APPENDIX 2.8 NOTES OF INFORMATION-FEEDBACK MEETINGS

SHELL SOUTH AFRICA UPSTREAM B.V.

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

NOTES OF INFORMATION-FEEDBACK MEETING HELD ON 11 MARCH 2015, 17H30, AT THE TABLE BAY HOTEL, CAPE TOWN

PRESENT AND APOLOGIES:

Please see the list of attendees and the attached attendance register in Attachment A.

1. INTRODUCTION

- 1.1 Eloise Costandius (EC) of CCA Environmental (CCA) introduced herself and the project team (including Piet Lambregts, Nigel Rossouw and Claude Vanqa of Shell, and Jeremy Blood and Imraan Banderker of CCA) and thanked everyone for attending the meeting. She also detailed the evacuation procedure in the event of a fire or emergency.
- 1.2 EC explained that Shell had been granted an Exploration Right for the Orange Basin Deep Water Licence Area in February 2012 and that Shell is proposing to drill one or possibly two exploration wells. EC outlined the legislative requirements that Shell is required to comply with and said that CCA, in association with NMA, has been appointed to undertake the required environmental processes.
- 1.3 EC closed by stating that the main purpose of the meeting was to inform the public about the proposed project, present the findings of the impact assessment process and provide a further opportunity to comment.

2. PRESENTATIONS

2.1 SHELL: PROJECT OVERVIEW

Piet Lambregts (PL) of Shell presented an overview of the project covering the location of the licence area, a geological section of the Orange Basin, the seismic surveys that have been undertaken, the well location, drilling programme and drilling procedure as well as the sea and land based support likely to be required during implementation. A copy of the presentation is attached as Attachment B.

2.2 CCA: IMPACT ASSESSMENT PROCESS AND FINDINGS

Jeremy Blood (JB) of CCA provided an overview of the Impact Assessment process and presented the key findings of the specialist studies (including marine fauna, fishing and oil spill modelling) and conclusions of the Impact Assessment process. A copy of the presentation is attached as Attachment C.

3. DISCUSSION

3.1 Alan Boyd (AB) of the Department of Environmental Affairs (Biodiversity and Coastal Research) raised a query regarding the plan that showed the offshore benthic habitat types beyond the 500 m water depth to be "Least Threatened". He stated that 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.

JB noted that he would request the marine faunal specialist to contact DEA / SANBI in order to acquire the most up to date and detailed plan showing the benthic habitat types off the West Coast. He also indicated that the Draft EIR did, however, include a plan showing SANBI's proposed Marine Protected Areas (MPAs) and noted that Shell has been in discussions with SANBI regarding the proposed MPA that overlaps with the northern portion of their exploration block.

3.2 AB asked what volume of oil had been used to model the 20-day well blow-out spill scenario.

JB responded that 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. approximately 216 000 t).



3.3 AB asked if technology was available to bring a well blow-out under control at the proposed water depths.

PL stated that the probability of a well blow-out occurring was very unlikely and noted that the oil spill simulations did not include the implementation of any mitigation measures. He noted that there is specialised capping equipment available in Saldanha Bay, which could be used for deep water well blow-outs.

JB noted that the 5-day well blow-out spill scenario was based on the anticipated time it would take to install the capping equipment from Saldanha, taking into consideration mobilisation and installation.

3.4 Vuyiswa Ndzakana-Mabutyana (VN) of South African Women in Construction (SAWIC) and MS3 Property and Investments noted that there would only be a limited number of local job opportunities available due to the highly technical nature of the drilling operation. She asked what could be done to increase local content.

Nigel Rossouw (NR) of Shell reiterated that local job opportunities during exploration were limited due to the technical nature of the drilling operation, the very short duration of drilling (three months per well) and that the drilling unit came with its own crew. He noted that a greater number of local jobs (including skills development) would only be realised if a viable hydrocarbon resource is identified and the project moves into the production phase. He gave the example of PetroSA's refinery in Mossel Bay, which employs a large number of local people both at their onshore and offshore installations.

PL stated that the local benefits were limited to the opportunities available at the onshore logistic bases in Cape Town or Saldanha and Kleinzee, rather than on the drilling unit.

3.5 VN enquired about the possibility of fauna being "sucked" up the pipe during drilling.

PL stated that this is highly unlikely as the drilling fluid was kept under pressure during drilling. He did, however, note that there could be minor suction when the drill string is pulled up; however this could only happen in the risered section of the drilled hole. As this is a closed system with the riser connected to the drill unit fauna from the seabed cannot be sucked up the drill pipe.

4. CLOSURE

- 4.1 NR and EC reminded all attendees that the comment period on the Draft EIR / EMPr Addendum closed on 15 April 2015. EC noted that comments received would be included and responded to in the Final EIR.
- 4.2 EC thanked everyone for attending and formally closed the meeting at approximately 18h25.



