Annex C4.1

Minutes of Meeting with Ezemvelo KZN

ERM

Suite S005
17 The Boulevard
Westway Office Park
Westville, 3635
Durban, South Africa

Telephone: +27 31 265 0033
Fax: +27 31 265 0150

www.erm.com

MEETING MINUTES

Date: 10 October 2018

Time: 8h00

Location: Ezemvelo KZN Wildlife, 3 Elton Pl, Congela, Durban, 4001

Subject: Exploration Drilling within Block ER236, off the East Coast of South Africa

Present: Eni: Nicole Lomberg (NL), Nicola Salmaso (NS), Marco Pelucchi (MP), Luca Cassina (LC) , Fabrizio Pecoraro (FP)

ERM: Vicky Stevens (VS), Khosi Dlamini (KD), Ingeborg McNicoll (IM),

Ezemvelo: Jennifer Olbers (JO), Tamsyn Livingstone (TL)

1 Introductions

IM from ERM greeted the room and requested that all attendees introduce themselves. She then requested that Ezemvelo give a brief background on their organisation and what they do. IM then delivered the presentation attached in *AnnexC 4.2.*

2 Project Background – ERM Presentation

IM introduced the project and explained that prospective areas for drilling locations were defined through seismic interpretation.

JO from Ezemvelo asked whether Eni is assuming that more oil or gas would be found once the well is drilled. NS from Eni explained that exploration drilling is required to determine if hydrocarbons are present and the type of hydrocarbons present. The purchased seismic data acquired by separate providers gives an indication of structural lithology which is supplemented with other geological and geophysical studies to identify possible geological structures that may contain fluid (hydrocarbons or water). .

JO asked where the logistics base would be. NS explained that it would depend on where the first well would be drilled (Northern or Southern area of interest). At this time, it is not decided where the first well location will be (i.e. Northern or Southern area of interest).

TL from Ezemvelo asked how Eni would know or decide where to drill first. NS explained that Eni had recently purchased 3D seismic data for the Southern area of interest which will determine the preferred area of interest for the first drilled well. NS also reiterated that what is being proposed is exploration drilling; therefore, it is not yet known what will be found once drilling occurs. The objective of the proposed project is to find out if there are any hydrocarbons present in the drilling areas of interest.

TL from Ezemvelo asked whether there would be anchors to keep the riser in place. IM explained that riser will not be anchored but stable with the use of dynamic positioning thrusters.

Registered office
Environmental Resources Management
Southern Africa (Pty) Ltd
1st Floor, Building 32
The Woodlands Office Park
Woodlands Drive, Woodmead
2148, Johannesburg, South Africa

Registered number: 2003/001404/07
VAT registration: 4780205482

Offices worldwide

Directors
Claudio Bertora
Urmilla Bob (Non-Executive)
Tania Swanepoel
Marinda Rasmussen

MP from Eni further explained that anchors are used in different types of rigs, not the one Eni proposes to use during the proposed exploration drilling.

TL from Ezemvelo had concerns about the difficulty to keep the rig in position with very rough weather conditions and the presence of the strong Agulhas. MP explained that redundant systems (software, GPS, beacons) are available to marine crew on board of drillship in order to guarantee the stability and fix positioning of the rig. Weather condition is constantly monitored and weather forecast is used to confirm operation program versus weather limitations (waves, current speed, temperature, tide, etc.); in case of bad weather forecast close to operative limitations, operations are safely put in stand-by and rig on wait on weather. With expected really harsh conditions (e.g. hurricane) the well can be secured and rig safely disconnected from BOP/wellhead and sailed away.

JO asked for the proposed well logging to be explained. MP explained that well logging happens using sensors. A logging tool with real time sensors is lowered into the hole and then retrieved from the hole while recording measurements.

MP explained how Eni has various monitoring measures in place to ensure that issues do not arise that may lead to a spill. JO asked how high risk the proposed project is, considering such extensive monitoring is proposed. MP explained that the risk is low and Eni uses monitoring measures to reduce this risk further.

JO asked how thick the well plug is when the well is plugged and abandoned. MP answered by saying that it depends on the reservoir found and it is determined by API (by American petroleum Institute) /ISO (by International Organization for Standardization) standards. Pressure testing is also done to ensure the integrity of the plug.

