydrocarbon reserves deep underground.

BPC Requests:

- **More samples are taken as soon as possible using the correct method to obtain more data for methane, ethane and CO2. The data should be analysed, and the report revised.**

3. Engineering Matters

3.1. Flare

The EA commented in their objection that "a surge tank appears on the list of equipment, but there are no details about any potential associated flare". Angus have now added a flare stack to the list of equipment in Stage 2. However, as the surge tank is present during both Stage 1 and Stage 2, the comment from the EA presumably applies to both stages.

However, Angus have stated in their response to the EA's objection that *"The flare stack will only be present for stage 2 operations as this is the only stage where we are hoping to produce oil and therefore when there may be associated gas produced."*

However, during both stages of the operation, fluids will be pumped from the well. Angus will not be able to stop oil or gas coming through with the water during Stage 1. They state that Stage 1 is completed "once the well has been cleaned up and oil begins to be seen". At this point large amounts of gas may be coming through with the oil and being released in the surge tank. There is no provision for routing the gas from the surge tank/ low pressure separator during Stage 1 with the current scheme. With no flare present, these gases will be vented to atmosphere. Operations without a flare pose safety risks as well as environmental risks and health risks to the local population. There is no provision for routing the vapour from the vapour recovery tank. Vapour recovery is meaningless, if the vapour recovered is vented to the atmosphere.

BPC Objects:

- **No flare is provisioned for Stage 1 to burn gases**

3.2. Emergency Shut Down System

Angus has not provisioned for an Emergency Shut Down (ESD) system during Stage 1 and so would not be able to shut in the well head instantly in case of fire.

The risks during Stage 1 seem to be largely underestimated. They will still be pumping fluids out of an oil/gas reservoir. The applicant has not explained why Stage 1 is being treated differently to Stage 2. In both Stages, fluids and gases will be pumped from the formation; the only difference is the length of time proposed.

BPC Objects:

- **No Emergency Shutdown Down equipment is provisioned for Stage 1**

3.3. Impermeable Subbase

Angus propose that should Stage 1 be successful, the partial bund and equipment will be removed. A fully engineered subbase would then be installed in accordance with the Design Philosophy document provided by Zetland. The equipment returned to the site. This time including a flare and ESD. A series of flow tests would then be run over a period of three years.

RSK HRA 2019 4.2.4 states that *"Key to the robustness of the proposed containment system and to provide protection for the underlying groundwater a construction quality assurance (CQA) plan will be prepared for the retrospective installation of a fully engineered impermeable subbase."*

Zetland have produced a "Design Philosophy Statement for Fully Engineered Impermeable Subbase". This appears to be an explanation of how they would prepare plans for an impermeable subbase. It describes what information would be required and what details would be included in the plan.

It is also noted that in 4.2.4 a containment ditch is mentioned but no details of its capacity are given. There is no mention of a sump or the capacity of a sump.

A promise to provide a plan in the future is not enough. These plans should be detailed and accompany the planning application.

Zetland states in section 5. *"Contingent upon the success of Stage 1 of the development (pumping out previously used drilling fluids to ascertain any oil flow (up to 4 weeks), a detailed civil and structural design will be prepared, informed by this Design Philosophy Statement, the geotechnical evaluation, chemical analysis and interpretative reporting."*

BPC Objects:

- **Application does not contain detailed plans for the containment system.**
- **If the development of a detailed design for Stage 2 cannot be started until Stage 1 is completed, then this is further evidence that these two stages should not be included in one planning application.**

For Stage 1 it is not clear what is the depth of the bund proposed. Section 5.8.1 of the planning statement states 45 cm. From the dimensions in section 5.8.1 and the site plan it seems to be the whole site. However, if that is the case, then it is not clear how loading/ unloading tankers will get into the bunded area. It is not clear from the description whether or not the diesel storage tanks are within the bund.

For Stage 2 there is no information about bunded area, or the dimensions of the liner. As in Stage 1, it is not clear whether or not the whole area is to be bunded, or whether there any lining in the tanker loading/ unloading area.

It is not clear how the interceptor and collection chamber will be emptied. The water is meant to be pumped out and removed by tankers. The documents do not make it clear whether or not there is an area designated for tankers for this purpose. Nor does it explain how spills would be contained. The Zetland diagram (Proposed Wellsite Platform Construction Details) shows a 150 mm pipe from the interceptor to a local stream.

There should be calculations (as the EA pointed out in their objection) showing that firewater (as well as stormwater) will be contained in the bund and the interceptor/ collection chamber, and not overflow and enter the ground. Instead the rainwater/stormwater (the 1 in 100 year rainfall) criterion has now been dropped from the liner description. The calculation they presented in section 5.8.1 does not consider rainwater/stormwater or firewater).

BPC is concerned that the intention is to discharge waste into the nearby stream.

In their November 2019 objection, the EA required *'calculations which account for all significant structures within the bunded area for both the phase 1 water lift and the extended well test as well'*. These are not included in the recent HRA. They must be given.