ATTACHMENT A

LIST OF ATTENDEES AS PER ATTENDANCE REGISTER

NAME	ORGANISATION
I&APs	
Alan Boyd	Department of Environmental Affairs (Biodiversity and Coastal Research)
Lelethu Zepe	Department of Environmental Affairs (Biodiversity and Coastal Research)
Dovhani Mahumele	Petroleum Agency of South Africa
M. Matuya	Petroleum Agency of South Africa
Liza van der Merwe	Private
Lebo Pandek	Private
Vuyiswa Ndzakana-Mabutyana	South African Women in Construction and MS3 Property and Investments
Client	
Piet Lambregts	Shell
Nigel Rossouw	Shell
Claude Vanqa	Shell
EIA Project Team	
Jeremy Blood	CCA Environmental
Eloise Costandius	CCA Environmental
Imraan Banderker	CCA Environmental
Sarah Wilkinson	CapFish SA
P. Massie	CapFish SA

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

PUBLIC OPEN DAY AND INFORMATION-FEEDBACK MEETING: ATTENDANCE REGISTER

Wednesday 11 March 2015

Table Bay Hotel, V&A Waterfront, Meeting room: The Pavilion

Name & Surname	Company / Organisation	Tel. / Cell No.	E-mail	Attendance of (please tick ✓):	
	o simpan, y o sguinoution	reii / Gen No.		Open Day	Meeting
JEREMY BLOOD	CCA ENVIRONMENTAL	021 46/11/8	jeremyercca environmental	V	
Nige / Rossour	Shell	(021)4654051	nigel. rossom eshella		
IMRAAN BANDERKER VUJISWA	CCA ENVIRONMENTA	021) 46/1118	ibandorker@stronsuling.com	V	
	SAMIC		1	~	
NOZAKAMA-MARUTYAMA	MS3 Propalment	0729019954	try @webmail. co. 29		
SARAH WILLIMSON	CAPFISH SA PTY	021 452 6556	Sarah@capAsh.co.za		
P. MASSIE	10	11	philip@ capfish.co.za		1
Piet hambregts	Shell			/	/
Claude Vanga	Shell			/	

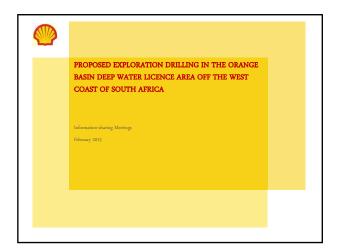
PROPOSED EXPLORATION DRILLING IN THE ORANGE BASIN DEEP WATER LICENCE AREA OFF THE WEST COAST OF SOUTH AFRICA

PUBLIC OPEN DAY AND INFORMATION-FEEDBACK MEETING: ATTENDANCE REGISTER

Wednesday 11 March 2015
Table Bay Hotel, V&A Waterfront, Meeting room: The Pavilion

Name & Surname	Company / Organisation Tel. / Cell No.	Tel. / Cell No.	E-mail	Attendance of (please tick ✓):	
。但是"物件基本分类"。例	oompany organisation	Tell/Joeli No.		Open Day	
ELOISE COSTANDIUS	CCA ENVIRONMENTAL	021 461 1118	eloiseaccuenvironmental. ava	✓	red .
M MatuyA	PASA	021 938356	Maluya Mo petroloumsa.		
Dovhani Mahumele	PASA		mahumeled petroleumagencys		
Lelethy Zepe	DEA	071 819 6070	lelethuzele @ grail.com	_	~
Alan Boyd	DEA	021 819 5006	asboyd@environment.gov.	7n /	
hiza vd Merne	Private	082 337 1123	sprintie vandermenue @ a	mail. com	
Lebo Pandek	Prt	672913 6810			

ATTACHMENT B SHELL PRESENTATION: PROJECT OVERVIEW	



DEFINITIONS AND CAUTIONARY NOTE

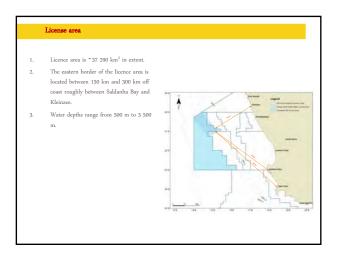
Reserves. Our use of the term "reserves" in this presentation muses SEC perced oil and gas reserves.