TL raised her concern is that all studies which have been done thus far have been desktop studies. It is not really known yet what is down there at these depths in the area. TL also suggested that a proper baseline survey needs to be conducted and collaborative research needs to go into this between Eni and the Ezemvelo. TL further expressed that she is uncomfortable with only the ROV survey being conducted prior to drilling when they are still uncertain of the sensitivities in the area.

NS explained that new technologies are available such as using an Autonomous Underwater Vehicle (AUV) that is capable of collecting samples. Eni has access to these advanced technologies and the AUV can be used to collect samples, thus enabling access to new data. JO expressed that the South African government would like to be part of these surveys, and also be taught on how to use this technology.

NS expressed that Eni would involve the South African Government in the process where possible.

3 Technology Used - Eni Presentation

MP played a video illustrating how an AUV works and explained how the technology could be used.

JS asked how many samples the AUV was able to take at a time. NS further added that the machine operates during the day time and is charged during the night. It is able to carry up to 30 water/ gas samples at a time. TL asked what distance the machine could cover. NS explained

that it depends on the power of the battery. The AUV has a 12 hour battery duration and it cannot go beyond a depth of 3,000 m.

IM recommended that Ezemvelo accessed the Serpent website http://www.serpentproject.com/ for useful information on deepwater species around the world.

4 Impacts associated with the Project – ERM Presentation

JO noted the noise impacts associated with the drilling activities. She then asked what the proposed mitigation measures were.

VS from ERM stated that the thrusters on the drillship are the main noise source from drilling operations. Optimising use and regular maintenance to maintain operational efficiency is the main mitigation.

TL expressed concern regarding the strong currents in the area. She asked how Eni plan to manage this. MP stated that the drill ship has different thrusters to help maintain a stable bearing. The power could also be increased depending on the strength of the waves and current. NS further stated that should the conditions be unfavourable, operations will stop until such time when it is safe enough to continue.

TL asked whether Eni has other wells in such strong currents as found in the proposed project area. She also asked if any forecasts are conducted prior to drilling. NS explained that Eni does have wells in similar conditions. He also said that Eni uses forecast data as well as meteocean data. The drill ship also has sensors on board to gauge weather conditions.

TL asked whether the fishermen are being consulted directly regarding this project. VS stated that the next phase will have a communication plan in place. Furthermore, notice to mariners and radio announcements will be done as a form of communication to fishermen at sea.

5 Mitigation Measures

VS detailed the mitigation measures proposed to manage any problems which may arise associated with the project. She explained that the advanced technology used by Eni has reduced the probability of a spill from 1 in 4,000 well drilled to 1 in 400,000 wells drilled.

JO mentioned that mobilising these emergency mitigations is not always as immediate as planned. Eni should be quick in their response; providing the necessary funds to mobilise mitigations and ensuring that good insurance is in place in case of possible events.

LC from Eni explained that there are supply vessels around the drillship that will have oil spill response capability. These vessels can respond immediately should there be a spill whilst response strategies are mobilised.

TL asked how the modelling issues detected during the modelling peer review will be addressed. VS stated that the major comments have already been addressed in the final version of the oil spill model. This was included in the Annex D4 of the draft EIA Report.

JO asked if remodelling would be done if the flow rates that are found to be different during exploration drilling .LC stated that the spill modelling would be supplemented with any new data.

TL expressed her concern regarding the modelling results. More specifically with the length of time it takes for the oil to move and where it is moving to. She is concerned that it may be an under estimate.

IM stated that a blue jeans meeting could be set up with the modelling specialist to provide more clarity for TL.

TL asked how the capping stack would be transported. LC mentioned that it would be transported using a vessel. It would come as a service, arriving with support vessels as well. MP further stated that the BOP and wellhead are the barriers present to prevent a spill. The capping stack is just back up in the highly unlikely event that these barriers fail.

TL asked whether Ezemvelo would be able to review the plans detailed in the Environmental Management Programme, EMPr.

NL mentioned that as a government authority, Ezemvelo would have access to these plans.

6 Conclusion

JO mentioned that in the scoping phase, stakeholders requested that a socio-economic study to be conducted for this project.