The Stage 1 membrane is proposed to contain *'110% of the volume of the largest tank or 25% of the total capacity of all tanks whichever is the greater.'* This takes no account of stormwater, or firewater (water used to put out a fire). According to the "Discharge of Planning Condition 8" document (Appendix D of the earlier Qualitative Hydrology and Flood Risk Assessment dated 25th September 2019) the volume of water produced during the 1 in 100 year event is 466 m3. The Stage 1 bund volume is 240 m3 according to Section 8.5.1 of the Planning Statement dated September 2019. The Stage 1 bund is not large enough to even retain stormwater.

In addition, if a flare is installed for Stage 1 (as it should be) there will also have to be a Test Separator Unit (~4.3m^3 in volume) and associated pipework.

For Stage 2, there are no details of the bunded areas on the plan in Appendix C of the recent HRA.

BPC Requests:

- **Specific, detailed plans and calculations for the impermeable membrane and bund are prepared by the Applicant before planning is granted.**
- **A fully engineered impermeable membrane and perimeter bund proposed for Stage 2 should be provided from Stage 1.**
- **Calculations are presented for the membrane/liner/bund as requested by the EA. The calculations should demonstrate that the bund can accommodate 110% of the volume of the largest tank or 25% of the total capacity of all tanks as well as stormwater (a 1 in 100 year plus climate change event) and firewater runoff for both Stages.**
- **Waste water should not be discharged into the local stream**

3.4. Acid Wash or Acidisation

There is considerable lack of clarity in the description of the use of acid in the applicant's reports. RSK 4.3 states *"stored chemicals will include fuel, hydrochloric acid (20m3)."* …*"Acids are not presently found in the formations naturally so release from the test bore, should Contingency 2 be required, will have an immediate and direct impact to the surrounding rock – this is a planned and an intended interaction."* 20m3 is 5,280 gallons of acid and this statement implies they intend penetration of the rock. This contradicts the earlier statement in 4.2 which describes Contingency 2 as "Acid Wash with CT [coiled tubing]. If an acid wash is required, this will be done with *"HCI acid truck (on site only for the day)."*

It is unclear why the Zetland Plans show acid storage tanks when there is no mention of acid in Stage 2.

BPC Requests:

- **Clarification as to the intended use of acid, the amount to be used and the amount expected to be stored on site.**

3.5. Well Integrity

Our concern is that the RSK Risk HRA 2019 distorts the facts and cannot be relied on. The RSK HRA 2019 makes reference to Cement Bond Logs (CBL) for the Balcombe 2 well to support their conclusion that *"risks to groundwater from failed well integrity are considered to be very low."*

The only Cement Bond Logging was performed by Weatherford in 2013. The Weather CBL Report which BPC has obtained a copy of, describes much of the bonding as *"moderate to poor"*.

The Weatherford CBL was carried out in August 2013 shortly after the Balcombe 2 well was drilled. Since that time a short flow test of the well was carried out in 2018 but this was halted unexpectedly due to water ingress.

The RSK HRA 2019 misleads the reader by stating that the Weatherford CBL 2013 Report support their conclusion that *"all casing strings are cemented properly and provide sufficient isolation to the surrounding formations."* RSK Risk Assessment 4.2.2 *"Release of gas into the surrounding geology is unlikely to occur due to the mitigation from the well design (steel casing and cement sheaths), which have been proven to have good integrity from the results of CBL testing." 4.3 RSK Risk Assessment "The construction method and proven well integrity from the CBL shows that acid release into non-targeted formations is unlikely."*

The aquifer at Balcombe is at a depth of 153 ft to 830 ft which is precisely the depths where the CBL reveals problems.

The Weatherford CBL 2013 Report rates the cementing at these depths protecting the aquifer as mostly *"Moderate to Poor casing to cement bond and cement to formation"*, and one section (600ft depth to 708 ft depth) is rated as *"Poor casing to cement bond and cement to formation."* The Weatherford CBL Report recommends that in order to assess the cement bond quality an URS Ultrasonic Radial Scanner (URS) log be performed.

The results of the Cement Bond Logs does not support RSK's conclusion that the aquifer is protected.

BPC Requests:

- **Further tests on the casing should be performed as recommended by the Weatherford CBL Report. If these further tests show poor casing results, then remediation work should be carried out.**

Conclusion

BPC asks that WSCC to refuse this planning application.

BPC believe that the application should be refused on the grounds that the hydrological risk assessment is inadequate, incomplete and misleading.

More work is required including a detailed field-based assessment to determine the risks to the ground water including ground water monitoring of the Wadhurst Clay. The baseline results from 1986 Conoco Well Report should be correctly represented. A more comprehensive data set of water samples should be obtained and then assessed.

Further tests on the Balcombe 2 well casing should be performed. If these tests agree with the results of the CBL carried out in 2013 that the bonding to casing is poor to moderate, then remediation work should be carried out.

However, should the application be granted, we ask that Stage 1 and Stage 2 be treated as two separate planning applications and that full calculations should be made for both of them.

BPC requests that a flare, Emergency Shutdown (ESD) system and a fully engineered impermeable membrane and perimeter bund be provided for both stages.

BPC requests that calculations are presented for the membrane/liner/bund as requested by the EA.