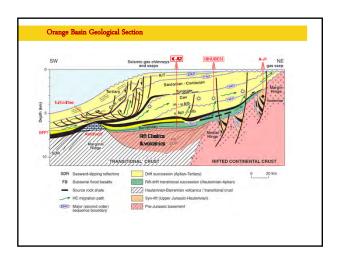
Resource: Our use of the term "resources" in this presentation includes quantities of oil and gas not yet classified as SIC proved oil and gas moreove. Resources are consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics or an area of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranic in this resource consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranic in this resource consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranic in this resource consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranic in this resource consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranic in this resource consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics Our use of the

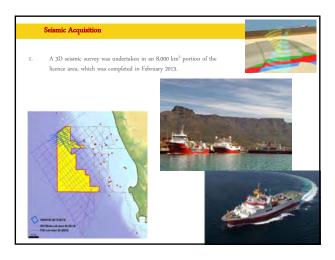
The parameters centure beared being entires on among the formal analysis would organize our blustomes of the first flows \$0.45\$ and the state and the formal analysis would be a formal analysis of the first flows \$0.45\$ and \$0.45\$ are already to the first flows \$0.45\$ and \$0.45\$ are already flows \$0.45\$ are already flows

We may have used contain tenses, each as resources, in this presentation that United States Societies and Kachangy Commission (SEC) strictly probables on from including in our fillings with the SEC. U.S. Inventors are unged to consider closely the Endows in our Energy Will Table 100 (1998) and March 10

Project Overview 1. Licence Area 2. Orange Basin geology section 3. Seismic acquisition 4. Well location 5. Drilling programme 6. Drilling procedure 7. Sea- and land-based support





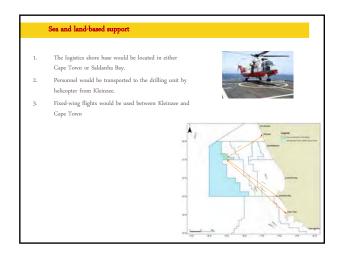


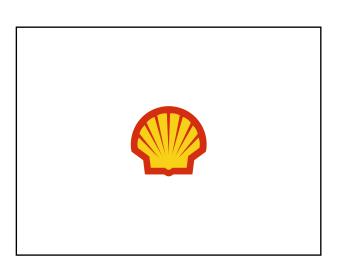
Well Location 1. Area of interest: - 900 km² in extent. - 1,500 m to 2,100 m water depth. 2. Final well location will be based on: - further analysis of the 3D seismic data - the geological target; and - seafloor obstacles

1. Shell is proposing to drill one or possibly two wells 2. Depending on the success of the first well, a second well may be drilled to establish the resource quantity and flow rate. 3. Drilling is expected to take place in a future summer window period, between November to April 4. Well drilling would take in the order of 3 months to complete 5. The second well would be drilled at least one year after completion of the first well 6. Drilling unit: semi-submersible drilling unit or a drill-ship









ATTACHMENT C
CCA PRESENTATION: IMPACT ASSESSMENT PROCESS AND FINDINGS



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

IMPACT ASSESSMENT OVERVIEW

- 1. Legislative requirements
- 2. Impact assessment process
- 3. Impact assessment findings
- 4. Conclusions

LEGISLATIVE REQUIREMENTS



- I. Mineral and Petroleum Resources Development Act, 2002:
 - Shell has an <u>Exploration Right</u> and <u>approved EMPr</u> for seismic surveys and well drilling in the Licence Area.
 - Approved EMPr needs to be amended.
- 2. National Environmental Management Act, 1998:
 - The proposed drilling operation requires that a <u>Scoping & EIA</u> process be undertaken.
 - Process commenced in terms of the EIA Regulations 2010.
 - Repeal of EIA Regulations 2010 and transitional arrangements.

IMPACT ASSESSMENT PROCESS

- 1. Scoping Phase
 - Key objectives: ensure that all key environmental issues / impacts were identified and set scope for the assessment phase.
 - Public Participation Process (adverts, meetings, and review of BID, DSR and FSR).
 - FSR was accepted by DEA on 23 Jan 2015.

2. EIA Phase

- Specialist studies:
 - > Drill cuttings and oil spill modelling.
 - > Fishing Industry Assessment.
 - > Marine Faunal Assessment.





IMPACT ASSESSMENT PROCESS (cont.)

- 2. EIA Phase (cont.)
 - Draft EIR and EMPr Addendum:
 - > 40 day review and comment period.



- > Meetings in Springbok, Cape Town and Saldanha.
- EMPr Addendum:
 - > Update report and submit to PASA (120 days).
- Final EIR:
 - > Compile Final EIR.
 - > 30 day review and comment period.
 - > Submit Final EIR (and comments) to DEA (121 days).
- Distribute decisions and statutory appeal period.

IMPACT ASSESSMENT FINDINGS: MARINE FAUNA

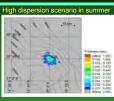


- 1. Normal discharges from drilling unit operations:
 - Discharges (galley waste, deck space drainage and sewage).
 - Considerations:
 - > Short duration (3 months per well).
 - > Small discharge volumes
 - > Distance offshore (~230 km).
 - > High energy sea conditions. Impact significance: VERY LOW.
 - Key mitigation:
 - > Compliance with MARPOL 73/78 standards.
 - Implement a Waste Management Plan.