VS explained that the socio-economic study is more applicable to the production phase, and this project is for exploration activities. Socio-economic impacts have been addressed in the EIA Report. During exploration (this project) limited local jobs will be created as the skills required for exploration drilling are highly specialised. The main economic benefit from exploration drilling to the area would be related to procurement of goods and services.

JO asked whether a public participation process will be held for the production phase, should it occur. VS stated that there will be a new EIA process undertaken in the event that a discovery is made and the project moves to the production phase.

TL asked whether translating the EIA Report into isiZulu meant that the process would be extended. VS and IM stated that this is still in discussion. ERM still needs be within the legislated EIA timeframe.

TL asked when this process would end according to the legal timeframe. Vicky indicated that the final EIA Report would need to be submitted to the Competent Authority by 14 December 2018, having considered all the comments received during the draft EIA phase.

JO asked who the contact person for the baseline studies is as she would like to be in contact. NL from Eni stated that she was the appropriate point of contact and they would exchange details after this meeting.

VS thanked Ezemvelo for hosting the meeting.

Meeting adjourned

Annex C4.2

Presentation – Meeting with Ezemvelo KZN Wildlife

EIA for Deepwater Exploration Drilling within Block ER236, off the East Coast of South Africa

EIA Phase Public Meetings

October 2018

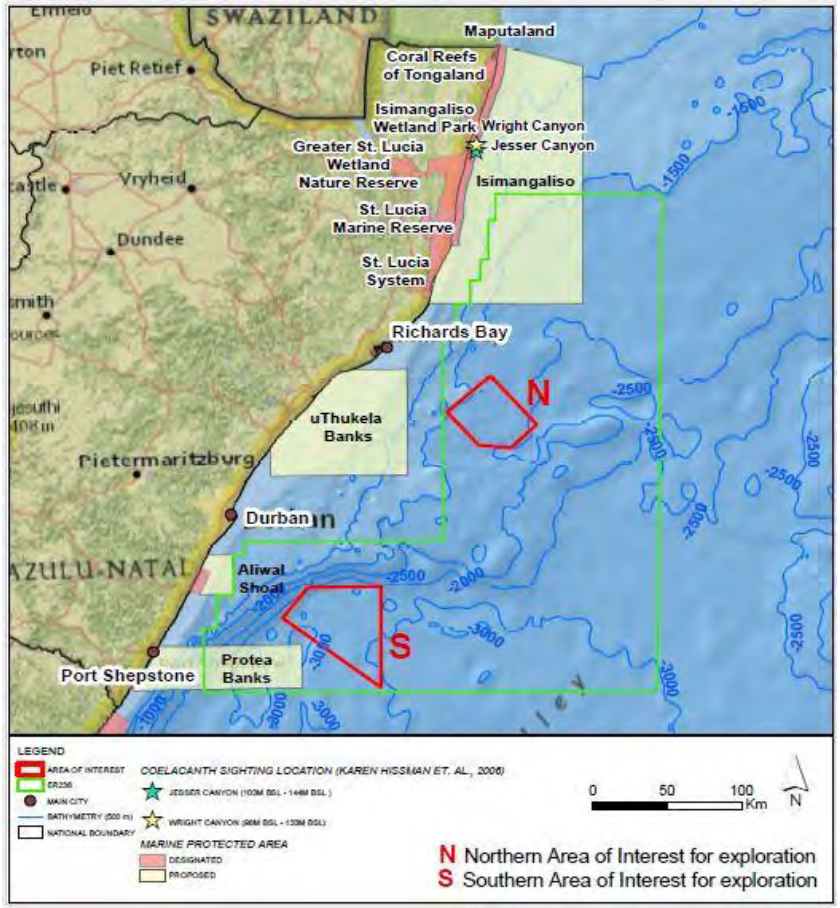
© Copyright 2018 by ERM Worldwide Group Limited and/or its affiliates ('ERM'). All Rights Reserved.
No part of this work may be reproduced or transmitted in any form or by any means, without prior written permission of ERM.

