Appendix D Public Participation Documents

SLR

Appendix D.1:
Stakeholder Database

Organisation	Surname	First Name
Maritime Affairs	Shapua	Kalomo
South African Navy Hydrographic Office	Coetzer	Irene
South African Navy Hydrographic Office	Nelson	Malcolm
South African Navy Hydrographic Office	van Niekerk	
Luderitz Town Council	Abraham	Johannes
Luderitz Town Council	Beukes	
Luderitz Town Council	Fredericks	Brigitte
Luderitz Town Council	Kaangundue	
Luderitz Town Council	Mahalelo	Jonas
Luderitz Town Council	McKay	B
Luderitz Town Council	Mckay	Benjamin
Luderitz Town Council	Nakathingo	Wetupa
Luderitz Town Council	Ochs	
Luderitz Town Council	Shipanga	Otto
Luderitz Town Council, Samohi Nambuli	Shipepe	Thomas
Luderitz Town Council	Tjipura	Ignatius
Luderitz Town Council	Willem	Gumede
Luderitz Town Council		Helena
Lüderitz Town Council	Balhao	Philip
Lüderitz Town Council	Hango	Charlie
Lüderitz Town Council	Heita	Josephine
Lüderitz Town Council	Shipanga	Otto
Lüderitz Town Council	Shipepe	Thomas
Lüderitz Town Council (Acting CEO)	Shipanga	Otto
Lüderitz Town Council	!Gaoseb	Elwin
Lüderitz Town Council	Kazombungu	Silver
Lüderitz Town Council	Kaangundue	Christalin
Swakopmund Municipality	Engelbrecht	Paulina
Walvis Bay Town Council	Amatsi	Nangula Amutenya
Walvis Bay Town Council	Brummer	Andre
Walvis Bay Town Council	David	Uushona
Walvis Bay Town Council	Ephraim	Namabahu
Walvis Bay Town Council	Goseb	Gibson
Walvis Bay Town Council	Hailaula	Lovis
Walvis Bay Town Council	Martin	Penelope
Walvis Bay Town Council	Monica	Thomas
Walvis Bay Town Council	Muronga	Haingura
Walvis Bay Town Council	Wilfried	Immanuel
Ministry of Environment, Forestry and Tourism	Masule	Nicco
Ministry of Environment, Forestry and Tourism	Mbura	Hiskia
Ministry of Environment, Forestry and Tourism	Mufeti	Timoteus
Ministry of Environment, Forestry and Tourism	Angula	Saima
Ministry of Environment, Forestry and Tourism	Nchindo	Damian
Ministry of Fisheries and Marine Resources	Bartholomae	Chris
Ministry of Fisheries and Marine Resources	Block	Malcolm
Ministry of Fisheries and Marine Resources	Endjambi	Tobias
Ministry of Fisheries and Marine Resources	Grobler	Kolette
Ministry of Fisheries and Marine Resources	Haiphene	Anne
Ministry of Fisheries and Marine Resources	Hamukwaya	Ferdinand

Ministry of Fisheries and Marine Resources	Hanghome	Gustaf
Ministry of Fisheries and Marine Resources	Jagger	Charmaine
Ministry of Fisheries and Marine Resources	Kainge	Paulus
Ministry of Fisheries and Marine Resources	Kalola	Moses
Ministry of Fisheries and Marine Resources	Kreiner	Anja
Ministry of Fisheries and Marine Resources	Libuku	Victor Miti
Ministry of Fisheries and Marine Resources	Maurihungirire	Moses
Ministry of Fisheries and Marine Resources	N	Anna-Marie
Ministry of Fisheries and Marine Resources	Nambahu	Taimi
Ministry of Fisheries and Marine Resources	Nghimatya	Victor
Ministry of Fisheries and Marine Resources	Shikongo	Taimi
Ministry of Fisheries and Marine Resources	Shivute	Latoya
Ministry of Fisheries and Marine Resources	Tjizoo	Beau
Ministry of Fisheries and Marine Resources	Tjizoo	Beau
Ministry of Fisheries and Marine Resources	Victor	Libuku
Ministry of Labour	Shathirombo	Joannes
Ministry of Mines and Energy	Muvangua	Ewereth
Ministry of Mines and Energy	Nghoongoloka	Abner
Ministry of Mines and Energy	Sheehama	Andrea
Ministry of Mines and Energy	Shino	Maggy
Ministry of Works and Transport	Auene	Pinehas
Ministry of Works and Transport	Goeiemann	Willem
Ministry of Works and Transport	Günzel	Tobias
Ministry of Works and Transport	Kalomo	Shapua
Ministry of Works and Transport	Magnus	Abraham
Ministry of Works and Transport	Ngola	Candida
Ministry of Works and Transport	Silishebo	Patrick
NAMPORT	Gariseb	Stefanos
NAMPORT	Gelderbloem	Elzevir
NAMPORT	Henok	Winfried
NAMPORT	Ibwima	Richard
NAMPORT	January	Ronelle
NAMPORT	Kamupingene	Cecil
NAMPORT	Kooper	Max
NAMPORT	Kufuna	Lukas
Terminal Investment Limited	Mutwa	Widux Kachenje
NAMPORT	Nawaseb	Patrick
NAMPORT	Shilongo	Festus
NAMPORT	Shivoro	Justina
NAMPORT	Uirab	Bisey
NAMPORT	Visagie	Raymond
NAMPORT	Zavitaev	Alexey
National Petroleum Corporation of Namibia (NAMCOR)	Mulunga	Immanuel
National Petroleum Corporation of Namibia (NAMCOR)	Sibeya	Victoria
Erongo Regional Council	Engelbrecht	Paulina
Karas Regional Council	Ndjaleka	Suzan
Karas Regional Council	Scholtz	Jan
Abroma Fishing Industries		

Agatha Bay Fishing Company (Pty) Ltd Merlus Marine Helgoland Fishing (Pty) Ltd Oryx Fisheries	Correia	Diamantino
Amstai (Pty) Ltd	Manshinho	Tony
Arcticnam Fishing		
Ark Fishing Industries	Amadhila	Mateus
Atab Fisheries Consortium (Pty) Ltd	Mbili	I
Atlantic Pacific Fishing		
Bengualla Fishing Company, Seaworks	Sander	Jurgen
Benguela Wealth Farming CC	Erasmus	Rassie
Benguella Sea Products	Kotze	Kobie
Benguella Sea Products (Pty) Ltd	Stteenkamp	K
Cadilu Fishing & Overberg Fishing	Reyero	Jose-Luis
Cadilu Fishing (Pty) Ltd	Dreyer	Charl
Cato Fishing Company (Pty) Ltd		Sam
Cavema Fishing (Pty) Ltd	Shimooshili	Robert
Diaz Fishing (Pty) Ltd	Diaz	Gerardo
Diaz Fishing Company	Martin	P
Ehanga Fishing	Ehanga	E
Erongo Marine Enterprises	van der Merwe	Francois
Etale Fishing	Dreyer	Charl
Etosha Fishing Corp (Pty) Ltd	Esau	George
Etosha Fishing Corp (Pty) Ltd	Iileka	Lina-Marie
Etosha Fishing Corp (Pty) Ltd	Kapundja	Linekela
Fishing Company		
Five Roses		
Freddie Fish Processors	Greeff	Yvette
Freddie Fish Processors (Pty) Ltd	Greeff	Yvette
Freddie Fish Processors (Pty) Ltd	Hart	Wayne
Gendev Fishing Group	Sitzer	Wendy
Gendev Fishing Processors	Paulsmeier	Volker
Goncalo Murta Aquaculture / Mariculture	Murta	Goncalo
Grisham Assets Corp. Ltd.	Hangula	Jeremy
Grupo Pereira	Gutierrez	Ignacio
Hagana Seafood	Theron	Herman
Hangana Fishing	Viljoen	Michael
Hangana Fishing; Hangana Abalone	Calaca	Miguel
Hangana Seafood	Julies	Liticha
Hodago Fishing	Kaune	Harold
Hottentot Bay Investments CC	Labuschagne	Jan
Kelp Blue		
Lagoon Aquaculture		
Large Pelagics	Katti	Reinhold
Large Pelagics	Steyn	Riaan
Large Pelagics	Van Zyl	James
Luderitz Mariculture		
Marco Fishing	Mackenzie	Michael
Marco Fishing (Pty) Ltd	Burger	Hugo
Marco Fishing (Pty) Ltd	Louw	AJ
Martin's Den Fisheries		
Merlus Seafood Processors (Pty) Ltd	Kjelgaard	Tomas
Mukorob Fishing		

Namibian Hake Association / Ark Fishing Industries	Kobus	Ronald
Namibian Mariculture Association / Tetelestai Mariculture (Pty) Ltd	Blaauw	Koos
Namibian Marine Resources	Nambahu	Tommy
Namibian Pelagic Fishing Association / Etosha Fishing Corp (Pty) Ltd		
Namsof Fishing Enterprises		
Namsov Fishing Enterprises (Pty) Ltd	Hough	Gerrie
Namsov Fishing Enterprises (Pty) Ltd	Smidt	Herman
Namsov under Tunacor umbrella		Dawn
Nipponex CC	Ueda	Yasuhiro
Novam	Louw	Nicolene
Novam	Namukomba	Manu
Novam - Walvis Bay	Kamatoto	Edwin
Novanam	Negonga	Lusia
Novanam (PTY) Ltd / Skeleton Coast Trawling	Kaulinge	Patricia Susan
NovaNam Ltd	Canosa	Jose Ramon
NovaNam Ltd	Kuhran	Gerhard
NovaNam Ltd	Gomez	Martinez
Novaship	De Villiers	Ferdinand
Novaship	Porsser	Willie
Ocean Grown	Burgess	Jason
Omakete Investments	Shigwana	Omakete
Omaru Fishing	Kasper	Hermanus
Ompangona Fishing Company (Pty) Ltd	Sandro	O
Omualu Fishing Company	Kadhila	Sacky
Omuhuka Holdings	Kadhila	O
Ondjaba Fisheries cc	de Castro	Ricky
Ondjaba Fisheries cc	de Castro	Tony
Ondjaba Fisheries cc / South Rock Investments cc	Hlasek	Mariele
Oryx Fisheries (Pty) Ltd	de Castro	O
Pereira Fishing Co (Pty) Ltd	The Manager	
Salmon (Benguela Blue Aqua Farming (Pty) Ltd	Aldrian	Johannes
Seaflower Whitefish Corp	Damens	Sandra
Seaflower Whitefish Corp	Pretorius	J
Seaflower Whitefish Group	Gawanab	Alex
Seaworks Fish Processors (Pty) Ltd	Germishuys	P
Seaworks Fish Processors (Pty) Ltd	Le Roux	Pierre
Seaworks Fish Processors (Pty) Ltd	Pahl	Peter
South East Atlantic Fisheries Organisation	van Zyl	Ben
South East Atlantic Fisheries Organisation	Voges	Lizette
Southern Hake Namibia	Schroeder	Paul
Southern Namibia Hake Fishing Industries	Fchroeter	Paul
Southern Namibia Hake Fishing Industries (Pty) Ltd	Mathias	Brigitte
Taiyo Namibia (Pty) Ltd	Miyagawa	Naohisa
Trachurus Fisnhing		
Tunacor Fisheries Ltd	Marino	Antonio
Tunacor umbrella		Dawn
Twafika Fishing Enterprises		
United Fishing Enterprises		
Westhook Fish Processors	Hitomuntu	Wilimina
Westhook Fish Processors		

	Lobus	Ronald
	Van Rooyen	Reeva
Confederation of Namibian Fishing Association	Green	Noleen
Crab Association	Nishikawa	Yoshinobu
Crab Association	The Manager	
Crab Association / Taiyo Namibia (Pty) Ltd	Tikawa	Susumu
Large Pelagic and Hake Longlining Ass. of Namibia / Dave Russell Fisheries Consu	Russell	Dave
Large Pelagic and Hake Longlining Ass. of Namibia / Marco Fishing (Pty) Ltd	Laufer	Kurt
Large Pelagic Association	Kakoro	Antonio
Large Pelagic Association / Ondjaba Fisheries cc	de Castro	Ricky
Midwater Trawling Association & Carapau Fishing (Pty) Ltd	Carlson	Peter
Midwater Trawling Association (Horse Mackerel)	Neumbo	Sharon
Midwater Trawling Association of Namibia / Namsov Fishing Enterprises (Pty) Ltd	Mouton	Jerome
Namibia Hake Fishing Association	Martin	Sidney
Namibian Hake & Tuna Longline Association	Louw	Francois
Namibian Hake Association	Walters	Ron
Namibian Hake Association / Seawork Fish Processors	Pahl	Peter
Namibian Large Pelagic Association	Ambunda	Matthew
Namibian Large Pelagic Association / Marshall Reef Fishing	Coppin	Ronnie
Namibian Monk and Sole Association / Tunacor Fisheries Ltd	Hitula	Peya
Namibian Rock Lobster Fishing Association / Seaflower Group	Shanjengange	Rene Dean
Walvis Bay Pelagic Fishing Association	van Bergen	Denise
Tesla Energy Solutions	Awase	Elron
APOS	Kuzatjike	Christoph
C. Steinweg Logistics	Shipanga	Paulus
Cowan Petroleo e Gas	Santana	Guiherme
Harmattan / Chevron	Kurukulasuriya	Channa
Harmattan / Chevron	Maruca	Sheryl
Impact Africa Limited	Ilett	Steve
Impact Oil & Gas	Kaura	Kaura
Impact Oil & Gas	Webber	Heidi
Impact Oil and Gas Namibia (Pty)	Birch	Phillip
LSS/ILOG	Theron	OC
NAMOSA	Iwete	Philip
Pancontinental Namibia (Pty) Ltd	Kegge	Ger
Pancontinental Namibia (Pty) Ltd	Rushworth	Barry
Rhino Resources	Smithard	Travis
Rhino Resources	Pantanacce	Gilles
Shell	Rossato	Fabiola
Shell Namibia Upstream B.V.	Zekveld	Dennis
TotalEnergies	Nuujoma	Ruth
TotalEnergies	Roche	Laurent
TotalEnergies	Santoni	Cyril
TotalEnergies	Ufot	Saviour
Trago (Chevron Partner)	Hanugla	Jeremy
Trago (Chevron Partner)	Katti	Jeremy
Windhoek PEL28 B.V. & Galp Energia S.A.	Fonseca	Antonio
Windhoek PEL28 B.V. & Galp Energia S.A.	Lucena	Flavio
Seawork Fish Processors	Tors	Christian
Chamber of Commerce and Industry	Mwiya	Charity

Chamber of Commerce and Industry Lüderitz	Namukonda	Immanuel
Chamber of Commerce and Industry Walvis Bay	Doeseb	Johnny
Chamber of Mines of Namibia	Malango	Veston
Consult360	Hudson	Maumbo
Ileni Investments cc	Abraham	Ivan
Kaeso Energy Services	Cau	Xavier
Kaeso Oilfield Services	Mathy	Bombutsi
Kaeso Oilfield Services	Gisela	Sebastiao
LSS/ILOG	Theron	OC
Namdeb Diamond Corporation	Kisting	Dene
NamiSun	Petrick	Werner
Novaship Logistices	DeVilliers	Ferdie
Omake Investments	Muthoko	Thomas
Private	Kemper	Jessica
Protea	Shatona	Ndeshi
Rent-a-drum	Swart	Jaco
Right Equipped		Henner
Namune Resources (Pty) Ltd	Ledwaba	Lehlogonolo
Namune Resources (Pty) Ltd	Motshwadiba	Teboho
Windhoek Observer	Uunona	Rosa
African Penguin Conservation Project	Kemper	Jessica
Animal Demography Unit	Roux	JP
Benguela Current Commission	Gxaba	Thandiwe
Benguela Current Commission	Hutu	Zukile
Benguela Current Commission	Thomas	Monica
Earthlife Namibia	Kohrs	Bertchen
Environmental Justice Organisations, Liabilities and Trade	Temper	Leah
GIZ- MARISMA (Marine Spatial Management and Governance Project)	Brabey	Rod
GIZ- MARISMA (Marine Spatial Management and Governance Project)	Selma	Shitilifa
Legal Aid Centre	van Wyk	Corinna
Legal Assistance Centre	Mahnke	Hans-Christian
Marvin Environmental Project Consultants	Sanzila	Marvin
Namibia Chamber of Environment	Brown	Chris
Namibia Chamber of Environment	Krohne	Henriette
Namibia Dolphin Project (Walvis Bay)	Gelletich	Jelly
Namibia Nature Foundation	Middleton	Angus
Namibia Nature Foundation	Muukua	Veripura
Namibian Dolphin Project & University of Pretoria	Elwen	Simon
Namibian Dolphin Project & University of Pretoria	Gridley	Tess
Namibian Environment & Wildlife Society	Botha	Hilda-Marie
Namibian Environment & Wildlife Society	Mangundu	Reinhold
NamiSun	Petrick	Werner
National Commission on Research and Technology	Van Der Westhuizen	Maxii
Omake Investments	Muthoko	Thomas
USAID	Homer	McDonald
We Care Youth	Hofeni	Theofelus
Environmental Justice Organisations, Liabilities and Trade	Temper	Leah
USAID	Homer	McDonald
Harmattan Energy Limited (subsidiary of Chevron Namibia Exploration Ltd)	Kurukulasuriya	Channa
Harmattan Energy Limited (subsidiary of Chevron Namibia Exploration Ltd)	McLeod	Carlo

Toivo Junior Investments	Gabriel	Toivo
Private individual	Henok	Winfred
Private individual	Kambogho	Maketo
Private	Fleidl	Elizabeth
Private	Tibinyane	Valencia
Private	Fomba	Sam
Private	Mushimba	Miles
Akulyanga Traading CC (Catering Services)		
Chandling	Manns	Bernice
Karas Regional Council	Apollus	Ferdinand
Kharas Region	Cloete	Reginald
Kharas Region	Herero	Paul H S
Kharas Region	Kadhikwa	Michaeleno
Laser Engineering	Dankie	Emily
Legal Assistance Centre	Mahnke	Hans-Christian
Intergrated Logistics Services	Clark	Ralph
Logistic Support Services	Jacksch	Stefan
NAMOSA	Iwete	Phillippus
NAOGSP	Pesat	Carl
Nekkou	Muller	Diederick
NNF	Braby	Rod
Office of the President	Von Steede	Ria
OMITC Namibia	Kashihalwa	Waleska
Private	Christians	Robyn
Private	Diab	Anthony
Private	Fleidl	Estelle
Private	Gabriel	Tolvo V.
Oxpeckers Org	Grobler	John
Private	Heimstädt	Erich
Private	Heimstailt	Erich
Private	Henok	Ngeendina
Private	Ipinge	Knowledge
Intergrity Inspection Services	Kandeb	Dean
Private	Kazombungo	Silver Godhard
Private	Kepawa	Ruth
Private	Manns	Jochen
Private	Mateus	Michael
Private	Murda	Dinelago
Private	Mutschler	Margaret
Private	Nathanael	Jorginho
Private	Provendier	Thierry
Private	Radford	Monique
Private	Rodenwoldt	Henner
Private	Shefeni	Suzie
Private	Theron	Ockert
Private	Waleska	Ndahafa
Private		Knowledge
Rent-A-Drum	Louw	Clarinda
Rent-A-Drum	Louw	Eduan
Right Equipped	Rodenndolf	Henner

NAOGSP	Ipango	Knowledge
Spill Tech	Louw	Rohan
WCY Empowerment	Holeni	Theordus
Private	Hipopilwa	Joseph L
Namibia Media Holdings	Graig	Augetto
SLR Consulting	Blood	Jeremy
BW Kudu	Yambwa	Emelly
BW Kudu	Wagner	Irene
BW Kudu	Muundjua	Manfriedt
Private	Kennedy	Richard
NAOGSP	Mukapuli	Asser
SLR Consulting	Bucking	Claudia
Private	Namoto	Andries
TotalEnergies	Fita	Afonso
SELA		I.N
Private	Shihepo	Natangire
Private	Prim	Beatrice
Private	Nangombe	Pendafule
Private	Shileka	Joseph
Private	Coetzee	Brian
BW Kudu	Endresen	Klaus
BW Kudu	Appiah-Endresen	Isobel
Private	K	Christoph
WCY Empowerment	Hofeni	Theoledius
Intergrity Inspection Services	Kauitse	Petrus
Nekkov Logistics	Glöditzsch	Katja
Brentex Petroleum Services	Ngaujake	Moipi
GAC Investment	Isaacs	Wanya
GAC Investment	Heynes	Johnathan
NAOGSP	Pesat	Carl
Kaeso oilfield service	Mupewa	Bernard
Kaeso	Kotze	Brandon
TotalEnergies	Shinedima	Fanuel
Benguela Infinite Fisheries; Band Harvesting Association	Brandt	Anria
LL Namibia Phosphates / Samicor	Hückstedt	Hans
Private	Ryan	Mark

Appendix D.2:
I&AP Notification Letters and Emails

SLR Environmental Consulting (Namibia) (Proprietary) Limited

February 10, 2025

SLR Project No.: 733.023088.0000

RE: Environmental and Social Impact Assessment (ESIA) for Proposed Appraisal Well Drilling in Block 2814A (PPL 003), Orange Basin, Off Southern Namibia:

Notification of Availability of Draft Environmental and Social Impact Assessment Report for review and comment and Invitation to Public Meetings

Dear Sir/Madam,

Our correspondence of 18 September 2024 regarding the Draft Scoping Report comment period refers. This letter provides information on the availability for comment of the Draft Environmental and Social Impact Assessment (ESIA) Report and invites all stakeholders to attend public meetings.

1.0 Background

BW Kudu Limited (BW Kudu) is the holder of a Petroleum Production Licence (PPL) 003 for Block 2814A located off the southern coast of Namibia. The Block covers an area of approximately 4 568 km^2 and is located 85 km offshore at its closest point, in water depths ranging from 150 m to 750 m.

BW Kudu proposes to drill up to four appraisal wells within the Block to confirm and test the presence and quality of hydrocarbon resources. Related appraisal activities include seabed sampling, Vertical Seismic Profiling, well testing and well plugging, and well abandonment or suspension.

Before the proposed appraisal activities can commence, BW Kudu requires an Environmental Clearance Certificate (ECC) from the Ministry of Environment, Forestry and Tourism (MEFT). As part of this process, an Environmental and Social Impact Assessment (ESIA) must be undertaken and SLR Environmental Consulting (Namibia) (Pty) Ltd (SLR) has been appointed to undertake and manage the ESIA process.

The Final Scoping Report (FSR) was accepted by the MEFT on 05 February 2025, which confirmed that the FSR complied with the minimum requirements of Section 8 of the EIA Regulations 2012 and that SLR may proceed with the ESIA in accordance with the terms of reference presented in the FSR.

This ESIA process is now in the Impact Assessment Phase, which aims to:

- Identify, assess and report on potential impacts the proposed project may have on the receiving environment;
- Define suitable mitigation measures to avoid and / or reduce significant negative environmental and social impacts, and enhance benefits, where possible; and
- Provide an opportunity for stakeholders to comment on the findings of the ESIA process and inform MEFT decision-making.

2.0 Availability of Draft ESIA Report for Review and Comment

SLR has compiled a Draft ESIA Report, which is available for a 30-day review and comment period from **12 February to 14 March 2025**. The Draft ESIA Report is available for download from the SLR website (**https://www.slrconsulting.com/public-documents/BWKudu-ESIA**) and in hardcopy at the **Walvis Bay Public Library** (Nangolo Mbumba Drive, Civic Centre) and **Lüderitz Public Library** (Ring Street) from 12 February 2025.

3.0 Invitation to register on Project Database and provide Comment

To register as an interested and/or affected party and to provide comment on the Draft ESIA Report, please complete the **Registration / Comment Form** by scanning the QR Code or following this link to the online form (https://forms.office.com/e/Fe8nP3nL9y) or emailing SLR.

For comments to be included, and responded to, in the Final ESIA Report, they should reach SLR by **no later than 14 March 2025** using the contact details below.

SLR Environmental Consulting (Namibia) (Pty) Ltd
Attention: Robyn Christians
Postal Address: 8 General Murtala Muhammed Ave, Eros Windhoek
E-mail: bwkuduPPL003@slrconsulting.com **Tel:** 061 231 287
Registration / Comment Form: https://forms.office.com/e/Fe8nP3nL9y
SLR Website: https://www.slrconsulting.com/public-documents/BWKudu-ESIA

4.0 Invitation to attend Public Meetings

We cordially invite all stakeholders to attend the public meetings in Lüderitz and Walvis Bay (details in the table below). The objectives of these public meetings are to provide an overview of the project proposal and findings of the ESIA process, as well as provide stakeholders a further opportunity to comment.

Location	Name of Venue	Date and Time
Luderitz	The Nest Hotel	18 February 2025, 10h00
Walvis Bay	The Protea Indongo Hotel	19 February 2025, 11h00

Should you have any queries in this regard please do not hesitate to contact the undersigned.

Regards,

SLR Environmental Consulting (Namibia) (Proprietary) Limited

Robyn Christians
Senior Environmental Consultant

Jeremy Blood
Principal Environmental Consultant

Note: SLR is committed to the protection of any personal information submitted as part of this public participation process.

BW KUDU LIMITED

Environmental and Social Impact Assessment for Proposed Appraisal Well Drilling in Block 2814A (PPL 003), Orange Basin, Off Southern Namibia

REGISTRATION & COMMENT FORM

12 February 2025

Date			
Name			
Organisation/Company			
Postal Address			
		Postal Code	
Telephone Number			
E-Mail Address			

Please register me as an interested & affected party (I&AP) so that I may receive further information and notifications during the environmental authorisation process	YES ☐	NO ☐

How would you like to receive your notifications?

E-mail:		**SMS:**		**Post:**	

Please write your comments and questions here (please use separate sheets if you require)

.....

.....

.....

.....

.....

Note: You can also comment using the online Registration & Comment Form by scanning the QR Code or following this link (https://forms.office.com/e/Fe8nP3nL9y).

Please include the following of my colleagues/friends/neighbours as I&APs for this project:

Please return completed forms to:

SLR contact:	Robyn Christians	**Tel:**	061-231287	**Email:**	BWKuduPPL003@slrconsulting.com

By providing your personal information for this ESIA you consent to SLR registering you on the Project I&AP database. It is assumed that as an I&AP for this ESIA you authorise SLR to retain and use your Personal Information as part of a contact database for this and/or other ESIAs and that you confirm your acceptance for SLR to contact you regarding this and/or other ESIA processes. SLR will not process your Personal Information, other than as permitted or required by ESIA processes, or as required by law or public policy. SLR will use reasonable, appropriate security safeguards in order to protect Personal Information, and to reasonably prevent any damage to, loss of, or unauthorised access or disclosure of Personal Information, other than as required for ESIA processes or as required by any Law or public policy. You may request for your Personal Information to be deleted from the I&AP database at any time by contacting SLR.

10 Februarie 2025

SLR-projeknommer: 733.023088.0000

INSAKE: Omgewings- en Maatskaplike Impakbepaling (OMIB) vir Voorgestelde Evalueringsboorwerk in Blok 2814A (PPL 003), Oranjekom langs suidelike Namibië:

Kennisgewing van beskikbaarheid van die Konsep-Omgewing- en Maatskaplike Impakbepalingsverslag vir oorsig en kommentaar, en uitnodiging na openbare vergaderings

Geagte meneer/mevrou/mejuffrou

Ons korrespondensie van 18 September 2024 ten opsigte van die kommentaartydperk vir die Konsep-Omvangbepalingsverslag het betrekking. Hierdie skrywe verskaf inligting oor die beskikbaarheid van die Konsep-Omgewing- en Maatskaplike Impakbepalingsverslag (OMIB) vir kommentaar, en nooi alle belanghebbendes uit om openbare vergaderings by te woon.

1.0 Agtergrond

BW Kudu Limited (BW Kudu) is die houer van ’n Petroleumproduksielisensie (PPL 003) vir Blok 2814A wat langs die suidkus van Namibië geleë is. Die Blok dek ’n gebied van ongeveer 4 568 km^2 en is 85 km van die kus op sy naaste punt in waterdieptes wat wissel van 150 m tot 750 m geleë.

BW Kudu stel voor om tot vier evalueringsboorgate binne die Blok te sink om die teenwoordigheid en gehalte van koolwaterstofbronne te bevestig en te toets. Verwante evalueringsaktiwiteite sluit monsterneming van die seebodem, vertikale seismiese profilering, boorgattoetsing, en die opvulling en prysgewing of opskorting van boorgate in.

Voordat die voorgestelde evalueringsaktiwiteite kan begin, benodig BW Kudu ’n Omgewingsklaringsertifikaat (ECC) vanaf die Ministerie van die Omgewing, Bosbou en Toerisme (MEFT). As deel van hierdie proses moet ’n Omgewings- en Maatskaplike Impakbepaling (OMIB) onderneem word en SLR Environmental Consulting (Namibia) (Pty) Ltd (SLR) is aangestel om die OMIB-proses te onderneem en te bestuur.

Die Finale Omvangbepalingsverslag (FOV) is op 05 Februarie 2025 deur die MEFT aanvaar en het bevestig dat die FOV voldoen aan die minimum vereistes van artikel 8 van die OIB-regulasies 2012 en dat SLR mag voortgaan met die OMIB ingevolge die verwysingsraamwerk wat in die FOV voorgelê is.

Hierdie OMIB-proses is nou in die Impakbepalingsfase wat ten doel het om:

- Potensiële impakte van die voorgestelde projek op die ontvangende omgewing te identifiseer, te evalueer en daaroor verslag te doen;
- Geskikte versagtende maatreëls te bepaal om beduidende negatiewe omgewings- en maatskaplike impakte te vermy en/of verminder, en om voordele te versterk, waar moontlik; en
- ’n Geleentheid aan belanghebbendes te bied om kommentaar te lewer op die bevindings van die OMIB-proses en om MEFT-besluitneming in te lig.

2.0 Beskikbaarheid van die Konsep-OMIB-verslag vir oorsig en kommentaar

SLR het ’n Konsep-OMIB-verslag saamgestel wat van **12 Februarie tot 14 Maart 2025** vir ’n 30-dae-tydperk vir oorsig en kommentaar beskikbaar gestel word. Die Konsep-OMIB-verslag is beskikbaar om afgelaai te word vanaf die SLR-webwerf (**https://www.slrconsulting.com/public-documents/BWKudu-ESIA**) en in ’n gedrukte weergawe by die **Walvisbaai Openbare Biblioteek** (Nangolo Mbumba-rylaan, Burgersentrum) en **Lüderitz Openbare Biblioteek** (Ringstraat) vanaf 12 Februarie 2025.

3.0 Uitnodiging om op projekdatabasis te registreer en kommentaar te lewer

Om as ’n belangstellende en/of geaffekteerde party te registreer en kommentaar oor die Konsep-OMIB-verslag te lewer, voltooi asseblief die **Registrasie-/Kommentaarvorm** deur die QR-kode te skandeer, deur hierdie skakel na die aanlyn vorm te volg (https://forms.office.com/e/Fe8nP3nL9y) of deur ’n e-pos na SLR toe te stuur.

Ten einde kommentaar by die Finale OMIB-verslag in te sluit en antwoorde daarop te verskaf, moet dit teen **nie later nie as 14 Maart 2025** deur SLR by die kontakbesonderhede hier onder ontvang word.