IMPACT ASSESSMENT FINDINGS: MARINE FAUNA (cont.)



- 2. Smothering of benthic species:
 - Deposition thickness: 80 cm around wellhead to < 1 mm for distances greater than 150 m.
 - Benthic habitat types beyond 500 m water depth are 'Least Threatened'.
 - Due to distance offshore, plankton abundance is low and fish spawning areas occur inshore.
 - Recovery expected in 2 5 years (short-term).





IMPACT ASSESSMENT FINDINGS: MARINE FAUNA (cont.)



- 2. Smothering of benthic species (cont.):
 - Impact significance: VERY LOW (unconsolidated sediments) to LOW (hard grounds / reefs).
 - Key mitigation:
 - > Undertake ROV survey.
 - Adjust well location to avoid vulnerable habitats and / or species.
 - > Use innovative technologies (e.g. weighted muds).
 - Discharge cuttings from drilling unit at least 5 m below the sea surface.

IMPACT ASSESSMENT FINDINGS: FISHING INDUSTRY



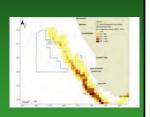
- 1. Loss of access to fishing grounds:
- Temporary safety zone around drilling unit during drilling:
 - > Only large pelagic long-line effected.
 - > % of national catch and effort; approx. 1%.
 - > Extent: 500 m around drilling unit.
 - > Duration: 3 months per well (short-term).
 - Impact significance: VERY LOW.
- Kev mitigation
 - > Consultation and notification.
 - > NAV warnings.



IMPACT ASSESSMENT FINDINGS: FISHING INDUSTRY (cont.)



- 2. Loss of access to fishing grounds:
 - Abandonment of wellheads on the seafloor.
 - > Water depth in area of interest: > 1 500 m.
 - Demersal trawl sector operates along the 1 000 m depth contour inshore of the area of interest.
 - No anticipated impact.

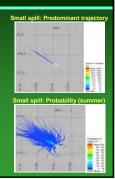


IMPACT ASSESSMENT FINDINGS: OIL SPILL MODELLING

- 1. Spill scenarios:
 - Small: 1 ton hydraulic fluid.
 - · Medium: 10 tons diesel.
 - Large: 5-day blow-out.
 - Large: 20-day blow-out.
- 2. Output:
 - Probability of shoreline oiling.
 - Maximum mass of oil ashore.
 - Minimum time to shoreline oiling.Extent of shoreline affected.

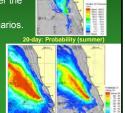
IMPACT ASSESSMENT FINDINGS: OIL SPILL (cont.)

- 3. Small and medium spill scenarios:
 - Predicted to travel in a narrow plume in a NW direction.
 - Extent: 110 km (medium) to 150 km (small) from well.
 - Duration: Oil would remain on the sea surface for a maximum of 1.5 days (medium) and 2 days (small).
 - No probability of shoreline oiling.
 - Impact significance: VERY LOW.



IMPACT ASSESSMENT FINDINGS: OIL SPILL (cont.)

- Large spill scenarios (5 & 20 day blow-outs):Predicted to travel in a NW direction into
- Predicted to travel in a NW direction into Namibian waters.
- Oil <u>would not</u> reach the shore under the following summer scenarios :
 - > 5-day spill: all weathering scenarios
 - > 20-day spill: fast and medium weathering scenarios.
 - Oil <u>may</u> reach the shore under the following summer scenarios:
 - > 20-day spill: <10% probability under slow weathering scenario.



IMPACT ASSESSMENT FINDINGS: OIL SPILL (cont.)

- 4. Large spill scenarios (cont.):
 - · Impact significance: HIGH.
 - Improbable.
 - Key mitigation:
 - > Summer drilling period.
 - > Oil spill response plan.
 - > Subsea well intervention capping equipment in Saldanha Bay.



IMPACT ASSESSMENT CONCLUSIONS

1. Ecological integrity:

- Disturbance to benthic communities is negligible in relation to available area of similar habitat (Least Threatened).
- Recovery in 2 5 years (short-term).
- · Negligible loss of ecological integrity.

2. Economic efficiency:

- Exclusion of large pelagic long-line in 500 m safety zone. Three months per well.
- Limited job opportunities as operation is highly technical.
- Limited opportunities to provide support services.
- Economically efficient, as no other parties would be significantly impacted.

IMPACT ASSESSMENT CONCLUSIONS (cont.)

3. Equity and social justice:

- Project would not unfairly discriminate against any one party.
- No unequal distribution of negative impacts.

