

APPENDIX 2.10
ISSUES AND RESPONSES REPORT

**PROPOSED EXPLORATION DRILLING
IN THE ORANGE BASIN DEEP WATER
LICENCE AREA OFF THE
WEST COAST OF SOUTH AFRICA**

ISSUES AND RESPONSES REPORT

Prepared for:
**Department of Environmental Affairs
and
Petroleum Agency of South Africa**

On behalf of:
Shell South Africa Upstream B.V.

Prepared by:
**CCA Environmental (Pty) Ltd
and
NMA Effective Social Strategists (Pty) Ltd**



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1. PURPOSE OF THIS ISSUES AND RESPONSES REPORT

This Issues and Responses Report records the issues and concerns, questions and suggestions raised by Interested and Affected Parties (I&APs) since the Final Scoping Report (FSR) was distributed for comment period.

The purpose of this Issues and Responses Report is to:

- Record all written received from I&APs on the FSR, Draft Environmental Impact Report (EIR) and draft Environmental Management Programme (EMPr) Addendum;
- Record verbal comments raised by officials at the authority meetings held in Springbok on 25 and 26 February 2015; and
- Record verbal comments raised by I&APs who attended the public information-feedback meetings held in Cape Town and Saldanha Bay on 11 and 12 March 2015, respectively

The comments have been categorised as indicated in the Table of Contents and have been responded to by members of the EIA Team and the Shell South Africa Upstream B.V. (hereafter referred to as “Shell”) Venture Team.

The categories and issues are listed in no order of importance. As far as possible, comments are presented verbatim from written submissions. Where applicable, responses to comments and questions are given or cross-referenced to the relevant section of text in the Final EIR / EMPr Addendum.

2. COMMENTS RECEIVED

2.1 COMMENTS RECEIVED ON THE FINAL SCOPING REPORT

A total of 13 written submissions were received on the FSR. Written submissions were received from the following authorities, organisations and individuals:

| Authorities | Organisations |
|--|--|
| <ul style="list-style-type: none"> • Northern Cape Government: Department of Environment and Nature Conservation (Beanca Botes) • Northern Cape Government: Department of Environment and Nature Conservation (Judy Scholtz) • Northern Cape Government: Department of Environment & Nature Conservation (L. Tools-Bernardo) • Petroleum Agency of South Africa (Dovhani Mahumele) • Saldanha Bay Municipality (Nazeema Duarte) • South Africa Heritage Resources Agency (Tara van Niekerk) • Western Cape Government: Department of Environmental Affairs and Development Planning (K Adriaanse) • West Coast District Municipality (Doretha Kotze) | <p><u>Business</u></p> <ul style="list-style-type: none"> • Global Business Solutions (Mishka Govender) • Naries Namakwa Retreat (Rona Potgieter) • Trans Marine Shipping (Anne Louw) <p><u>Environmental / Conservation</u></p> <ul style="list-style-type: none"> • Western Cape Marine Conservation Society (Hymie Steyn) <p><u>Fishing</u></p> <ul style="list-style-type: none"> • Etosha Fishing Corporation (Pieter Greeff) • Oceana Group Limited (Ingeborgh Belyeu) |

A copy of all written submissions is provided in Appendix 2.2 of the Final EIR / EMPr Addendum. Comments on the FSR are presented and responded to in Section 3 of this report.

2.2 COMMENTS RECEIVED ON THE DRAFT EIR AND EMPR ADDENDUM

A total of 18 written submissions were received on the Draft EIR and draft EMPr Addendum. Written submissions were received from the following authorities, organisations and individuals:

| Authorities | Organisations |
|--|--|
| <ul style="list-style-type: none"> • City of Cape Town (Yogini Jivanji) • Department of Environment Affairs (Sabelo Malaza & Herman Alberts) • Department of Environment Affairs: Integrated Coastal Management (Andre Share) • Namibian Ministry of Works and Transport (Patrick Silishebo) • Namibian Ministry of Works and Transport (Pinehas Auene) • Northern Cape Government: Department of Environment & Nature Conservation (Bryan Fisher) • Northern Cape Government: Department of Environment & Nature Conservation (Beanca Botes) • Petroleum Agency of South Africa (Phumla Ngesi) • Saldanha Bay Municipality (Nazeema Duarte) • South African Heritage Resources Agency (John Gribble & Tara van Niekerk) • Swartland Municipality • West Coast District Municipality (Doretha Kotze) | <p data-bbox="841 416 948 445"><u>Business</u></p> <ul style="list-style-type: none"> • International Environmental and Marine Services (Richard Byrnes) <p data-bbox="841 551 1166 580"><u>Environmental / Conservation</u></p> <ul style="list-style-type: none"> • Namaqua National Park (Bernard van Lente) <p data-bbox="841 656 922 685"><u>Mining</u></p> <ul style="list-style-type: none"> • Greenflash Trading 251 / Steyn Kinnear (Wynand Venter & Dadu Oberman) |





A copy of all written submissions is provided in Appendix 2.9 of the Final EIR / EMPr Addendum. Comments on the Draft EIR and draft EMPr Addendum are presented and responded to in Section 4 of this report.





Comments and issues raised at the authority and information-feedback meetings are also presented and responded to in Section 4 of this report. Notes from the authority and information-feedback meetings are provided in Appendix 2.6 and 2.8 of the Final EIR / EMPr Addendum, respectively.