SLR Environmental Consulting (Namibië) (Edms) Bpk
Aandag: Robyn Christians
Posadres: General Murtala Muhammed-laan 8, Eros, Windhoek
E-pos: bwkuduPPL003@slrconsulting.com **Tel:** 061 231 287
Registrasie-/Kommentaarvorm: https://forms.office.com/e/Fe8nP3nL9y
SLR-webwerf: https://www.slrconsulting.com/public-documents/BWKudu-ESIA

4.0 Uitnodiging om openbare vergaderings by te woon

Ons nooi alle belanghebbendes hartlik uit om die openbare vergaderings in Lüderitz en Walvisbaai by te woon (besonderhede in die tabel hier onder). Die doelwitte van hierdie openbare vergaderings is om ’n oorsig van die projekvoorstel en bevindings van die OMIB-proses te verskaf, asook om belanghebbendes ’n verdere geleentheid te gee om kommentaar te lewer.

Ligging	Naam van plek	Datum en tyd
Lüderitz	The Nest Hotel	18 Februarie 2025, 10h00
Walvisbaai	The Protea Indongo Hotel	19 Februarie 2025, 11h00

Indien u navrae in hierdie verband het, is u welkom om die ondergetekende te kontak.

Groete

SLR Environmental Consulting (Namibia) (Proprietary) Limited

Robyn Christians
Senior Omgewingskonsultant

Jeremy Blood
Mede-Omgewingskonsultant

Nota: SLR is verbind tot die beskerming van enige persoonlike inligting wat as deel van hierdie openbaredeelnameproses

BW KUDU LIMITED

Omgewings- en Maatskaplike Impakbepaling (OMIB) vir Voorgestelde Evalueringsboorwerk in Blok 2814A (PPL 003), Oranjekom langs suidelike Namibië

REGISTRASIE- EN KOMMENTAARVORM

12 Februarie 2025

Datum			
Naam			
Organisasie/maatskappy			
Posadres			
		Poskode	
Telefoonnommer			
E-posadres			

Registreer my asseblief as 'n belangstellende en geaffekteerde party (B&GP) sodat ek gedurende die proses van Omgewingsmagtiging verdere inligting en kennisgewings kan ontvang	JA ☐	NEE ☐

Hoe sou u graag u kennisgewings wou ontvang?

E-pos:		**SMS:**		**Pos:**	

Skryf asseblief u kommentaar en vrae hier neer (gebruik aparte velle as u dit nodig het)

.....

.....

.....

.....

.....

Nota: U kan ook kommentaar lewer deur die aanlyn Registrasie- en Kommentaarvorm te gebruik. Skandeer die QR-kode of volg hierdie skakel: (https://forms.office.com/e/Fe8nP3nL9y).

Sluit asseblief die volgende kollegas/vriende/bure van my as B&GP'e vir hierdie projek in:

Stuur asseblief die voltooide vorm terug na:

SLR-kontak:	Robyn Christians	**Telefoon:**	061-231287	**E-pos:**	BWKuduPPL003@slrconsulting.com

Deur u persoonlike inligting vir hierdie OMIB te verskaf, stem u daartoe in dat SLR u op die projekdatabasis vir B&GP'e registreer. Dit word aanvaar dat u, as 'n B&GP vir hierdie OMIB, magtiging aan SLR toestaan om u persoonlike inligting te behou en gebruik as deel van 'n kontakdatabasis vir hierdie en/of ander OMIB's, en dat u bevestig dat u instem dat SLR u oor hierdie en/of ander OMIB-prosesse mag kontak. SLR sal nie u persoonlike inligting prosesseer nie, behalwe soos toegelaat of vereis deur OMIB-prosesse of soos deur die wet of openbare beleid bepaal. SLR sal redelike, toepaslike sekuriteitsmaatreëls toepas om persoonlike inligting te beskerm, en om redelikerwys enige skade aan, verlies van of ongemagtigde toegang tot of bekendmaking van persoonlike inligting te voorkom, behalwe soos vereis vir OMIB-prosesse of soos deur enige wet of openbare beleid bepaal. U mag enige tyd met SLR in verbinding tree en versoek dat u persoonlike inligting uit die B&GP-databasis verwyder word.

Piet Moima

From: BWKuduPPL003
Sent: Monday, 10 February 2025 13:25
Subject: Invitation to review the Draft ESIA Report and attend public meeting for BW Kudu's Proposed Appraisal Well drilling in Block 2814A (PPL 003), Orange Basin, offshore Southern Namibia
Attachments: 05022025_BW Kudu IAP DESIA Notification letter_ENG_Rev1.pdf; 05022025_BW Kudu IAP DESIA Notification letter_AFR_Rev1.pdf; BW Kudu DEIR Exec Summary.pdf

Bcc: [redacted]

Bcc: [redacted]

Dear Sir/Madam,

Interested and Affected Parties (I&APs) are invited to review the Draft Environmental and Social Impact Assessment Report at Walvis Bay and Lüderitz Public Libraries from 10 February 2025 to 12 March 2025. You are also invited to attend public meetings in Lüderitz, The Nest Hotel on 18 February 2025 and Walvis Bay, Indongo Protea Hotel on 19 February 2025. More details are provided in the attached Notification Letter and Executive Summary. Please submit your comments to SLR no later than 12th March 2024.

The Draft ESIA Report can be accessed on the SLR website using the following link:
https://www.slrconsulting.com/public-documents/BWKudu-ESIA

Thank you for your participation in this process.

Kind regards

BW Kudu Stakeholder Engagement Team

Piet Moima

From: BWKuduPPL003
Sent: Monday, 10 February 2025 15:18
Subject: Invitation to review the Draft ESIA Report and attend public meeting for BW Kudu's Proposed Appraisal Well drilling in Block 2814A (PPL 003), Orange Basin, offshore Southern Namibia
Attachments: 05022025_BW Kudu IAP DESIA Notification letter_ENG_Rev1.pdf; 05022025_BW Kudu IAP DESIA Notification letter_AFR_Rev1.pdf; BW Kudu DEIR Exec Summary.pdf

Bcc: [redacted]

Bcc: [redacted]

Dear Sir/Madam,

Interested and Affected Parties (I&APs) are invited to review the Draft Environmental and Social Impact Assessment Report at Walvis Bay and Lüderitz Public Libraries from 10 February 2025 to 12 March 2025. You are also invited to attend public meetings in Lüderitz, The Nest Hotel on 18 February 2025 and Walvis Bay, Indongo Protea Hotel on 19 February 2025. More details are provided in the attached Notification Letter and Executive Summary. Please submit your comments to SLR no later than 12th March 2024.

The Draft ESIA Report can be accessed on the SLR website using the following link:
https://www.slrconsulting.com/public-documents/BWKudu-ESIA

Thank you for your participation in this process.

Kind regards

BW Kudu Stakeholder Engagement Team

Piet Moima

From: BWKuduPPL003
Sent: Thursday, 06 March 2025 11:09
Subject: RE: Invitation to review the Draft ESIA Report and attend public meeting for BW Kudu's Proposed Appraisal Well drilling in Block 2814A (PPL 003), Orange Basin, offshore Southern Namibia
Attachments: 05022025_BW Kudu IAP DESIA Notification letter_ENG_Rev1.pdf; 05022025_BW Kudu IAP DESIA Notification letter_AFR_Rev1.pdf; BW Kudu DEIR Exec Summary.pdf

Bcc: [redacted]

Bcc: [redacted]

Dear Sir / Madam,

Further to our email below, this is just a reminder that the Draft Environmental and Social Impact Assessment Report compiled for the above-mentioned project is out for review and comment from **12 February 2025 to 14 March 2025.**

The Draft ESIA Report can be accessed on the SLR website using the following link:
https://www.slrconsulting.com/public-documents/BWKudu-ESIA

Please submit your comments to SLR no later than **14 March 2024**.

Kind regards

BW Kudu Stakeholder Engagement Team

From: BWKuduPPL003
Sent: Monday, 10 February 2025 15:18
Subject: Invitation to review the Draft ESIA Report and attend public meeting for BW Kudu's Proposed Appraisal Well drilling in Block 2814A (PPL 003), Orange Basin, offshore Southern Namibia

Dear Sir/Madam,

Interested and Affected Parties (I&APs) are invited to review the Draft Environmental and Social Impact Assessment Report at Walvis Bay and Lüderitz Public Libraries from 10 February 2025 to 12 March 2025. You are also invited to attend public meetings in Lüderitz, The Nest Hotel on 18 February 2025 and Walvis Bay, Indongo Protea Hotel on 19 February 2025. More details are provided in the attached Notification Letter and Executive Summary. Please submit your comments to SLR no later than 12th March 2024.

The Draft ESIA Report can be accessed on the SLR website using the following link:
https://www.slrconsulting.com/public-documents/BWKudu-ESIA

Piet Moima

From: BWKuduPPL003
Sent: Thursday, 06 March 2025 12:16
Subject: RE: Invitation to review the Draft ESIA Report and attend public meeting for BW Kudu's Proposed Appraisal Well drilling in Block 2814A (PPL 003), Orange Basin, offshore Southern Namibia
Attachments: 05022025_BW Kudu IAP DESIA Notification letter_ENG_Rev1.pdf; 05022025_BW Kudu IAP DESIA Notification letter_AFR_Rev1.pdf; BW Kudu DEIR Exec Summary.pdf

Bcc: [redacted]

Bcc: [redacted]

Dear Sir / Madam,

Further to our email below, this is just a reminder that the Draft Environmental and Social Impact Assessment Report compiled for the above-mentioned project is out for review and comment from **12 February 2025 to 14 March 2025.**

The Draft ESIA Report can be accessed on the SLR website using the following link:
https://www.slrconsulting.com/public-documents/BWKudu-ESIA

Please submit your comments to SLR no later than **14 March 2024**.

Kind regards

BW Kudu Stakeholder Engagement Team

From: BWKuduPPL003
Sent: Monday, 10 February 2025 15:18
Subject: Invitation to review the Draft ESIA Report and attend public meeting for BW Kudu's Proposed Appraisal Well drilling in Block 2814A (PPL 003), Orange Basin, offshore Southern Namibia

Dear Sir/Madam,

Interested and Affected Parties (I&APs) are invited to review the Draft Environmental and Social Impact Assessment Report at Walvis Bay and Lüderitz Public Libraries from 10 February 2025 to 12 March 2025. You are also invited to attend public meetings in Lüderitz, The Nest Hotel on 18 February 2025 and Walvis Bay, Indongo Protea Hotel on 19 February 2025. More details are provided in the attached Notification Letter and Executive Summary. Please submit your comments to SLR no later than 12th March 2024.

The Draft ESIA Report can be accessed on the SLR website using the following link:
https://www.slrconsulting.com/public-documents/BWKudu-ESIA

BW Kudu Block 2814A_Draft ESIA Report and Invitation to Public Meeting_SMS Notification_English

Phonenumber	Network	Status	ScheduledDate	SubmittedDate	StatusDate	SentData	Group Name	Group Description
[redacted]	Vodacom	UNDELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 5:02:13 pm	Dear I&AP, BW Kudu is proposing to conduct appraisal well drilling in Block 2814A in the Orange Basin, offshore southern Namibia. I&APs are invited to attend public meetings and submit comments on the Draft ESIA Report. The report and Non-technical summary can be accessed using the following link: https://www.slrconsulting.com/public-documents/BWKudu-ESIA	BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	TN Mobile / switch	UNDELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:11 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:13 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
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[redacted]	MTC	DELIVRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
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[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:16 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
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[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 5:01:32 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
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[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:15 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:15 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:20 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:15 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:16 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:20:05 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:16 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:16 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:16 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:16 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:20 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:19 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:19 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 5:01:35 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:19 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:20 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 7:18:11 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:32:51 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 5:01:36 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:21 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:19 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:19 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:19 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:28 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 5:01:36 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 5:01:38 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:24 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:20 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 5:01:37 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:19 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:20:18 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 5:01:38 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:19 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:19 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:34 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:21 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:21 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:21 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:19 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:29 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:21 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:21 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:19 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	TN Mobile / switch	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:12 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	TN Mobile / switch	EXPI RED	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 8:51:38 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	TN Mobile / switch	DELI VRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:15 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	TN Mobile / switch	UND ELIV	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:13 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

[redacted]	TN Mobile / switch	EXPIRED	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 8:51:38 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	TN Mobile / switch	DELIVRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:15 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	O2 (UK) Limited	DELIVRD	2/10/2025 3:18:00 pm	2/10/2025 3:18:11 pm	2/10/2025 3:18:13 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

BW Kudu Block 2814A_Draft ESIA Report and Invitation to Public Meeting_SMS Notification_Afrikaans

Phonenumber	Network	Status	ScheduledDate	SubmittedDate	StatusDate	SentData	Group Name	Group Description
[redacted]	Vodacom	UNDELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 5:00:21 pm	Geagte Belanghebbende, BW Kudu stel voor om voorgestelde evalueringsboorwerk in Blok 2814A, Oranjekom langs suidelike Namibi. Ons nooi alle belanghebbendes uit om die openbare vergaderings by te woon en komentaar oor die Konsep-OMIB-versalg te lewer. Die Konsep-OMIB-verslag is beskikbaar om afgelaai te word vanaf die gevolg: (https://www.slrconsulting.com/public-documents/BWKudu-ESIA)	BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	TN Mobile / switch	UNDELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:19:58 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:19:59 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:19:59 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:19:59 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:04 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:01 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:01 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:00 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:01 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:19:59 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:00 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:01 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:19:59 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

[redacted]	MTC	UND ELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:00 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:00 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:19:59 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:00 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:19:59 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:10 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:02 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:00 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:01 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:00 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:01 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:00 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:02 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:02 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:01 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:00 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:01 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:01 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:00 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
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[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:01 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UNDELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 7:19:57 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:02 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELIVRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:02 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UNDELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:02 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
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[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:17 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:05 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
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[redacted]	MTC	UND ELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 7:19:57 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:05 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:53:58 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 7:19:57 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:57 pm	2/10/2025 3:20:06 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
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[redacted]	MTC	UND ELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 7:19:58 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:20:11 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:20:06 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 7:19:58 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:20:05 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:56:48 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

[redacted]	MTC	UND ELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 7:19:58 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
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[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:20:09 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:20:07 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
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[redacted]	MTC	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:20:07 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	MTC	UND ELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:20:05 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	TN Mobile / switch	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:19:59 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	TN Mobile / switch	UND ELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 7:19:57 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	TN Mobile / switch	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:20:02 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	TN Mobile / switch	UND ELIV	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:20:01 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

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[redacted]	TN Mobile / switch	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:20:03 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting
[redacted]	O2 (UK) Limited	DELI VRD	2/10/2025 3:20:00 pm	2/10/2025 3:19:58 pm	2/10/2025 3:20:00 pm		BW Kudu Block 2814A	Draft ESIA Report and Invitation to Public Meeting

Appendix D.3:

Presentation and Minutes of Public Meetings

SLRCONSULTING.COM

Proposed Appraisal Well Drilling in Block 2814A (PPL 003), Namibia

ESIA Public Meetings

February 2025

SLR

1

Agenda

1. Welcome and Introductions
2. Meeting Objectives
3. Project Description
   - Applicant
   - Location
   - Oil and Gas lifecycle
   - Appraisal activities
4. ESIA Overview
   - Assessment methodology
   - Specialist studies
5. Key Potential Impacts
   - Socio-Economic
   - Fisheries
   - Marine Ecology
   - Unplanned Events
6. Way forward
7. Discussion and Questions

2

Welcome, Introductions and Meeting Administration

3

Introductions

- BW Kudu
  - Manfriedt Muundjua
  - Emelly Yambwa
  - Irene Hella Wagner
- SLR Environmental Consulting (Namibia)
  - Jeremy Blood
  - Robyn Christians

BW ENERGY

SLR

4

Safety Moment – way in / way out

DID YOU KNOW

THE BEST WAY IN IS NOT ALWAYS .....

THE BEST WAY OUT

- Sometimes safety is about quickly getting away from an unsafe situation. That's why it pays to know your exits.
- Chances are you're aware of the exits from your home or your workplace. But what about the stores where you shop, the public buildings you enter, the venues you take your family to, or the hotels where you stay?
- **Get in the habit of always locating the emergency exit wherever you are. If you know exactly where to go, you'll get there a lot quicker.**

5

Meeting Objectives

- **Share information** on:
  - Proposed project & ESIA process
  - Findings of the ESIA and specialist studies
  - Mitigation measures to avoid, reduce and/or manage potential impacts
  - The next steps in the ESIA process
- For **I&APs** to:
  - Ask questions
  - Raise issues or concerns about the ESIA findings and proposed mitigation measures
  - Comment on the Draft ESIA Report

Your questions and comments will be minuted and included in the Final ESIA Report.

6

Meeting Protocols

- Sign attendance register
- Meeting is being minuted
- If you have a question, please raise your hand and introduce yourself
- Give everyone a fair chance to ask questions / comment
- Please turn your cell phones on silent
- Photos may be taken by SLR

Constructive Discussion Guidelines

Public participation is **not** a voting or consensus-driven process.

It aims to collect input to enable the decision-maker to consider all issues and impacts.

Please can all participants remember to:

1. Be **respectful**
2. **Agree to disagree**
3. Give everyone a **fair chance** to ask questions

7

Project Overview

What is this project about?

8

Project Background

- BW Energy entered into a farm-in agreement with NAMCOR in 2017, concluding in 2021 with a total 95% interest in PPL 003 and the establishment of BW Kudu
- BW Kudu has undertaken the following activities under PPL 003:
  - 3D seismic survey acquired in 2023
  - Completed Pre-FEED / Concept Study Work and produced the "Kudu Development Facilities Conceptual Studies Report"
  - Completed a high-level Environmental and Social Screening study in respect of the proposed Kudu Gas to Power Project
- BW Kudu is now applying to undertake appraisal activities within Block 2814A:
  - Seabed sampling
  - Appraisal drilling

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Location of Block 2814A

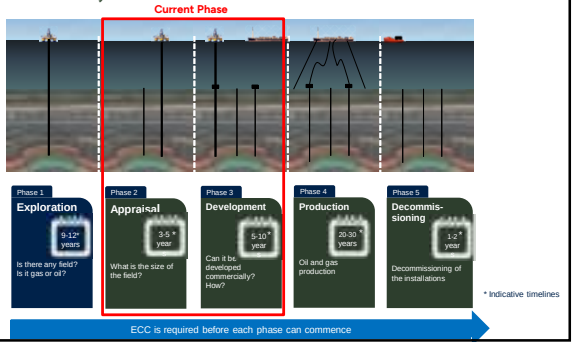
Distance from the coast:
- 144 km WSW of Oranjemund
- 150 km SSW of Lüderitz
- 85 km to nearest coastline

Block area: 4 568 km²

Depth range: 150 m – 750 m

10

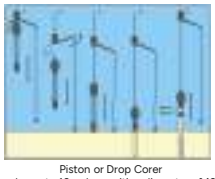
Oil & Gas Life Cycle



11

Seabed Sampling

- Purpose: To characterise seafloor and geochemical analysis for anchoring purposes
- Method: Piston and box coring (or grab samples)
- Number of samples: up to 50
- Survey duration: 6 weeks



Piston or Drop Corer
(Sample: up to 10 m long with a diameter of 10 cm)

Box Corer
(Sample: 50 cm x 50 cm)

12

Appraisal Drilling

- **Purpose:** To confirm and test the presence and quality of hydrocarbon resources
- **No. of wells:** Up to 4 appraisal wells
- **Area of interest:** Anywhere in the block
- **Well depth:** ~ 4 500 m
- **Duration per well:** 100 days
  - Mobilisation: 5 days (within country)
  - Well drilling: 70 days
  - Well testing: 15 days (optional)
  - Well abandonment: 5 days
  - Demobilisation: 5 days
- **Commencement date:** Q3 2025

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Drilling Equipment and Logistics

- **Equipment:**
  - Drill ship or semi-submersible drilling unit
    - Safety zone:
      - 500 m (dynamically positioned)
      - 1 500 m (anchored)
  - Up to 3 support vessels
- **Onshore logistics base:**
  - Walvis Bay (preferred) or Lüderitz
  - 2- 3 vessel rotations per week
- **Helicopter base:**
  - Helicopter transfers from Lüderitz or Oranjemund
  - 3 trips per week


Example of a drill ship


Example of a semi-submersible


Example of a support vessel


Example of a helicopter

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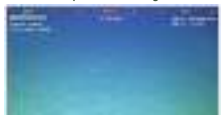
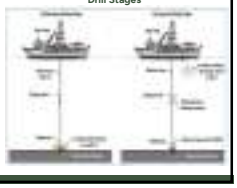
Appraisal Drilling

- **Final Drilling Site Selection:**
  - Based on detailed analysis of available seismic and geological data
  - Pre-spudding surveys of the sea floor will be conducted at the well site (Remotely Operated Vehilce)
- **Drilling stages:**
  - A well is created by drilling a hole into the seafloor using a drill bit, which crushes the rock into small particles (cuttings)
  - The cuttings are either discharged onto the floor or brought up to and treated on the drilling unit then discharged overboard, depending on the drilling stage
- **Well logging:**
  - Examining the drill cuttings
  - Vertical seismic profiling may be undertaken to generate high resolution seismic images of the geology of the well

Example of ROV footage



Drill Stages



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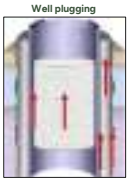
Appraisal Drilling

- **Well testing:**
  - On completion of drilling, the well may be tested by measuring the flow and burning the oil / gas ("non-routine flaring") on the drilling unit
- **Well Sealing and Plugging:**
  - Restores the integrity of the formation penetrated by wellbore
  - Once drilling and logging completed, wells sealed with cement plugs, tested for integrity and abandoned according to international best practices
  - Cement plugs set in stages from the bottom up; isolate any potential flow zone as per international best practices and standards
- **Demobilisation:**
  - Wells will be abandoned (wellheads will be removed with casings cut-off below the seafloor) or suspended on the seafloor if safe
  - Final clearance survey check undertaken using an ROV
  - Drilling unit and supply vessels will demobilise from offshore licence area

Well testing

Well plugging



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Historic Drilling in Namibia

- ~40 wells have been drilled in Namibian waters to date
- 8 wells have been drilled in Block 2814A

Licence Blocks and existing wells

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ESIA Process

What approval and legislated process are required?

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ESIA Process

- Appraisal well drilling triggers a number of listed activities and requires an ECC
- ESIA process and timeframes are defined in the EIA Regulations 2012
- ESIA process consists of three phases:

Scoping Phase	Impact Assessment Phase	Appeals Phase
Objectives: • Screen and identify potential impacts • Confirm specialist terms of reference **Tasks:** • Pre-application meeting with MEFT • Submit ECC application • Prepare Draft Scoping Report • DSR comment period (18 Sep - 18 Oct 2024) • Public meetings in Lüderitz and Walvis Bay • MEFT accepted FSR on 5 Feb 2025	**Objectives:** • Assess key potential impact • Identify mitigation measures **Tasks:** • Undertake technical / specialist studies • Prepare Draft ESIA Report • **Comment period (12 Feb to 14 Mar 2025)** • **Public meetings** • Submit Final ESIA Report for decision making	**Objectives:** • Notification and appeal process **Tasks:** • Stakeholder notification of decision and appeal process

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Technical & Specialist Studies

Technical Modelling Studies

- **Underwater Noise Modelling** – SLR
- **Drilling Discharge Modelling** – CLS
- **Oil Spill Modelling** – CLS

Specialist Studies

- **Marine Ecology Assessment** – SLR & Pisces
- **Air Quality Assessment** – SLR
- **Climate Change Risk Assessment** – SLR
- **Commercial Fisheries Assessment** – SLR & Fisheries & Oceanographic Support Services
- **Socio-Economic Assessment** – SLR

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Key Potential Impacts

How will this project influence the receiving environment?

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How will locals benefit?

1. Temporary Direct Employment

- Most of the workforce will consist of highly specialised, skilled personnel who will come in with the drilling unit
- Local opportunities will be mostly unskilled and semi-skilled services at the onshore logistic bases
- Only **~12** new direct jobs will be created
- Temporary nature (6 month per well)

Key Enhancement Measures

- Maximise use of local skills and resources
- Implement fair and transparent recruitment policy
- Provide training to staff and service providers

Post-Enhancement Assessment

→ **LOW POSITIVE** significance

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How will locals benefit?

2. Local Procurement

- Various goods and services will be procured locally in Walvis Bay, Lüderitz and/or Oranjemund
- Support services include catering, hospitality services, security services, logistics services, etc.
- Temporary nature (6 month per well) is not expected to displace other investment or employment
- Project would constitute a positive injection into the local economy

Key Enhancement Measures

- Maximise use of local procurement and resources
- Where practically possible, split procurement between Walvis Bay and Lüderitz.
- Implement fair and transparent recruitment policy

Post-Enhancement Assessment

→ **LOW POSITIVE** significance

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How will fishing be impacted?

3. Reduced catch and income

- Aspects:
  - Displacement by drilling unit:
  - Displacement by well suspension on seafloor
  - Noise
  - Drilling discharges
- Four commercial sectors overlap with block
  - Large pelagic longline
  - Demersal trawl
  - Tuna pole-line
  - Demersal longline

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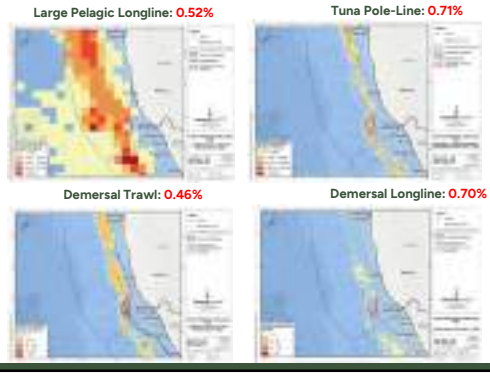
Annual average catch within Block 2914A



25

How will fishing be impacted?

3. Reduced catch and income

- Displacement by drilling unit:
  - Safety zone around the drilling unit:
    - All sectors (except large pelagic longline): 500 m to 2 000 m
    - Large pelagic longline: 72 km (line drift over 24 hrs)
  - Remainder of licence block remains open to fishing
- Displacement by well suspension on seafloor:
  - Only impact demersal trawling in waters **>300 m**
  - Exclusion is limited to immediate area around wellhead, not the entire block

Average annual catch and effort recorded within the safety zone

Sector	% National Catch
Large pelagic long-line	4.44%
Demersal trawl	0.03%
Demersal longline	0.10%
Tuna pole-line	0.36%

Demersal trawling may be affected by seafloor obstructions

projectseahorse.org

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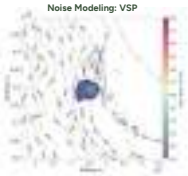
How will fishing be impacted?

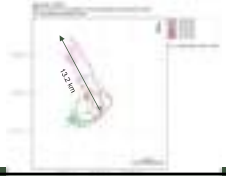
3. Reduced catch and income

- Noise:
  - Drilling Nosie may displace fish from fishing area
  - Largest zone of impact (behavioural response / disturbance): **1.5 km** from drill ship (~ 700 ha)
- Drilling discharges:
  - Drilling discharges may displace fish from fishing area
  - Sediment: environmental risk due to total concentration of chemicals in the sediment extended up to **1.4 km** covering an area of up to 45 ha
  - Water column: maximum cumulative risk throughout the water column extended up to **13.2** km in the NW direction
  - Major fish spawning areas occur further north and not within Block 2814A nor the depositional footprints (**no overlap** with spawning areas)

Noise Modeling: VSP



Drilling Discharge Modeling: Water Column



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How will fishing be impacted? (Socio-Economic)

3. Reduced catch and income

Key Mitigation Measures

- Ensure good communication and coordination with affected sectors
- Issue navigation warnings
- Install overtrawlable cap for wells suspended in waters >300 m deep
- Chart suspended wells with SANHO
- Implement a grievance mechanism

Post-Mitigation Assessment

→ LOW significance for large pelagic longline

→ VERY LOW significance for demersal trawl, demersal longline and pole-line

shutterstock.com

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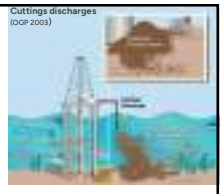
How will marine fauna be affected?

4. Smothering and disturbance due to drilling discharges

- Cuttings create a cone close to the drill site and thinning outwards
- Thickest deposits range from **4.9 cm to 7.1 cm**
- Discharges (> 0.1 mm) settled over an area up to **1.3 km** from the drill site
- Smothering risk occurs within **~155 m** of drill site

Cuttings discharges (OGP 2003)



Drilling Discharge Modeling: Seabed

29

How will marine fauna be affected?

4. Smothering and disturbance due to drilling discharges

- Deposit footprints in a NW direction away from coast
- Although majority of the benthic habitat is 'Least Threatened', cutting could overlap with 'Endangered' benthic habitat
- Long-term impact due to weak bottom currents

Ecosystem Threat Status

Adapted from Holness et al. (2014) and Sink et al. (2019)

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How will marine fauna be affected?

4. Smothering and disturbance due to drilling discharges

Key Mitigation Measures

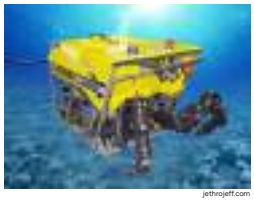
- Avoidance of sensitive benthic habitats within 200 m of drill site by conducting pre-drilling ROV surveys

Post-Mitigation Assessment

→ **MEDIUM** significance for marine fauna of unconsolidated sediments

→ **LOW** significance for marine fauna of sensitive hard substrate

ROV to be used to identify sensitive benthic habitats



jethrojeff.com

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How will marine fauna be affected?

5. Toxicity and hypoxic effects on due to drilling discharges

- Sediment:
  - Toxicity risk occurs within **~1.3 km** of drill site
  - Risk is long-term, reducing to **444 m** after 10 years
  - Benthic fauna less able to move away
- Water column:
  - Toxicity risk occurs within **~13 km** of drill site in NW direction
  - Risk is very short-term (**8 days**)
  - Pelagic species are mobile and would move out of plume

Key Mitigation Measures

- Low toxicity muds
- Treatment
- Avoidance of sensitive benthic habitats within 200 m of drill site by conducting pre-drilling ROV surveys

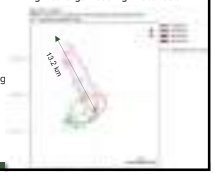
Post-Mitigation Assessment

→ **LOW** significance for benthic fauna (seabed)

→ **VERY LOW** significance for pelagic fauna (water column)

Drilling Discharge Modeling: Seabed

Drilling Discharge Modeling: Water Column



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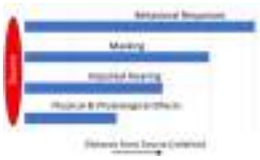
How will marine fauna be affected?