The business of sustainability

ERM

Outline

1. Introductions
2. Part 1: Project Overview
   - **Project Background and Motivation**
   - **Project Context**
   - **Project Description**
   - **Project Alternatives**
3. Part 2: EIA Process Summary
   - **Scoping Phase**
   - **EIA Phase**
   - **Potential Impacts Review**
   - **Specialist Studies**
   - **Public Participation Process**
4. Part 3: EIA Results



Source: Shutterstock

Introduction to ERM

Introduction to ERM

- ERM has been appointed as the independent Environmental Assessment Practitioner (EAP).
- ERM is responsible for completing the Environmental Impact Assessment (EIA) and facilitating the public participation process, including active involvement of Interested and Affected Parties.

Source: ERM

Introduction to ERM – A Fair Process

There are several ways in which the process is conducted that encourage fairness, namely:

- The process for undertaking impact assessment exercises as well as the subsequent decision making by the authorities has been developed and adopted through the democratic channels established by South Africa's constitution and legislation. It is beyond the remit and powers of the environmental assessment practitioners to amend the process as set out by Government.
- ERM conducts EIA processes to the global best practice standards. In doing so we undertake the impact assessment and associated public participation processes in ways which ensure that they are accessible, transparent and accountable. We seek out the input of interested and affected parties in various ways, as well as record and report on their issues and concerns in full. Furthermore, we provide responses to all issues and concerns realised through the environmental impact report.
- Should interested and affected parties believe that the process conducted is not fair while it is being undertaken, they should bring it to our attention and/or raise it with relevant decision-making authorities.