It is the opinion of CCA in terms of the sustainability criteria described above, there is no reason why the project should not receive a positive decision.

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



SHELL SOUTH AFRICA UPSTREAM B.V.

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

NOTES OF INFORMATION-FEEDBACK MEETING HELD ON 12 MARCH 2015, 17H30, AT THE PROTEA HOTEL, SALDANHA

PRESENT AND APOLOGIES:

Please see the list of attendees and the attached attendance register in Attachment A.

1. INTRODUCTION

- 1.1 Eloise Costandius (EC) of CCA Environmental (CCA) introduced herself and the project team (including Piet Lambregts, Nigel Rossouw and Claude Vanqa of Shell, and Jeremy Blood and Imraan Banderker of CCA) and thanked everyone for attending the meeting. She also detailed the evacuation procedure in the event of a fire or emergency.
- 1.2 EC explained that Shell had been granted an Exploration Right for the Orange Basin Deep Water Licence Area in February 2012 and that Shell is proposing to drill one or possibly two exploration wells. EC outlined the legislative requirements that Shell is required to comply with and said that CCA, in association with NMA, has been appointed to undertake the required environmental processes.
- 1.3 EC closed by stating that the main purpose of the meeting was to inform the public about the proposed project, present the findings of the impact assessment process and provide a further opportunity to comment.

2. PRESENTATIONS

2.1 SHELL: PROJECT OVERVIEW

Piet Lambregts (PL) of Shell presented an overview of the project covering the location of the licence area, a geological section of the Orange Basin, the seismic surveys that have been undertaken, the well location, drilling programme and drilling procedure as well as the sea and land based support likely to be required during implementation. A copy of the presentation is attached as Attachment B.

2.2 CCA: IMPACT ASSESSMENT PROCESS AND FINDINGS

Jeremy Blood (JB) of CCA provided an overview of the Impact Assessment process and presented the key findings of the specialist studies (including marine fauna, fishing and oil spill modelling) and conclusions of the Impact Assessment process. A copy of the presentation is attached as Attachment C.

3. DISCUSSION

3.1 Hennie Steenkamp (HS) of Nooitgedacht Farm asked if Shell was drilling for gas or oil.

PL stated that since no wells had been drilled in the licence area to date, it is not known if they would be drilling for gas or oil. The presence of gas or oil will only be determined once the first well has been drilled.

3.2 HS asked if the proposed facilities would be designed for gas or oil extraction.

PL stated that the detailed design would ultimately depend on whether gas or oil is discovered and the estimated volume of the reservoir. PL noted that this would take place well into the future, after the exploration phase.

PL noted that oil would more than likely be stored in a tanker before being shipped to international markets, while gas would be piped to an onshore market (e.g. power station).



3.3 HS asked if oil and gas flowed naturally up to the surface or if it needed to be pumped.

PL noted that, due to the pressure in the reservoir, hydrocarbons (both gas and oil) would flow naturally to the surface and thus would not need to be pumped. He did, however, note that if a reservoir did not flow naturally it is probably not a viable project.

3.4 HS enquired about the weight of oil and gas and asked if gas would require a larger storage tank.

PL stated that gas was lighter than oil - he estimated it to be 1% of the weight of oil. He stated that although gas would be compressed, it would require a larger storage tank.

3.5 HS stated that his main concern was an oil spill and shoreline oiling.

PL stated that the probability of a well blow-out occurring was very unlikely and noted that the oil spill simulations did not include the implementation of any mitigation measures.

JB noted that the 5-day well blow-out spill scenario was based on the anticipated time it would take to install the well capping equipment from Saldanha, taking into consideration mobilisation and installation. He stated that the modelling results showed that there is no probability of shoreline oiling in the summer under the 5-day well blow-out spill scenario.

HS stated that he had no problem with the project if Shell has the appropriate plans in place to deal with any oil spills.

3.6 Bekho Singimba (BS) of the Department of Agriculture, Forestry and Fisheries asked what animals would be impacted.

JB stated that the key impact was related to the physical disturbance and smothering of the marine benthic fauna. He noted that each wellhead would only impact approximately 3 m^2 , while modelling showed that the deposition thickness of cuttings would decrease from approximately 80 cm around the wellhead to a thickness of less than 1 mm approximately 150 m away from the well.

4. CLOSURE

- 4.1 EC reminded all attendees that the comment period on the Draft EIR / EMPr Addendum closed on 15 April 2015. EC noted that comments received would be included and responded to in the Final EIR.
- 4.2 EC thanked everyone for attending and formally closed the meeting at approximately 18h20.