6. Behavioural disturbance and injury due to underwater noise

- Behavioural disturbance:
  - Disturbance to feeding/breeding and masking of biologically important sounds
- Potential injury:
  - Exposure to high sound levels can result in injury to marine fauna
- Noise decreases over distance – thus, modelling undertaken to determine zones of impact
- Ocean is a naturally noise place – Block overlaps the main traffic route
- Noise from a stationary source can be avoided and pelagic species are highly mobile
- Block is located offshore of key breeding/spawning areas

Noise Impacts



Drilling Noise (100 days per well): Zones of impact

Fauna group	Injury	Disturbance
Fish	-	240 m
Whales / dolphins	120 m (permanent) 3.1 km (temporary)	12.5 km
Turtles	30 m (permanent) 140 m (temporary)	30 m

VSP Noise (9 hrs per well): Zones of impact

Fauna group	Injury	Disturbance
Fish	30 m (permanent) 170 m (temporary)	1.5 km
Whales / dolphins	40 m (permanent) 350 m (temporary)	690 m
Turtles	20 m (permanent) 40 m (temporary)	150 m

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How will marine fauna be affected?

6. Behavioural disturbance and injury due to underwater noise

Key Mitigation Measures

- MMO visual scans, soft-starts, 500 m shut-down zone during VSP operations

Post-Mitigation Assessment

→ **VERY LOW** significance for behavioural disturbance

→ **VERY LOW** significance for injury

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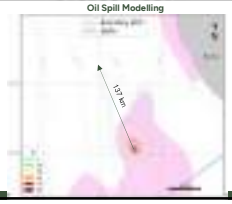
Unplanned Events

7. Large oil spill (well blow-out)

- Accidents / incidents that are not anticipated during normal operations
- **Unlikely to occur** – however, assessed as if they will happen
- Measures in place to actively prevent occurrence
- Oil Spill Modeling:
  - Scenarios:
    - Two oil types: Light oil and gas
    - Duration of spill: 30-day
    - 90 simulations over four season with and without spill response
  - Results:
    - Oil moves on the surface and in the water column to the NW
    - **No Shoreline oiling**
    - Oil probability (1% probability):
      - Surface: extends up to 137 km NW
      - Water column: extends up to 170 km NW
    - No oil remained on sea surface after 60 days
    - Oil response has a significant positive effect in reducing extent and quantity of oil on sea surface
    - Gas scenario: No gas accumulation on the surface

Oil Spill Modelling



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Unplanned Events

7. Large oil spill (well blow-out)

Key Mitigation Measures

- **Avoidance and prevention**
  - Design and technical integrity
  - Testing and certification
- **Response and recovery (minimisation barriers)**
  - Oil Spill Contingency Plan
  - Capping equipment
  - Containment and clean-up

Post-Mitigation Assessment

→ **VERY HIGH** significance for marine fauna

→ **MEDIUM** significance for commercial fishing

→ **LOW** significance for air quality, cultural heritage, social dynamics

→ **INSIGNIFICANT** significance for tourism

Vessel Response

Aerial Response

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Concluding Statement

- Normal operations:
  - Based of the nature, duration (mostly short-term) and extent (mainly localised), the majority of residual impacts range from **INSIGNIFICANT to LOW** significance
  - Smothering of unconsolidated sediments within 155 m of drill site is assessed to be of **MEDIUM** significance
- Unplanned events:
  - Impacts range from **INSIGNIFICANT to VERY HIGH** significance
  - Probability of occurrence is highly unlikely
  - ~ 40 wells drilling in Namibian waters with no well blow-outs
- SLR is of the opinion that this ESIA Report is sufficiently robust and provides sufficient information for MME and MEFT to make an informed decision

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Way Forward

What are the next steps?

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Way Forward

- Comment period closes: **14 March 2025**
- Compile Meeting Minutes, Comments & Responses Report and Final ESIA Report
- Submit Final ESIA Report for MEFT decision-making
- Final ESIA Report will be updated to the SLR website
- Registered I&APs will be notified of the decision and the appeal process

QR Code for the online Registration / Comment Form

SLR contact details

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Thank you for your attention.

Do you have any questions and comments?

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Appendix D.4:
I&AP Correspondence

Robyn Christians

From: Widux Kachenje Mutwa (Namport) [redacted]
Sent: Monday, 10 February 2025 15:19
To: BWKuduPPL003
Subject: Automatic reply: Invitation to review the Draft ESIA Report and attend public meeting for BW Kudu's Proposed Appraisal Well drilling in Block 2814A (PPL 003), Orange Basin, offshore Southern Namibia

Dear Mailer

Please note this email account/address is changing and will be not be in use. Kindly redirect future emails to [redacted]

BW KUDU LIMITED

Environmental and Social Impact Assessment for Proposed Appraisal Well Drilling in Block 2814A (PPL 003), Orange Basin, Off Southern Namibia

REGISTRATION & COMMENT FORM

12 February 2025

Date			11 February 2025	
Name	Erich Heimstädt + Katja Glöditzsch			
Organisation/Company	Nekkov Logistics Solutions cc			
Postal Address	[redacted]			
		Postal Code	[redacted]	
Telephone Number	[redacted]			
E-Mail Address	[redacted]			
Please register me as an interested & affected party (I&AP) so that I may receive further information and notifications during the environmental authorisation process			YES ☒	NO ☐

How would you like to receive your notifications?

E-mail:	vesselops@nekkov.com	**SMS:**		**Post:**	

Please write your comments and questions here (please use separate sheets if you require)

.....

.....

.....

.....

.....

Note: You can also comment using the online Registration & Comment Form by scanning the QR Code or following this link (https://forms.office.com/e/Fe8nP3nL9y).

Please include the following of my colleagues/friends/neighbours as I&APs for this project:

[redacted]

Please return completed forms to:

SLR contact:	Robyn Christians	**Tel:**	061-231287	**Email:**	BWKuduPPL003@slrconsulting.com

By providing your personal information for this ESIA you consent to SLR registering you on the Project I&AP database. It is assumed that as an I&AP for this ESIA you authorise SLR to retain and use your Personal Information as part of a contact database for this and/or other ESIAs and that you confirm your acceptance for SLR to contact you regarding this and/or other ESIA processes. SLR will not process your Personal Information, other than as permitted or required by ESIA processes, or as required by law or public policy. SLR will use reasonable, appropriate security safeguards in order to protect Personal Information, and to reasonably prevent any damage to, loss of, or unauthorised access or disclosure of Personal Information, other than as required for ESIA processes or as required by any Law or public policy. You may request for your Personal Information to be deleted from the I&AP database at any time by contacting SLR.

Robyn Christians

From: BWKuduPPL003
Sent: Tuesday, 25 February 2025 15:06
To: Mark Ryan
Subject: RE: Kudu PPL003 - draft environmental and social impact assessment report

Good afternoon Mark,

Apologies for the delay in getting back to you.
The report is available for download at the following site: https://www.slrconsulting.com/public-documents/bwkudu-esia/

Should you have any comments/queries, please do reach out at this email address.
Thank you
Kind regards
Robyn

From: Mark Ryan [redacted]
Sent: Tuesday, 11 February 2025 14:17
To: BWKuduPPL003 <bwkuduPPL003@slrconsulting.com>
Subject: Kudu PPL003 - draft environmental and social impact assessment report

To whom it may concern:

I read with interest yesterday that the above-mentioned report is available at the Walvis Bay library for viewing and that commenting is open till 25th March.

Is this report available to download at all, for viewing and commenting?

I ask because I work in the O&G (and wind) sector for a subsea/offshore construction company and am based in the UK, although also a Namibian citizen. I have also previously worked on Kudu Gas tenders around 2013-2014 while at another construction company, so it hence my interest and query.

Look forward to your reply.

Thank you
Mark

Kind Regards,

Mark Ryan

[redacted]

Robyn Christians

From: [redacted]
Sent: Thursday, 13 February 2025 11:09
To: BWKuduPPL003
Subject: RE: Invitation to review the Draft ESIA Report and attend public meeting for BW Kudu's Proposed Appraisal Well drilling in Block 2814A (PPL 003), Orange Basin, offshore Southern Namibia

Importance: High

Good day

I want to register. Unfortunately I am not close to a computer, only my cell.

BENGUELA WELATH FARMING

RASSIE ERASMUS

[redacted]

Thank you

Rassie

From: BWKuduPPL003 <BWKuduPPL003@slrconsulting.com>
Sent: Monday, 10 February 2025 3:18 pm
To: Undisclosed recipients:
Subject: Invitation to review the Draft ESIA Report and attend public meeting for BW Kudu's Proposed Appraisal Well drilling in Block 2814A (PPL 003), Orange Basin, offshore Southern Namibia

Dear Sir/Madam,

Interested and Affected Parties (I&APs) are invited to review the Draft Environmental and Social Impact Assessment Report at Walvis Bay and Lüderitz Public Libraries from 10 February 2025 to 12 March 2025. You are also invited to attend public meetings in Lüderitz, The Nest Hotel on 18 February 2025 and Walvis Bay, Indongo Protea Hotel on 19 February 2025. More details are provided in the attached Notification Letter and Executive Summary. Please submit your comments to SLR no later than 12th March 2024.

The Draft ESIA Report can be accessed on the SLR website using the following link:
https://www.slrconsulting.com/public-documents/BWKudu-ESIA

Thank you for your participation in this process.

Kind regards

BW Kudu Stakeholder Engagement Team

BWKuduPPL003

E BWKuduPPL003@slrconsulting.com

Robyn Christians

From: Toivo Gabriel [redacted]
Sent: Thursday, 13 February 2025 10:21
To: BWKuduPPL003
Subject: Re: Invitation to review the Draft ESIA Report and attend public meeting for BW Kudu's Proposed Appraisal Well drilling in Block 2814A (PPL 003), Orange Basin, offshore Southern Namibia

Received and thanx

On Mon, Feb 10, 2025, 3:18 PM BWKuduPPL003 <BWKuduPPL003@slrconsulting.com> wrote:

> Dear Sir/Madam,
>
> Interested and Affected Parties (I&APs) are invited to review the Draft Environmental and Social Impact Assessment Report at Walvis Bay and Lüderitz Public Libraries from 10 February 2025 to 12 March 2025. You are also invited to attend public meetings in Lüderitz, The Nest Hotel on 18 February 2025 and Walvis Bay, Indongo Protea Hotel on 19 February 2025. More details are provided in the attached Notification Letter and Executive Summary. Please submit your comments to SLR no later than 12th March 2024.
>
> The Draft ESIA Report can be accessed on the SLR website using the following link:
> https://www.slrconsulting.com/public-documents/BWKudu-ESIA
>
> Thank you for your participation in this process.
>
> Kind regards
>
> BW Kudu Stakeholder Engagement Team
>
> **BWKuduPPL003**
>
> **E** BWKuduPPL003@slrconsulting.com

Robyn Christians

From: [redacted]
Sent: Thursday, 06 March 2025 12:16
To: BWKuduPPL003
Subject: Automatic reply: Invitation to review the Draft ESIA Report and attend public meeting for BW Kudu's Proposed Appraisal Well drilling in Block 2814A (PPL 003), Orange Basin, offshore Southern Namibia

Hello,

I'm on a business trip until Tuesday 11 March. Please be aware that I have moved roles in Shell from March 1. Fabiola Rossato has taken over my role as the HSSE Manager for our exploration ventures in Namibia and South Africa.

I will check my emails daily, but please don't expect an immediate response.

Regards,

Peter Mijsbergh

Robyn Christians

From: Selma Stephanus [redacted]
Sent: Thursday, 06 March 2025 11:10
To: BWKuduPPL003
Subject: Automatic reply: Invitation to review the Draft ESIA Report and attend public meeting for BW Kudu's Proposed Appraisal Well drilling in Block 2814A (PPL 003), Orange Basin, offshore Southern Namibia

Good Day

Selma Stephanus is no longer employed at Seaflower Whitefish Corporation. Please revert all correspondence to rochelled@[redacted]

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17 March 2025 Ref: KuduPPL003/LEAD/mo

Messrs

SLR Environmental Consulting (Namibia) (Pty) Ltd
Attention: Robyn Christians Postal
8 General Murtala Muhammed Ave,
Eros Windhoek E-mail: bwkuduPPL003@slrconsulting.com
Tel: 061 231 287

Registration / Comment Form: https://forms.office.com/e/Fe8nP3nL9y
SLR Website: https://www.slrconsulting.com/public-documents/BWKudu-ESIA

Dear Sir/ Madam

RE: ESIA for the "Proposed Appraisal Well Drilling in Block 2814A (PPL 003), Orange Basin, off the coast of southern Namibia

The above matter refers.

Kindly find herewith on behalf of the Legal Assistance Centre' LEAD (Land, Environment and Development) department. The Legal Assistance Centre is a public interest law firm that strives to make the law accessible to those with the least access, through education, law reform, research, litigation, legal advice, representation and lobbying, with the ultimate aim of creating and maintaining a human rights culture in Namibia. The comments on the ESIA that follows were prepared in partnership with the scientists of ELAW.

Summary

The ESIA for the "Proposed Appraisal Well Drilling in Block 2814A (PPL 003), Orange Basin, off the coast of southern Namibia" contains inadequate assessments of multiple environmental impacts and numerous errors and mischaracterizations of impacts. The oil spill model failed to assess worst case scenarios in terms of location and the profile and quantity of oil spilled. The Climate Change Risk Assessment and the ESIA's discussion of climate impacts use flawed significance criteria and the emissions estimates contain multiple errors and omissions. With respect to fisheries, both the impact assessment and assessment of cumulative impacts are missing critical information. The ESIA does not adequately assess the potential impacts of the

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project on marine ecosystems, particularly with regards to noise impacts and impacts of a worst-case scenario spill.

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Oil Spill Modeling Technical Report Issues

Inaccurate Information Provided

Table 1 contains multiple errors that make it difficult to determine the location of the modeled release points. Latitude values contain an extra apostrophe that prevents direct use of provided coordinates. After fixing this minor issue, the coordinates for L2 were found to be for a location well outside Block 2814A (see figure below).

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The provided coordinates are for a point over 100km south of the block, in or near South African waters. A minor additional error is that Tables 17 and 18 both refer to "release point L1".

Modeling failed to assess worst case scenarios

Oil spill models in ESIAs should look at worst case scenarios and these scenarios should reflect the worst case scenarios in terms of release location, duration, type of oil, etc. The technical report incorrectly claims, in the first sentence of the executive summary, to have considered worst case scenarios.

<u>Modeling should have included a wider range of hydrocarbons, including heavier oil</u>

This modeling looked at light oils and condensates of 47.4 and 48.8 API. Section 9.4.1.1 of the ESIA states that: "Modelled oil types were selected based on previous exploration drilling within the block (gas / condensate) and recent discoveries of light oil by TEEPSA and Shell to
the west of the block". However, oil spill modeling for nearby blocks included modeling of heavier oil types that would persist longer in the environment (see table below). Release point L2 is located near the border with the adjacent Block 2914A. Modeling for Block 2914A (done in 2024 by the same company, CLS Brasil), used a denser, more viscous oil with 32.2° API, stating "For Block 2914A the oil expected is an oil of 32.2° API".[1] The updated oil spill model report, "Africa Oil SA Corp SOUTH AFRICA Well Drilling in Block 3B-4B, OIL SPILL DRIFT MODELLING Condensate and Crude Oil TECHNICAL REPORT V07" for the nearby Block 3B/4B located in the same basin, states: "the expected API gravity range is from 39 to 49 degrees API" and it modeled "both a condensate with a 39 API degree gravity, and a crude oil with a 37 degree API gravity" stating: "While these modelled fluid types are heavier than any scenario that is expected in Block 3B/4B, they have been

[1] Appendix G Oil Spill Modelling, ESIA for Well Drilling in Licence Block 2914A, Orange Basin, off the Coast of Southern Namibia, Final Environmental and Social Impact Assessment Report

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included here to represent the most-conservative model scenarios".[2] Since they behave differently in the environment and have different ecological and environmental impacts, it is important to model gas, condensates, and heavier oils if all have the potential to be released.

Block	**2814A**		**2914A**	**3B/4B**	
API°	48.8	47.4	32.2	39.2	37.2
Viscosity (cP) @13°C	2	3	32	3	7

Modeling should have used a higher release rate

The modeling for Block 2814A used much lower release rates than modeling for nearby blocks (see table below). The modeling for adjacent Block 2914A (again done by the same company), used a release rate almost 4 times higher for the oil release (with a larger pipe diameter and denser, more viscous oil). It isn't clear why a lower release rate was utilized for Block 2814. The modeling for nearby Block 3B/4B used release rates roughly 30 and 7 times higher for condensate and oil respectively.

Block	**2814A**		**2914A**	**3B/4B**	
Type	Condensate	Oil	Oil	Condensate	Oil
Oil/Condensate Release Rate (m^3/day)	8	794.94	2,967	238.8	5,405.57
Pipe Diameter (m)	0.05	0.217	0.914	0.311	0.216

Release points don't represent worst case locations in the block

Section 3.2 of the ESIA states: "Proposed well sites are to be located within Block 2814A, but precise locations are not yet confirmed. Thus, the ESIA assesses generic (worst-case) well drilling locations within Block 2814A…". An analysis of release locations and other material provided in the ESIA shows this to not be accurate. For example, moving L1 to the north would place it closer to the Lüderitz Shelf Edge, which the ESIA describes as "Critically Endangered" habitat type and into the "Endangered" Namaqua Shelf Edge, while

[2] Africa Oil SA Corp SOUTH AFRICA Well Drilling in Block 3B-4B OIL SPILL DRIFT MODELLING Condensate and Crude Oil TECHNICAL REPORT V07

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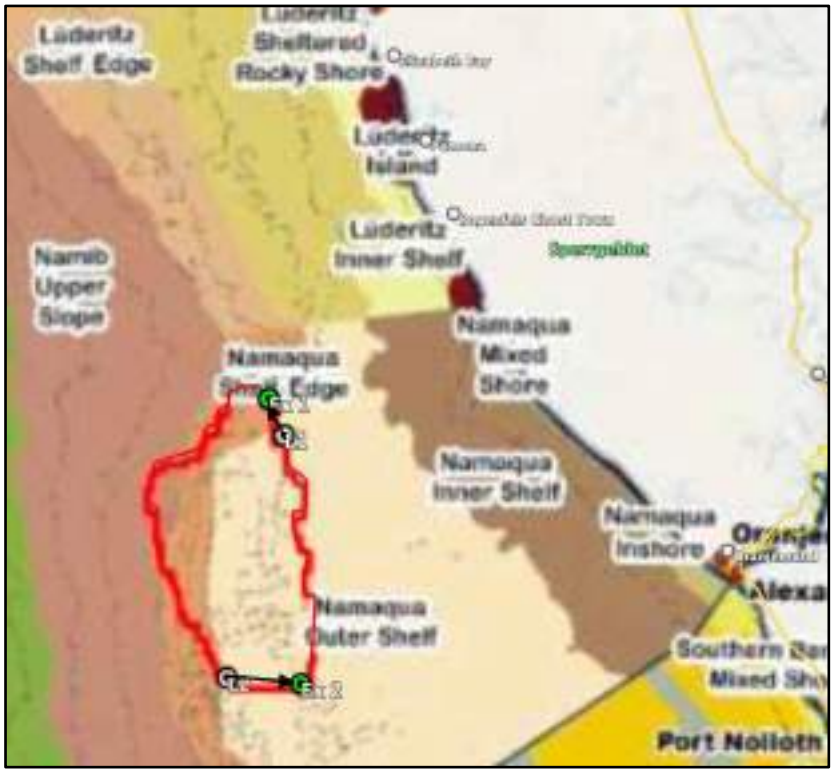
remaining the same distance from shore (see Ex1 in figure below). Modeling a denser oil here (as opposed to just condensates) would also be likely to show an increased risk to these habitats. Similarly, moving L2 to the east (see Ex2 in figure below) would place it closer to shore and to South African waters, and given what is presented about prevailing winds and currents, the released oil would cover more of the EBSA.



Additionally, the oil spill simulations used two well locations at similar depths: 209 m (L1) and 257 m (L2). Block 2814A spans 4,568 km^2 in water depths ranging from 150 m to 750 m. The depth of L1 and L2 only differs by 48 m, which doesn't come close to capturing the full range of possible depths (600m) where the four proposed exploration wells could occur.

With respect to the spill modeling results presented in the Marine Ecology Impact Assessment, section 4.3.2. Deterministic Results, there are some inconsistencies with the depth of the locations:

> For release location L2 (shallow), the simulation that sweeps the largest surface area is during Season 2 and 3 (Figure 4-8). At the end of 60 days of simulation, none of the deterministic simulations has surface oil above 5 µm thickness threshold, with none of the simulations over the 4 seasons show oil arriving to shore (no shoreline oiling).

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> Vertical profiles of the dissolved concentration in the water column showed the highest concentrations (300 and 500 ppb) at depths of 10 to 20 m and up to 12 m in Season 1, when released from L1 (shallow) and L2 (deep), respectively.

Project is one of a growing number relying on the same single capping stack stored at Saldanha Bay

Blowouts can occur at many points during exploration and production, and capping stacks can fail. As described in Section 5.4.6 and elsewhere in the ESIA, BW Energy is, or will be, a member of Oil Spill Response Limited (OSRL). This project is one of a growing number in the region relying on OSRL's single capping stack (and other containment equipment) stored at Saldanha Bay. If this capping stack were to fail, or be in use elsewhere, during a blowout in Block 2814A, a capping stack would need to be brought in from OSRL locations in Brazil or Italy, resulting in additional delays.[3]

GHG, Climate Impacts, Climate Change Risk Assessment

GHG Emissions and Climate Impact Issues in the ESIA

In the Executive Summary of the ESIA (PDF pages 24 and 26) the following typo or incorrect statement is repeated twice (referring to total emissions as annual emissions): "The Project's annual greenhouse gas (GHG) emissions is estimated to be 24 065 tCO2e over a period of two years, with an average of 12 032 tCO2e per annum".

In attempting to explain why SLR's standard impact assessment method is not appropriate for assessing the impacts of the project's GHG emissions, Section 5.2.4 of the CCRA provides this interesting statement:

> "This assessment did not apply the standard SLR impact assessment methodology (as presented in Section 9.2 of the Final Scoping Report), as this approach is not deemed to be appropriate for assessing the impact of the Project's potential GHG emissions. This is because this methodology tends to overstate the significance of the impact despite the
> relatively insignificant contribution of the Project's GHG emissions to the host country's national GHG inventory. **This is due to the global extent of the impact, long-term duration (~100 years), and high probability of the impact occurring."**

It seems likely that SLR's standard methodology is actually more appropriate than the method followed here, precisely because all GHG emissions matter and have global, long-term impacts!

The ESIA bases its assessment of the significance of the Project's GHG emissions partially on a comparison of estimated project emissions to Namibia's national greenhouse gas (GHG) emissions inventory. Framing project emissions in terms of a percent of a country's total emissions is not helpful in understanding a project's

[3] https://www.oilspillresponse.com/about-osrl/locations-and-capability-map/

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impacts. In 2023, the United States Council on Environmental Quality issued guidance on the consideration of greenhouse gas emissions and climate change in National Environmental Policy Act (NEPA)[4] documents:[5]

> "NEPA requires more than a statement that emissions from a proposed Federal action or its alternatives represent only a small fraction of global or domestic emissions. Such a statement merely notes the nature of the climate change challenge, and is not a useful basis for deciding whether or to what extent to consider climate change effects under NEPA. Moreover, such comparisons and fractions also are not an appropriate method for characterizing the extent of a proposed action's and its alternatives' contributions to climate change because this approach does not reveal anything beyond the nature of the climate change challenge itself—the fact that diverse individual sources of emissions each make a relatively small addition to global atmospheric GHG concentrations that collectively have a large effect."

The ESIA doesn't include an assessment of the potential downstream emissions resulting from production of fossil fuels discovered as a result of the project. International best practices for fossil fuel exploration projects include discussions of downstream/Scope 3 emissions in project impact assessments. Recently, in the UK, two offshore oil and gas permits were ruled unlawful as "they had not taken into account the carbon emissions created by burning any oil and gas produced".[6]

Issues in the Climate Change Risk Assessment

In Section 7 of the Executive Summary, and Section 8.0 of the Climate Change Risk Assessment (CCRA), mitigation measures are recommended, not required, and would do little to reduce the project's climate impacts.

Section 3.2.3 of the CCRA states: "Although the Paris Agreement does not contain requirements specific to the Project, the Project's GHG emissions should, to the extent possible, be reduced to align with the treaty's objective of limiting global warming". In reality, the best way to meet the objectives of the Paris Agreement would be to not move forward with this, or any other new fossil fuel exploration and extraction projects. According to the International Energy Agency and academic journal articles, no new fossil fuel exploration and extraction projects are needed under scenarios where Paris targets are met.[7,8]

Table 4-1 appears to contain errors in fuel consumption calculations for drill ships and support vessels used in appraisal drilling. (35 t/d X 100 d/well = 3,500 not 3,150 t/well, 3 vessels X 5 t/d/vessel X 100 d/well = 1,500 not 1,350 t/well)

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[4] https://www.epa.gov/nepa
[5] https://www.federalregister.gov/documents/2023/01/09/2023-00158/national-environmental-policy-act-guidance-on-consideration-of-greenhouse-gas-emissions-and-climate
[6] https://www.theguardian.com/environment/2025/jan/30/rosebank-oilfield-jackdaw-decision-unlawful-edinburgh-court#:~:text=But%20on%20Thursday%20the%20court,any%20oil%20and%20gas%20produced.
[7] https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach
[8] https://www.energy.gov/sites/default/files/2024-06/044.%20Fergus%20Green%2C%20No%20new%20fossil%20fuel%20projects%2C%20The%20norm%20we%20need.pdf

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Section 5.2.4 of the CCRA describes the use of significance criteria developed by the European Bank of Reconstruction and Development (EBRD). Use of these thresholds in an EIA for fossil fuel exploration is inappropriate for multiple reasons. These thresholds are not based on specific climate impacts, rather as the Appendix states, "These thresholds are used by EBRD as an early indicator of a project's likely contribution to the Bank's GHG inventory and carbon intensity of the Bank's investment portfolio". Additionally, EBRD's "Energy Sector Strategy 2024-28 prioritises the urgent need to accelerate the decarbonisation of energy through scaling up renewables, enhancing grids and storage, promoting zero-carbon fuels and phasing out unabated fossil fuels" and the EBRD has stopped investing in upstream oil and gas to align its activities with the goals of the Paris Agreement. [9,10] It isn't clear why these thresholds were used given that the EBRD itself wouldn't apply these thresholds to this project since they wouldn't invest in it.

Section 8 applies the EBRD's internal significance criteria directly to the "significance of the Project's contribution to Namibia national GHG inventory". Since the thresholds were developed to provide an "early indicator of a project's likely contribution to the Bank's GHG inventory and carbon intensity of the Bank's investment portfolio", it isn't clear how these thresholds would translate directly to Namibia's national GHG inventory.

There are many issues with the calculation of emissions from well blow-outs found in Section 7.3 and Table 7-2 including:

1. Blowout release rates and materials (gas, condensate, and oil) in Section 7.3 differ from those modeled in the Oil Spill Model and are much lower. (This is especially problematic given that the oil spill release rates in the Oil Spill Model were lower than assumed for nearby blocks)
2. Table 7-2 doesn't include any emissions from condensates which were included in releases in the oil spill modeling.
3. Calculations don't include global warming potential (GWP) values for non-methane volatile organic compounds (NMVOCs) which would be emitted during evaporation of spilled oil and condensates.
4. The assumed value for the methane fraction of evaporated oil is identical to the value for natural gas and therefore likely inaccurate.
5. The unevaporated portion of spilled oil can still result in GHG production and emissions, for example microbial degradation of hydrocarbons can release CO_2.

Chapter 9 of the CCRA ignores the fact that the goal of the project is to locate fossil fuels for future extraction and eventual combustion. Climate change could make future operation of wells in the area riskier and more costly. Future carbon pricing, public policy restrictions, or legal actions could limit the amount of fossil fuels extracted or decrease the profitability of those fuels, leading to a risk of stranded assets.

[9] https://www.ebrd.com/news/2023/ebrd-approves-new-energy-sector-strategy-202428.html
[10] https://www.reuters.com/business/energy/ebrd-stops-upstream-oil-gas-investments-aligns-with-paris-agreement-2021-07-01/

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Fisheries

Expansion of hydrocarbon exploration or exploitation infrastructure on the seafloor poses a physical risk to the fishing industry, especially those that use methods of fishing along the seafloor, such as demersal or bottom trawling.

The potential expansion of hydrocarbon exploration or related infrastructure poses a risk to the fishing industry not just under worst-case-scenarios of spills or leakages, but also through the simple addition of physical infrastructure that can interact with fishing gear. This is particularly relevant in such a high-value fishing region that is supported by the unique oceanographic conditions that make southern African waters among the most productive in the world due to the Benguela Current and upwelling system. Furthermore, bottom (demersal) trawling is a common and significant component of the fishing industry in this region, which makes the likelihood of negative interactions between fishing gear and seafloor infrastructure (active or abandoned) much higher than in areas where demersal trawling is not common.[11]

According to the Marine Stewardship Council, "Fishing is the third largest sector of Namibia's economy, with hake making up the majority of the sector."[12] Hake is a species caught specifically by the method of demersal trawling, and the map displayed in figure 6-36 (below) of the ESIA shows demersal trawling takes place in the block proposed for this project. However, Annex I's fishery report attempts to minimize the scale of negative impact by describing the amount of demersal fishing that happens in this block as a small percentage of the nation's overall demersal trawl fishery production. This grossly underestimates the pressure the fishery will feel from the cumulative impacts of multiple blocks being explored for oil and it skews the impacts that may be felt by specific subgroups of the fishery's stakeholders given that the block in question contains almost all of demersal trawling grounds at that latitude in Namibian waters.

[11] Sally Rouse, Peter Hayes, Thomas A Wilding, Commercial fisheries losses arising from interactions with offshore pipelines and other oil and gas infrastructure and activities, *ICES Journal of Marine Science*, Volume 77, Issue 3, May-June 2020, Pages 1148–1156, https://doi.org/10.1093/icesjms/fsy116

[12] https://www.msc.org/media-centre/press-releases/press-release/namibian-fishery-is-second-in-africa-to-be-certified-as-sustainable

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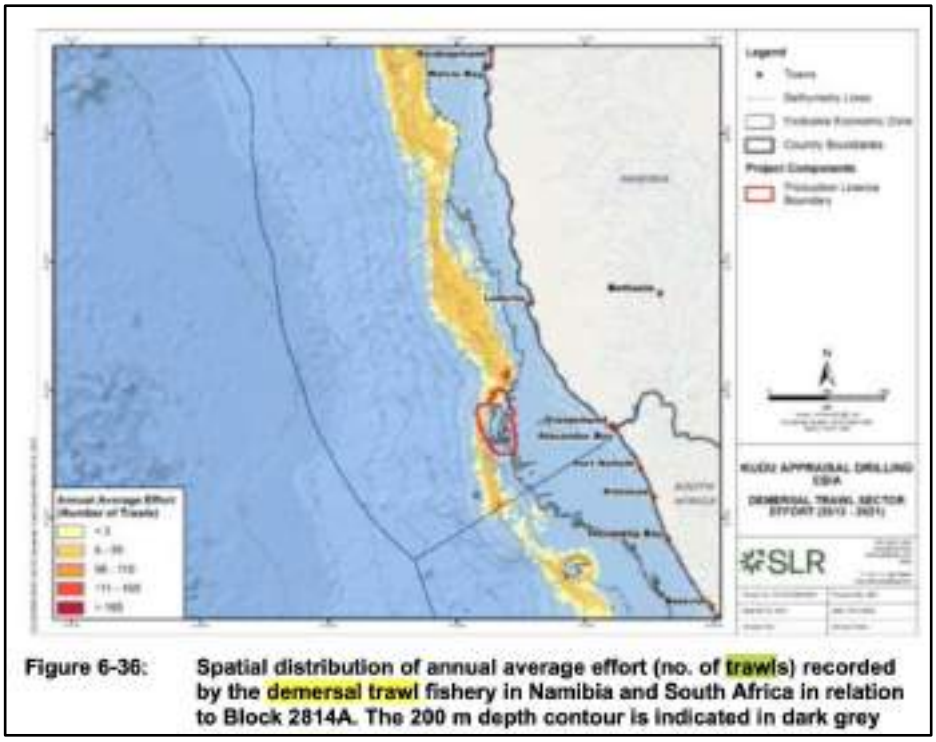

Figure 6-36: Spatial distribution of annual average effort (no. of trawls) recorded by the demersal trawl fishery in Namibia and South Africa in relation to Block 2814A. The 200 m depth contour is indicated in dark grey

(Figure 6-36 from p.174 of the main ESIA document)

Incomplete Impact Assessment– neglects climate impacts on fisheries

The project poses a long-term risk of methane leakage and the associated negative impacts on the planet's climate associated with greenhouse gas emissions. This negatively impacts society at large as well as fisheries on the west coast of southern Africa specifically.