3. COMMENTS RECEIVED ON THE FSR: ISSUES AND RESPONSES TRAIL






Method of correspondence:


 = Letter/Fax/Response Form  = E-mail

| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
|--|------------------|---|--|---|---|
| 3.1 ECONOMIC IMPACTS / BENEFITS | | | | | |
| 3.1.1 | Service provider | Trans Marine Shipping (Anne Louw) |  26 Sep 2014 | We are very interested in this topic and would like to know if you have the contact details of the Operator (Shell) in order to advise our clients to propose available drilling units for this exploration drilling. | A detailed contracting strategy would be developed closer to the time of operations. These would be made available to interested parties once they are finalised. At this point Shell can only commit to retaining prospective suppliers' contact details on record. |
| 3.1.2 | Service provider | Global Business Solutions (Mishka Govender) |  26 Sep 2014 | How can we, as a company, get involved with this? | See Response 3.1 above. |
| 3.1.3 | Accommodation | Naries Namakwa Retreat (Rona Potgieter) |  1 Oct 2014 | I recently read an article in Die Burger on Oil exploration projected for the west coast with specific mention of Kleinzee and Springbok. Seeing as these projects might incur a demand for accommodation in the area I thought it well to introduce Naries Namakwa Retreat to you. We are based 27km from Springbok on the R355 towards Kleinzee. Kindly forward this introduction to whom see fit for future reference. We hope to be of service to you and do not hesitate to contact reservations@naries.co.za for any booking inquiries. | See Response 3.1 above. |
| 3.1.4 | Traffic impact | Western Cape Government: Department of Environmental Affairs and Development Planning (K Adriaanse) |  29 Oct 2014 | It is noted that a description of the onshore logistics base has been provided and that it will be located either in Cape Town, Saldanha or Kleinzee. However, please note that the potential traffic impacts (related to the onshore logistics base) that may occur during the operational phase of the proposed development must be identified and assessed. | The potential traffic impact at the onshore logistics base has been assessed in the Final EIR and EMPr Addendum (see Section 5.5.3 of the main report). |

| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
|-----------------------------------|------------------------------------|---|--|---|--|
| 3.2 ONSHORE LOGISTICS BASE | | | | | |
| 3.2.1 | Location of onshore logistics base | Saldanha Bay Municipality (Nazeema Duarte) |  29 Oct 2013 | Please indicate what the deciding factor will be between Saldanha Bay and Cape Town since both places have the service infrastructure as required for the onshore support base. | The proposed onshore logistics base would be located in either the Cape Town or Saldanha harbour precinct. The final decision on its location would ultimately be based on discussions with Transnet and where the project can be accommodated in terms of space and proposed activities. Since no decision has been made at this stage, both alternatives are being considered for approval as part of the EIA / EMPr Addendum process. |
| 3.2.2 | Location of onshore logistics base | West Coast District Municipality (Doretha Kotze) |  24 Oct 2014 | The West Coast District Municipality has no comment on the FSR, but comments will be provided should Saldanha be identified as the onshore logistics base for exploration during the EIA reporting phase. | This comment is noted. See Response 3.2 above. |
| 3.2.3 | Employee accommodation | Saldanha Bay Municipality (Nazeema Duarte) |  29 Oct 2013 | Should Saldanha Bay serve as the onshore support base, please specify what kind of accommodation will be provided for the workers. | It is unlikely that accommodation would be required for the drilling crew. If, however, accommodation is required during crew changes, Shell vetted and approved hotels would be used. |
| 3.3 HERITAGE / ARCHAEOLOGY | | | | | |
| 3.3.1 | Protection of wrecks | South Africa Heritage Resources Agency (Tara van Niekerk) |  30 Oct 2014 | Section 4.1.4.6(b), the information provided here is incorrect. In terms of the National Heritage Resources Act (No. 25 of 1999), Section 2 and 35 stipulates that any wreck, being any vessel or aircraft or any part thereof older than 60 years lying in South Africa's territorial waters or maritime cultural zone is protected and falls under the jurisdiction of SAHRA. | Sections 4.1.4.6(b) of the Final EIR and EMPr Addendum have been updated accordingly. |

| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
|---|--|---|---|--|---|
| 3.3.2 | Impact on cultural heritage material | South Africa Heritage Resources Agency (Tara van Niekerk) |  30 Oct 2014 | Section 5.5, even though impact on historical wrecks may be minimal, in terms of Section 38(8) SAHRA recommends that potential impacts on maritime and underwater cultural heritage are considered in the EIA process and requires that suitable measures are put place to ensure the avoidance or mitigation of any sites identified in the areas of seabed earmarked for drilling. If any heritage resources are identified during seabed surveys for the proposed works, they are to be assessed in terms of their archaeological significance and impact from the proposed drilling and SAHRA is to be notified and provided with the impact assessment report. | The potential impact on cultural heritage material is assessed in Section 5.4 of the main report. Appropriate mitigation measures have also been recommended to minimise any potential impacts. |
| 3.4 IMPACT ON THE FISHING INDUSTRY | | | | | |
| 3.4.1 | Impact on Namibian fishing | Etosha Fishing Corporation (Pieter Greeff) |  3 Oct 2014 | No impact for us. You will drill in South African waters if I understand the document correctly. | This comment s noted. |
| 3.5 OIL SPILLS | | | | | |
| 3.5.1 | Integrated subsea well intervention system | Saldanha Bay Municipality (Nazeema Duarte) |  29 Oct 2013 | Please advise on the time period in which the capping equipment in Saldanha will be made available to the subsea well, if indeed it is needed. | An integrated subsea well intervention system is available in Saldanha Bay for deployment in the event of a subsea well control incident. This unique piece of equipment is operated by Oil Spill Response Limited (OSRL) and provides for swift subsea incident response around the world. Shell is a member of OSRL, which gives them ready access to this equipment. It is anticipated that this equipment could be deployed to site within five days of a well blow-out. |




| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
|--------------------------------------|-------------------------------|--|--|--|--|
| 3.6 IMPACT ASSESSMENT PROCESS | | | | | |
| 3.6.1 | Response to previous comments | Western Cape Government: Department of Environmental Affairs and Development Planning (K Adriaanse) |  29 Oct 2014 | The Directorate is satisfied that the concerns highlighted in the Directorate's previous comments dated 8 September 2014 have been adequately addressed. | This comment is noted. |
| 3.6.2 | I&AP database | Northern Cape Government: Department of Environment and Nature Conservation (Judy Scholtz) |  7 Oct 2014 | Mr Farmer is not the relevant official and contact for EIA issues. In future please forward all EIA information to the following people: <ul style="list-style-type: none"> • Ms Dineo Moleko (Assistant Director: Impact Management); • Ms Onwabile Ndzumo (Environmental Officer: Impact Management); and • Ms Tsholofelo Leburu (EIA Administrator). | The I&AP database has been updated as requested (see Appendix 2.1 of the main report). |
| 3.6.3 | I&AP database | Oceana Group Limited (Ingeborgh Belyeu) |  10 Oct 2014 | Kindly remove Ms M Prins and Mr D Easom from your mailing list to Ocean Group Limited, as they are no longer with our company. If you could instead please send the notification to Ms T Stefanus Zincke. | |
| 3.6.4 | I&AP database | Northern Cape Government: Department of Environment and Nature Conservation (Beanca Botes) |  29 Sep 2014 | Your e-mail was forwarded to Mr B. Fisher at bfisher@ncpg.gov.za. His contact details are 053 - 8077431 | |
| 3.6.5 | Acknowledgement of receipt | Petroleum Agency of South Africa (Dovhani Mahumele) |  25 Sep 2014 | We acknowledge the receipt of the documents attached. Please note that the Agency has received your EIA for the proposed drilling in the Orange Basin Deep Water Licence Area. | This comment is noted. |




| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
|-------|---------|--|---|--|--|
| 3.6.6 | Meeting | Western Cape Marine Conservation Society (Hymie Steyn) |  24 Sept 2014 | Is the HEF meeting still on for October? | It is not known to what meeting Mr Steyn is referring. Information-feedback meetings were held in Cape Town and Saldanha during the Draft EIR / EMPr Addendum review and comment period. Notification letters were sent to all registered I&APs, including Mr Steyn. Notes from the authority and information-feedback meetings are provided in Appendix 2.6 and 2.8 of the Final EIR and EMPr Addendum, respectively |






4. COMMENTS RECEIVED ON THE DRAFT EIR / EMPR ADDENDUM: ISSUES AND RESPONSES TRAIL



Method of correspondence:


 = Letter/Fax/Response Form  = E-mail  = Authority / Information-feedback Meetings

| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
|--------------------|-----------------------|---|---|--|--|
| 4.1 GENERAL | | | | | |
| 4.1.1 | Hydrocarbon type | Nooitgedacht Farm (Hennie Steenkamp) |  12 Mar 2015 | Is Shell drilling for gas or oil? Would the proposed facilities be designed for gas or oil extraction? | <p>Since no wells have been drilled in the licence area, it is not known if there is gas or oil present. The presence of gas or oil will only be determined once the first well has been drilled.</p> <p>The ultimate design of the well drilling operation would depend on whether gas or oil is discovered, their physical properties and the estimated volume of the reservoir.</p> |
| 4.1.2 | Well pressure | Nooitgedacht Farm (Hennie Steenkamp) |  12 Mar 2015 | Does oil and gas flow naturally up to the surface or does it need to be pumped? | In order for the exploration well to be a success, encountered hydrocarbons would need the ability to flow naturally to surface, due to the anticipated pressure in the reservoir. However, factors such as the porosity of the rock and the viscosity of the hydrocarbons can impede the free flow of oil and gas into the well. If artificial lift mechanisms (pumps, etc.) are required costs would increase significantly, and the economic viability of the project would be severely challenged. |
| 4.1.3 | Weight of oil and gas | Nooitgedacht Farm (Hennie Steenkamp) |  12 Mar 2015 | Is gas lighter than oil? Does gas require a larger storage tank? | <p>Gas is lighter than oil and would normally require a larger storage tank. Since gas is compressible, its volume varies significantly with changes in temperature and pressure.</p> <p>When natural gas is cooled (to 160°C below zero), it changes from a gas into a liquid and its volume can be reduced by more than 600 times. Liquid Natural Gas (LNG), therefore, takes up much less space, making it easy to transport and convenient to store.</p> |


| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
|--|------------------------------------|---|--|---|---|
| 4.2 ECONOMIC IMPACTS / BENEFITS | | | | | |
| 4.2.1 | Jobs | South African Women in Construction and MS3 Property and Investments (Vuyiswa Ndzakana-Mabutyana) |  11 Mar 2015 | There would only be a limited number of local job opportunities available due to the highly technical nature of the drilling operation. What could be done to increase local content? | Local job opportunities during exploration are limited as exploration drilling is highly technical and requires specialised drilling units and crews. In addition, employment opportunities are further limited by the very short duration of the proposed operations (i.e. three months per well). A greater number of local jobs (including skills development) would only be realised if a viable hydrocarbon resource is identified and the project moved into the production phase. The potential benefit relating to job creation during the exploration phase is assessed in the Final EIR and EMPr Addendum (see Section 5.5.1 of the main report). |
| 4.2.2 | Overlapping Rights | Greenflash Trading 251 (Wynand Venter) |  4 Mar 2015 | The proposed project overlaps our clients prospecting right and activities to prospect. However, although our client does not wish to object to the project and EIR / EMPr, subject to consultation and reference to such consultation and arrangements agreed upon reflected in the EIR / EMPr, we wish to schedule such discussion soonest. | Shell has an existing Exploration Right to target hydrocarbons in the deep formations of the Orange Basin. Greenflash Trading has a Prospecting Right for exploring for viable deposits of phosphate in sea bottom sands or surface outcrops. Because the two parties are targeting different resources, which are at different spatial locations and the intended exploration activities are in a vast ocean area, there is no anticipated overlap in rights. The unlikely interaction with prospecting activities is assessed in Section 5.3.3 of the main report. Shell subsequently met with Mr Wynand Venter (a representative of Greenflash Trading) on 8 May 2015 to agree on mechanisms for co-ordinating activities and communication between Shell and Greenflash Trading. |
| 4.2.3 | Onshore logistics base in Saldanha | West Coast District Municipality (Doretha Kotze) |  15 Apr 15 | The West Coast District Municipality has no comments on the Draft EIR for the proposal. However, should Saldanha Bay Harbour be identified as the onshore logistics base for the operation, all legislative requirements pertaining to associated activities, should be adhered to. | This comment is noted. The final decision on the location of the onshore logistics base would ultimately be based on discussions with Transnet and where the project can be accommodated in terms of space and proposed activities. However, should Saldanha Bay Harbour be selected as the preferred site, Shell would comply with all Transnet requirements and necessary legislative requirements. |



| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
|-------------------------|------------------|--|--|---|--|
| 4.2.4 | Accommodation | Saldanha Bay Municipality (Nazeema Duarte) |  15 Apr 2015 | Please ensure that the selected accommodation is appropriately authorised to accommodate the employees. | This comment is noted. It is unlikely that accommodation would be required for the drilling crew. If, however, accommodation is required during crew changes, Shell vetted and approved hotels would be used. |
| 4.2.5 | Waste management | Saldanha Bay Municipality (Nazeema Duarte) |  15 Apr 2015 | The Waste Manager of the SBM must be contacted with regard to waste which will be brought ashore if Saldanha is the onshore support base such that there is compliance with the municipal by-law on waste. | Solid waste generated during the exploration activities (excluding galley waste) would be transported to shore for disposal at a licensed landfill facility or an alternative approved facility. Shell would comply with the applicable municipal by-law on waste. |
| 4.3 MARINE FAUNA | | | | | |
| 4.3.1 | Benthic habitats | Department of Environmental Affairs: Biodiversity and Coastal Research (Alan Boyd) |  11 Mar 2015 | There are more detailed benthic habitat plans available and noted that the latest benthic data should be used in the assessment. If it could be shown that the area of interest falls outside identified sensitive benthic areas it would provide further support for the proposed project. | A more detailed benthic habitat and ecosystem threat status map has been included in the Final EIR and EMPr Addendum (see Section 4.1.3.2a and Figure 4.14). |
| 4.3.2 | Benthic fauna | Department of Agriculture, Forestry and Fisheries (Bekho Singimba) |  12 Mar 2015 | What animals would be impacted by the proposed drilling? | The key impacts on marine fauna are related to the physical disturbance and smothering of the marine benthic fauna. These impacts are assessed in Section 5.2.1 and 5.2.2.2 of the main report, respectively. |
| 4.4 OIL SPILLS | | | | | |
| 4.4.1 | Spill size | Department of Environmental Affairs: Biodiversity and Coastal Research (Alan Boyd) |  11 Mar 2015 | What volume of oil was used to model the 20-day well blow-out spill scenario? | PRDW used a release rate of 80 000 barrels (bbl) per day over the 20-day period, which equates to an oil spill volume of 1.6 million bbl (i.e. 216 223 t). |



| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
|-------|------------------|--|--|--|--|
| 4.4.2 | Well control | Department of Environmental Affairs: Biodiversity and Coastal Research (Alan Boyd) |  11 Mar 2015 | What technology is available to bring a well blow-out under control at the proposed water depths? | <p>Safety systems are described in Section 3.3.3.1 of the main report. A summary is provided below.</p> <p>The primary safeguard against a blow-out is the drilling fluid. The density of the fluid can be controlled to balance any abnormal formation pressures. The likelihood of a blow-out is further minimised by employing a specially designed item of safety equipment called a blow-out preventer (BOP). The BOP is installed on the wellhead and is designed to close in the well to prevent the uncontrolled flow of hydrocarbons from the reservoir.</p> <p>In addition to the above, advanced well intervention and capping equipment is available in Saldanha Bay for deployment in the event of a subsea well control incident. The subsea well intervention system includes four capping stacks to shut-in an uncontrolled subsea well and two hardware kits to clear debris and apply subsea dispersant at a wellhead. This unique piece of equipment is only stored in four international locations, namely Norway, Brazil, Singapore and South Africa, and is maintained ready for immediate mobilisation in the event of an incident.</p> |
| 4.4.3 | Shoreline oiling | Nooitgedacht Farm (Hennie Steenkamp) |  12 Mar 2015 | My main concern is an oil spill and shoreline oiling. I have no problem with the proposed project if Shell has the appropriate plans in place to deal with any oil spills. | <p>An oil spill modelling study was undertaken as part of the EIA / EMPr Addendum process to model the trajectory, extent and fate of various oil spill scenarios, including:</p> <ul style="list-style-type: none"> • Small accidental spills during normal operations; and • Large well blow-outs (5- and 20-day). <p>The duration of these scenarios is based on the best and worst anticipated response time in order to cap the well considering the availability of well capping equipment in Saldanha Bay.</p> <p>The full report and a summary of the results are presented in Appendix 3.2 and Section 5.7 of the main report, respectively.</p> <p>The only scenario where oil is predicted to reach the coast during a summer drilling period (as proposed) is the slow weathering, 20-day blow-out scenario. Under this scenario there is a <10% probability of shoreline oiling between Saldanha and Hondeklipbaai. It is, however, important to note that the oil spill simulations do not include the implementation of any other</p> |



| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
|-------|---|--|---|---|--|
| | | | | | <p>mitigation measures (e.g. dispersants, etc.). Thus the implementation of mitigation measures would further reduce the likelihood of the above-mentioned scenario occurring.</p> <p>The unlikely impacts related to oil spills are assessed in Section 5.7.2 of the main report. In order to mitigate this unlikely impact it is recommended that a project-specific Oil Spill Response Plan (OSRP) be prepared and be put in place for the duration of the drilling operation. The OSRP would be submitted to SAMSA for approval. The OSRP would also be submitted to PASA and DEA for their review and comment.</p> |
| 4.4.4 | Accidental Oil Spill (Upset Condition) - Blow-out Scenarios | International Environmental & Marine Services (Richard Byrnes) |  6 Apr 2015 | <p>Scenarios for blow-out are 5 days & 20 days.</p> <p>Recommendation: The duration of blow-out scenarios do not stipulate method of assumption or mathematical calculation. Additionally there is little information on blowout control.</p> <p>We recommend that the blow-out scenario considers:</p> <ol style="list-style-type: none"> 1. Relief well options – Available drilling units, time to position etc. 2. Duration required to mobilize the capping equipment and the control unit. 3. Debris removal time to position capping equipment. | <p><u>Oil Spill Response Plan and Well Control Contingency Plan:</u> The responses and mitigation measures in the event of a blow-out would be outlined in the OSRP, which is a key recommendation of the Final EIR and EMPr Addendum.</p> <p>The Final EIR and EMPr Addendum have included information on the OSRP and a Well Control Contingency Plan (WCCP) (see Sections 5.7.2 and 6.2.10 of the main report). The WCCP would provide a working methodology for Shell to safely and effectively manage, respond to, and recover from an uncontrolled well blow-out. The WCCP would be developed to supplement the OSRP. The WCCP would outline the measures for the capping of a well and, if necessary, the drilling of a relief well to re-establish primary well control of the original well.</p> <p><u>Modelling duration:</u> As indicated in Response 4.4.3 above, the duration of these scenarios is based on the best (5 days) and worst (20 days) anticipated response time in order to cap the well considering the availability of well capping equipment in Saldanha Bay.</p> <p>It should be noted that the oil spill simulations do not include the implementation of any other mitigation measures (e.g. dispersants, etc.) other than the capping of the well. Thus the implementation of mitigation measures would further reduce the likelihood and extent of the various oil spill scenarios. We do not believe further modelling is required at this stage.</p> |



| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
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| | | | | | <p><u>Model Description:</u> The MIKE 21/3 Oil Spill Model describes the total amount of spilled oil as an assemblage of smaller oil amounts represented by individual oil track particles. The model takes cognisance of current flied, wind drift and horizontal and vertical dispersion. As the blow-out plume leaves the well on the seabed the momentum of the discharge, as well as the buoyancy of the oil/gas mixture, is anticipated to result in a rapid rise of the near-field plume. Gas hydrate formation and the entrainment of ambient water is, however, likely to result in the near-field plume being trapped in the order of 60 m above the seabed. Thereafter the oil particles will rise towards the surface, as a function of oil droplet diameter and the differences in oil and water density. Once on the surface the volatile fraction will undergo evaporation. The remaining oil dispersion processes include dissolution, biodegradation, photo-oxidation and settling.</p> <p>Also see Section 5.7.1 in the main report.</p> |




| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
|-------|-------------------------|--|---|---|--|
| 4.4.5 | Oil Spill Response Plan | International Environmental & Marine Services (Richard Byrnes) |  6 Apr 2015 | <p>The plan should be prepared in accordance to the various oil spill risks and mitigated through the tiered response concept which identify Tier 1 resources available onsite either offshore site or on logistic base also identify the arrangement of Tier 2 and 3 during the drilling operations.</p> <p>The plan shall include but not limited to:</p> <ul style="list-style-type: none"> • Alert Procedure and Immediate Actions. • Oil Spill Response Organization. • Action Cards. • Oil Spill Response Options/ Strategies. • Termination of the Response. • Oil Spill Response Forms. • Response Actions. • Facilities & Products. • Environmental Sensitivities. • Response Technical Guidelines & Limitations. • Environmental & Socio-economic Context. • Oil Spill Risk Assessment. • Exercise and Training. • Emergency Directory. • Oil Spill Response Equipment Inventory. • Response Equipment and Maintenance / Inspection Plan. • Facilities Specifications. • MSDS Manual. • Oil Spill Modelling Report. • Shoreline Survey and Response Strategies. | <p>Shell uses the tiered preparedness and response concept, which ensures the appropriate resources are considered for all potential scenarios identified in the OSRP.</p> <p>The OSRP would be written in accordance with international best practice and would be consistent with the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC). The constituent parts and an outline of the OSRP are provided in the Final EIR and EMPr Addendum (see Box 5.4). The detailed OSRP would, however, only be prepared and submitted for approval closer to the anticipated drilling period (i.e. Shell's second (2017 - 2018) or third (2019 – 2020) exploration right renewal period).</p> |







| NO. | ISSUE | NAME | METHOD & DATE | COMMENT | RESPONSE |
|-------|--|--|---|---|---|
| 4.4.6 | Mitigation of Discharges / Disposal to the sea | International Environmental & Marine Services (Richard Byrnes) |  6 Apr 2015 | Add: SOPEP and SOPEP kits for drilling unit and support / STB vessels. | <p>The drilling unit and the support vessels would each have their own Shipboard Oil Pollution Emergency Plan (SOPEP). The SOPEP would be written in accordance to Regulation 37 of MARPOL 73/ 78 Annex I and Article 3 of the International Convention on Oil Pollution Preparedness, Response and Co-operation.</p> <p>Although the need for a SOPEP is stipulated in the Environmental Management Programme (EMP) (see Section 7.5.1.1 of the main report), it has now also been included as mitigation for deck and machinery space drainage (see Section 5.1.2.1 and 5.1.2.2 of the main report).</p> |
| 4.4.7 | Small instantaneous spill | International Environmental & Marine Services (Richard Byrnes) |  6 Apr 2015 | <p>Small instantaneous spill</p> <p>Explain the sources or initiating events of spills.</p> | <p>Oil spills could rise from a number of sources during drilling operations. These include:</p> <ul style="list-style-type: none"> • Loss of well control and blow-out; • Drilling unit grounding, collision or structural failure resulting in the total loss of diesel inventory and other oil inventory; • Dumping of riser content due to loss of station keeping or collision; • Leak from base oil, hydraulic oil, diesel or lube oil storage, or inadvertent opening of master dump valve and discharge of one pit of mud to sea; • Grounding, collision, structural failure of support vessels resulting in the total loss of diesel inventory and other oil inventory; • Loss of containment during transport to / from drill site resulting in the release of Synthetic Based Muds (SBM) or other oil products. <p>From the list of potential spill sources identified above, a representative range of credible (albeit unlikely) oil spill scenarios were identified to inform the oil spill modelling study, ranging from small accidental spills to large-scale failure events.</p> <p>The list of potential oil spills modelled in the study are summarised in Section 5.7.1 of the main report and presented in more detail in the specialist report (see Appendix 3.2 of the main</p> |








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| | | | | | report). The oil spill scenarios modelled included: <ul style="list-style-type: none"> • Small instantaneous spills <ul style="list-style-type: none"> > Rupture of a hydraulic line on the drill vessel (1 ton spill); > Hose rupture during fuel transfer from support vessel to drill vessel (10 ton spill). • Large spills <ul style="list-style-type: none"> > Loss of well control and blow-out (including a 5-day and 20-day spill scenario). |
| 4.4.8 | Mitigation of small accidental spills | International Environmental & Marine Services (Richard Byrnes) |  6 Apr 2015 | Add: Add OSR Equipment. | The requirement for On Board Spill Equipment has been included in the Final EIR (see Section 5.7.2.1). |
| 4.4.9 | Oil spill at logistics base | International Environmental & Marine Services (Richard Byrnes) |  6 Apr 2015 | There is no mention of an oil spill within logistic base in Cape Town or Saldanha Port. | An oil spill in and <i>en route</i> to port has been considered in the Final EIR and EMPr Addendum (see Section 5.7.2.1 of the main report) and appropriate responses for this eventuality would be outlined in the OSRP, which as mentioned in Response 4.4.5 above would be prepared and submitted for approval closer to the anticipated drilling period (i.e. Shell's second (2017 - 2018) or third (2019 – 2020) exploration right renewal period). |