ATTACHMENT A

LIST OF ATTENDEES AS PER ATTENDANCE REGISTER

NAME	ORGANISATION
I&APs	
Bekho Singimba	Department of Agriculture, Forestry and Fisheries
Hlengiwe Mbanjwa	Department of Agriculture, Forestry and Fisheries
Jennifer Mohale	Department of Agriculture, Forestry and Fisheries
Lennox Maliza	Department of Agriculture, Forestry and Fisheries
Lizelle Carolus	Department of Agriculture, Forestry and Fisheries
Hennie Steenkamp	Nooitgedacht Farm
Client	
Piet Lambregts	Shell
Nigel Rossouw	Shell
Claude Vanqa	Shell
EIA Project Team	
Jeremy Blood	CCA Environmental
Eloise Costandius	CCA Environmental
Imraan Banderker	CCA Environmental

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

PUBLIC OPEN DAY AND INFORMATION-FEEDBACK MEETING: ATTENDANCE REGISTER

Thursday 12 March 2015 Protea Hotel, 51 Main Road, Saldanha, Meeting room: Malgas

Name & Surname	Company / Organisation	Tel. / Cell No.	E-mail	Attendance of (please tick ✓):	
Name & Samane	Company / Organisation	rei. / Ceil No.	L-man	Open Day	Meeting
ELOISE COSTANDIUS	CCA ENVIRONMENTAL	021 461 1118	eloisaaccaenviranmental.co.za	\checkmark	
IMRAAN BANDERKER	CCA ENVIRONMENTAL.	021 46/1118.	i banderker @ streonsulting	V	
Flengine Moonjus	DAFF	0613356821 024 430 7028	Hiergine Madaff gov. Za hiergine to manyon agnicular	/	
Jennifer Mohale	DAFF	073(069557	jennmohale@gmail.com		

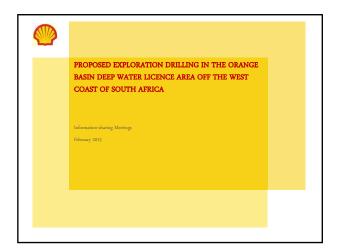
PROPOSED EXPLORATION DRILLING IN THE ORANGE BASIN DEEP WATER LICENCE AREA OFF THE WEST COAST OF SOUTH AFRICA

PUBLIC OPEN DAY AND INFORMATION-FEEDBACK MEETING: ATTENDANCE REGISTER

Protect Wednesday 11 March 2015 Melgas Tuble Bay Hotel, Ved Waterfront, Meeting room: The Pavilion

Name & Surname	Company / Organisation	Tel. / Cell No.	E-mail	Attendance of (please tick ✓):	
Name & Surname	Company / Organisation	Tel. / Cell No.		Open Day	Meeting
Bekho Sing into	DAFF	0.18206750	Malubethos@dall . 30v.29	V	
Peer Landet	Shell	+31610974502	pred. lamby to shell. com	V	
Cizelle Corolis	DAFF	0721448063	lizelle @ dalf.gov.za		
Leurax Maliza	Dall	073 445 8573	LennorMAB daff. gou Zo	<u></u>	
JEREMY BLOOD	CCA		jereny@ccaeruionnental.	V	
Henrie Stentlass	Novitagalarle.	0247140554	Doortox darelist Land	ll.Zh	
Nigel Rossouw	Shell				
Claude Vanga	Shell				

ATTACHMENT B SHELL PRESENTATION: PROJECT OVERVIEW	



DEFINITIONS AND CAUTIONARY NOTE

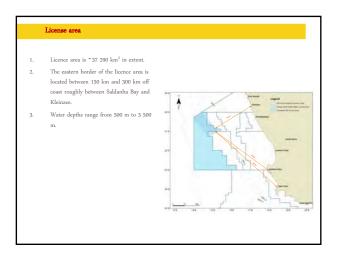
Reserves. Our use of the term "reserves" in this presentation muses SEC perced oil and gas reserves.

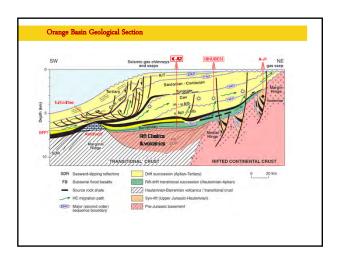
Resource: Our use of the term "resources" in this presentation includes quantities of oil and gas not yet classified as SIC proved oil and gas moreove. Resources are consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics or an area of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics in this resources consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranic in this resource consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranic in this resource consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranic in this resource consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranic in this resource consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranic in this resource consistent with the Society of Petroleum Engineers 2P and 2C definition Oranics Our use of the term Oranics Our use of the