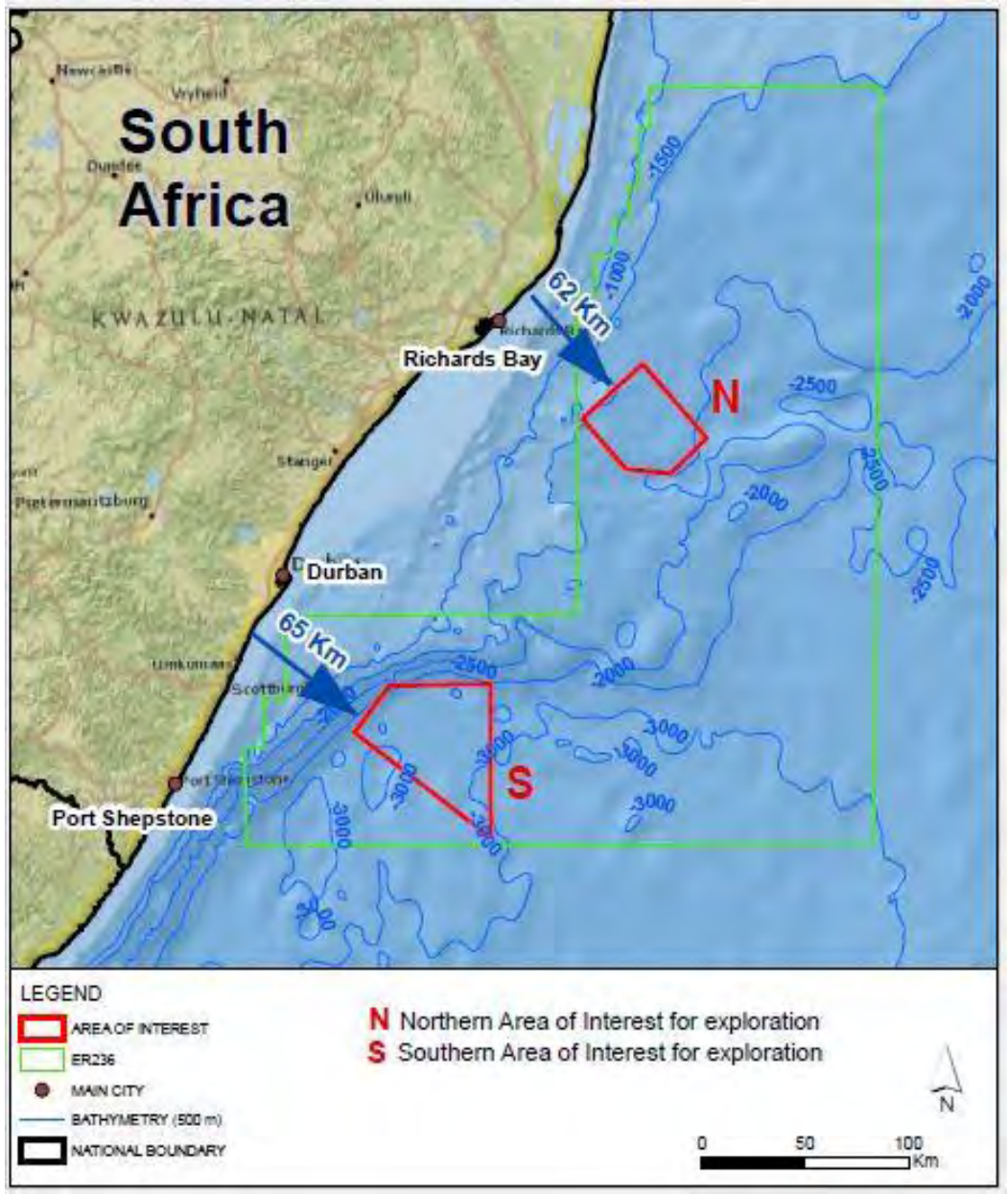
PART 1: Project Overview

Project Context

- Eni South Africa BV (Eni), and Sasol Africa Limited (Sasol) hold an Exploration Right off the East Coast of South Africa Block ER236 (12/3/236).
- Eni and Sasol are considering conducting an exploration drilling programme in Block ER236 to determine the presence of hydrocarbons.
- Eni is considering drilling one well, for up to two months (71 days) in late 2019/ early 2020.
- The success of the first well will determine whether or not subsequent wells are drilled (up to 5 additional wells).
- Exploration drilling will investigate the subsea geological structures to determine the presence of naturally occurring hydrocarbons: gas and/or oil.

Source: Shutterstock

Project Location



Project Description: Main Project Components

- Offshore deepwater exploration well;
- Deepwater drillship;
- Onshore logistics base (Richards Bay or Durban); and
- Supply vessels, standby vessels and helicopters.

Source: Shutterstock

Source: Shutterstock

Project Phases

Project activities include the following phases:

- Mobilisation and Pre-Drilling;
- Drilling;
- Well plugging and Abandonment (decommissioning); &
- Demobilisation phase.

Source: Shutterstock

All activities conducted will comply with South Africa legislation requirements, international standards, and industry good practice

Mobilisation and Pre-Drilling

- Navigation equipment (dynamic positioning, GPS and beacons) will keep the ship stable above the well location through all over operations
- Mobilisation of the drillship in deepwater

  -1,500 to 2,100m water depth in Northern area

  - 2,600 to 3,000m water depth in Southern area
- Pre-drilling activities includes:

  - Seabed survey with Remote Operated Vehicle (ROV)