Recently it has been shown that hydrocarbon wells, both active and abandoned, drilled into the seafloor may contribute substantial quantities of methane reaching the atmosphere.[13] Abandoned wells in both terrestrial and marine environments have been found to leak methane even after being plugged with concrete.[14,15] This means that the global society will be forced to bear the financial and health costs of increased greenhouse gas emissions long into the future, after this exploration project has concluded, regardless of how the wells are

[13] Vielstädte, L., Haeckel, M., Karstens, J., Linke, P., Schmidt, M., Steinle, L., & Wallmann, K. (2017). Shallow gas migration along hydrocarbon wells–An unconsidered, anthropogenic source of biogenic methane in the North Sea. *Environmental science & technology*, *51*(17), 10262-10268.
[14] Kang, M., Kanno, C. M., Reid, M. C., Zhang, X., Mauzerall, D. L., Celia, M. A., ... & Onstott, T. C. (2014). Direct measurements of methane emissions from abandoned oil and gas wells in Pennsylvania. *Proceedings of the National Academy of Sciences*, *111*(51), 18173-18177.
[15] Vielstädte, L., Karstens, J., Haeckel, M., Schmidt, M., Linke, P., Reimann, S., ... & Wallmann, K. (2015). Quantification of methane emissions at abandoned gas wells in the Central North Sea. *Marine and Petroleum Geology*, *68*, 848-860.

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capped and decommissioned. The project will create additional climate impacts from vehicle and equipment emissions, and potentially from the downstream combustion of extracted fuels (see GHG discussion above). Fisheries along the west coast of southern Africa, in particular, are predicted to be negatively impacted by climate change due to its effects on growth rates and reproduction.[16]

Fig. 3 from Potts et al. 2015 shows that Namibian waters host primarily cool-temperate biogeographic zone species that transition to warm-temperate zone species near the border with Angola:

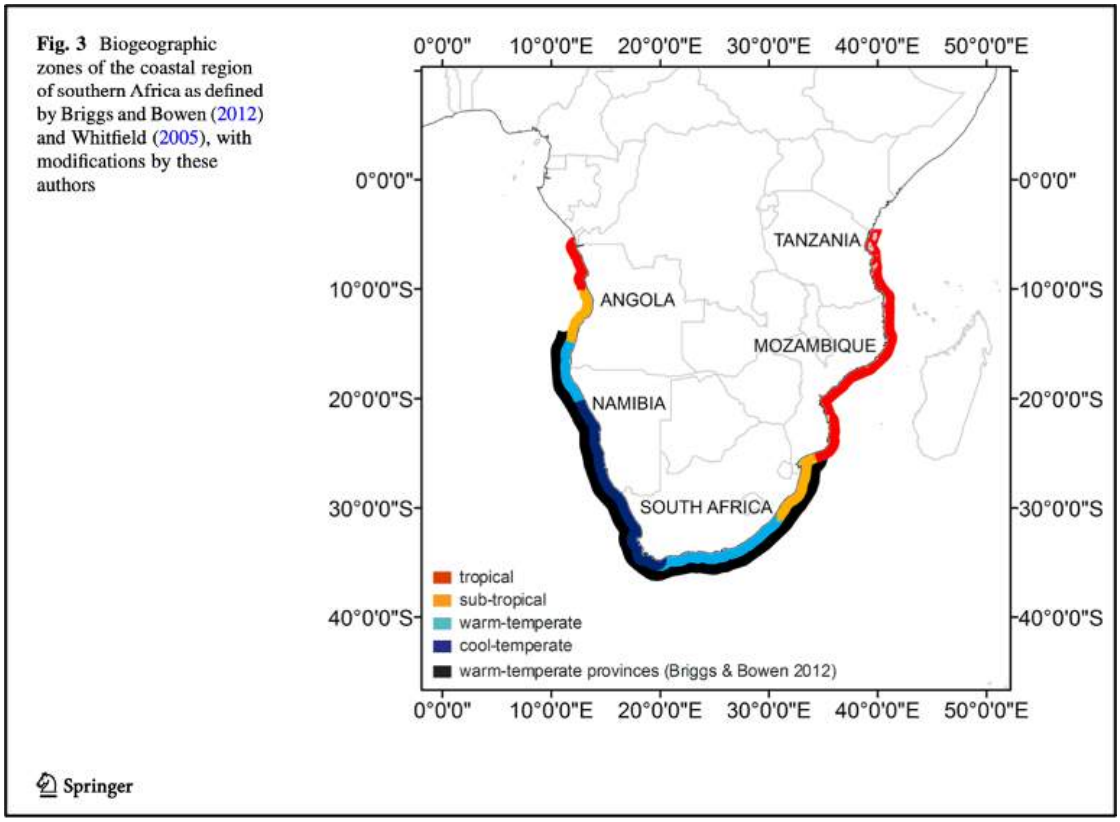

Fig. 3 Biogeographic zones of the coastal region of southern Africa as defined by Briggs and Bowen (2012) and Whitfield (2005), with modifications by these authors

[16] Potts, W. M., Götz, A., & James, N. (2015). Review of the projected impacts of climate change on coastal fishes in southern Africa. *Reviews in fish biology and fisheries*, *25*, 603-630.

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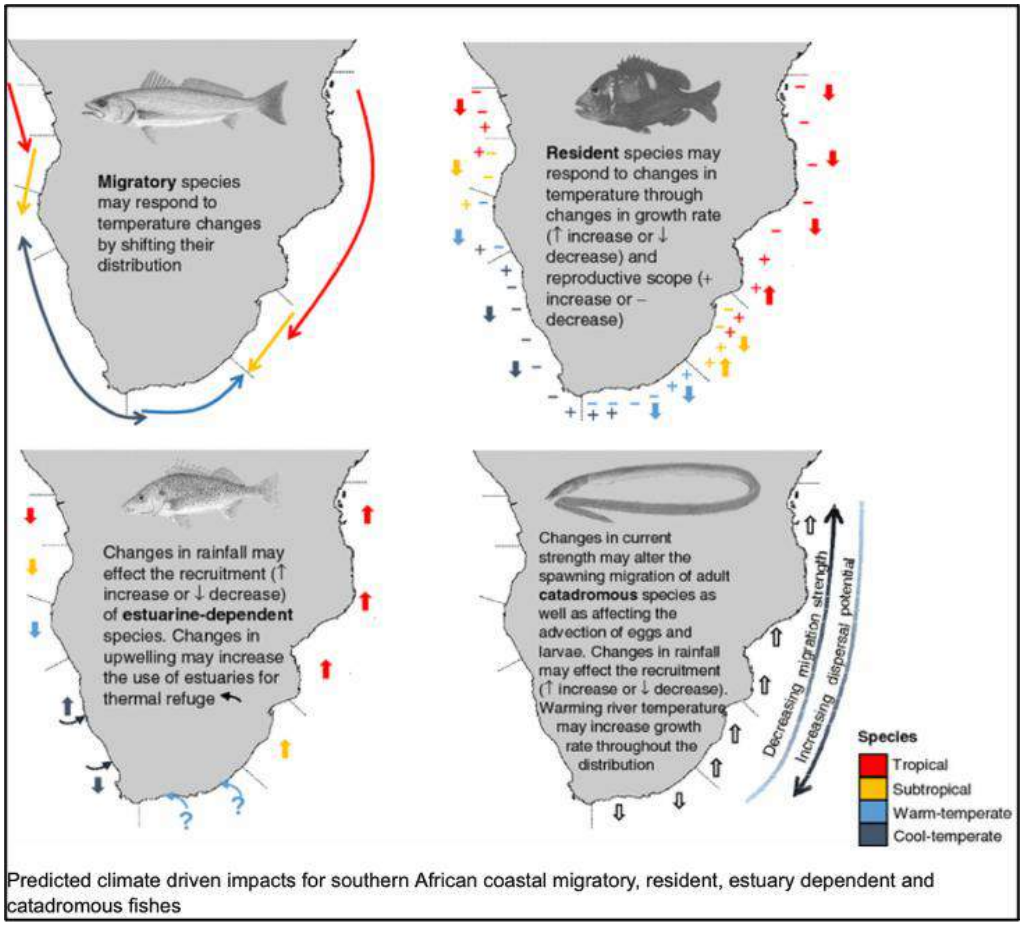
Fig. 4 from Potts et al. 2015 shows in the upper right quadrant that resident fish species are primarily expected to experience reduced growth rates and decreased reproductive scope under oceanographic conditions predicted due to anthropogenic climate change:



Predicted climate driven impacts for southern African coastal migratory, resident, estuary dependent and catadromous fishes

Poor Cumulative Impact Assessment with respect to fisheries (Section 5.3 of Appendix I)

This section describes the numerous other concessions for offshore drilling in the blocks that surround the proposed project (see Table 5-10 below), but on pg. 70 states without any supporting evidence "*Although cumulative impacts from other hydrocarbon ventures in the area may increase in future, the cumulative impacts of the proposed drilling of appraisal wells in Licence Block 2814A can be considered of low significance.*"

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Table 5-10: Applications for petroleum exploration in the Southern Benguela region (South African West Coast and southern Namibia) since 2007, indicating which of these have been undertaken.

Year	Right holder / operator	Block	Activity	Approval	Conducted / completed
SOUTHERN NAMIBIA PETROLEUM EXPLORATION					
2011	Signet	Block 2914B (now part of PEL39)	2D and 3D Seismic; development of production facility	unknown	unknown
2011	PGS	Block 2816	3D Seismic	Yes	3D: 2011 (HPT)
2013	Spectrum Namibia	Orange Basin multiclient	2D Seismic	Yes	2D: April 2014
2014	Shell Namibia	2913A, 2914B	3D Seismic	Yes	3D: 2019
2016	Spectrum	Southern Namibia regional	2D Seismic	Yes	2D: April 2019
2017	Shell Namibia	PEL39	Exploration drilling	Yes	Ongoing
2018	Shell Namibia	PEL39	3D Seismic	Yes	Ongoing (applying for ECC extension)
2019	Galp Namibia	PEL83	Exploration drilling	Yes	No (Applying for ECC extension)
2019	TEEPNA	Block 2913B (PEL58)	Exploration drilling	Yes	Ongoing (2022 commencement)
2020	TEEPNA	Block 2912, 2913B (PEL91, PEL90)	3D Seismic	Yes	3D: 2022/2023 3D Ongoing: 2023/2024 (applying for ECC extension)
2020	TGS Namibia	Blocks 2711, 2712A, 2712B, 2713, 2811, 2812A, 2812B, 2813B in the Orange Basin	3D Seismic	Yes	Yes
2020	Tullow Namibia (Hermelian Energy Ltd)	Block 2913B (PEL90)	3D Seismic	Yes	3D: 2023
2022	Searcher	Blocks 2614, 2613, 2612A&B, 2714A&B, 2713, 2712A&B, 2812B, 2813A, 2814A&B, 2912, 2913B, 2914A&B	2D and 3D Seismic	Yes	3D: 2023
2023	PGS	Blocks 2713, 2712A&B, 2812A&B, 2813A&B, 2814B, 2714A&B, 2614, 2613, 2612A&B	3D Seismic	Yes	3D: 2022-2023
2023	TEEPNA	Block 2912	Exploration drilling	Yes	2023
2024	Hermelian Energy (Chevron)	Block 2913B	Exploration drilling	Yes	No
2024	Rhino Resources	Block 2914A	Exploration drilling	Pending	No

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Year	Right holder / operator	Block	Activity	Approval	Conducted / completed
SOUTH AFRICAN WEST COAST PETROLEUM EXPLORATION					
2007	PASA (Petroleum Agency of South Africa)	Orange Basin	2D Seismic	Yes	Nov-Dec 2007
2008	PASA	West Coast	2D Seismic	Yes	Sep 2008
2008	PetroSA	Block 1	3D Seismic	Yes	Jan-Apr 2009
2011	Forest Oil (Ithubesi)	Block 3A	3D Seismic	Yes	May-Jul 2011
2011	PetroSA / Anadarko	Block 5/6 (ER224); Block 7 (ER228)	2D / 3D Seismic and CSEM (Controlled source electromagnetic method)	Yes	2D: Dec 2012 – Feb 2013 3D: Jan–Apr 2020
2011	PetroSA	Block 1	Exploration drilling	Yes	unknown
2012	BHP Billiton (now Ricocure Azinam & Africa Oil)	Block 3B/4B	2D and 3D Seismic	Yes	unknown
2013	Spectrum	West Coast regional	2D Seismic	Yes	2D: April 2013
2013	PetroSA	Block 1	2D and 3D Seismic	Yes	3D: Feb-May 2013 (conducted by Calm)
2013	Anadarko	Block 2C	2D and 3D Seismic, MBES (Multi-Beam Echo-Sounder), heat flow, seabed sampling	Yes	unknown
2013	Anadarko	Block 5/6/7	MBES, heat flow, coring	Yes	Jan-Mar 2013
2014	OKShell	Northern Cape Ultra Deep ER274	2D and 3D Seismic, MBES, magnetics, seabed sampling	Yes	2D: Feb-Mar 2021
2014	Shell	Deep Water Orange Basin	Exploration drilling	Yes	No (Shell relinquished block to TEEPSA)
2014	Calm	ER 1203/383	2D Seismic	Yes (obtained by PetroSA)	2D: Feb-Mar 2014
2014	Calm	Block 1	Seabed sampling	Yes	unknown
2014 - 2015	Thombo	Block 3B (ER106)	Exploration drilling	Yes	No (Africa Energy preparing to drill in late 2022/23)
2014	New Age Energy	Southwest Orange Basin	2D Seismic	unknown	unknown
2015	Calm	Block 1	Exploration drilling	unknown	unknown
2015	Sunbird	West Coast	Production pipeline (Ithubesi)	Yes	No (EA was renewed for an additional 5 years on 30 June 2022)
2015	Rhino	Southwest coast (inshore)	2D Seismic, MBES	unknown	unknown
2015	Rhino	Block 3B/3B/3T	2D and 3D Seismic, MBES	Yes	unknown
2017	Impact Africa / TEEPSA	Southwest Orange Deep	2D and 3D Seismic	unknown	unknown
2018	PGS	West Coast regional	2D and 3D Seismic	Yes	

Year	Right holder / operator	Block	Activity	Approval	Conducted / completed
2019	Anadarko	Block 5/6/7	2D Seismic	Yes	
2021	Searcher	West Coast regional	2D and 3D Seismic	Yes (currently appealed)	3D: Jan 2022 (incomplete)
2021	TGS	West Coast regional	2D Seismic	Yes	No
2021	Toreco	Block 1, ER362	3D Seismic	Withdrawn	-
2022	Searcher	Deep Water Orange Basin	3D Seismic	Yes	Yes
2022	Shearwater	Deep Water Orange Basin	3D Seismic	Unknown	No
2022	TGS	Deep Water Orange Basin	3D Seismic	Yes	No
2022	TEEPSA	Block 5/6/7	Exploration drilling	Yes	No
2022	TEEPSA	Deep Water Orange Basin	Exploration drilling	Yes	No
2024	Africa Oil SA	Block 3B/4B	Exploration drilling	Yes	No
2024	Searcher	Deep Water Orange Basin and Northern Cape Ultra Deep	3D Seismic	Yes	No

Meanwhile, Table 3.4 (p. 17) within the same Annex (I) reports the annual average catch from pelagic longliners in the block as a small percentage of the total longline catch for the nation (0.5% of the annual average catch was assigned to Block 2814A). It is clear from the long list of nearby concessions (see Table 5-10 above and Fig 1 below) and the fishery activity (see Fig 3-4 below) that the cumulative impact on longline fisheries from the suite of proposed drilling projects would certainly be measurably negative as there is nearly no where for the fishery to work that is not within the boundaries of one of the proposed drilling projects. If all projects came to fruition, the cumulative impact on the fishery could be strongly negative even in the absence of considering the climate related negative impacts described above.

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Figure 1: Locality map of Block 2814A (PPL 003) off the southern coast of Namibia and surrounding Blocks

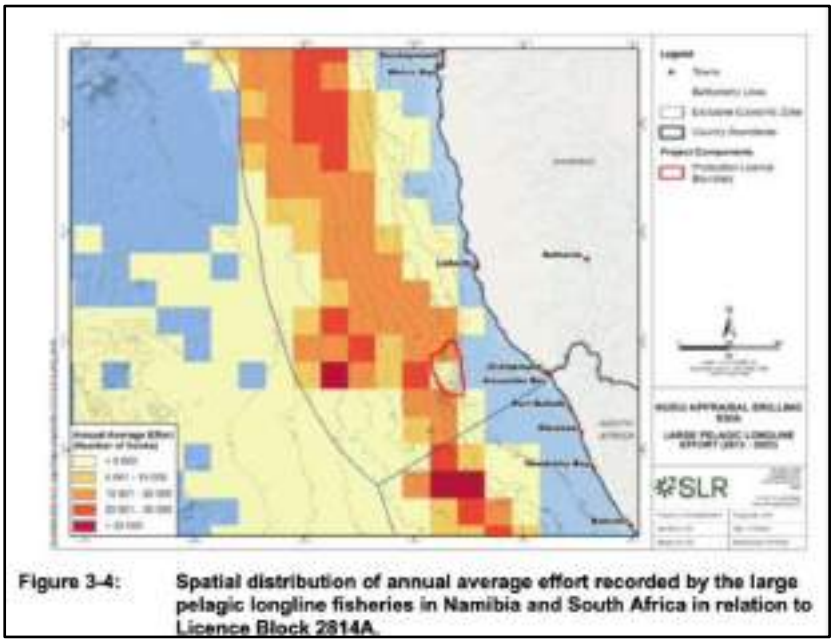

Figure 3-4: Spatial distribution of annual average effort recorded by the large pelagic longline fisheries in Namibia and South Africa in relation to Licence Block 2814A.

Marine Ecosystems

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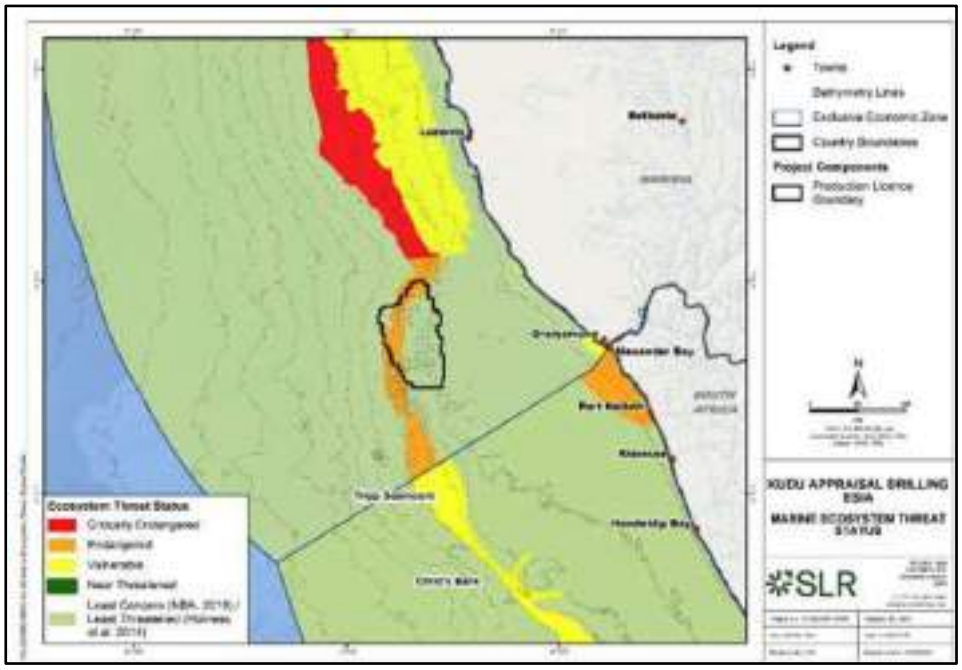
Block 2814A includes sensitive marine habitats and areas identified as priorities for protection

Block 2814A includes "Endangered" ecosystem habitat type, shown in orange in the map below taken from Figure 3-37 of the Marine Ecology Impact Assessment.



Additionally, a recent spatial marine biodiversity assessment undertaken for Namibia as part of a marine spatial planning process identifies the area where Block 2814A is located as an Ecologically and Biologically Significant Marine Area (EBSA) with high priority for place-based conservation. Figure 3-27 (shown below, and taken from the Marine Ecology Impact Assessment) shows the majority of the block is proposed for 'Conservation' management, which calls for "strict place-based biodiversity protection aimed at securing key biodiversity features in a natural or semi-natural state, or as near to this state as possible." Allowing oil exploration in this area would not be consistent with this management objective.

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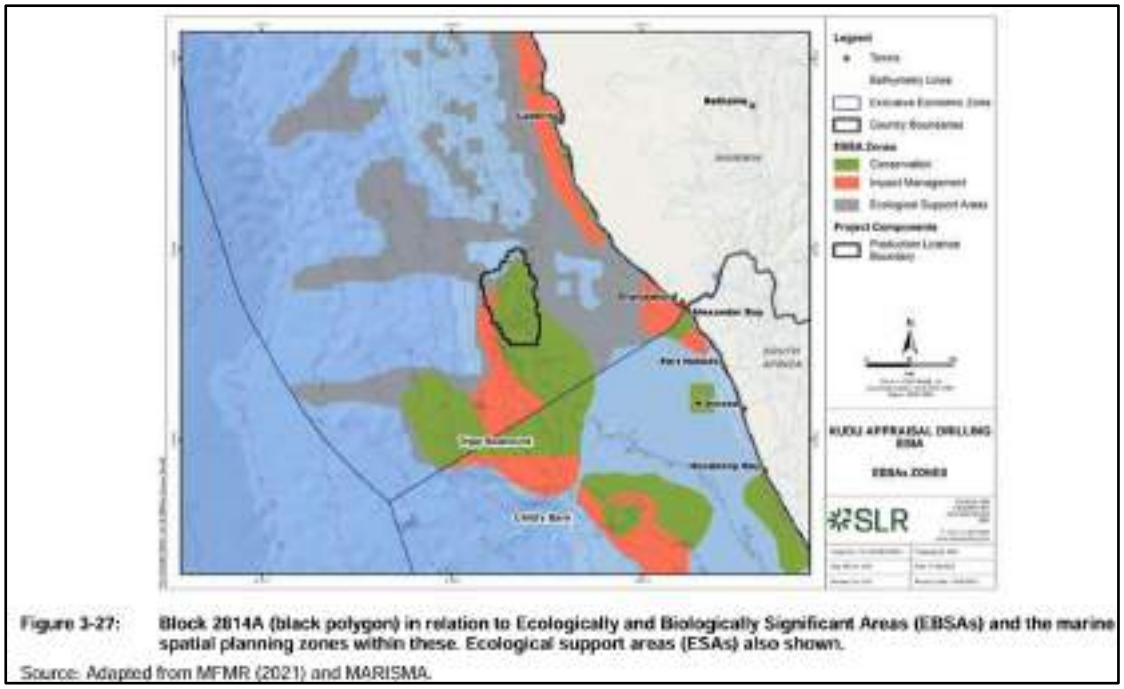

Figure 3-27: Block 2814A (black polygon) in relation to Ecologically and Biologically Significant Areas (EBSAs) and the marine spatial planning zones within these. Ecological support areas (ESAs) also shown.

Source: Adapted from MFMR (2021) and MARISMA.

The proposed EBSA management designations are not currently tied to legislation, but they were developed through a scientific and technical process aimed at developing coherent and evidence-based recommendations as described here:

> "To develop the evidence-based recommendations for EBSA management, EBSA threat **status is assessed in terms of the pressures and threats to their key biodiversity features** (based on data from the BCC Project BEH 09-01: Spatial Biodiversity Assessment and Spatial Management, including Marine Protected Areas - see associated paper here). T**hese are the features that must remain intact to ensure that coastal and marine biodiversity and ecological processes persist into the future and, ultimately, contribute to sustainable ocean use.** In order to safeguard these key biodiversity features, EBSAs or parts of **EBSAs may require enhanced risk aversion, achieved by more strongly regulating human activities in specific zones.**" [17] [**Emphasis added**]

Given this planning process is already in motion and any future licensing decisions would need to be in line with the plans resulting from this process, it would not be prudent to allow oil exploration in Block 2814A.

Noise Impacts from Support Helicopters are Underestimated

The Marine Ecology Impact Assessment underestimates the potential noise impacts to sensitive coastal receptors from support helicopters. The document states:

[17] https://cmr.mandela.ac.za/EBSA-Portal/Namibia/Namibian-EBSA-Status-Assessment-Management

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> "It is estimated that there could be up to three trips per week between the drilling unit and the helicopter support base (i.e., 14 weeks (approximately 100 days) x 3 = 43 trips per well)."

The document also describes the potential for this disturbance to impact many sensitive species:

> "...the flight path between the Block 2814A and Lüderitz would cross over the NIMPA, and any sensitive coastal receptors (e.g. key faunal breeding/feeding areas, bird or seal colonies and nursery areas for commercial fish stocks). Similarly, sensitive coastal receptors near Oranjemund (144 km inshore) may be affected. In addition, migratory pelagic species transiting through the drill area may also be directly affected.
>
> Seabirds and seals in breeding colonies and roosts along the coast could be impacted where the flight path crosses the coastal zone. Some of the seabirds roosting and nesting along the coast are listed by the IUCN as 'Critically Endangered' (e.g. African Penguin), 'Endangered' (e.g. Bank Cormorant, Cape Cormorant and Cape Gannet), 'Near threatened' (e.g. African Black Oystercatcher and Crowned Cormorant) or 'Vulnerable' (e.g. Damara Tern). The Cape Gannet is also considered as 'Critically Endangered' nationally. In addition, there are Southern Right [whale] calving and nursing areas in Lüderitz and Elizabeth Bay."

However, this doesn't factor in round trip travel, which would mean 84 trips per well past sensitive coastal receptors (i.e., 14 weeks x 3 trips x 2 directions = 84). That means disturbance would occur twice a day for 42 days in the approximate 100-day period. Because the wells would be drilled one at a time over a two year period and at different locations in the block, the actual impact to sensitive coastal receptors would cover a longer period of time and, therefore, the disturbance factor would need to be multiplied by a factor of four.

Noise Impacts of Vessels and Vertical Seismic Profiling are Mischaracterized

The Marine Ecology Impact Assessment incorrectly equates the noise generated by seismic exploration and drilling activities with the noise generated by generic vessel traffic with respect to the health and safety of marine mammals.[18] Vessel traffic noise typically covers a broader range of frequencies at lower intensity while seismic exploration generates loud blasts concentrated at low frequencies that are important to marine mammals.

Page 126 of the Marine Ecology Impact Assessment states:

> "Since Block 2814A is located in a main marine traffic route experiencing increased vessel noise and as the sound source during drilling operations will be stationary, the intensity of the impact of potential behavioural disturbance as a result of drilling and vessel noise on cetaceans is considered to be **low**."

[18] https://www.dfo-mpo.gc.ca/oceans/noise-bruit/about-a-propos/index-eng.html

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This is faulty logic that is not supported by the science of sound nor marine mammal physiology.
Marine animals rely on sound to find food, reproduce, communicate with the group and their young, avoid predators and dangers, navigate, and sense their surroundings. Seismic survey noise is a widespread degradation of their acoustic habitat. The stress response to noise is highly conserved among all species in which it has been studied.[19]

Documented impacts of noise on whales include: masking (i.e., obscuration or obliteration of sounds of interest); change in call rate; avoiding important habitats; reduction of feeding and feeding success; decreased reproduction; decreased awareness of predators or dangers; disruption of migration, hearing damage; stress (e.g., impaired immune and reproductive function); strong escape responses, and death.[20]

For context, the scale of noise impact from a single air gun seismic survey can cover an area of > 300,000 km^2, raising background noise levels 100-fold (20 dB), continuously for weeks or months.[21] Nieukirk et al. (2012) analysed 10 years of mid-Atlantic ridge recordings, finding that seismic air cannons were heard at distances of 4,000 km from reconnaissance vessels and featured 80-95% of days per month for more than 12 consecutive months in some locations.[22] When several studies were recorded simultaneously, the sounds of the whales were masked (drowned) and the noise of air guns became the dominant feature of background noise levels.[23]

The Cumulative Impact Assessment for the Marine Environment Ignores Existing Oil Wells in Block 2814A and Makes Incorrect Claims About Impacts from Offshore Oil Wells in the Region

Section 5.3 Cumulative Impacts of the Marine Ecology Impact Assessment describes oil operations in adjacent blocks and the primary impacts of these activities:

> "With regards to offshore exploration operations, recent and current exploration drilling activity has taken place/is planned in adjacent Block 2813A and nearby Block 2813B (GalpMobane wells) as well as Block 2912 (TEEPNA - Nara well), 2913B (TEEPNA - Mangetti and Venus wells), 2913A (Shell - Cullinan, Jonkers, Lesedi and Graff wells), and 2914B (Shell - La Rona well). Additionally, an ECC was

[19] Wright, A.J., N. Aguilar Soto, A.L. Baldwin, M. Bateson, C.M. Beale, C. Clark, T. Deak, E.F. Edwards, A. Fernández, A. Godinho, L.T. Hatch, A. Kakuschke, D. Lusseau, D. Martineau, L.M. Romero, L.S. Weilgart, B.A. Wintle, G. Notarbartolo-di-Sciara, and V. Martin. 2007. Do marine mammals experience anthropogenic noise-related stress? Int. J. Comp. Psych. 20: 274-316.
[20] Weilgart, L.S. 2007. The impacts of anthropogenic ocean noise on cetaceans and their implications for management. Can. J. Zool. 85: 1091-1116; Weilgart, L., 2018. The impact of ocean noise pollution on fish and invertebrates. Report for OceanCare, Switzerland. https://www.oceancare.org/wp-content/uploads/2022/05/Underwater-Noise-Pollution_Impact-on-fish-and-invertebrates_Report_OceanCare_EN_36p_2018.pdf
[21] IWC (International Whaling Commission). 2005. Report of the Scientific Committee. Annex K. Report of the Standing Working Group on Environmental Issues. J. Cetaceans Res. Manag. 7 (Suppl.): 267–305; IWC (International Whaling Commission). 2007. Report of the Scientific Committee. Annex K. Report of the Standing Working Group on Environmental Issues. J. Cetaceans Res. Manag. 9 (Suppl.): 227-296.
[22] Nieukirk, S.L., Mellinger, D.K., Moore, S.E., Klinck, K., Dziak, R.P., & Goslin, J. 2012. Sounds of BB guns and fin whales recorded in the mid-Atlantic Ocean, 1999-2009. J. Acoust. Soc. Am. 131 (2): 1102–1112.
[23] Ibid.