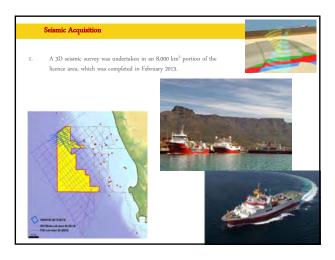
The parameters centure beared being entires on among the formal analysis would organize our blustomes of the first flows \$0.45\$ and the state and the formal analysis would be a formal analysis of the first flows \$0.45\$ and \$0.45\$ are already to the first flows \$0.45\$ and \$0.45\$ are already flows \$0.45\$ are already flows

We may have used contain tenses, each as resources, in this presentation that United States Societies and Kachangy Commission (SEC) strictly probables on from including in our fillings with the SEC. U.S. Investors are unged to consider closely the Endows in our Energy WE Till No. 178995. and May 1889 on the SEC which soon are our Year can also obtain these forces from the SEC by celling 1889 CEC 2019.

Project Overview 1. Licence Area 2. Orange Basin geology section 3. Seismic acquisition 4. Well location 5. Drilling programme 6. Drilling procedure 7. Sea- and land-based support





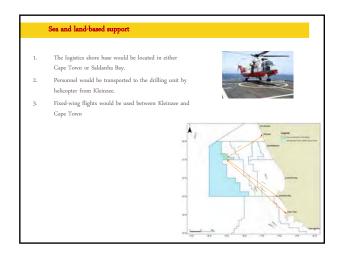


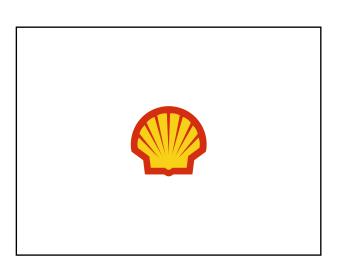
Well Location 1. Area of interest: - 900 km² in extent. - 1,500 m to 2,100 m water depth. 2. Final well location will be based on: - further analysis of the 3D seismic data - the geological target; and - seafloor obstacles

1. Shell is proposing to drill one or possibly two wells 2. Depending on the success of the first well, a second well may be drilled to establish the resource quantity and flow rate. 3. Drilling is expected to take place in a future summer window period, between November to April 4. Well drilling would take in the order of 3 months to complete 5. The second well would be drilled at least one year after completion of the first well 6. Drilling unit: semi-submersible drilling unit or a drill-ship









ATTACHMENT C
CCA PRESENTATION: IMPACT ASSESSMENT PROCESS AND FINDINGS



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

IMPACT ASSESSMENT OVERVIEW

- Legislative requirements
- Impact assessment process
- Impact assessment findings
- Conclusions

LEGISLATIVE REQUIREMENTS



- Mineral and Petroleum Resources Development Act, 2002:
 - Shell has an Exploration Right and approved EMPr for seismic surveys and well drilling in the Licence Area.
 - Approved EMPr needs to be amended.
- National Environmental Management Act, 1998:
 - The proposed drilling operation requires that a Scoping & EIA process be undertaken.
 - Process commenced in terms of the EIA Regulations 2010.
 - Repeal of EIA Regulations 2010 and transitional arrangements.

IMPACT ASSESSMENT PROCESS

- 1. Scoping Phase
 - Key objectives: ensure that all key environmental issues / impacts were identified and set scope for the assessment
 - Public Participation Process (adverts, meetings, and review of BID, DSR and FSR).
 - FSR was accepted by DEA on 23 Jan 2015.

2. EIA Phase

- Specialist studies:
 - > Drill cuttings and oil spill modelling.
 - Fishing Industry Assessment.
 - Marine Faunal Assessment.





IMPACT ASSESSMENT PROCESS (cont.)

- 2. EIA Phase (cont.)
 - Draft EIR and EMPr Addendum:
 - 40 day review and comment period.



- Meetings in Springbok, Cape Town and Saldanha.
- EMPr Addendum:
 - Update report and submit to PASA (120 days).
- Final EIR:
 - Compile Final EIR.
 - 30 day review and comment period.
 - Submit Final EIR (and comments) to DEA (121 days).
- Distribute decisions and statutory appeal period.

IMPACT ASSESSMENT FINDINGS: MARINE FAUNA

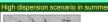


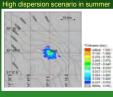
- 1. Normal discharges from drilling unit operations:
 - Discharges (galley waste, deck space drainage and sewage).
 - Considerations:
 - > Short duration (3 months per well).
 - > Small discharge volumes.
 - > Distance offshore (~230 km).
 - > High energy sea conditions. Impact significance: VERY LOW.
 - Key mitigation:
 - Compliance with MARPOL 73/78 standards.
 - Implement a Waste Management Plan.

IMPACT ASSESSMENT FINDINGS: MARINE FAUNA (cont.)