  - Positioning of well

  - Beacon placement

  - Dynamic positioning trials

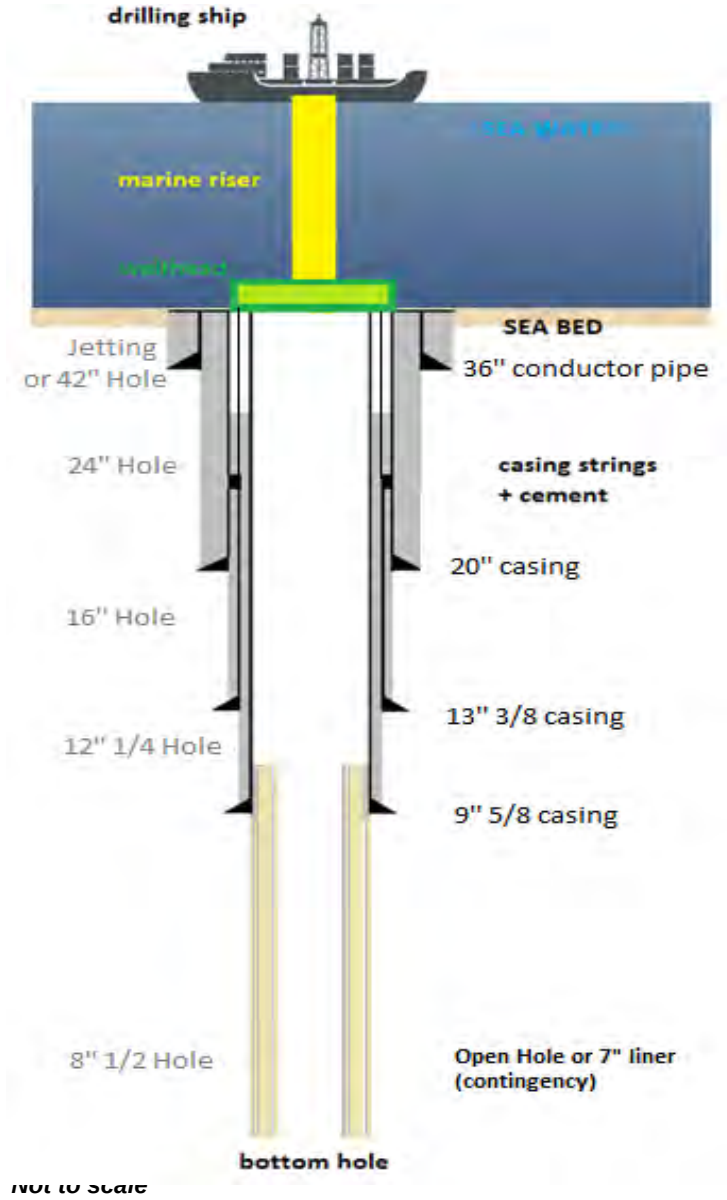
Source: Shutterstock

Drilling

- Different drilling bits sizes are used to drill a series of telescoping holes, from the seabed to the total depth of the planned well.
- Each hole is cased in a steel tube which is cemented in place to secure/seal the hole.
- A blowout preventer (BOP) will be present at wellhead during drilling to prevent an uncontrolled release of hydrocarbons to surface/seabed.
- The drilling activity proposed vertical well to a total depth of:

- Northern Area: ~ 3,800m to 4,100m below the sea surface

- Southern Area: ~ 5,100m below the sea surface



Well Evaluation & Testing

Well Logging

- Continuous monitoring and evaluation of drilling parameters, formation and cuttings with analysis carried throughout operations.

Well Completion and Testing

- Well completion and well testing operations will only be conducted on the appraisal well if hydrocarbons are found.
- No well testing will be conducted on the exploration well.

A BOP Source: Shutterstock

Well Plugging & Abandonment (Decommissioning) and Demobilization

- The well is plugged and sealed by setting cement plugs inside the wellbore.
- Plugs are tested for integrity to prevent leaks.
- The blowout preventer will be then retrieved to surface.
- The wellhead remains on the seabed.
- Final Remote Operated Vehicle survey will be performed at seabed.
- The drillship and support vessels leave the well location.
- Final ROV survey will be performed at seabed.

Source: Shutterstock

Logistics

Onshore Logistics Base

- The onshore logistics base will be located in Richards Bay or Durban, on an existing brownfield site (previously developed land) within the Port or the Industrial Development Zone (IDZ). It will include the following facilities:
- **Offshore Logistics**
- Movements of materials and drilling fluids (mud, industrial water, waste) by supply vessels; and
- Transport of personnel (around 200 people will work offshore) to the drillship will probably be by helicopter.

PART 2: EIA Process Summary

EIA Process

- Initial Notification, including
  - Adverts
  - Background Information Document
  - Site notices
- Comments gathered and included in Comments and Responses Report (CRR)

Purpose: To gather initial issues and concerns and input into Scoping Process

- Application form to PASA
- Draft Scoping Report prepared and released for 30 day public comment period
  - Email notifications and adverts
  - Public meetings
- Final Scoping Report to PASA (including CRR) for decision making

Purpose: Project information to stakeholders, identify potential impacts and prepare Plan of Study for EIA (including Terms of Reference for specialist studies)

- Specialist Studies
- Draft EIA Report prepared and released for 30 day comment period
  - Email notifications and adverts
  - Public meetings
- Final EIA Report to PASA (including CRR) for decision making

Purpose: Assess and rate significance of potential positive and negative impacts; ID mitigation measures to manage negative impacts and enhance benefits

Specialist Studies

Studies conducted to address potential impacts include:

- Marine fauna;
- Fisheries;
- Oil Spill modelling;
- Drill cuttings dispersion modelling; and
- Marine Heritage Baseline.

Source: ERM

Source: ERM