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recently granted (2024) for exploration well drilling in Block 2813B (Harmattan / Chevron) and neighbouring Block 2914A (Rhino)...

The primary impacts associated with the drilling of exploration and appraisal wells (normal drilling operations), relate to physical disturbance of the seabed, discharges of drilling solids and muds to the benthic environment, the presence of infrastructure remaining on the seabed and underwater noise associated with vessels and the drill unit."

However, this section does not mention the fact that wells are already present in Block 2814A –shown as green dots in Figure 3-30 – nor does it consider these wells would have their own footprints of impact already in the block.

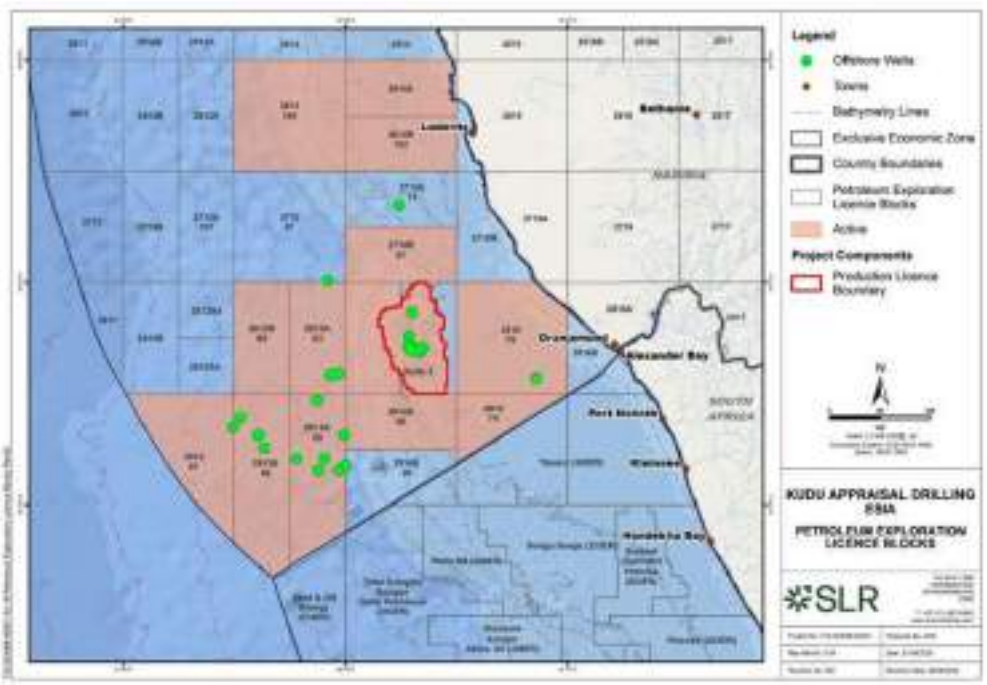

Figure 3-30: Block 2814A in relation to Licence Blocks and existing wells in Namibian waters.
Source: Adapted from MFMR (2021).

Furthermore, this section incorrectly claims there is no evidence of cumulative impacts from offshore oil wells in South African and Namibian waters:

"Despite the number of wells drilled in the South African and Namibian offshore environment, there is no evidence of long-term negative change (cumulative impacts) to faunal population sizes or irreparable harm as a direct result of these exploration and appraisal activities."

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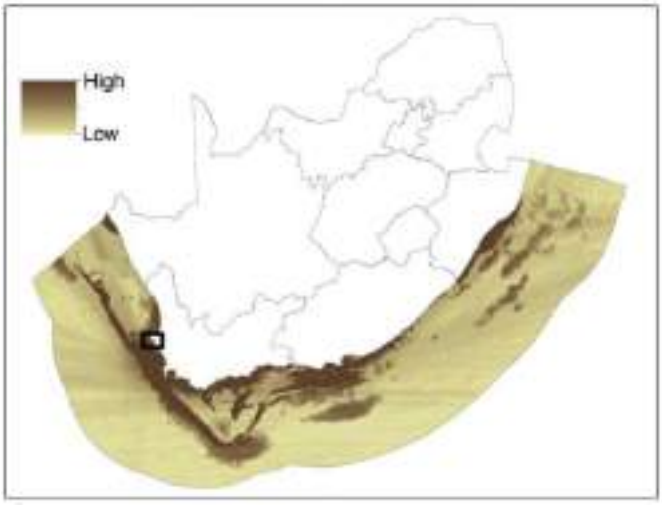
A National Biodiversity Assessment conducted in South Africa in 2018 provides an analysis of cumulative impacts – the resulting figure below shows a significant portion of the western South African coast and shelf edge is already experiencing high levels of cumulative pressures and impacts. The study notes: "areas of high cumulative pressures translate into areas of severe ecosystem degradation and poor ecosystem condition, particularly in the inner shelf and shelf edge…".[24]



Mitigation Measures are Inconsistently Described and Woefully Inadequate

Benthic

The Marine Ecology Impact Assessment (MEIA) includes inconsistent information on the proposed pre-drilling ROV surveys and ultimately proposes inadequate survey distances.

On page 106, the document states:

> "International best practice recommends that pre-drilling site surveys be carefully designed to provide sufficient information on seabed habitats on and in the vicinity of the proposed drill sites, and appropriate technologies and monitoring surveys implemented to reduce the risks of, and assess the damage to, vulnerable seabed habitats and communities should they occur in the target area (Jødestøl & Furuholt, 2010; Purser & Thomsen, 2012; Purser, 2015). In this regard, a set-back distance of 610 m (2 000 ft) for sea surface discharge of drilling discharges from sensitive deep-water communities is mandated in US territorial waters." [emphasis added]

[24] Sink KJ, Holness S, Skowno AL, Franken M, Majiedt PA, Atkinson LJ, Bernard A, Dunga LV, Harris LR, Kirkman SP, Oosthuizen A, Porter S, Smit K, Shannon L. 2019. Chapter 7: Ecosystem Threat Status. In: Sink KJ, van der Bank MG, Majiedt PA, Harris LR, Atkinson LJ, Kirkman SP, Karenyi N (eds). 2019. South African National Biodiversity Assessment 2018 Technical Report Volume 4: Marine Realm. South African National Biodiversity Institute, Pretoria. South Africa. http://hdl.handle.net/20.500.12143/6372

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On page 149, the Cumulative Impacts states:

> "In addition, BW Kudu will actively avoid and reduce potential impacts on sensitive and potentially vulnerable habitats by ensuring that wells are ≥500 m from such habitats (using ROV survey prior to drilling). Cumulative impacts are therefore less likely." [emphasis added]

In contrast to what's described above (610-m mandated set-back in the U.S.; ensuring wells are ≥500 m from potentially vulnerable habitats), the mitigation plan indicates technical constraints will limit the ROV survey radius to 200 m:

Table 5-4: Mitigation to reduce impacts from smothering and disturbance of benthic fauna.

No.	Mitigation measure	Classification
1	Undertake operational and seabed ROV surveys to ensure there is sufficient information on seabed habitat at the well site, including investigating potentially sensitive and/or vulnerable habitats and identifying any colony forming corals and structural features within a distance of 200 m[20] from proposed well site.	Avoid / reduce at source
2	If potentially sensitive species or structural features are identified during the pre-drilling ROV surveys, the footage should be reviewed by a marine	Avoid / reduce at source

[20] Drilling discharge modelling predicted that areas of significant deposition (>6.5 mm) will be confined to a maximum distance of ~155 m. The specified survey radius (200 m) encompasses this predicted impact zone while remaining within the technical constraints of typical ROV operations at these depths.

****It's important to note** that the MEIA and Drilling Discharge Modelling report describe impacts to benthic communities could extend much further than the ~155 m described above in Footnote 20 from Table 5-4 and which only corresponds to sediment deposition. Detrimental changes to oxygen levels and the chemical footprint of drilling muds is expected to extend much further (1.4 km) – page 117 of the MEIA:

> "The environmental risk to the sediment is found to be more chemical than physical for the risered stage, due to the hydrotreated light petroleum distillate (base oil) EDC-99 DW, EZ MUL NT-A (mostly fatty acid component of the product) and INVERMUL NT-B (mostly the fatty acid component), which make up NADFs, and which together contribute between 52.4% to 56.4% of the risk to sediments. Risk due to total concentration of chemicals in the sediment extended up to 1.4 km (within/near site), reducing over time to within 310 m and 444 m from discharge point L1 (209 m) and L2 (257 m), 10 years after operation, respectively."

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Marine Fauna

The MEIA notes that data collected by other organizations make it clear that Vulnerable, Endangered, and Critically Endangered species are present in the project area, including the following:

- Blue whale is considered Critically Endangered;
- Fin whale and Sei whale are considered Endangered;
- Sperm whale,
- Bryde's whale (inshore) and the Humpback B2 subpopulation 6 are considered Vulnerable; and
- 10 cetacean species are listed as Data Deficient with respect to their distributions and population trends in southern Africa.
- Leatherback, Loggerhead and Olive Ridley sea turtles are listed as Vulnerable on one or more conservation status list
- Hawksbill sea turtle is listed as Critically Endangered
- Green sea turtle is listed as Endangered

Furthermore, Table 3-8 shows that there would be high (H) abundances and likely encounter rates for protected species of whales throughout the year. While the species shift in abundance due to their migration and behavior patterns, there is not a single month in which the abundance/likely encounter rate is characterized as low for all species. Thus, no matter what time of year the project work may occur, it is expected that some species of concern will be in high abundance.

Table 3-8: Seasonality of baleen whales in the broader project area based on data from multiple sources, predominantly commercial catches (Best 2007 and other sources) and data from stranding events (NDP unpubl data). Values of high (H), Medium (M) and Low (L) are relative within each row (species) and not comparable between species. For abundance / likely encounter rate within the broader project area, see Table 3-7.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bryde's (inshore)	L	L	L	L	L	L	L	L	L	L	L	L
Bryde's (offshore)	H	H	H	L	L	L	L	L	L	L	L	L
Sei	L	L	L	L	H	H	L	H	H	H	L	L
Fin	M	M	M	H	H	H	M	H	H	H	M	M
Blue	L	L	L	L	L	H	H	H	L	M	L	L
Minke	M	M	M	H	H	H	M	H	H	H	M	M
Humpback	M	M	L	L	L	H	H	M	M	L	M	H
Southern right	H	M	L	L	L	H	H	H	M	M	H	H
Pygmy right	H	H	H	M	L	L	L	L	L	L	M	M

Despite the presence of these sensitive species, the document doesn't describe appropriate precautions. In fact, the mitigation measures to reduce potential impacts to marine mammals would not meet the standards of good practice even if there were only species of Least Concern in the area (which is not the case).

The mitigation plan does not employ best practices for seabird and marine mammal monitoring by not having enough observers for the work plan described and by allowing drilling activity to occur with visual or acoustic monitoring alone instead of always requiring both. In particular, the project plans to allow seismic activity at night with only passive acoustic monitoring (PAM) as a means of preventing marine mammal impacts when

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PAM is best used as a complementary tool to visual monitoring. Seismic exploration should only occur during the day when appropriate visual surveillance conditions exist. In addition, the project proposes to have a total of only 2 observers on board, while best practices require 2 observers to be active simultaneously whenever seismic activity is underway. It is not realistic that only 2 observers in total could provide coverage for up to 12 hours of daylight with each taking appropriate breaks to maintain reasonable and safe health. The use of trained observers located on the seismic vessel with binoculars to detect the presence of marine mammals, and give orders to immediately turn off acoustic equipment when observing a marine mammal – is a fundamental requirement for conducting seismic surveys.[25]

General Issues

Many figures are at a low resolution that makes text difficult to read and the figures difficult to interpret (potentially limiting access to information critical to understanding the project). For example, in Figure 5-1, "Locality Map of Block 2814A (with co-ordinates) off the southern coast of Namibia", the coordinates are illegible.

The underwater noise modeling used two deepwater source locations in Block 2814A: L1 at 250 m, and L2 at 700m. While these locations provide a good spread of depths located within Block 2814A, they differ from L1 (209 m) and L2 (257 m) used in the oil spill modeling and the drill cuttings discharge modeling. Additionally, Table 10 of the Underwater Sound Transmission Loss Modelling appears to mislabel deep and shallow scenarios.

The Marine Ecology Impact Assessment contains errors throughout and is missing references (e.g., DEAT 2004, ITOPF 2022), see instances of "Error! Reference source not found." below:

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Residual Impact

This potential impact cannot be eliminated due to the nature of the drilling approach and the need for and nature of the cuttings discharge. As no mitigation is proposed for communities in unconsolidated sediments (except for monitoring and the minimising discharge of cement, see Section **Error! Reference source not found.**), the significance of residual impacts r emains **medium** (Table 5-2).

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[25] For example, see U.S. Code of Federal Regulations, Section 217.184 – 50 CFR Mitigation Requirements, Part 217, Subsection S

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5.2.1.5 Mitigation Measures

Table 5-4**Error! Reference source not found.** lists the recommended mitigation measures to avoid or mitigate impacts on benthic fauna from smothering and disturbance.

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5.2.2.5 Mitigation Measures

Table 5-8 lists the recommended mitigation measures:

Table 5-8: Mitigation to reduce impacts from reduced sediment and water quality.

No.	Mitigation measure	Classification
1	Refer to Section **Error! Reference source not found.** for mitigation measures to avoid colony forming corals and/or structural features on the seafloor.	Avoid / reduce at source

I do hope the comments above are well received.

Best Regards

Corinna van Wyk
Project Coordinator,
Land, Environment and Development (LEAD) Project
Legal Assistance Centre
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NAOGSP POSITION PAPER
BW KUDU ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY

Introduction:

This position paper has been prepared by Peter Armitage, Technical Advisor to the NAOGSP.

Mr. Armitage is a senior Oil and Gas Executive, with over 60 years in the energy business, and 56 years in oil and gas. His background is in electrical engineering, marine operations, oil and gas well drilling, production and construction. A first class Honours Degree in Environmental Science (Earth Sciences and Biological / Ecological Sciences) and with a Master's Degree in Petroleum Engineering from Stanford University, California. Mr. Armitage has been a Consultant to most of the major International Oil Companies for over forty years and an expert appointed by the United States Department of Justice after the prosecution of BP as a result of the Macondo Well blowout in the US Gulf of Mexico in April 2010. He also was appointed as an expert witness by Freshfields Bruckhaus Derringer, London, for a mature oilfield in Yemen. He was the lead Petroleum Engineer in the development of the first Environmental Impact Assessment prepared for the Argentine Government, by Shell Argentina. This was for an exploration well in the West Atlantic, offshore Mar de Plata, drilled in 1996. The EIA was adopted by the Argentine Government as the Environmental Impact Assessment template for the 1995 Joint Declaration concluded with the UK for the common exploration and exploitation of hydrocarbons offshore the Malvinas / Falklands Islands. He also led the development of the first Environmental Impact Assessment presented to the Government of Oman, when new legislation was introduced. This was for a 13,000 ft wildcat exploration well drilled in a remote desert environment in northern Oman in1993.

Background

BW Kudu (hereafter BWK) commissioned an Environmental and Social Impact Assessment study and issued a draft report on 10 February 2025. BW Kudu intend to apply to the Government of Namibia for an Environmental Clearance certificate (ECC) prior to undertaking seabed sampling and the drilling of up to four appraisal wells. The draft report has been prepared in compliance with section 15 (two) of the AIA regulations 2012. The study and report purports to identify what will be the consequences of the intended activities in terms of potential impacts on the bio-physical, social and economic environment. BWK requested interest parties to comment on any aspects of the proposed activities and the findings of this ESIA process.

The NAOGSP has commissioned this review of the draft report in order to provide input to BWK on issues that are considered to be of importance in the context of protecting the physical environment and the socio-economic environment for Namibia and Namibians.

Objective of the BW Kudu Study

BWK states (2.2) that the objective of the "Impact Assessment Phase" was "To carefully study and understand the potential impacts identified during the Scoping Phase and to develop mitigation measures to avoid and / or reduce their effects. This phase aims to ensure the proposed activities, if authorised, move forward with minimal negative effects on the environment and society". This NAOGSP review of the BWK study report makes the assumption that the authors consider that all

the potential impacts were assessed, consequences of such impacts identified and mitigations identified with the intention that BWK would put in place such mitigation measures.

NAOGSP Concerns

2.2 Key Activities – Specialists Studies

It is considered that some of the required "Specialist Studies ", that have not been conducted, should have been conducted, and their conclusions included in the BWK ESIA. This is considered a major failing; significant environmental and socio-economic impacts appear to have been neglected and this should be of concern to the Government of Namibia and its peoples. Individual shortcomings are identified throughout this document.

It is further considered that the Namibian Government should insist that the further specialist studies identified herein as being required, must be conducted and that any negative impacts identified, and their mitigations, bw identified and put in place as part of BWK's plans. This must occur prior to issue by the Government of an ECC.

Table 1:

- Water Depth Range for the appraisal wells is scoped as between 150 m and 750 m depth. Such variations in water depth allow for a wide range of choice of drilling unit, the technologies for which are potentially very different. The different impacts that may arise due to choice of the type of drilling unit are not addressed in the study in any way. The final ESIA report, and Government approvals, should not be issued until the drilling rig planned to drill the appraisal wells has been decided, specific impacts identified and mitigations put in place.
- Water-based muds (WBM) will be used to drill top-holes during the riserless drilling phase. For a further detailed discussion on the impacts of drilling cuttings see further below

3.2 Safety Zone

In the event an anchored drilling rig is contracted, the size of the safety zone around the rig and anchor-spread should be determined beforehand and included in the final ESIA report.

3.3 Drilling Operations / Initial Riserless Drilling Stage

It is noted that 26" hole will be drilled to a depth of 625 m below the seabed, using sea-water with water-based mud (products) and viscous sweeps for hole cleaning. Given that:

- There have been a number of wells drilled in the Kudu field over the last half-century and more;
- That drilling techniques have significantly improved over that time period, especially casing cementation;
- Previous exploration and appraisal wells drilled, which intersected hydrocarbon zones, should have been securely cemented-off to prevent their oil and gas flowing to previous casing shoes or to the surface. There is a possibility that poorly-cemented deeper-set casings through hydrocarbon zones in any of those many prior exploration and appraisal wells, could have allowed gas from the Kudu reservoir to flow / leak behind those deeper casing strings into small, shallow stringers of porous and permeable formations. This should be of particular concern for wells drilled as long ago as sixty (60) years, which might have suffered corrosion of the casings if left exposed to water and without oxygen scavengers in the fluids used for suspension or abandonment. The BWK report makes no mention whatsoever of this possibility.

It is generally accepted, globally in the industry, that because of such considerations, precautions should have been taken to determine the apossibility that a shallow reservoir could be present that has become charged with high pressure gas and that this could lead to a shallow gas blowout.

While the volumes of such shallow gas reservoirs are generally limited, such blowouts have historically led to loss of life and loss of drilling rigs. In the fifteen-year period 2000 to 2015[1], a total of thirty-four (34) shallow gas blowouts occurred worldwide. Ten (10) of these were being drilled by floating rigs, three (3) drillships and seven (7) semisubmersibles. BSEE (the US Bureau of Safety and Environmental Enforcement) concluded that "Shallow gas releases from LOWC events occurring when drilling with drillships and semisubmersibles are normally released on the sea floor. The risk for the installation (i.e. drilling vessel) will depend on the water depth and the gas flow rate. In deepwater the gas will pose limited danger for an installation …. In shallow water shallow gas released on the seafloor can represent a danger. While the danger of an explosion may be limited, loss of buoyancy due to gasification of the sea around the rig may lead to loss of the rig and fatalities. BSEE estimates that the "Loss of Well Control frequency for shallow ga"s has steadily increased over that time period and as of 2014 was of the order of 0.008 shallow gas blowouts per well drilled, or a probability of 0.8%, i.e. a recurrence interval of 125 years. This is considered "a relatively high risk". Mitigations that should have been considered by BWK, and should now be considered before applying for environmental clearance. These should include:

- A review of the necessity of conducting shallow seismic surveys over the planned well sites, i.e. a shallow gas hazard study.
- Pre-drilling an offset small diameter pilot hole to the planned surface casing depth, which is stated to be approximately 625 m. Such a small diameter hole would limit the gas flowrate to such that its density at surface would not create vessel instability and would allow the entire reservoir to be discharged safely before commencing drilling the appraisal well by opening up the pilot hole to the required diameter for surface casing.

It should be noted that as long ago as 2003, the US Government Minerals Management Service (MMS), the regulator at that time (prior to the Macondo well blowout) issued a "Safety Alert[2]". This addressed the need to plan for shallow gas hazards in any well drilled from (i.e. close to) a previously drilled surface location, and that shallow-gas hazard studies should be conducted.

3.3 Drilling Operations / Well Logging – VSP

There is no mention of the extent to which the discharge of air-guns at surface during VSP logging operations affects marine mammals, which are sensitive to noise. This matter is addressed briefy only in 5.1.1.2, and which is almost dismissive: it states that impulsive noise is predicted to occur only up to 690 m from the source. Table states that "as many as thirty-five (35) species of whales and dolphins are known or likely to occur in Namibian waters … and thus could be encountered in Block 2814". However, appendix H (3.3.3.6. Marine Mammals) states only that "Namibian waters host resident species such as the endemic Heaviside's dolphin, bottlenose and dusky dolphins", but there is no mention of any specific whale species populations or their sizes, other than "The most common species within the broader project area (in terms of likely encounter rate not total

[1] Reference: Loss of Well Control Occurrence and Size Estimators, Phase I and II, Exprosoft, Final Report to BSEE, 4 May 2017, Report Number ES201471/2

2 MMS Safety Alert No. 212, 7 April, 2003

population sizes) are likely to be the humpback whale and pilot whale.". It is noted that there is then a contradiction, in that it goes on to state "The Namibian shelf and deeper waters have been poorly studied with most available information in deeper waters (>200 m) arising from historic whaling records … Current information on the distribution, population sizes and trends of most cetacean species, especially smaller cetaceans, occurring in Namibian waters is lacking.". Walvis Bay was the most active whaling area historically, but whaling activities ceased towards the end of the 19th century, mainly due to the advent of the oil and gas industry. The main data on which this part of BW Kudu's study is based is therefore likely well over one hundred years old.

The report concludes that "… drilling noise is considered to be of VERY LOW significance" presumably because it is concluded that "behavioural effects are generally short-term, with duration of the effect being less than or equal to the duration of exposure".

We take issue with this conclusion, because it is generally accepted by marine biologists that the effect of marine noise is little understood and there has been remarkably little research. So much so that various USA departments[3] identified a large number of research projects that should be initiated[4].

It is also generally accepted by marine biologists that determining the responses of marine mammals to marine noise has proved difficult, due to variability in species-, population-, and individual-specific characteristics and responses. Many studies have suffered bias historically from observer presence because most marine mammal studies are, by necessity, vessel-based. This introduces a potential source of bias from the presence of the research vessel and the noise it creates. Many studies failed to differentiate between the effects of vessel presence and vessel noise. Due to the challenges associated with studying these fast-moving, far-ranging, often-submerged animals, the majority of marine mammal behavioral response studies in the wild have concentrated on visible changes to physical behavior at the sea surface, such as changes in occurrence or cessation of certain activities. Few have considered a combination of behavioral changes, including acoustical behaviors, and it is generally accepted that little to nothing is known about whether the observed responses of any marine mammal actually matters in terms of biological significance.

Mitigation measures proposed by BW Kudu during VSP operations would appear to be ineffective in lessening the impact, since they are limited to only visually observing them (with what intent?); acoustic monitoring (again with what intent?); soft start procedures (how does one "soft start" a VSP gun?); low visibility procedures (again, with what intent, since the rig could not maneuver out of the way of a large mammal) and shut-down procedures; it is not clear if this means that VSP shots will not be activated if marine mammals are observed, nor what actions would be taken to "make them go away", and to what distances (and how to track them) before VSP shots were initiated!

Concern about the potential effects of ship noise on marine mammals is not recent, but has been raised for decades. As ship noise peaks in the low frequencies, early studies primarily focused on low-frequency specialist species such as mysticetes (i.e., baleen whales). Mysticetes produce and

[3] Office of Naval Research, National Oceanic and Atmospheric Administration, National Science Foundation, U.S. Geological Survey

[4] National Ocean Partnership Program (see footnote immediately above)

use sound at the frequencies emitted by large ships[5], and they are considered to be more sensitive at these low frequencies than are other marine mammals. However, ships also emit significant energy at higher frequencies (tens of kHz) and so odontocetes (i.e., toothed whales, dolphins, and porpoises), which specialize in high-frequency sound usage, can also be affected.

VSP signals are generated typically using a seismic source (air gun) suspended from a buoy at around seven (7) meters below the surface of the sea. The widespread use of powerful, low-frequency air gun pulses for seismic seabed exploration has raised concern about their potential negative effects on marine wildlife. An array of air guns creates a downward-directed, low-frequency pulse with most energy concentrated around 50 Hz and a source level between **230 dB** and **260 dB** with ***ocean-traversing potential***[6]. Note that workplace noise is hazardous to humans with repeated exposures of **85 dB** or higher; most countries have health legislation that limits exposure to noise levels of **100 dB** to less than 15 minutes per day. Being around a jet plane taking off with no hearing protection gear can cause immediate damage or even cause eardrums to rupture. Noise pulses of sudden onset and brief duration (less than 1 second) that usually exceed an intensity of **140 dB** includes those that result from firing a handgun, detonating a firework, backfiring of a piston engine, high-volume squelching of radio equipment, and a sonic boom caused by breaking the sound barrier. Permanent damage to humans occurs[7], including the eardrum being rupture, with intense levels (**140 dB**) of impulse- or blast noise. Each noise level increase of 10 dB represents a tenfold (10x) increase in the intensity of sound; therefore a noise level of 260 dB is 10^{15} times more intense than a noise level of 85 dB; massively more!

This is of particular importance because of the phenomenon of cetacean stranding, better known as whale beaching. This is one in which whale and dolphins strand themselves on land, usually on a beach. Beached whales often die due to dehydration, collapsing under their own weight, or drowning when high tide covers the blowhole.

Several explanations for why they strand themselves have been proposed, including changes in water temperatures, peculiarities of whales' echolocation in certain surroundings, and geomagnetic disturbances. None have so far been universally accepted as a definitive reason for the behavior. However, a link between the mass beaching of whales and use of mid-frequency active sonar has been found. On some occasions cetaceans have stranded shortly after military sonar was active in the area, suggesting a link. Theories describing how sonar may cause whale deaths have also been advanced after necropsies found internal injuries in stranded cetaceans.

The low frequency active sonar (LFA sonar) used by the military to detect submarines is the loudest sound ever put into the seas; the U.S. Navy deploys LFA sonar across much of the world's oceans. At an amplitude of two hundred forty decibels (**240 dB**), it is loud enough to kill whales and dolphins and has already caused mass strandings and deaths in areas where U.S. and/or NATO forces have conducted exercises[8]. It should be noted that such sound levels, claiming to be "the loudest sound

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[5] National Library of Medicine, Center for Biotechnology Information, Ocean Noise and Marine Mammals, Frontiers of Marine Science, 10 October 2019, Marine Conservation and Sustainability, Volume 6 – 201

[6] Air Gun Arrays as Noise Sources: Output, Impact Zones, and Frequency Contient, Peter T. Marsden, Woods Hole Oceanographic Institution, Woods Hole, MA 02543, USA.

[7] US Federal Aviation Administration; Heating and Noise in Aviation, Civil Aerospace Medical Institute, Education Division, Report AM-400-98/3, Melchor J. Antuñano, M.D. James P. Spanyers

[8] Whitty, Julia (2007). The Fragile Edge: Diving and other adventures in the South Pacific. Houghton Mifflin Harcourt. ASIN B002V1GZN2

ever put into the sea", are similar levels to the emissions of VSP guns. It is also known that the large and rapid pressure changes made by loud sonar can cause hemorrhaging. Evidence emerged after seventeen cetaceans were stranded in the Bahamas in March 2000 following a United States Navy sonar exercise[9]. The Navy accepted blame, agreeing that the dead whales experienced acoustically induced hemorrhages around the ears. It was also accepted that the resulting disorientation probably led to the beach stranding. Other investigations of similar beaching of dolphins found that the powerful sonar pulses resonated within their internal air spaces, tearing tissue around the ears and brain.

While this evidence is not definitive, it is difficult to accept BW Kudu's assertions and conclusions that "… drilling noise is considered to be of **VERY LOW significance**" and that "behavioural effects are generally short-term, with duration of the effect being less than or equal to the duration of exposure". It seems reasonably obvious that this issue was studied somewhat superficially and should be the subject of further consideration.

3.3 Drilling Operations / Well (flow) testing

There is no mention of what will be the maximum oily water content or maximum oil content of the 300 cubic meters (300 tons) of produced water, and whether or not it is planned to discharge it to the sea. It is not well understood even in the oil and gas industry, but the international marine legislation that in some circumstances allows oily water of parts per million (ppm) concentrations to be discharge overboard is limited to engine-room operations, not the industrial efluemts that may arise from drilling operations. While there is no mention that it is intended that these 300 tons of produced water are to be transported to shore, it should be stated quite specifically that this will be the case and that this produced water will be disposed of safely and without causing any environmental impact.

3.3 Drilling Operations / Demobilisation

The intention is to leave the wellhead on the seabed "if deemed safe to do so". There is no mention of what considerations will be addressed during such risk assessments, thereby leaving the reader concerned at the possible residual risks of leaving such wellhead(s) on the seafloor. Considerations might include:

- Possible damage to trawling fishing vessels, including loss of stability and capsizing of such vessels;
- The maximum length of time (risk exposure time) that they will be left on the seabed prior to the wells being hooked up to production facilities, and possibility thereafter subject to safety exclusion zones;
- At what stage would such wellheads be removed, i.e. the wells subsequently properly abandoned and made safe, if BWK's current plans for field development should change. Who would subsequently make these wells safe, and pay for their proper abandonment, if BWK were to relinquish its license for the Kudu block? It would appear that under current Namibian legislation (or rather lack of such legislation) it would be left to the people of Namibia to bear the burden and risk of such costs.

[9] Bahamas Marine Mammal Stranding, Joint Interim Report. December 2001

3.4 Emergency Response / 5.2.4 Well Blowout

In a document that purports to seek approval from the Government of Namibia for Environmental approval to commence drilling appraisal wells, these entire sections appear woefully inadequate. Its states "*In the unlikely event of an oil spill, BW Kudu and the drilling contractor will have an emergency response plan and equipment in place to clean-up such a spill.*".