- 2. Smothering of benthic species:
 - Deposition thickness: 80 cm around wellhead to < 1 mm for distances greater than 150 m.
 - Benthic habitat types beyond 500 m water depth are 'Least Threatened'
 - Due to distance offshore, plankton abundance is low and fish spawning areas occur inshore
 - Recovery expected in 2 5 years (short-term).







IMPACT ASSESSMENT FINDINGS: MARINE FAUNA (cont.)



- 2. Smothering of benthic species (cont.):
 - Impact significance: VERY LOW (unconsolidated sediments) to LOW (hard grounds / reefs).
 - Key mitigation:
 - > Undertake ROV survey.
 - > Adjust well location to avoid vulnerable habitats and / or species.
 - > Use innovative technologies (e.g. weighted muds).
 - Discharge cuttings from drilling unit at least 5 m below the sea surface.

IMPACT ASSESSMENT FINDINGS: FISHING INDUSTRY



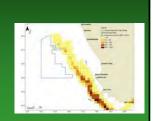
- 1. Loss of access to fishing grounds:
 - Temporary safety zone around drilling unit during drilling:
 - > Only large pelagic long-line effected.
 - > % of national catch and effort: approx. 1%.
 - > Extent: 500 m around drilling unit.
 - > Duration: 3 months per well (short-term).
 - Impact significance: VERY LOW.
 - Kev mitigation:
 - > Consultation and notification.
 - > NAV warnings.



IMPACT ASSESSMENT FINDINGS: FISHING INDUSTRY (cont.)

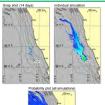


- 2. Loss of access to fishing grounds:
 - Abandonment of wellheads on the seafloor.
 - > Water depth in area of interest: > 1 500 m.
 - Demersal trawl sector operates along the 1 000 m depth contour inshore of the area of interest.
 - > No anticipated impact.



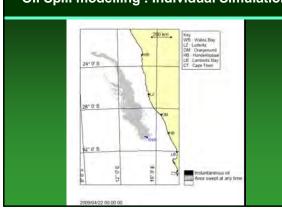
IMPACT ASSESSMENT FINDINGS: OIL SPILL MODELLING

- 1. Spill scenarios:
 - Small: 1 ton hydraulic fluid.
 - Medium: 10 tons diesel.
 - Large: 5-day blow-out.
 - Large: 20-day blow-out.
- 2. Output:
 - Probability of shoreline oiling.
 - Maximum mass of oil ashore.
 - Minimum time to shoreline oiling.
 - Extent of shoreline affected.



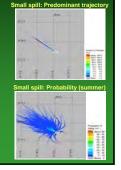


Oil Spill modelling : Individual Simulation



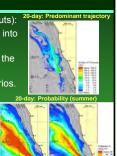
IMPACT ASSESSMENT FINDINGS: OIL SPILL (cont.)

- 3. Small and medium spill scenarios:
 - Predicted to travel in a narrow plume in a NW direction.
 - Extent: 110 km (medium) to 150 km (small) from well.
 - Duration: Oil would remain on the sea surface for a maximum of 1.5 days (medium) and 2 days (small).
 - No probability of shoreline oiling.
 - Impact significance: VERY LOW.



IMPACT ASSESSMENT FINDINGS: OIL SPILL (cont.)

- 4. Large spill scenarios (5 & 20 day blow-outs):
 - Predicted to travel in a NW direction into Namibian waters.
 - Oil would not reach the shore under the following summer scenarios:
 - > 5-day spill: all weathering scenarios.
 - > 20-day spill: fast and medium weathering scenarios.
 - Oil <u>may</u> reach the shore under the following summer scenarios:
 - > 20-day spill: <10% probability under slow weathering scenario.



IMPACT ASSESSMENT FINDINGS: OIL SPILL (cont.)

- 4. Large spill scenarios (cont.):
 - Impact significance: HIGH.
 - Improbable.
 - Key mitigation:
 - > Summer drilling period.
 - > Oil spill response plan.
 - Subsea well intervention capping equipment in Saldanha Bay.



IMPACT ASSESSMENT CONCLUSIONS

1. Ecological integrity:

- Disturbance to benthic communities is negligible in relation to available area of similar habitat (Least Threatened).
- Recovery in 2 5 years (short-term).
- Negligible loss of ecological integrity.

2. Economic efficiency:

- Exclusion of large pelagic long-line in 500 m safety zone.
 Three months per well.
- Limited job opportunities as operation is highly technical.
- Limited opportunities to provide support services.
- Economically efficient, as no other parties would be significantly impacted.

IMPACT ASSESSMENT CONCLUSIONS (cont.)

3. Equity and social justice:

- Project would not unfairly discriminate against any one party.
- · No unequal distribution of negative impacts.

It is the opinion of CCA in terms of the sustainability criteria described above, there is no reason why the project should not receive a positive decision.

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