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| 4.4.10 | Collisions | International Environmental & Marine Services (Richard Byrnes) |  6 Apr 2015 | There appears to be no scenario for support vessels (collisions) during the transit between the drilling rig offshore and logistic base in Cape Town or Saldanha Port. | <p>Grounding, collision, structural failure of support vessels are one possible source of an oil spill and appropriate responses for this eventuality would be outlined in the OSRP.</p> <p>In addition to the controls and responses that would be detailed in the OSRP, the following recommendations have been included in the Final EIR and EMPr Addendum (see Section 5.3.1 and 5.3.4 of the main report):</p> <ul style="list-style-type: none"> • Shell must request, in writing, the South African Navy Hydrographic office to release Radio Navigation Warnings and Notices to Mariners throughout the drilling period; • The drilling unit vessel should be accompanied by a support vessel equipped with appropriate radar and communications be kept on 24-hour standby near the drilling unit in order to ensure that other vessels adhere to the safety zone; • Any fishing vessel targets at a radar range of 24 nm from the drilling unit should be called via radio and informed of the safety requirements around the drilling unit; • Collision prevention equipment should include radar, multi-frequency radio, foghorns, etc. Additional precautions include: the support vessels, the enforcement of the 500 m safety zone around the drilling unit, cautionary notices to mariners and access to current weather service information; and • The drilling unit and support vessels must be fully illuminated during twilight and night. |
| 4.4.11 | Collisions | International Environmental & Marine Services (Richard Byrnes) |  6 Apr 2015 | There appears to be no consideration of passing ship / collision scenario with the drilling unit. | <p>The risks associated with passing ship collisions are recognised as a potential source of an oil spill. A hazard identification and risk assessment would be conducted as part of the OSRP. Appropriate controls and responses to deal with this potential hazard will be outlined in the plan.</p> <p>Also see Response 4.4.10 above.</p> |

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| 4.4.12 | Oil spill impact on offshore diamond mining | International Environmental & Marine Services (Richard Byrnes) |  6 Apr 2015 | There appears to be no mention of the offshore diamond mining in South Africa and the affect a catastrophic blowout would have on the industry. | <p>The potential impact on marine mining is assessed in Section 5.3.3 of the main report. It should, however, be noted that there is no deep-water diamond mining currently underway in the South African offshore concession areas, since De Beers Marine ceased mining in the ML3 licence area (see Section 4.1.4.4 of the main report). Thus, the only diamond mining currently taking place is in the concessions closer inshore (water depths are mostly less than 150 m).</p> <p>The only scenario where oil is predicted to reach the coast during a summer drilling period (as proposed) is the slow weathering, 20-day blow-out scenario. Under his scenario there is a <10% probability of shoreline oiling between Saldanha and Hondeklipbaai. Since oil would float on the sea surface and pass through an area in a very short space of time, the impact on demersal mining operations from a well blow-out is considered minimal.</p> |
| 4.5 HERITAGE / ARCHAEOLOGY | | | | | |
| 4.5.1 | Shipwrecks | South Africa Heritage Resources Agency (John Gribble & Tara van Niekerk) |  15 Apr 2015 | Section 4.1.4.6 (b), thank you for amending the information in the report. However, please note that even though there are no "known" shipwrecks in the proposed area. It does not automatically mean that the area is void of any archaeologically significant material. | <p>This comment is noted.</p> <p>Although the likelihood of disturbing a shipwreck is expected to be very small, it is recommended that a remotely operated vehicle (ROV) be used to survey the seafloor prior to drilling in order to confirm the presence or absence of any cultural heritage material (see Section 5.4 of the main report).</p> |

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| 4.5.2 | Heritage resources | South Africa Heritage Resources Agency (John Gribble & Tara van Niekerk) |  15 Apr 2015 | Section 5.4, SAHRA has noted the mitigation measures put in place by the proposed project. In accordance with our previous correspondence, if any heritage resources are identified during seabed surveys for the proposed works, they are to be assessed in terms of their archaeological significance and impact from the proposed drilling. Based on the information and data supplied, SAHRA would then determine in terms of Section 2 and 35 of NHRA the impact on the site. | This comment is noted. As indicated in Response 4.5.1 above, it is recommended that a ROV survey be undertaken prior to drilling in order to confirm the presence or absence of any cultural heritage material. If heritage material is detected, it is recommended that the well position be adjusted accordingly. Thus an impact on heritage material is very unlikely. It is also recommended that if any cultural heritage material is found during activities the South African Heritage Resources Agency (SAHRA) should be notified immediately. Shell would need to comply with any requirements specified by SAHRA. |
| 4.5.3 | Definition of archaeological heritage | South Africa Heritage Resources Agency (John Gribble & Tara van Niekerk) |  15 Apr 2015 | Once again we would like to bring to your attention, that in terms of section 2 (ii) (c) of the NHRA 25 of 1999 "archaeological means...wrecks, being any vessel or aircraft or any part thereof, which was wrecked in South Africa,...and any cargo, debris or artefacts found associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation". These include all protected sites or objects lying in South Africa's internal waters, territorial waters or maritime cultural zone and falls under the national competency of SAHRA's Maritime and Underwater Cultural Heritage Unit. | This comment is noted. It should be noted that "wreck" has been replaced with "cultural heritage material" in Section 5.4 of the main report). |
| 4.6 IMPACT ASSESSMENT PROCESS | | | | | |
| 4.6.1 | Report submission | South Africa Heritage Resources Agency (John Gribble & Tara van Niekerk) |  15 Apr 2015 | Please note that all reports need to be submitted through the SAHRIS case. | This comment is noted. It should be noted that the proposed project was registered on SAHRIS and a copy of the Draft EIR and draft EMPr Addendum were uploaded. In order to facilitate the report review process, a hardcopy of the Draft EIR and an electronic copy of the draft EMPr Addendum were also submitted to SAHRA. The Final EIR and updated EMPr Addendum will also be uploaded onto SAHRIS. |