Such an Emergency Response Plan must be entirely the responsibility of BWK, not the drilling contractor. Obviously the drilling contractor would be expected to have an input into such plans, since it would be its personnel on board the drilling rig who would execute the drilling rig's required actions in the event of such an oil spill. The Emergency Response Plan must cover multiple potential accidents. This is not intended to be a complete list, since any competent Operator must know this these should include:

- Oil spill continency plan
- Collision avoidance plan
- Blowout Contingency Plan
- Et cetera

Becoming a member of OSRL is a necessary, but on its own it is an *insufficient* action to effectively manage such risks. As such, it fails to recognize the following:

- Again, access to a capping stack is a necessary but insufficient action. A thorough Blowout Contingency Plan is required by most IOC's policy documents for all offshore wells. It is necessary and customary for such plans to be in place, "bench-tested" by the Operator, drills conducted on board the rig and verified as adequate by the Regulator *before* approval is given for drilling of any well. The limitations imposed on potential effectiveness of mitigations, by only considering the availability of a capping stack, and the likely negative consequences of not having a proven effective Blowout Contingency Plan in place in the event of such an event, are discussed further in Attachment 1.
- There is no mention of the very high probability that in the event of a total loss of well control, with a large amount of gas (and possibly volatile condensate[10]) enveloping the rig, an explosion will result. It is not possible to fight a "gas" fire after an explosion, the source must be shut off. There is no mention of the potential loss of the vessel, resulting pollution and the potentially total loss of life of the entire rig/vessel complement. This fails to recognize:
    - A major potential source of pollution on loss of the vessel (drilling rig), from vessel fuel, base-oil, mud and cement chemicals;
    - The socio-economic impact of multiple injuries and the loss of a large number of lives;
    - The fact that there is no Namibian legislation that addresses such possible events, and that:
        - As a result, BWK could not be held financially liable for the consequences, which could be excessive and comparable to Namibia's GDP.
        - Under Namibian and International Maritime Law, legislation concerning pollution from all sea-going and coastal vessels, including floating drilling rigs, relates only to pollution arising from the vessel, i.e. from the marine functions of any vessel (fuel transfers, oily bilge-water disposal, etc); therefore pollution arising from the

[10] There is mention later in the document that the Kudu appraisal wells might produce condensate (a light oil)

"industrial process" conducted by drilling rigs is specifically **excluded** from such legislation.
    - This is a major gap in Namibian legislation, which results in a very large risk to Namibia and its people.
- The potential to severely damage Namibia's reputation in the global energy industry

Appendix J, Socio-Economic / Findings and Conclusions

It should be noted that 7.0 Findings and Conclusions, states that "Unplanned events would have a significant, but overall limited socio-economic impact, due to the far offshore location and temporary nature of associated impacts." It continues by stating "The most significant socio-economic impact of a well blowout is the likely increase in intensity and breadth of societal discussion of and opposition to the project and sector in general, and between people, organisations and the administration who play roles in opposing or supporting the sector. The potential contribution of the project to cumulative socio-economic impacts is **low** by virtue of its **remote location, short duration and limited impact significance**."

NAOGSP takes exception to these finding and conclusions, since they fail to consider the very significant socio-economic impact that historical well blowouts had, for example the bp Macondo well blowout in the US Gulf of Mexico. This blowout resulted in (only) eleven (11) lost lives; it had a major socio-economic impact on society along the entire Gulf coast. The impacts were of long duration, great societal significance and massive economic significance (well in excess of US$ 40 billion – NAD 720 billion). It is incorrect to state, as the report does, that the coast north or south of the Orange River estuary is considered a "remote area", since although Lüderitz is a modest-sized center of population it still has in excess of 13,000 inhabitants.

Table 2: 2 – Socio-Economic considerations, Marine Traffic
It is noted that the block overlaps ***the main marine traffic route*** from the Middle-East and Far-East to Europe and North America that passes around South Africa. The density of marine traffic on the west coast of Namibia is substantial; random access to any public on-line Marine Traffic applications better shows this (see below). This shows the typical density of vessels sailing on the west African coast at any one time.

Nowhere in the study-report is there any mention of:
- What are the contingency plans to both avoid and mitigate collision between transiting vessels and the stationary drilling rig, other than a declared ("exclusion zone"?
- What Notices to Mariners will be published to departing vessels at Walvis Bay and other ports in South Africa and both the West Coats and East Coast of Africa;
- How will the rig position and it's Exclusion Zone be communicated to transiting vessels that might have started their voyages in North America, Europe, the Middle East or the Far East / Australasian;

- What studies have been conducted to determine the probability of a rogue vessel colliding with the rig before the well could be made safe and the rig moved off the well location; note that this issues should be of even greater concern, and higher probability / risk, if the rig is anchored rather than dynamically positioned, which the report states is yet to be determined but which is nowhere addressed in the report;
- How rogue vessels, for example not keeping a required bridge lookout, which is sometimes the case with vessels on long, deep-sea voyages, would be contacted in order to change course so as to avoid a collision; also to
- What is the likelihood of the rig having insufficient time to make the well safe before a collision occurs, and whether or not the rig will keep a 24-hour bridge lookout and radio-watch (especially if anchored, since International Maritime Law has no such requirement for vessels at anchor);
- What BWK processes and guidelines are in place to ensure that the Platform Supply Vessels (PSV) serving the drilling rig have a Marine Management System that ensures that the rig actual position coordinates are not entered into its autopilot system;
- The possibility (and probability) of such a collision leading to a loss of well control, with potential consequences the same as mentioned in 3.2 Emergency Response above, pollution, loss of life, financial cost to Namibia, its people, and loss of reputation.

Planning the Emergency Response

The BWK report makes no mention of its Management System elements (or indeed whether or not BWK has a Management System), that address either the environmental or socio-economic risks of an appraisal well blowout. There is no mention of how BWK has estimated either the risks of such an event, or has properly analysed the potential consequences. BWK's approach appears to have been only superficial and it not backed up by reference to any BWK Risk Assessments, Risk Register, vessel Safety Case or Risk Matrix that might have been used in determining the level of risk, or the potential consequences, of such a Major Accident Risk.

It is noted that a typical IOC HSE Risk Matrices considers that high-level consequences ("High Potential"), for example potential multiple fatalities, total loss of the drilling rig, long-term environmental impacts, even if deemed "unlikely", are considered "Intolerable Risks" and that both preventative and mitigating controls must be put in place. Even where considered "very unlikely", such possible events are considered "Intermediate (level) Risks) that require further evaluation". For an example of such an IOC Risk Matrix, see Attachment 1.

5.0 Impact Assessment Summary

5.1 Summary of Potential Impacts from Normal Operations

5.1.1 Potential Marine Ecology Impacts

5.1.1.1 Physical Disturbance and/or Smothering of Benthic Fauna and Habitat

It is considered that the effects of sediment footprint on the seabed while drilling top hole with returns to the seabed, and to a lesser extent while drilling through a riser, is inadequately assessed. The report states "The results of the cuttings dispersion modelling study largely confirm the reports of international studies which predict the effects of discharged cuttings to be localized … modelling found that the largest depositional footprints with a thickness of > 0.1 mm (*greater than, but unfortunately not defined how much greater!!*) extended up to 1.3 km in a NW / N direction". However 5.1.1.2 Toxicity and Bioaccumulation (etc.) appears to show that these effects are, however, long-lasting, by stating that cuttings dispersion modelling study found that the environmental risk relating to the total concentration of chemicals initially extends up to 1.3 km from the drill site, but after 10 years the environmental risk is still present, possibly up to around half a kilometer from the well site.

The industry has advanced significantly in the management of cutting disposal in the last 50 years, from a situation in which raw, untreated cutting were disposed of to the sea / seabed without consideration of their environmental impacts or consequences. Some jurisdictions now require that all cutting must be shipped back to shore, treated and disposed of onshore.

It is noteworthy that this report fails to address these important issues:

- What is the cuttings treating process on-board the drilling rig?
- The absence of knowledge of the rig that will be used means that there can have been no evaluation of the suitability of cuttings separation, mud cleaning, centrifuging, etc, therefore the type, extent and significance of contamination of cuttings by toxic drilling additives, base-oil used for the drilling fluid ("mud"), synthetic oils similarly, synthetic muds, whole(contaminated) cement from casing cementations, cement materials, cement additives; Also cuttings contaminated by reservoir hydrocarbons, while drilling through potential reservoirs. This is a major failing of this study and its report.

In addition, there is no mention of whether or not, or the extent to which, cuttings clean-up will be completed fully on board the drilling rig, or whether drilling cuttings, whole fluid, or whole cement returns / contaminated cement returns while cementing casing strings and liners will be shipped to shore for disposal. Even though 5.1.1.2 mentions that "Despite the widespread dispersion of the cuttings, toxicity effects may occur in the seabed sediments and in the water column from the potential solution of the constituents and additives of the discharged WBMs and NADFs", BWK gives no details of the international standards that will be followed in such discharges to the sea and sea-bed, particularly given the absence of any Namibian legislation covering such discharges. It is worth repeating that existing Namibian marine legislation is intended to apply to oily discharges / oil wastes from the "marine" part of offshore drilling rigs, i.e. fuel transfers offshore, engine-room oily waste and, as a result, vessel bilges. Such legislation does not cover the "industrial" discharges associated with the "drilling rig" part of the drilling vessel.

In the absence of Namibian legislation, it is usual for International Oil Companies to adopt appropriate international technical and management standards for these matters. **In the case of the BWK report, there is no mention of the standards that it intends to apply.**

The Offshore Energies UK Environmental Legislation website (oeuk) provides details of both UK and International (Northeast Atlantic) legislation and Guidance Notes. These cover, inter-alia, the use and disposal of chemicals used in drilling operations, protection of maritime areas so as to conserve marine ecosystems and the restoration of marine areas that have been adversely affected. These regulations governing the disposal of oil-based drill cuttings in the North Sea came into effect as a result of the OSPAR Decision 2000/3; the regulations prohibit the discharge of oil-based drill cuttings containing more than 1% oil by weight of dry cuttings. In 2006, a second regulation came into force due to OSPAR Recommendation 2006/5, which requires drill cutting piles to be assessed to confirm that the impacts of pollution by oil and/or other substances from cuttings piles are reduced to a level that is not significant. OSPAR 2006/5 also recommends that for cuttings piles which fall below the two thresholds, no further action is necessary

This international legislation has been in place for well over a quarter of a century: **One might consider that the internationally-adopted standards applying to Northeast Atlantic (OSPAR)[11] should, in the absence of local legislation, reasonably be adopted by BWK for its Southeast Atlantic drilling operations.**

It is also noteworthy that elsewhere in the world, 50 years-worth of the sediments that were simply dumped on the seabed are often now required to be cleaned up and removed, as a part of production platform decommissioning[12]. While one might consider that few wells are being drilled offshore Namibia currently, the same was true of the UK North Sea in the late 1970's. However, given the oil discoveries offshore Namibia in the last three years, one could envisage that in thirty or forty years from now, such rig-originating wastes could be similar to the current situation in the North Atlantic. OSPAR[13] records show that "in 2022, roughly 560,000 metric tons of chemicals were used by the offshore oil and gas industry, and 181,000 metric tons were intentionally discharged into the Northeast Atlantic, with most going into the North Sea. Another 426 metric tons of those chemicals were accidentally spilled into the ocean. That means that about one-third of the chemicals used by the offshore oil and gas industry ended up in the ocean."

It is well known in the oil and gas industry that the exploration and production of oil and gas reservoirs in the North Sea has resulted in large quantities of drill cuttings being deposited onto the seafloor of the North Sea. De Groot (1996) estimated that up to 7 million m^3 of drill cuttings had accumulated on the seabed surrounding oil platforms in the whole of the North Sea between the years 1964 and 1993. At present it is estimated that 12 million[14] cubic meters of cuttings are on the

[11] The 1992 OSPAR Convention guides international cooperation on the protection of the marine environment of the North-East Atlantic. It provides for stringent measures to be adopted with respect to the prevention and elimination of marine pollution and the protection of the marine environment. Under the Convention the Offshore Oil and Gas Industry Strategy sets the objective of preventing and eliminating pollution and taking the necessary measures to protect the maritime area against the adverse effects of offshore activities so as to safeguard human health and of conserving marine ecosystems and, when practicable, restoring marine areas which have been adversely affected. Adoption of Annex V in 1998, saw the convention embrace a more holistic responsibility for environmental protection of the north east Atlantic, including its diverse biodiversity. The OSPAR Convention entered into force on 25 March 1998.

[12] One example is Shell UK, whose Brent field drilling (between 1976 and 2004) dumped around a total of over 32,000 cubic meters of drill cuttings on the seafloor and the production platform structure.

[13] DeSmog on line:

[14] Marine Pollution Bulletin, January 2004, "Drill cutting accumulations in the Northern and Central North Sea: a review of environmental interactions and chemical fate"

bottom of the Northern and Central North Sea. Several oil and gas production platforms in the North Sea are reaching the end of their productive lives and abandonment of these platforms has recently started. Present European legislation largely prohibits abandonment of platforms in place. Numerous documented investigations over the past 15 years attest to the adverse impact this complex mixture of man-made and natural substances has on the benthic environment in the vicinity of the drilling platforms

These chemicals included biocides, as well as corrosion inhibitors and demulsifiers with properties so toxic they can kill most algae, crustaceans, and fish they come in contact with.

The Namibian government should consider adopting standards and legislation that would address the long-term considerations of allowing dumping of drill cuttings on the seabed. This would ensure that in the long-term, a massive volume of such wastes, such as has been the case in the Northeast Atlantic ocean, millions of tons of drill cuttings would not accumulate and contribute to significant pollution of the marine environment, threatening the long-term health of the fish-consuming local population.

5.2.4 Well Blow-out - Risk and Consequences

The drilling of offshore oil and gas exploration and appraisal wells is considered a high-risk operation.

The potential for a well blowout is considered a "Major Accident Risk". In the upstream oil industry. Major Accident Risks (MAR) for offshore installations, whether floating or fixed, well drilling, well production or well abandonment, are considered for the ***severity of the consequences*** rather than the ***probability of the event occurring***. Viewed in another way, such events must be planned for, because of the excessively ***large impacts***, environmental, social and economic, should the event occur, irrespective of the ***low probability*** that such an event might occur. This is best exhibited by reference to the cost of the Macondo oil well blowout in April 2010, below.

Such infrequent events have often been of such magnitude that they have changed the way in which the oil industry operates. The two major industry-changing events were the Piper Alpha accident: Piper Alpha was a North Sea oil production platform operated by Occidental Petroleum, a USA company. The Piper Alpha accident occurred in July 1988, and the BP Macondo well in the US Gulf of Mexico, an appraisal well, in April 2010. This latter well was planned as an eventual subsea oil production well, as are most of the "appraisal wells" being drilled offshore Namibia currently. The Macondo well suffered a loss of well control and blowout in April 2010. Piper Alpha led to major changes in how the UK government regulated the industry, changing from a "regulatory" system to a self-regulation system; the UK government took the view that in future the burden should fall to the industry to determine the risks and to put preventative and mitigation processes in place. Previously the UK Government had directing the industry, by legislation and "rules", to do what the Government considered needed to be done. In the case of the Macondo disaster, the US Federal Government, the regulator for the Federal waters in the Gulf of Mexico, post-disaster, required all oil and gas operators to have in place a Management System that would include the identification of risks, consequences, and required preventative and mitigating actions. The BWK makes no mention of whether or not BWK has such a Management System in place that directs its employees in how to management its business.

The Piper Alpha disaster killed 167 people (168 if one includes the diver who survived, but who took his own life several years later), and is estimated to have cost US$6.4 billion (2024 dollars).

The Macondo well disaster resulted in the loss of eleven (11) lives out of the 126 workers who were on board the "Deepwater Horizon" semisubmersible drilling rig. The well spilled uncontrollably, with more than 4.9[15] million barrels of crude oil into the Gulf of Mexico, polluted more than 1,600 km of coastline in six US States (not to mention Mexico), and covered over 40,00 square miles (104,000 square kilometers) of the Gulf of Mexico. Further, studies indicate that it will take the deep ocean ecosystems decades to recover[16]. It cost bp, the UK oil company, US$ 60 billion (NAD 1.1 trillion) in criminal and civil penalties, natural resources civil damage awards, economic claims and cleanup costs. This was only possible because in negligently allowing the blowout to occur, bp was found to have been grossly negligent, breaching the USA Federal "Clean Water Acts" legislation. **It is noteworthy that there is currently no similar Namibian legislation that would allow the government to prosecute and IOC operating in its exploration or production licenses offshore Namibia[17]. It is recommended that such legislation must be put in place, if necessary on an "emergency basis" by the Namibian Government, on an emergency basis.**

The report also downplays the potential impact of an oil spill associated with a blowout, and leans heavily on the supposition that the Kudu field is a "gas field". While there are exceptions[18], there have been very few gas production facilities worldwide that have not produced associated liquid hydrocarbons ("oil"). The report mentions that condensates (light oil) might be produced in any well flow, but elsewhere makes light of this by stating that prevailing current and wind directions are in a direction away from the coast. Only by searching carefully does it become apparent that this is not the case. Buried only in Appendix E, Drilling Discharge Modelling, 1.3.2 Metocean conditions does it show that during various seasons, the prevailing winds are strong southerly and westerly, with the Namibian coast laying in an approximately NNE-SSW orientation. We therefore consider that the probability of oil polluting the coast around and potentially to the North of Lüderitz has not been thoroughly investigated and analysed.

[15] US Federal Government estimate

[16] David M. Uhlmann, University of Michigan, The Conversation, April 23, 2020

[17] To put the cost of the Macondo disaster into context, the Gross National Product of Namibia (GNP) is around US$ 12.6 billion (NAD 231billion): So the cost of the Macondo disaster was around five (5) times Namibia's annual GNP.

[18] One of the few examples is the Kinsale Head gas field offshore the Irish Republic, containing 99.9% methane

Well Blowout Frequencies, Probability and Consequences

From a risk perspective, a blowout (surface flow) from a "deep" zone has a high potential for consequences. The table below presents an overview of the main categories of well blowout and well releases for "regulated areas", including the US Gulf of Mexico Offshore Continental Shelf.

The historical "frequency" of such **exploration well** blowouts is 1.7×10^{-3}, or 1.7 wells blowing out for every one thousand drilled; For **appraisal wells** such as those planned by BWK, the frequency of a blowout is still 1.4×10^{-3}, or 1.4 wells per 1,000 well drilled. These numbers are the combined probabilities for exploration / appraisal wells seeking oil-reservoirs, and those exploration / appraisal wells seeking gas-reservoirs.

The frequency of shallow gas blowouts in exploration wells is 1.9×10^{-3}, or 1.9 wells per 1,000 for wildcat wells. Significantly, in the case of (BWK-) planned appraisal wells, it is still 1.3×10^{-3}, or 1.3 wells per 1,000 wells drilled.

In the event of a blowout of gas-targeted exploration and appraisal wells, the probability of a fire and explosion during blowout should be considered higher than with (for example) a low GOR (gas:oil ratio) crude oil blowout or well release. This is because of the significantly greater explosion potential of gas versus (dead-) oil, and the behaviour of a gas when released at surface, in such volumes and flowrates that quickly envelop the entire rig and thus it is exposed more rapidly to multiple ignition sources.

Blowout and Well Release Frequencies for Offshore Operations *Not* of North Sea Standard

Operation	Category	Well Type	Frequency		Fraction Subsea
Exploration Drilling, shallow gas	Blowout (surface flow)	Appraisal	1.3×10^{-3}	per drilled well	0.69
		Wildcat	1.9×10^{-3}	per drilled well	0.69
	Blowout (underground flow)	Appraisal	0[1]	per drilled well	0[1]
		Wildcat	0[1]	per drilled well	0[1]
	Diverted well release	Appraisal	3.2×10^{-4}	per drilled well	0
		Wildcat	9.3×10^{-4}	per drilled well	0
	Well release	Appraisal	3.2×10^{-4}	per drilled well	1.0
		Wildcat	2.7×10^{-4}	per drilled well	1.0
Development Drilling, shallow gas	Blowout (surface flow)	-	9.6×10^{-4}	per drilled well	0.18
	Blowout (underground flow)	-	4.4×10^{-4}	per drilled well	0[1]
	Diverted well release	-	7.9×10^{-4}	per drilled well	0
	Well release	-	6.8×10^{-4}	per drilled well	0
Exploration Drilling, deep	Blowout (surface flow)	Appraisal	1.4×10^{-3}	per drilled well	0.41
		Wildcat	1.7×10^{-3}	per drilled well	0.41
	Blowout (underground flow)	Appraisal	0[1]	per drilled well	-
		Wildcat	9.3×10^{-4}	per drilled well	0.17[2]
	Diverted well release	Appraisal	0[1]	per drilled well	-
		Wildcat	0[1]	per drilled well	-
	Well release	Appraisal	0[1]	per drilled well	1.0[1]
		Wildcat	0[1]	per drilled well	1.0[1]
Development Drilling, deep	Blowout (surface flow)	-	3.5×10^{-4}	per drilled well	0.14
	Blowout (underground flow)	-	1.3×10^{-4}	per drilled well	0[1]
	Diverted well release	-	0[1]	per drilled well	-
	Well release	-	2.2×10^{-4}	per drilled well	0.25
Completion	Blowout (surface flow)	-	4.6×10^{-4}	per completion	0
	Blowout (underground flow)	-	0[1]	per completion	0
	Diverted well release	-	3.1×10^{-4}	per completion	0
	Well release	-	0[1]	per completion	0

Planning for Well Blowouts

It is considered that the BWK application should have addressed the following issues, rather than simply mentioning that there is a "capping stack" available in South Africa, and that BWK "intends" to become a member of Oil Spill Response (OSRL). The report further states as follows:

Quote: *In addition, BW Kudu will become a member of Oil Spill Response Limited (OSRL), which provides response equipment (e.g., dispersants, booms, and dispersant spray equipment including aircraft and the use of globally advanced capping stacks and other) in the event of a well blow-out. These capping stacks are advanced devices designed to seal off a well and prevent oil from spilling into the ocean. OSRL keeps one of these capping stacks at its facility in Saldanha Bay, situated on the West Coast of South Africa. This equipment can be rapidly transported anywhere in the world by sea or air in case of an emergency.* End Quote.

This minor reference to the actions planned to cover the contingency of a well blowout, even of a gas well without spilling oil, is totally inadequate, in that it fails to consider the following:

1. A gas well blowout of a BW Kudu appraisal well, an explosion followed by a fire and loss of the rig, with high potential for loss of life, should be considered the most likely scenario. This scenario should have been, and must be planned for, on the basis above, i.e. the very substantial socio-economic consequences should it occur.
2. The use of a capping stack is the first, and fastest, means of stopping a well from flowing uncontrollably. However it fails to recognize the following:
    - The most likely scenario in the event of such an explosion followed by a fire, is the loss of and foundering of the drilling rig or the collapse of the marine riser system onto the seabed.
    - In whichever case, there would be between 150 m and 750 m of riser pipelaying dropped onto the seabed, most likely laying across the wellhead. Prior to attempting to stab the capping stack onto the wellhead (against the high flow of gas escaping from it), it would likely be necessary to clear the riser from on top of it. Such an event was noted offshore Angola in 2008, when the Sedneth 701 dropped the BOP from 12 m (40 ft) above the wellhead, but while the rig was offset from the well by 25 m (82 ft)) in around 880 m (~2,900 ft) of water depth. It took mobilizing special equipment[19] from Aberdeen, Scotland, to cut and recover the (53 cm? diameter) marine riser pipe. Recovery of the riser from seabed to surface took 72 days, with a total direct cost of recovery (excluding loss of revenue) of around US$ 66 million (2009 dollars)
    - In the case of the Macondo well, which could not be re-entered and killed with a "top-kill" job (the most efficient and technically /operationally effective method), it was necessary to kill the well by drilling wells "relief wells" to intersect the well at the reservoir.
    - In the case of the loss of and foundering of the drilling rig (as for Macondo, with the destruction and sinking of the Deepwater Horizon rig), with the rig sitting on the seabed it would require another floating drilling rig (preferably dynamically positioned to avoid the need to anchor, particularly if the "lost rig" was anchored) to attempt to kill the well by installing the capping stack over the wellhead which continues to blowout gas at an uncontrolled rate. There is no mention of where such a rig right be found and mobilized.

[19] Diamond wire cutting machine, dredging pumps, ROVs, rigging equipment, Maersk Achiever work vessel with two ROVs and heavy-lift crane, pipe fishing tools (spears and grapples), etc.

- Given the likely conditions on the seabed after the rig sank, i.e. the likely inaccessibility of / damage to the wellhead connector, it would be necessary to intersect the flowing well at the reservoir depth by drilling relief wells. This begs the following questions:
    - Where would BWK obtain the necessary drilling rigs, of a similar (minimum) design to that which drilled the now-blowing out well? At least one, probably two, such rigs would be needed;
    - What incentive would other IOL's operating in Namibian waters (or offshore South Africa? Angola? Further afield?) have to release their own rigs to assist with killing of the BW Kudu well?
    - How long would it take for such drilling rigs, possibly operating in water depths of 3,000+ m (10,000 ft), to make their own well safe before they could mobilise to the Kudu field?
    - Making a well safe would require the following minimum considerations and operations:
        - Consider the risk to their own well of suspending it for weeks or months, particularly if the well had already intersected hydrocarbon-bearing formations (potemtial for reservoir damage);
        - Pull the drill string out of hole to lay down the bit and bottom hole assembly;
        - Run in hole open ended and set a cement plug across any hydrocarbon-bearing zones;
        - Pick up and cement across the last casing shoe;
        - Pick up and set a cement plug across the last casing string, below the wellhead; or alternatively, pull the cementing string out of the well, pick up and wireline run a mechanical plug (bridge plug) below the wellhead;
        - Disconnect the BOP stack (upper stack) from the wellhead and recover it to surface;
        - Stow the marine riser and BOP upper stack and sail to the Kudu blowout well location;
        - Such operations would likely take weeks to achieve.
- Once a rig, or rigs, for well-kill had mobilized to the blowing-out well, the drilling of relief wells could commence while trying to clear debris from wellhead so that stabbing of the capping stack onto the wellhead might still be attempted.
- Once the relief wells reached the necessary depth, sufficient pump capacity would be required to (first) pump seawater for dynamic kill, then (subsequently) pump cement at a sufficient rate to cement up the flowing well and kill it. This would possibly require massive horsepower that might only be available on specialized Cementing Offshore Supply Vessels, from specialist contractors such as Halliburton, Baker Hughes (BHI) or Schlumberger. Such vessels are not currently located offshore Namibia, but might be available offshore Angola or elsewhere in West Africa. Again, locating such equipment should have formed / must form a part of the study required in preparing a Blowout Contingency Plan. Included in the study would be agreeing the necessary contracts, or at least "heads of agreement" signed, with contractors and/or their clients, to allow for assignment of such contract(s) in the event of such an emergency.

Conclusions of Socio-Economic Impact Assessment - Blowout

BW Kudu APPENDIX J, Socio-Economic Impact Assessment, impact assessment of unplanned events, assesses the socio-economic impacts from a well-blowout and associated oil release and contamination. These are stated to be:

1. Potential reduction in income from commercial fishing due to a blowout

   The impact is deemed to be of "**medium negative significance"**, both with and without mitigation. This fails to consider that the intense marine response to any major blowout and fire, and particularly marine activity in the area of the blowing-out well while possibly lengthy relief well drilling , with several drilling vessels and their support vessels, well cement / pumping vessels, heavy lift vessels, etc., would be employed. All of such vessels would likely be given priority in the Namibian ports for access to the quays, fuel supplies, etc, in such n emergency. We take issue with a conclusion of any level of "negative" significance, which implies "positive" benefits of such an event, and no evidence is offered for the reasons why this conclusion was reached.

2. Potential reduction in income from tourism due to a blowout: the impact is deemed to be **insignificant**.

   There is likely to be a major negative economic impact, as identified elsewhere above and given that the entire remediation and well control costs burden will fall to government, to the extent that BWK's insurers do not cover the costs. BWK has provided no information on the maximum insurance cover that it will obtain, and it does not appear likely that it would have insurance coverage of an amount that would cover similar costs to the Macondo well blowout. It is likely that such a financial burden falling on the shoulders of the Government of Namibia would result in substantial reduction in all infrastructure activities and expenditure provided by Government, whether airports, roads, water and electricity supplies, etc. The general level of prosperity in Namibia is also likely to be reduced, as it was in the entire coast of the United States Gulf of Mexico. Such reduction in prosperity might well have a significant negative impact on tourism.

   Further, the impact of additional maritime activities would be expected to have an impact on both Walvis Bay port, Lüderitz port and the roads feeding them, as well as on accommodation availability close to both cities. This would likely impact upon tourism in and around both of these population centers.

   Again we take issue with a conclusion of "insignificant" for the reasons stated above, and again no evidence is offered for the reasons why this conclusion was reached.

3. Social disruption and change in social dynamics due to a blowout: the impact is deemed to be of **high (negative) significance** without the implementation of mitigation and **low (negative) with mitigation**.

   Elsewhere above, we addressed the possibility of multiple fatalities, injuries and harm to the personnel employed on the drilling rigs. Many of the unskilled workers on board the rig, floor-hands, roustabouts, semi-skilled operators, kitchen and accommodation workers, deckhands

and labourers, for example, will certainly be Namibian nationals. The impact on a large number of fatalities, potentially with some remains never recovered (as was the case for the Macondo blowout) will have a very significant impact on their families and friends, indeed on all Namibians.

Again, as mentioned above, the impact of additional maritime activities would be expected to have an impact on both Walvis Bay port, Lüderitz port and the roads feeding them, with an element of social disruption to residents and visitors.

Requirement for Blowout Contingency Plan

The information above supports the widely-held industry policy, that such Major Accident Risks as well blowouts should be considered, and planned for, because of their potential consequences.

The data shows that for deep exploration wells, the historical frequency of combined deep- and shallow gas well blowouts and well releases (at surface), for appraisal wells is 3.202×10^{-3} **3.0 wells per one thousand drilled, or *one out of every 312 wells*.** Given the possible consequences of such an event, BWK must not neglect to have a fully-tested Blowout Contingency Plan in place prior to issue of the requested environmental clearance to Government, just because of the public's perception (and some IOC's insistence) that such an event is "very unlikely" to happen, and given the consequences should such an event occur.

All of the issues referred to above should have been, and must be, considered and used to prepare, and test, a firm BW Kudu Blowout Contingency Plan. Such a plan must be approved by the regulator before, or on the same timeframe as, this BW Kudu ESIA process.

Attachment 1 – Examples IOC Risk Matrices

Example 1 IOC Risk Matrix

							LIKELIHOOD				
	Level	Health	Safety	Environment	Community	Financial	Very Unlikely	Unlikely	Possible	Likely	Very Likely
CONSEQUENCE	5	Health exposure with irreversible effects to > 50 persons	Multiple fatalities.	Environmental impacts over 5 years.	Loss of Licence to Operate. Serious international outcry. Widespread human rights breaches.	Cost of resuming production or lost production (boe) >US$50m. Severe plant damage or total loss.	Conceivable under extreme circumstances - a combination of factors would be required.	A very rare event by the standards of the industry.	Could be incurred at some point over 20-30 years at the facility	Could be incurred within a five year period.	Could be incurred more than once in a year.
	4	Group exceeds exposure limits to a source of irreversible harm.	Single fatality. Severe irreversible disability to one or more persons.	Environmental impacts 1 to 5 years.	Licence to Operate jeopardised. Social issues disrupt operations. A number of human rights breaches.	Equipment repair or lost production (boe) US$5m - US$50m. Major plant damage.	INTERMEDIATE Requires further evaluation 15	INTOLERABLE 19	INTOLERABLE 22	INTOLERABLE 24	INTOLERABLE 25
	3	Group exposed to a source of irreversible harm at >50% <100% of limit or reversible harm at >100% of limit.	Serious injuries - permanent harm to an individual or medical treatment injuries to more than one person.	Environmental impacts up to 1 year over large area.	Heightened concern by local community. Asset reputation harmed. Actual human rights breach.	Equipment repair cost or lost production (boe) US$0.5m - US$5m. Medium plant damage.	INTERMEDIATE 10	INTERMEDIATE 14	INTOLERABLE 18	INTOLERABLE 21	INTOLERABLE 23
	2	Group exposed to a source of reversible harm at >50% <100% of limit.	Medical treatment injuries, full recovery.	Environment impacts up to 3 months on small area.	Complaints and adverse local public attention. Minor, medium-term social impacts. Mostly repairable.	Equipment repair or lost production (boe) US$50,000 - US$500,000. Minor plant damage.	BROADLY TOLERABLE 6	INTERMEDIATE 9	INTERMEDIATE 13	INTOLERABLE 17	INTOLERABLE 20
	1	Group briefly exposed to an irritant 50% exposure limit.	First aid - no medical treatment. No measurable physical effects.	Environmental impacts lasting less than 1 week with little or no change in physical environment.	Local complaints from public and low-level interest from local media. Low level social impacts.	Equipment repair or lost production (boe) <US$50,000. Minor, localised damage.	BROADLY TOLERABLE 3	BROADLY TOLERABLE 5	INTERMEDIATE 8	INTERMEDIATE 12	INTOLERABLE 16
							BROADLY TOLERABLE 1	BROADLY TOLERABLE 2	BROADLY TOLERABLE 4	INTERMEDIATE 7	INTERMEDIATE 11

BP Risk Matrix

Hazard Effect	IMPACT LEVEL	Probability 1 – Very Unlikely	2 – Unlikely	3 – Somewhat Likely	4 – Likely	5 – Very Likely
	D	6	8	10	11	12
	E	5	7	9	10	11 VH
	F	4	6	8	9 H	10
	G	3	5	7 M	8	9
	H	2	L 4	6	7	8

Reference (Source – online search): BP Procedure No.: USPL-COW-490-001, Level 2 Hazards Identification and Task Risk Assessment (HITRA Procedure), Custodian: HSSE Manager = S & O

US Intelligence Community Directive 203

almost no chance	very unlikely	unlikely	roughly even chance	likely	very likely	almost certain(ly)
01-05%	05-20%	20-45%	45-55%	55-80%	80-95%	95-99%

Comparison of Risk Verbal Descriptions and Probability

Verbal Description			
BP	**BHP**	**US Intelligence Directive 203**	**Probability (%)**
		Almost No Chance	1.0 - 5.0
Very Unlikely	Very Unlikely	Very Unlikely	5.0 - 20.0
Unlikely	Unlikely	Unlikely	20.0 - 45.0
Somewhat Likely	Possible	Roughly Even Chance	45.0 - 55.0
Likely	Likely	Likely	55.0 - 80.0
Very Likely	Very Likely	Very Likely	80.0 - 95.0
		Almost Certainly	95.0 - 99.0

Attachment 2 – Emergency Preparedness Policies
The Approach of various International Oil Companies[20]

Shell - Preparing for emergencies

Having the necessary resources to deal with spills, leaks, fires and explosions, both offshore and onshore, is essential to meet our aim to do no harm to people or the environment.

We routinely prepare and practice our emergency response to potential incidents such as a spill or a fire. This involves working closely with local emergency services and regulatory agencies to jointly test our plans and procedures. In 2022, we held four large-scale emergency response exercises to ensure we have the required preparedness at assets we operate in Brazil, Nigeria, the Philippines and the US Gulf of Mexico.

We strive to learn not only from events that have happened, but also from potential events that were prevented by our safety barriers.

TotalEnergies - Vigilance Plan

Published in TotalEnergies' Universal Registration Document 2023. It includes " severe impact risk mapping".

Severe impact risk mapping: The mapping work ... includes risks for people and the environment, was carried out using TotalEnergies' risk management tools. Each risk map identifies, analyzes, and prioritizes risks, enabling to determine the risks of severe impact. These risk of a severe impact maps are the basis for the priority risk management actions implemented by the Company.

Safety, health and the environment: TotalEnergies defines the risk of a severe impact on safety, health or the environment as the probability of Activities having a direct and significant impact on the health or safety of employees of TotalEnergies companies, employees of external contractors and third parties, or on the environment following a large scale pollution or a pollution impacting a sensitive natural environment.

TotalEnergies has developed regular safety, health and environment risk assessment procedures and tools applicable to operate its Activities at various levels (Company, activities and/or industrial sites):

Preventing the occurrence of major industrial accidents: To prevent the occurrence of a major industrial accident such as an explosion, fire, leakage of hazardous products or mass leakage that might cause death, physical injury, large-scale pollution or pollution at an environmentally sensitive site, or important damage to property, TotalEnergies implements suitable risk management policies and measures that apply to the Company's operated activities. The Major Risks division of the HSE division provides support in the application of this policy.

[20] Source: individual IOC's web pages

The Company's policy for the management of major industrial accident risks applies from the facilities design stage as well as during their lifecycle in order to minimize the potential impacts associated with its activities. The policy is described in the One MAESTRO reference framework. It provides for analysis of the risks related to the Company's industrial operations at each operated site subject to these risks, based on incident scenarios for which the probability of occurrence and the severity of the consequences are assessed. Based on these parameters, a prioritization matrix is used to determine whether further measures are needed. These mainly include preventive measures against accidents, but also include measures to reduce the consequences (mitigation and prevention). They are technical and organizational. These analyses are updated periodically, at least every five years, or when facilities are modified.

Responses to emergencies or crisis situations: Crisis management is organized to ensure sufficient preparedness and an efficient response to a crisis or emergency event.

In order to manage any major industrial accident efficiently, TotalEnergies has implemented a global crisis management system, based notably on a 24/7 on-call system, a set of unified procedures deployed in the Subsidiaries and on a dedicated crisis management center that makes it possible to manage two simultaneous crises from head office. The framework requires Subsidiaries to have in place plans and procedures for interventions in the event of leaks, fires or explosions and to test them at regular intervals.

Chevron: operational excellence - preparing for potential emergencies

Chevron's emergency management efforts are focused on prevention, preparedness, response and recovery. We have processes and tools in place to effectively manage emergency response, business continuity and crisis management efforts.

Chevron uses a tiered approach to emergency management. Operating units develop site-specific emergency response and business continuity plans to prepare for all significant risks. The corporate emergency response team is responsible for providing guidance and expertise in emergency response, crisis management and business continuity. The team develops and maintains emergency notification procedures, trains and supports emergency response teams, conducts drills and maintains relationships with organizations that provide emergency response support. Our regional response teams maintain groups of well-trained personnel to assist with emergency response to incidents worldwide.

Chevron participates in international oil spill cooperatives and has relationships with outside experts and contractors. We sit on the boards of directors of the two largest global oil spill cooperatives, the Marine Spill Response Corporation and Oil Spill Response, Ltd. We also work with trade associations such as the American Petroleum Institute and the International Petroleum Industry Environmental Conservation Association to advance worldwide oil spill preparedness.

Appendix D.5:
Comments and Responses Report

COMMENTS AND RESPONSES REPORT

No.	Comment Received	Response
1.	**Legal Assistance Centre (LAC), Corrina Van Wyk (received via email on 17 March 2025)**	
1.1.	Kindly find herewith on behalf of the Legal Assistance Centre' LEAD (Land, Environment and Development) department. The Legal Assistance Centre is a public interest law firm that strives to make the law accessible to those with the least access, through education, law reform, research, litigation, legal advice, representation and lobbying, with the ultimate aim of creating and maintaining a human rights culture in Namibia. The comments on the ESIA that follows were prepared in partnership with the scientists of ELAW. **Summary** The ESIA for the "Proposed Appraisal Well Drilling in Block 2814A (PPL 003), Orange Basin, off the coast of southern Namibia" contains inadequate assessments of multiple environmental impacts and numerous errors and mischaracterizations of impacts. The oil spill model failed to assess worst case scenarios in terms of location and the profile and quantity of oil spilled. The Climate Change Risk Assessment and the ESIA's discussion of climate impacts use flawed significance criteria and the emissions estimates contain multiple errors and omissions. With respect to fisheries, both the impact assessment and assessment of cumulative impacts are missing critical information. The ESIA does not adequately assess the potential impacts of the project on marine ecosystems, particularly with regards to noise impacts and impacts of a worst-case scenario spill.	Comments from LAC were received on 17 March 2025. Despite being submitted after the comment period closed (14 March 2025), the comments have been included in the Comments and Responses Report. Responses to the issues raised are provided as follows: • Oil spill modelling– refer to Item 1.2 to 1.7. • Climate change– refer to Item 1.8 to 1.16. • Fisheries – refer to Item 1.17 to 1.19. • Marine ecosystems – refer to Item 1.22 to 1.28. • General issues – refer to Item 1.29 to 1.31.
1.2.	**Oil Spill Modelling Technical Report Issues** Inaccurate Information Provided Table 1 contains multiple errors that make it difficult to determine the location of the modelled release points. Latitude values contain an extra apostrophe that prevents direct use of provided coordinates. After fixing this minor issue, the coordinates for L2 were found to be for a location well outside Block 2814A (see figure below). The provided coordinates are for a point over 100km south of the block, in or near South African waters. A minor additional error is that Tables 17 and 18 both refer to "release point L1".	Inaccuracies (typos) in the Oil Spill Modelling study are noted and have been corrected in Final ESIA Report – Refer to Appendix F of the Final ESIA Report. These inaccuracies do not change the findings of the ESIA. • Coordinate typo has been corrected. Although the coordinates for L2 were inaccurately presented in the report as **29**°57' 43" instead of **28**°57' 43", the correct coordinates were used in the modelling. • Table 18 has been updated to refer to Release Point L2.

No.	Comment Received	Response
		
1.3.	<u>Modeling failed to assess worst case scenarios</u> Oil spill models in ESIAs should look at worst case scenarios and these scenarios should reflect the worst case scenarios in terms of release location, duration, type of oil, etc. The technical report incorrectly claims, in the first sentence of the executive summary, to have considered worst case scenarios.	An ESIA, by its nature, predicts potential impacts of a project based on existing experience, and impacts can never be predicted with certainty especially in circumstances where the impacts of actions are unknown due to a lack of information / knowledge. As such, a risk-averse, precautionary approach was adopted in this ESIA to ensure that all relevant information is before the Competent Authority so that it is fully aware of the potential impacts of the proposed project. In this regard, the following steps were undertaken in the ESIA: • *Identification of potential impacts:* The identification of potential impacts included a review of relevant publications, consultation with experts, and consideration of previous similar activities in the southern Africa offshore (e.g. Shell's and TEEPNA's drilling activities in southern Namibia), as well as issues raised during the public participation process. • *Description of the receiving (baseline) environment:* The description of the receiving environment was based largely on various scientific publications, reports and programmes (e.g., Namibian Marine Spatial Planning). Where possible, site-specific data were also used to define the receiving environment, e.g. fisheries catch and fishing effort data sourced from Ministry of Fisheries and Marine Resources (MFMR) records. Furthermore, recent Environmental Baseline Survey (EBS) and Marine Mammal Observer (MMO) reports from adjacent blocks were referenced. • *Assessment of potential impacts:* A precautionary approach was applied as an integral part of the assessment methodology. Potential risks associated with the project are considered in this ESIA to ensure a comprehensive assessment. These relate to unplanned events, such as accidents or incidents, that are not anticipated as part of normal operations, and for which measures are in place to actively prevent them. The probability of such incidences is extremely

No.	Comment Received	Response
		low. Furthermore, the nature, timing and location of such incidences – in the highly unlikely event that they occur – are not reasonably foreseeable – they cannot be reasonably anticipated, modelled and assessed in the same way as the foreseeable impacts of the project operation. As such, "reasonable worst-case scenarios" for unplanned events are typically modelled and assessed, with an inference that actual impacts, should the unplanned event take place, will be similar to or less than the assessed scenario presented in the Final ESIA Report. • *Technical and specialist studies*: These studies were based on "reasonable worst-case scenarios and assumptions", e.g., proximity of wells to coast or sensitive areas, discharge volumes and emissions, drilling in the austral winter season, etc. Applying the precautionary principle, drill site locations for the drilling discharges and oil spill modelling studies were selected based on a number of criteria (including metocean dataset, water depths, and proximity to coast and sensitive areas) in order to assess "reasonable worst-case scenarios" for oil spill dispersion for an unplanned event or predicted cuttings dispersion. The modelling results were then used by the other specialist studies to confirm potential impacts, e.g. impacts on nearby sensitive areas (CBAs, EBSAs and MPAs), fishing grounds, etc., as detailed in Section 8 and 9 of the ESIA Report. • *Implementation of precautionary measures:* Where there is uncertainty about the potential impact or if the potential consequences are significant, precautionary measures will be implemented to prevent or minimise harm to the marine environment (consideration of the mitigation hierarchy). This is particularly the case in respect of the technical and operational measures that BW Kudu will implement to further reduce the risk of a well blow-out. Further to the above, the oil spill modelling was undertaken by an experienced company (CLS Brasil) that is familiar with the historic and current oil and gas exploration and appraisal operations in the Orange Basin in southern Namibia. The oil spill modelling, as summarised in the ESIA Report, has assessed the unplanned event of "reasonable worst-case" scenarios in form of blow-out events representing the highest risk for an oil spill resulting from an uncontrolled oil release. The worst-case scenario modelling has been directly linked to the likely available local and regional emergency response resources, such as the capping stack available in Saldanha Bay (South Africa) and can be mobilised and deployed within a reasonable time following a major oil spill incident in Block 2814A. As provided for in the oil spill modelling study report (Appendix F of the ESIA Report), the blow-out events considered a continuous oil release (condensate-type oil) for release point L1 with a maximum flow rate of 8 m^3/day for 30 days (release terminated by capping stack), while for release point L2 a continuous oil release (light oil) was considered with a maximum flow rate at 794.94 m^3/day for 30 days. Different scenarios were modelled to evaluate the fate of an oil spill (two types) on the surface and in the water column from two oil release points in Block 2814A offshore southern Namibia over four seasons.

<table>
<tr><th>No.</th><th>Comment Received</th><th>Response</th></tr>
<tr><td></td><td></td><td>SLR is of the opinion that the ESIA considers reasonable worst-case scenarios. Also refer to responses in Items 1.4 to 1.7 below.</td></tr>
<tr><td>1.4.</td><td><u>Modeling should have included a wider range of hydrocarbons, including heavier oil</u>

This modeling looked at light oils and condensates of 47.4 and 48.8 API. Section 9.4.1.1 of the ESIA states that: “Modelled oil types were selected based on previous exploration drilling within the block (gas / condensate) and recent discoveries of light oil by TEEPSA and Shell to the west of the block”. However, oil spill modeling for nearby blocks included modeling of heavier oil types that would persist longer in the environment (see table below). Release point L2 is located near the border with the adjacent Block 2914A. Modeling for Block 2914A (done in 2024 by the same company, CLS Brasil), used a denser, more viscous oil with 32.2°API, stating “For Block 2914A the oil expected is an oil of 32.2°API ”.1 The updated oil spill model report, “Africa Oil SA Corp SOUTH AFRICA Well Drilling in Block 3B-4B, OIL SPILL DRIFT MODELLING Condensate and Crude Oil TECHNICAL REPORT V07” for the nearby Block 3B/4B located in the same basin, states: “the expected API gravity range is from 39 to 49 degrees API” and it modeled “both a condensate with a 39 API degree gravity, and a crude oil with a 37 degree API gravity” stating: “While these modelled fluid types are heavier than any scenario that is expected in Block 3B/4B, they have been included here to represent the most-conservative model scenarios”. Since they behave differently in the environment and have different ecological and environmental impacts, it is important to model gas, condensates, and heavier oils if all have the potential to be released.

<table>
<tr><th>Block</th><th colspan="2">2814A</th><th>2914A</th><th colspan="2">3B/4B</th></tr>
<tr><td>API°</td><td>48.8</td><td>47.4</td><td>32.2</td><td>39.2</td><td>37.2</td></tr>
<tr><td>Viscosity (cP) @13°C</td><td>2</td><td>3</td><td>32</td><td>3</td><td>7</td></tr>
</table>
</td><td>Two oil types were selected for modelling, one being a more “realistic and likely scenario”, and the second being a “reasonable worst-case scenario”.

Prior to exploration well drilling it is not always known what exact type of oil and / or gas may be discovered. In these situations, one would normally use a heavy crude oil as a worst-case scenario for oil spill modelling (such as in the ESIAs undertaken for Blocks 2914A and 3B/4B, where the oil type was not known). However, in this instance, previous well drilling in Block 2814A (eight wells drilled to date) has confirmed the presence of gas (or condensate) – resulting in the Block being commonly referred to as the “Kudu Gas Field”. As such, a condensate-type oil (API 48.8) was selected and modelled as the most likely scenario. Using a credible and realistic API has the advantage that it will give the most reliable information with respect to an unlikely spill scenario.

However, a “reasonable worst-case scenario” was also selected based on available information obtained from recent exploration drilling results obtained by TotalEnergies in Blocks 2913 and 2913B, who has discovered the presence of a light oil. Regarding the characteristics of the oil, the modeller (CLS Brasil) used an oil type from SINTEF database that most closely matched the characteristics of the oil reported by TotalEnergies in southern Namibia. Regarding the other blocks referenced in the comment, Block 3B/4B is located in South African waters. Although Blocks 2913A and 2914B are located in Namibian waters and are closer to Block 2814A, there is no oil type data available from these Blocks. In the absence of any data from these blocks, the TotalEnergies oil type (light oil) was used as a “reasonable worst-case scenario”.

Considering the above and that a lot of information exists regarding the anticipated and most probable oil type, it was not deemed necessary to model a heavier oil for the purposes of this ESIA.</td></tr>
</table>

<table>
<tr><th>No.</th><th>Comment Received</th><th>Response</th></tr>
<tr><td>1.5.</td><td><u>Modeling should have used a higher release rate</u>

The modeling for Block 2814A used much lower release rates than modeling for nearby blocks (see table below). The modeling for adjacent Block 2914A (again done by the same company), used a release rate almost 4 times higher for the oil release (with a larger pipe diameter and denser, more viscous oil). It isn't clear why a lower release rate was utilized for Block 2814. The modeling for nearby Block 3B/4B used release rates roughly 30 and 7 times higher for condensate and oil respectively.

<table>
<tr><th>Block</th><th colspan="2">2814A</th><th>2914A</th><th colspan="2">3B/4B</th></tr>
<tr><th>Type</th><td>Condensate</td><td>Oil</td><td>Oil</td><td>Condensate</td><td>Oil</td></tr>
<tr><th>Oil/Condensate Release Rate (m³/day)</th><td>8</td><td>794.94</td><td>2,967</td><td>238.8</td><td>5,405.57</td></tr>
<tr><th>Pipe Diameter (m)</th><td>0.05</td><td>0.217</td><td>0.914</td><td>0.311</td><td>0.216</td></tr>
</table>
</td><td>The other Blocks referenced in the comment (namely Blocks 2914A and 3B/4B) are all in the initial exploration stages, while Block 2814A (Kudu Gas Field) is further progressed in the oil and gas lifecycle being at the appraisal stage. As noted in Item 1.4, eight wells have been drilled to date in Block 2814A and, as such, more realistic data is available. The release rate used in the modelling is based on highest release rates observed during previous well tests within the Block 2814A and, as such, was deemed to be a "reasonable worst-case scenario".

In addition to the use of data from the previously drilled and tested wells in the area as the most reasonable data inputs for the oil spill modelling, well-specific engineering design parameters have also been used as key input variables.</td></tr>
<tr><td>1.6.</td><td><u>Release points don't represent worst case locations in the block</u>

Section 3.2 of the ESIA states: "Proposed well sites are to be located within Block 2814A, but precise locations are not yet confirmed. Thus, the ESIA assesses generic (worst-case) well drilling locations within Block 2814A…". An analysis of release locations and other material provided in the ESIA shows this to not be accurate. For example, moving L1 to the north would place it closer to the Lüderitz Shelf Edge, which the ESIA describes as "Critically Endangered" habitat type and into the "Endangered" Namaqua Shelf Edge, while remaining the same distance from shore (see Ex1 in figure below). Modeling a denser oil here (as opposed to just condensates) would also be likely to show an increased risk to these habitats. Similarly, moving L2 to the east (see Ex2 in figure below) would place it closer to shore and to South African waters, and given what is presented about prevailing winds and currents, the released oil would cover more of the EBSA.</td><td>As noted in Item 1.3, "reasonable worst-case scenarios" for unplanned events are typically modelled and assessed.

A variety of factors determine the impact of an unlikely hydrocarbons on marine and coastal flora and fauna, including location, winds, currents, etc. These factors have all been considered in the oil spill modelling study as variables. Reasonable worst-case locations for an unlikely oil spill within the Block were selected based on a number of criteria, including metocean dataset (including surface and subsea currents), water depths, and proximity to coast and sensitive areas) in order to assess representative scenarios for oil spill dispersion for an unplanned event.

Further to the above, the assessment of potential impacts related to an unlikely oil spill considers that a well could be drilled anywhere within the Block, and as such, the assessment considers the scenario where a well is located within the area classified as "Endangered" or within the EBSA, and as such the ESIA considers the impact of an oil spill on these sensitive receptors (even though Release Point L1 is located 6.8 km away from area defined as "Endangered"). Moving the release location closer to any of these sensitive receptors will not change the findings of this ESIA.

Based on the modelling inputs and the current patterns for the region, there is no chance of oil arriving at the coast or in South Africa waters regardless of where a well is drilled within the Block.</td></tr>
</table>

No.	Comment Received	Response
	 Additionally, the oil spill simulations used two well locations at similar depths: 209 m (L1) and 257 m (L2). Block 2814A spans 4,568 km^2 in water depths ranging from 150 m to 750 m. The depth of L1 and L2 only differs by 48 m, which doesn't come close to capturing the full range of possible depths (600m) where the four proposed exploration wells could occur. With respect to the spill modeling results presented in the Marine Ecology Impact Assessment, section 4.3.2. Deterministic Results, there are some inconsistencies with the depth of the locations: For release location L2 (shallow), the simulation that sweeps the largest surface area is during Season 2 and 3 (Figure 4-8). At the end of 60 days of simulation, none of the deterministic simulations has surface oil above 5 µm thickness threshold, with none of the simulations over the 4 seasons show oil arriving to shore (no shoreline oiling). Vertical profiles of the dissolved concentration in the water column showed the highest concentrations (300 and 500 ppb) at depths of 10 to 20 m and up to 12 m in Season 1, when released from L1 (shallow) and L2 (deep), respectively.	The depth of the release point in oil spill modelling influences the behaviour and distribution of the spilled oil. In deeper waters, releases may form subsurface plumes that remain below the surface, while shallower releases are more likely to spread horizontally and rise to the surface. Thus, a shallower release point scenario maximises the surface spread and possibility of shoreline oiling. The water depths selected are considered to be "reasonable worst-case scenarios". This said, CLS Basil (oil spill modellers) do not expect significant differences between ~200 m and ~600 m, since the oil plume quickly reaches the surface. More pronounced differences are likely to occur at depths greater than 1 000 m. Inaccuracies (typos) in the Marine Ecology Impact Assessment report are noted and have been corrected (updated report is presented in Appendix H of the Final ESIA Report). These inaccuracies do not change the findings of the Marine Ecology Impact Assessment. The findings remain as presented in the Draft ESIA Report.

No.	Comment Received	Response
1.7.	<u>Project is one of a growing number relying on the same single capping stack stored at Saldanha Bay</u> Blowouts can occur at many points during exploration and production, and capping stacks can fail. As described in Section 5.4.6 and elsewhere in the ESIA, BW Energy is, or will be, a member of Oil Spill Response Limited (OSRL). This project is one of a growing number in the region relying on OSRL's single capping stack (and other containment equipment) stored at Saldanha Bay. If this capping stack were to fail, or be in use elsewhere, during a blowout in Block 2814A, a capping stack would need to be brought in from OSRL locations in Brazil or Italy, resulting in additional delays.	A "multi-barrier" approach (i.e. mitigation) is implemented in dealing with risks (particularly the risk of oil spills). This approach involves defining multiple preventative barriers (or avoidance mitigation measures) to manage environmental risk. The first step and most important priority in applying the Mitigation Hierarchy to manage the risk of a catastrophic oil spill is avoidance or prevention (e.g. blow-out preventor, casings, drilling fluids, etc.). If these preventative technical and control barriers fail or are not effective under certain conditions, then response capabilities (minimisation barriers) will be implemented (although these are put in place prior to drilling). Thus, conventional technology includes multiple redundancies in controls to prevent and mitigate this risk. This comment refers specifically to the latter aspect, namely response mitigation. A capping stack is a temporary solution to control a well blow-out, while a relief well is drilled to "kill" the well. As noted in Section 5.4.6 of the ESIA Report, BW Energy is a member of OSRL which provides the use of globally advanced capping stacks in the event of a well blow-out, and BW Kudu will be included in its membership for the proposed drilling campaign. OSRL membership provides access to the four capping stacks, which are stored at strategic locations worldwide (Brazil, Norway, Singapore and South Africa) and can be transported by sea or air. Thus, BW Kudu will have access to the capping stacks and response equipment (including dispersants, booms and dispersant deployment equipment) in Saldanha Bay. LAC's concerns relating to the increasing reliance on the capping stack in Saldanha is noted, but is not currently viewed as problematic. OSRL members are entitled to mobilise two of the four capping stacks in the event of an incident, which ensures redundancy in the service for other members. Furthermore, one needs to consider the risk of a well blow-out occurring. As noted in Section 9.4.2 of the ESIA Report, in the order of 35 and 40 wells have been drilled in the Namibian and South African West Coast offshore environment, respectively, to date with no well blow-outs having been recorded. Global data maintained by Lloyds Register indicates that frequency of a blow-out from normal exploration wells is in the order of 1.43×10^{-4} (or 1 blow-out in 6 993 wells drilled). Thus, the probability of a single well blow-out occurring is considered to be extremely unlikely, and the probability of two blow-outs occurring at the same time both requiring the capping stack in Saldanha (as there are several capping stacks strategically located around the world) is even less unlikely. BWE can also confirm that a contract is in place with Wild Well Control who provide services on a global basis and respond to an estimated 80% of the global well control response market. Wild Well Control's personnel and strategically located specialised well control equipment are a leading global provider of well control and related engineering services. BW Kudu motivates that the 30 days used for the oil spill modelling is a reasonable and realistic assumption for the installation of a capping stack in the unlikely event of a blow-out. Based on the above, SLR is of the opinion that the ESIA considers a reasonable worst-case scenario.

No.	Comment Received	Response
1.8.	**GHG, Climate Impacts, Climate Change Risk Assessment** **GHG Emissions and Climate Impact Issues in the ESIA** In the Executive Summary of the ESIA (PDF pages 24 and 26) the following typo or incorrect statement is repeated twice (referring to total emissions as annual emissions): "The Project's annual greenhouse gas (GHG) emissions is estimated to be 24 065 tCO2e over a period of two years, with an average of 12 032 tCO2e per annum".	Inaccuracies (typos) in the Executive Summary are noted and appreciated. These have been corrected in Final ESIA Report. These inaccuracies do not change the findings of the ESIA.
1.9.	In attempting to explain why SLR's standard impact assessment method is not appropriate for assessing the impacts of the project's GHG emissions, Section 5.2.4 of the CCRA provides this interesting statement: "This assessment did not apply the standard SLR impact assessment methodology (as presented in Section 9.2 of the Final Scoping Report), as this approach is not deemed to be appropriate for assessing the impact of the Project's potential GHG emissions. This is because this methodology tends to overstate the significance of the impact despite the relatively insignificant contribution of the Project's GHG emissions to the host country's national GHG inventory. **This is due to the global extent of the impact, long-term duration (~100 years), and high probability of the impact occurring."** It seems likely that SLR's standard methodology is actually more appropriate than the method followed here, precisely because all GHG emissions matter and have global, long-term impacts! The ESIA bases its assessment of the significance of the Project's GHG emissions partially on a comparison of estimated project emissions to Namibia's national greenhouse gas (GHG) emissions inventory. Framing project emissions in terms of a percent of a country's total emissions is not helpful in understanding a project's impacts. In 2023, the United States Council on Environmental Quality issued guidance on the consideration of greenhouse gas emissions and climate change in National Environmental Policy Act (NEPA) documents: *"NEPA requires more than a statement that emissions from a proposed Federal action or its alternatives represent only a small fraction of global or domestic emissions. Such a statement merely notes the nature of the climate change challenge, and is not a useful basis for deciding whether or to what extent to consider climate change effects under NEPA. Moreover, such comparisons and fractions also are not an appropriate method for*	The CCRA was prepared by experienced and knowledgeable team. Based on a review of the relevant standards and guidelines, and peer review of other similar specialist studies there is presently no generally accepted methodology, that SLR is aware of, for the assessment of the significance of a Project's GHG emissions. SLR has, thus, developed an approach which is deemed to be appropriate for assessment of Project-related GHG emissions as part of environmental and social impact assessment processes. This approach assesses Project-related GHG emissions in terms of two criteria, namely the contribution of the Project's GHG emissions to the host-country's national GHG emissions, and the significance of the contribution based on pre-defined thresholds developed by the European Bank of Reconstruction and Development (EBRD). Noting the shortcomings of only considering the contribution of the Project's GHG emissions to a national inventory or global atmospheric GHG concentrations, the Climate Change Risk Assessment employs thresholds established by the EBRD to evaluate the significance of the Project's GHG emissions. These thresholds were selected as they provide a useful proxy for differentiating between Project's with very low, low, medium-low, medium-high, and high annual GHG emissions. These thresholds also generally align with those of the IFC Performance Standards on Environmental and Social Sustainability and EP4, where: • Projects under the 25 000 tCO_2e/annum threshold are deemed to be low emitters and not required to quantify and report on their Scope 1 and 2 emissions. • Projects that are over the 25 000 tCO_2e/annum threshold, but below the 100 000 tCO_2e threshold are deemed to be moderate emitters and required to quantify and report on their Scope 1 and 2 emissions. • Project's that are over the 100 000 tCO_2e threshold are deemed to be high emitters, and required to not only quantify and report on their Scope 1 and 2 emissions, but also to undertake an alternatives analysis and transition risk assessment.