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| 4.6.2 | Information request | Namibian Ministry of Works and Transport (Pinehas Auene) |  24 Mar 2015 | Where (online, etc.) can I access the specialist study report on oil spill modelling? | Mr Auene was notified via email (24 March 2015) that the oil spill modelling report was available on the CCA website. |
| 4.6.3 | Information request | Steyn Kinnear (Dadu Oberman) |  4 Mar 2015 | Kindly provide us with a copy of the comment form for interested and affected parties, where after we shall revert back accordingly. | The comment form was email to Ms Oberman on 4 March 2014. |
| 4.6.4 | Information request | Salanha Bay Municipality (Nazeema Duarte) |  15 Apr 2015 | Can the ballast water reports be made available on request to an interested an affected party? | Accurate ballast water records would be produced and maintained during operations. The South African Maritime Draft Ballast Water Management Bill has been prepared by the Department of Transport and Shell would comply fully with the statutory reporting requirements. Shell would publically disclose monitoring reports including ballast water reports. |
| 4.6.5 | Further studies | Saldanha Bay Municipality (Nazeema Duarte) |  15 Apr 2015 | Please indicate if further studies will be conducted on the impact on the selected onshore support base. | The final decision on the location of the onshore logistics base would ultimately be based on discussions with Transnet and where the project can be accommodated in terms of space and proposed activities. The service infrastructure required to provide the necessary onshore support is currently in place and no additional onshore infrastructure is necessary for this project. Thus no further specialist studies will be undertaken as part of the EIA / EMPr Addendum process. |
| 4.6.6 | Acknowledgment of receipt | Northern Cape Government: Department of Environment & Nature Conservation (Beanca Botes) |  30 Mar 2015 | I hereby confirm receipt of your e-mail. Kindly note that your e-mails was forwarded to Mr B. Fisher for his further attention. | This comment is noted. Mr Fisher is registered on the I&AP database and was also sent the same correspondence. Mr Fisher acknowledged receipt of this correspondence (see Response 4.6.7 below). |
| 4.6.7 | Acknowledgment of receipt | Bryan Fisher |  30 Mar 2015 | This is to confirm that I did receive your mail | This comment is noted. |

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| 4.6.8 | Acknowledgment of receipt | Department of Environment Affairs (Sabelo Malaza & Herman Alberts) |  16 Mar 2015 | The department confirms having received the Draft EIR and will start reviewing once the Final EIR has been received. | This comment is noted. |
| 4.6.9 | Acknowledgment of receipt | Northern Cape Government: Department of Environment & Nature Conservation (L. Tools-Bernardo) |  3 Mar 2015 | The department confirms having received the Draft EIR and EMPr Addendum. The application has been assigned the reference number NC/NAT/NAM/ORAN/2014. Kindly quote this reference number in any future correspondence. Please note the responsible officer is Ms O. Ndumo. | This comment is noted. Ms Onwabile Ndzumo is registered on the project database and was sent a copy of the Draft EIR and draft EMPr Addendum for comment. |
| 4.6.10 | Acknowledgment of receipt | Namaqua National Park (Bernard van Lente – Manager) |  29 Mar 2015 | Thanks I got it. | This comment is noted. |
| 4.6.11 | Acknowledgment of receipt | Namibian Ministry of Works and Transport (Patrick Silishebo) |  25 Mar 2015 | This serves to confirm receipt of your mail below which I will share with our environmental division after which will be able to revert to you. All efforts to reach us appreciated. | This comment is noted. |
| 4.6.12 | Acknowledgment of receipt | Petroleum Agency SA (Phumla Ngesi) |  2 Mar 2015 | Confirming receipt. | This comment is noted. |
| 4.6.13 | Acknowledgment of receipt | Swartland Municipality |  4 Mar 2015 | We Acknowledge receipt of your letter dated 2015-03-03 regarding EIA Proposed Exploration Drilling in the Orange Basin Deep by Shell SA and confirm that the correspondence is being referred to the relevant Department for attention. Reference Number: 1480493. | This comment is noted. |
| 4.6.14 | Acknowledgment of receipt | City of Cape Town (Yogini Jivanji) |  4 Mar 2015 | I have forwarded your email, together with the attachments, through to Mr Gretton for his perusal. | This comment is noted. |

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| 4.6.15 | Previous comments from the South African Heritage Resources Agency | South Africa Heritage Resources Agency (John Gribble & Tara van Niekerk) |  15 Apr 2015 | The South African Heritage Resources Agency would like to thank you for responding to our previous comment and submitting the Draft EIR on the proposed exploration drilling in the Orange Basin Deep Water Licence Area, West Coast, South Africa. | This comment is noted. |
| 4.6.16 | Comment from the Department of Environment Affairs: Integrated Coastal Management | Department of Environment Affairs: Integrated Coastal Management (Andre Share) |  26 August 2014 (received 11 May 2015) | ICM is regarded as an I&AP for providing comments / advice on EIA documents relating to the coastal environment, and the commenting period afforded in terms of NEMA is noted in this regard. It is important to note that should comments not be received within the prescribed timeframe, it must be assumed that the ICM has not yet finalised the comments / advice as requested. In this instance a further communication will be sent to the applicant to allow ICM an extension of the timeframe. | This comment is noted. No further correspondence has been received from the Department of Environment Affairs: Integrated Coastal Management regarding the proposed project. Any comments received on the Final EIR will be forwarded to DEA for consideration. |