No.	Comment Received	Response
	characterizing the extent of a proposed action's and its alternatives' contributions to climate change because this approach does not reveal anything beyond the nature of the climate change challenge itself—the fact that diverse individual sources of emissions each make a relatively small addition to global atmospheric GHG concentrations that collectively have a large effect."	
1.10.	The ESIA doesn't include an assessment of the potential downstream emissions resulting from production of fossil fuels discovered as a result of the project.	The outcome of the proposed appraisal activities will determine the nature and extent of any potential resources within the Block. Thus, the assessment of this ESIA relates to the identification of potential oil/gas resources, a distinct activity from the actual production of a potential oil/gas resource. At present, it is not known if an economically viable oil/gas resource exists within the Block. As such, it is not possible for BW Kudu to provide any reliable or accurate details about the potential future project proposals to extract such a resource – i.e. the purpose of the proposed appraisal activities proposed as part of this ECC application. In considering the "cumulative impact, a requirement of the EIA Regulations 2012, the ESIA considered "*past, present and reasonably foreseeable future developments or impacts*". The expected outcome of the proposed appraisal activities is to identify whether an economically viable oil/gas resource exists within the Block. It is impossible for BW Kudu to provide meaningful information regarding the full life-cycle, including production, when the information required to undertake such assessment: • has not yet been established; and • can only be established if the Environmental Authorisation for which the applicant is seeking approval, is granted. The expected outcome of the proposed appraisal activities is to identify whether resource can be economically developed. Given the significant uncertainties at the stage of exploration, regarding if hydrocarbons exist or not and if so, the type of hydrocarbons, the size of the discovery, the quality of the reservoirs, the spatial extension of the area to be developed, and the way to develop and economically produce the targeted discovery in a success case, it cannot be assessed in advance. Therefore, the possible range of the future production activities cannot be considered as "*reasonably foreseeable*" at the stage of the proposed appraisal activity. These cannot be reasonably defined until this study has been completed and further well drilling has been undertaken. It would not be reasonable to undertake an assessment of the environmental impacts of an undefined project. Potential impacts could not be reliably assessed, and the range of outcomes is so vast that the findings would be speculative at best and of no value in ascertaining the potential impacts. It is also possible that the proposed, or future, exploration determines that an economic petroleum resource does not exist, in which case there would be no production or potential impacts.

No.	Comment Received	Response
		If, later, a decision is taken to move towards production, a separate ECC application and ESIA process would need to be undertaken to assess the potential impacts of possible future production (i.e. extraction) and associated activities. This is typical of the lifecycle of a development project. Thus, a decision on the current ECC application does not in any way guarantee the holder future approvals that would be required to undertake future production activities.
1.11.	International best practices for fossil fuel exploration projects include discussions of downstream/Scope 3 emissions in project impact assessments. Recently, in the UK, two offshore oil and gas permits were ruled unlawful as "they had not taken into account the carbon emissions created by burning any oil and gas produced".	Further to Item 1.10 above, the Climate Change Risk Assessment has considered the GHG emissions resulting from the burning of oil and gas during the proposed appraisal drilling. However, it has not accounted for the downstream GHG emissions from the burning of oil and gas produced, as the proposed appraisal activities covered by this ESIA do not involve hydrocarbon production. According to the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, the burning of produced oil and gas falls under "Category 11: Use of Sold Products". Since the proposed activity does not include the production or sale of oil and gas, this category is not applicable to this assessment.
1.12.	**Issues in the Climate Change Risk Assessment** In Section 7 of the Executive Summary, and Section 8.0 of the Climate Change Risk Assessment (CCRA), mitigation measures are recommended, not required, and would do little to reduce the project's climate impacts. Section 3.2.3 of the CCRA states: "Although the Paris Agreement does not contain requirements specific to the Project, the Project's GHG emissions should, to the extent possible, be reduced to align with the treaty's objective of limiting global warming". In reality, the best way to meet the objectives of the Paris Agreement would be to not move forward with this, or any other new fossil fuel exploration and extraction projects. According to the International Energy Agency and academic journal articles, no new fossil fuel exploration and extraction projects are needed under scenarios where Paris targets are met.	The need and desirability for the proposed appraisal activities (i.e. not production) exists because Namibia's policies and plans allow for the eventual future utilisation of oil and gas resources (as detailed in Chapter 10 of the ESIA Report). Note that this ECC application does not intend to produce oil or gas, but merely to appraise the resource to ascertain if the resource is commercially viable. Should the resource be commercially viable (should an ECC be granted for the proposed appraisal drilling in the first place), and a decision is taken to move toward production, a separate ECC application and ESIA process would need to be undertaken to assess the impacts of possible future hydrocarbon production, associated activities and their cumulative impact. Notwithstanding the likely continued demand for (and supply of) hydrocarbon resources globally and in Namibia, and the in-principle compliance of appraisal drilling with Namibian policies, the need and desirability of a particular project is also determined by the acceptability of residual environmental and social impacts of the project – these indicate the sustainability of a specific activity or project, which is an important criterium of policy. With reference to Section 13.7 of the ESIA Report, it is concluded that on the basis of the nature, duration (mostly short-term) and extent (mainly localised), the majority of residual impacts related to normal operations range from INSIGNIFICANT to LOW significance with the implementation of the recommended mitigation measures. The majority of potential impacts can be adequately mitigated with the implementation of the proposed mitigation measures (as included in the ESMP), which are in line with current industry good practice and specialist understanding of the local environment. In making a decision, MME and MEFT will need to consider the following: current national strategic policies and the transition to net carbon zero; need for a stable electricity supply; need to grow our economy and create jobs; current source of fossil fuel; and potential impacts and risks associated with the proposed project.

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		As an aside, BW Kudu expects that, if gas from the Kudu Gas Field is used for electricity production, as proposed in the various policy documents, it would reduce Namibia's reliance on imported electricity, which is currently largely based on coal. Therefore, this could reduce the GHG intensity of Namibia's electricity consumption. The purpose of the proposed appraisal drilling is to determine whether or not development of the resource is commercially viable. Further assessments will need to be considered, as noted above, in a separate ESIA if a decision is taken to move toward production. This ESIA will consider the potential impacts related to production.
1.13.	Table 4-1 appears to contain errors in fuel consumption calculations for drill ships and support vessels used in appraisal drilling. (35 t/d X 100 d/well = 3,500 not 3,150 t/well, 3 vessels X 5 t/d/vessel X 100 d/well = 1,500 not 1,350 t/well).	Errors in Table 4-1 of the Climate Change Risk Assessment are noted and have been corrected in Final ESIA Report. Additional errors were also noted and have been corrected in Table 7-1 in the CCRA and Table 4-1 in the Final ESIA Report. These errors, which are due to a wrong cell reference in the carbon footprint calculator, resulted in an increase in the Project's calculated GHG emissions (from 24 065 tCO_2e to 72 769 tCO_2e), the contribution of the Project's GHG emissions to Namibia national GHG inventory in 2019 (from 0.057% to 0.171%), and the categorisation of the Project's GHG emissions (from Low to Medium-Low). Subsequently, a review of the formulas in the carbon footprint calculator was performed and no further errors were detected. Although these errors were identified, the specialist's conclusion remains the same, and no further mitigation measures are necessary.
1.14.	Section 5.2.4 of the CCRA describes the use of significance criteria developed by the European Bank of Reconstruction and Development (EBRD). Use of these thresholds in an EIA for fossil fuel exploration is inappropriate for multiple reasons. These thresholds are not based on specific climate impacts, rather as the Appendix states, "These thresholds are used by EBRD as an early indicator of a project's likely contribution to the Bank's GHG inventory and carbon intensity of the Bank's investment portfolio". Additionally, EBRD's "Energy Sector Strategy 2024-28 prioritises the urgent need to accelerate the decarbonisation of energy through scaling up renewables, enhancing grids and storage, promoting zero-carbon fuels and phasing out unabated fossil fuels" and the EBRD has stopped investing in upstream oil and gas to align its activities with the goals of the Paris Agreement. It isn't clear why these thresholds were used given that the EBRD itself wouldn't apply these thresholds to this project since they wouldn't invest in it. Section 8 applies the EBRD's internal significance criteria directly to the "significance of the Project's contribution to Namibia national GHG inventory". Since the thresholds were developed to provide an "early indicator of a project's likely contribution to the Bank's GHG inventory and	Refer to the Response in Item 1.9 above. Furthermore, the Climate Change Risk Assessment does not determine whether EBRD would invest in the Project based on the specified thresholds. Instead, it utilises these thresholds to categorise the GHG emissions intensity of the proposed appraisal activities, referencing thresholds identified by EBRD from their previous investments.

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	carbon intensity of the Bank's investment portfolio", it isn't clear how these thresholds would translate directly to Namibia's national GHG inventory.	
1.15.	There are many issues with the calculation of emissions from well blow-outs found in Section 7.3 and Table 7-2 including: 1. Blowout release rates and materials (gas, condensate, and oil) in Section 7.3 differ from those modeled in the Oil Spill Model and are much lower. (This is especially problematic given that the oil spill release rates in the Oil Spill Model were lower than assumed for nearby blocks) 2. Table 7-2 doesn't include any emissions from condensates which were included in releases in the oil spill modeling. 3. Calculations don't include global warming potential (GWP) values for non-methane volatile organic compounds (NMVOCs) which would be emitted during evaporation of spilled oil and condensates. 4. The assumed value for the methane fraction of evaporated oil is identical to the value for natural gas and therefore likely inaccurate. 5. The unevaporated portion of spilled oil can still result in GHG production and emissions, for example microbial degradation of hydrocarbons can release CO2.	1. The blow-out release rates were based on the rates used in the Oil Spill Modelling. 2. The Climate Change Risk Assessment considers two scenarios, namely gas with no oil and gas with oil. In the second scenario with oil, the condensate from the oil was included in the calculations. 3. The contribution of non-methane volatile organic compounds (NMVOCs) was not considered in the calculations as the estimated methane content of the gas is relatively high (97.3%) when compared to the typical composition for raw gas (~80%). This means that the contribution of NMVOCs is likely to be immaterial (<1%). 4. The value of the methane fraction was based on the values used in the Oil Spill Modelling. 5. The contribution of the unevaporated portion of the oil spilled were excluded from the calculations as this is likely to be immaterial when compared the GHG emissions from gas. Furthermore, the well blow-out scenario is considered to be a reasonable worst-case scenario (see Item 1.3).
1.16.	Chapter 9 of the CCRA ignores the fact that the goal of the project is to locate fossil fuels for future extraction and eventual combustion. Climate change could make future operation of wells in the area riskier and more costly. Future carbon pricing, public policy restrictions, or legal actions could limit the amount of fossil fuels extracted or decrease the profitability of those fuels, leading to a risk of stranded assets.	Refer to Response in Item 1.10.
1.17.	**Fisheries** **Expansion of hydrocarbon exploration or exploitation infrastructure on the seafloor poses a physical risk to the fishing industry, especially those that use methods of fishing along the seafloor, such as demersal or bottom trawling.** The potential expansion of hydrocarbon exploration or related infrastructure poses a risk to the fishing industry not just under worst-case-scenarios of spills or leakages, but also through the simple addition of physical	The Fisheries Impact Assessment considers both the project specific impacts on fishing, as well as the cumulative impacts (see Item 1.10). When assessing only the proposed activities by BW Kudu (this application), the various fishing grounds and spatial distribution of catch and effort (based on data provided by MFMR) are considered in relation to the estimated zones of impact (including exclusion, noise and drilling discharges), informed by the modelling studies and mandatory safety exclusion zones. When considering the potential impacts on the demersal trawl sector, which is specifically mentioned in this comment, the extent of the fishing grounds is considered in relation to all the current oil and

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	infrastructure that can interact with fishing gear. This is particularly relevant in such a high-value fishing region that is supported by the unique oceanographic conditions that make southern African waters among the most productive in the world due to the Benguela Current and upwelling system. Furthermore, bottom (demersal) trawling is a common and significant component of the fishing industry in this region, which makes the likelihood of negative interactions between fishing gear and seafloor infrastructure (active or abandoned) much higher than in areas where demersal trawling is not common. According to the Marine Stewardship Council, "Fishing is the third largest sector of Namibia's economy, with hake making up the majority of the sector." Hake is a species caught specifically by the method of demersal trawling, and the map displayed in Figure 6-36 (below) of the ESIA shows demersal trawling takes place in the block proposed for this project. However, Annex I's fishery report attempts to minimize the scale of negative impact by describing the amount of demersal fishing that happens in this block as a small percentage of the nation's overall demersal trawl fishery production. This grossly underestimates the pressure the fishery will feel from the cumulative impacts of multiple blocks being explored for oil and it skews the impacts that may be felt by specific subgroups of the fishery's stakeholders given that the block in question contains almost all of demersal trawling grounds at that latitude in Namibian waters.	gas exploration and appraisal activities, as well as potential future production activities, in southern Namibia. However, it is important to acknowledge that not all current and proposed activities will have an impact of the demersal trawl sector, which typically operates between depths of 300-800 m. Currently oil and gas activities are being undertaken or proposed in the following blocks in southern Namibia, with only three overlapping with demersal trawl sector (as indicated): • 2813A (Galp): **Overlap.** • 2814A (BW Kudu: **Overlap.** • 2912 (TEEPNA): No overlap. • 2913B (TEEPNA): No overlap. • 2913A (Shell): No overlap. • 2914B (Shell): No overlap. • 2813B (Harmattan / Chevron): No overlap. • 2914A (Rhino): **Overlap.** BW Kudu is proposing to remove the wellheads of plugged and **abandoned** wells on completion of the appraisal activities. In this case, there would be no risk posed to the trawling sector at the end of appraisal drilling operations. If the wells are to be **suspended**, the intention is to leave the wellhead(s) on the seafloor if it is deemed safe to do so based on a risk assessment. In this case, it's important to note that the sector would not be excluded from the entire Block due to decommissioned infrastructure on the seafloor. The demersal trawl sector would trawl around or lift nets off the seabed to avoid the suspended wellheads (to avoid damage to their trawl gear). However, a key mitigation measure recommended in the Fisheries Impact Assessment is the employment of over-trawlable caps: *"Any suspended well located in water depths >300 m, should be covered with an over-trawlable cap to reduce the risk of damage to demersal trawling gear and the wellhead".* Additionally, the position of suspended wellheads would be charted by SANHO as a navigational hazard. SLR is of the opinion that the impact on fisheries has not been underestimated.

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	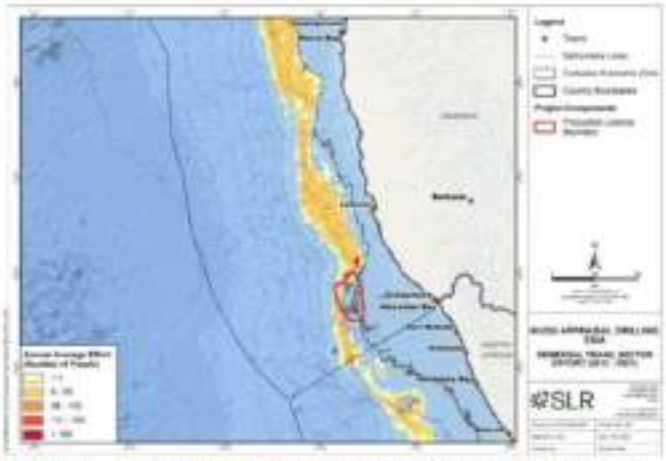 Figure 6-36: Spatial distribution of annual average effort (no. of trawls) recorded by the demersal trawl fishery in Namibia and South Africa in relation to Block 2814A. The 200 m depth contour is indicated in dark grey	
1.18.	**Incomplete Impact Assessment– neglects climate impacts on fisheries** The project poses a long-term risk of methane leakage and the associated negative impacts on the planet's climate associated with greenhouse gas emissions. This negatively impacts society at large as well as fisheries on the west coast of southern Africa specifically. Recently it has been shown that hydrocarbon wells, both active and abandoned, drilled into the seafloor may contribute substantial quantities of methane reaching the atmosphere.[13] Abandoned wells in both terrestrial and marine environments have been found to leak methane even after being plugged with concrete.[14,15] This means that the global society will be forced to bear the financial and health costs of increased greenhouse gas emissions long into the future, after this exploration project has concluded, regardless of how the wells are capped and decommissioned. The project will create additional climate impacts from vehicle and equipment emissions, and potentially from the downstream combustion of extracted fuels (see GHG discussion above). Fisheries along the west coast of	Well plugging and abandonment are undertaken to ensure safe closure of a non-producing offshore wells. Wells are sealed, plugged, tested for integrity and abandoned according to international best practices. The ultimate goal of these measures is to provide permanent containment of the formation fluids by effectively restoring the caprock and to prevent migration from the reservoir to the seabed, i.e. isolate permeable and hydrocarbon bearing formations. The principal technique applied to prevent cross flow between permeable formations is plugging of the well with cement, thus creating an impermeable barrier between two zones. Depending on the formations encountered a well may be plugged at multiple locations. The integrity of cement plugs can be tested by a number of methods. The cement plugs will be tag tested (to validate plug position) and weight tested, and if achievable then a positive pressure test (to validate seal) and/or a negative pressure test will be performed. Additionally, a flow check may be performed to ensure sealing by the plug. BW Kudu will abandon wells in line with OGUK Guidelines for the Abandonment of Wells, Issue 5, 2015. This standard is already applied to BW Energy's drilling operations in Gabon. Furthermore, all BW Energy drilling and completion programmes are subject to review by an independent external third party well examiner. BW Energy's drilling operations put this verification process in place with industry approved well examiners. Before operations commence, the programme is subject to review and approval. During the well operations life cycle, the daily well operations reports are reviewed by the well examiner to ensure compliance with the programme and industry accepted

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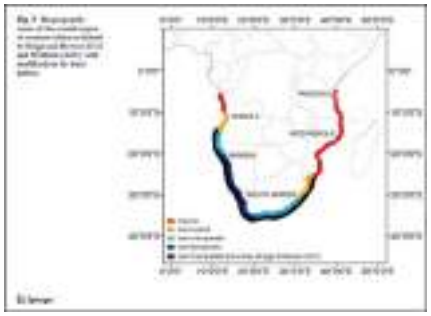
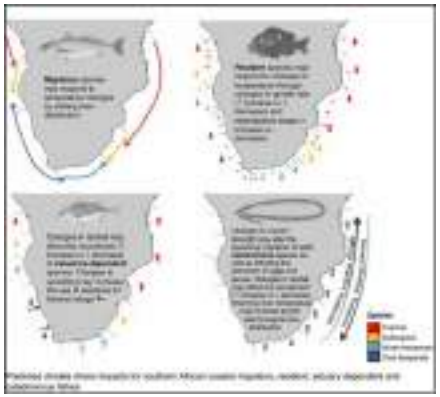
	southern Africa, in particular, are predicted to be negatively impacted by climate change due to its effects on growth rates and reproduction. Fig. 3 from Potts et al. 2015 shows that Namibian waters host primarily cool-temperate biogeographic zone species that transition to warm-temperate zone species near the border with Angola:  Fig. 4 from Potts et al. 2015 shows in the upper right quadrant that resident fish species are primarily expected to experience reduced growth rates and decreased reproductive scope under oceanographic conditions predicted due to anthropogenic climate change: 	standards such as well design and barriers. Should there be changes to the approved programme, then unless the changes are addressed through a Management of Change procedure, the work cannot commence. The leakage of hydrocarbons from an abandoned well can be initiated through a compromised well barrier either by degradation overtime or natural seepage, or both. For the proposed activities a maximum of four wells may be drilled, but only those which encounter hydrocarbon bearing formations could potentially leak. Although a leak from an abandoned well is unlikely, it could result in the release of large quantities oil or gas. The quantities released are, however, likely to less than in the case of a well blow-out. The impacts associated with a well blow-out (i.e. the worst case) is assessed in the ESIA (see Section 10.4). The Fisheries Impact Assessment refers the reader to Augustyn *et al* (2018) for a synopsis of the expected climate change impacts on South African fisheries, which is largely relevant for Namibian fisheries. The Climate Change Risk Assessment considers the implications of project (normal operations) related climate change effects to communities, priority ecosystems services (e.g. fishing) and natural habitats in Section 10 of that report (see Appendix K of the ESIA Report). Given the nature (i.e., seabed sampling and appraisal well drilling), relatively limited extent or area of influence, and relatively short duration (i.e., less than two years), it is highly unlikely that the project will materially exacerbate the impacts of climate change on communities, priority ecosystem services, and biodiversity. These impacts or risks were, therefore, not assessed in detail in the Climate Change Risk Assessment.

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1.19.	**Poor Cumulative Impact Assessment with respect to fisheries (Section 5.3 of Appendix I)** This section describes the numerous other concessions for offshore drilling in the blocks that surround the proposed project (see Table 5-10), but on pg. 70 states without any supporting evidence "*Although cumulative impacts from other hydrocarbon ventures in the area may increase in future, the cumulative impacts of the proposed drilling of appraisal wells in Licence Block 2814A can be considered of low significance.*" Meanwhile, Table 3.4 (p. 17) within the same Annex (I) reports the annual average catch from pelagic longliners in the block as a small percentage of the total longline catch for the nation (0.5% of the annual average catch was assigned to Block 2814A). It is clear from the long list of nearby concessions (see Table 5-10 and Fig 1 below) and the fishery activity (see Fig 3-4 below) that the cumulative impact on longline fisheries from the suite of proposed drilling projects would certainly be measurably negative as there is nearly no where for the fishery to work that is not within the boundaries of one of the proposed drilling projects. If all projects came to fruition, the cumulative impact on the fishery could be strongly negative even in the absence of considering the climate related negative impacts described above.  Figure 1: Locality map of Block 2814A (PPL 003) off the southern coast of Namibia and surrounding Blocks	The Fisheries Impact Assessment (Appendix I of the ESIA Report) discusses the cumulative impacts in Section 5.3. Cumulative impacts include past, present and reasonably foreseeable future developments or impacts, which result in change that is larger than the sum of all the impacts. While it is foreseeable that other prospecting, mining, exploration and production activities (not considered as part of the current application) could arise, there is not currently sufficient information to make reasonable assertions as to the nature of these activities should a resource exist. While recent hydrocarbon discoveries from the area indicate that further oil and gas exploration and potentially production will likely occur, the possible range of the future exploration and production activities that could arise will vary significantly in scope, location, extent, and duration depending on whether a resource(s) is discovered, its size, properties and location, etc. It is also, however, possible that the future exploration and appraisal within the block fails to identify an economic petroleum resource, in which case the potential impacts associated with the production phase would not be realised. As noted in Item 1.10, the same applies to Block 2814A, the possible range of the future production activities within the Block also cannot be considered as "reasonably foreseeable" at the stage of the proposed appraisal activity. These cannot be reasonably defined until this study has been completed and further well drilling has been undertaken. If, later, a decision is taken to move towards production, a separate ECC application and ESIA process would need to be undertaken to assess the potential impacts of possible future production (i.e. extraction) and associated activities. This is typical of the lifecycle of a development project. The proposed and current oil and gas activities in southern Namibia is detailed in Table 5-10 of the Fisheries Impact Assessment. It is important to note that if the listed applications are granted and exploration/appraisal activities go ahead, the commercial fishing sectors are not physically excluded from Licence Blocks in their entirety. For example, in BW Kudu's case, fisheries are only displaced from the safety exclusion zone around the drilling unit (500-2 000 m radius) for the duration of drilling activities (100 days per well). This exclusion area equates to 0.28% of the Block (4 568 km^2), and vessels are free to operate anywhere else within the Block.

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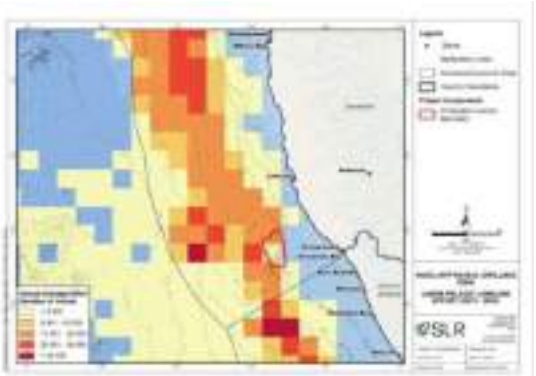
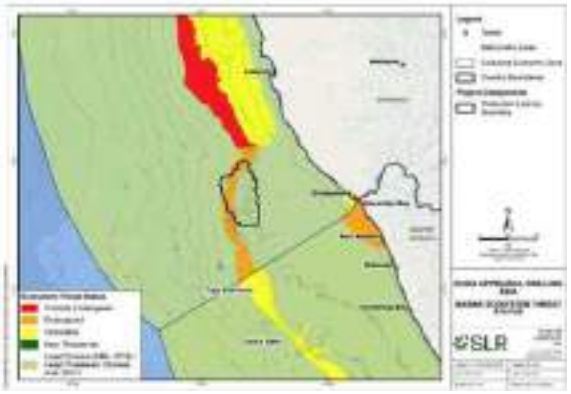
	 Figure 3-4: Spatial distribution of annual average effort recorded by the large pelagic longline fisheries in Namibia and South Africa in relation to Licence Block 2814A.	
1.20.	**Marine Ecosystems** **Block 2814A includes sensitive marine habitats and areas identified as priorities for protection** Block 2814A includes "Endangered" ecosystem habitat type, shown in orange in the map below taken from Figure 3-37 of the Marine Ecology Impact Assessment. 	As detailed in the ESIA Report (Section 6.5.4.1), Block 2814A is almost entirely located within the Orange Seamount and Canyon Complex transboundary EBSA. EBSAs are delineated to minimise conflict and avoid negative impacts with industries and will be used to inform and enhance Marine Spatial Planning in the Nambian EEZ, which aims to organize the use of the country's marine territory in such way that comprehensive, integrated, and complementary planning and management across sectors and for all ocean uses is enabled. No specific management actions have been formulated for the EBSAs at this stage and they carry no legal status. Any future decisions in relation to management of the areas and possible restrictions of human activities are within the mandate of the responsible authorities. However, two biodiversity zones have recently been defined within each EBSA as part of the marine spatial planning process. Although the proposed zonation of the EBSAs is still under discussion, the management objective in the zones marked for 'Conservation' is "strict place-based biodiversity protection aimed at securing key biodiversity features in a natural or semi-natural state, or as near to this state as possible". The management objective in the zones marked for 'Impact Management' is "management of impacts on key biodiversity features in a mixed-use area to keep key biodiversity features in at least a functional state". Block 2814A falls predominantly within the Orange Seamount and Canyon Complex EBSA 'Conservation' Zone (although classified at 'Least Threatened') and partially with an EBSA 'Impact' Zone. In the list of sea-use activities provided for Orange Seamount and Canyon Complex EBSA 'Conservation' and 'Impact' Management Zones, the marine spatial planning zone for petroleum activities recommends that seismic surveys and petroleum extraction are conditionally permissible

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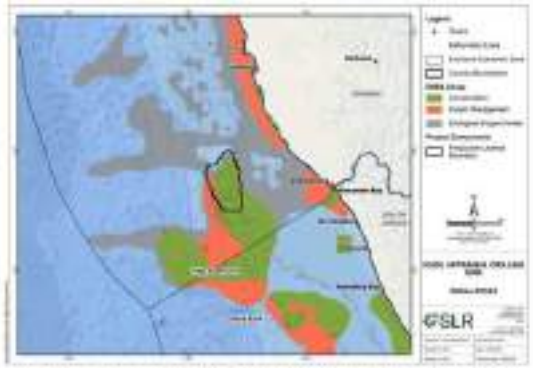
	Additionally, a recent spatial marine biodiversity assessment undertaken for Namibia as part of a marine spatial planning process identifies the area where Block 2814A is located as an Ecologically and Biologically Significant Marine Area (EBSA) with high priority for place-based conservation. Figure 3-27 (shown below, and taken from the Marine Ecology Impact Assessment) shows the majority of the block is proposed for 'Conservation' management, which calls for "strict place-based biodiversity protection aimed at securing key biodiversity features in a natural or semi-natural state, or as near to this state as possible." Allowing oil exploration in this area would not be consistent with this management objective.  Figure 3-27: Block 2814A (black polygon) in relation to Ecologically and Biologically Significant Areas (EBSAs) and the marine spatial planning zones within these. Ecological support areas (ESAs) also shown. Source: Adapted from MFMR (2021) and NAMPOMA. The proposed EBSA management designations are not currently tied to legislation, but they were developed through a scientific and technical process aimed at developing coherent and evidence-based recommendations as described here: "To develop the evidence-based recommendations for EBSA management, EBSA threat **status is assessed in terms of the pressures and threats to their key biodiversity features** (based on data from the BCC Project BEH 09-01: Spatial Biodiversity Assessment and Spatial Management, including Marine Protected Areas). **These are the features that must remain intact to ensure that coastal and marine biodiversity and ecological processes persist into the future and, ultimately, contribute**	within the 'Conservation' and 'Impact' Management Zones. Conditional activities are defined as activities that "are recommended to be managed as Consent activities, which are those that can continue in the zone subject to specific regulations and controls, e.g., to avoid unacceptable impacts on biodiversity features, or to avoid intensification or expansion of impact footprints of uses that are already occurring and where there are no realistic prospects of excluding these activities". The above is essentially a proposal that will need to be negotiated with other sectors and marine users, including fishing, mining, oil and gas exploration and production, etc., in the development of Marine Spatial Pan for Namibia. To this end, the energy-related plans and policies, discussed in Section 2.3.1 of the ESIA Report, have identified an existing and continuing demand for hydrocarbon products in Namibia, with an aim of promoting the country's exploration and production potential, specifically mentioning the Kudu Gas Field for development. The Marine Spatial Plan that will be developed for the southern area will thus need to consider all marine users and involve a comprehensive stakeholder engagement process. Further to the above, specific mitigation has been proposed to reduce potential impacts, including the smothering impact of sensitive benthic fauna (refer to Item 1.25).

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	to sustainable ocean use. In order to safeguard these key biodiversity features, EBSAs or parts of **EBSAs may require enhanced risk aversion, achieved by more strongly regulating human activities in specific zones." 17 [Emphasis added]** Given this planning process is already in motion and any future licensing decisions would need to be in line with the plans resulting from this process, it would not be prudent to allow oil exploration in Block 2814A.	
1.21.	**Noise Impacts from Support Helicopters are Underestimated** The Marine Ecology Impact Assessment underestimates the potential noise impacts to sensitive coastal receptors from support helicopters. The document states: "It is estimated that there could be up to three trips per week between the drilling unit and the helicopter support base (i.e., 14 weeks (approximately 100 days) x 3 = 43 trips per well)." The document also describes the potential for this disturbance to impact many sensitive species: "...the flight path between the Block 2814A and Lüderitz would cross over the NIMPA, and any sensitive coastal receptors (e.g. key faunal breeding/feeding areas, bird or seal colonies and nursery areas for commercial fish stocks). Similarly, sensitive coastal receptors near Oranjemund (144 km inshore) may be affected. In addition, migratory pelagic species transiting through the drill area may also be directly affected. Seabirds and seals in breeding colonies and roosts along the coast could be impacted where the flight path crosses the coastal zone. Some of the seabirds roosting and nesting along the coast are listed by the IUCN as 'Critically Endangered' (e.g. African Penguin), 'Endangered' (e.g. Bank Cormorant, Cape Cormorant and Cape Gannet), 'Near threatened' (e.g. African Black Oystercatcher and Crowned Cormorant) or 'Vulnerable' (e.g. Damara Tern). The Cape Gannet is also considered as 'Critically Endangered' nationally. In addition, there are Southern Right [whale] calving and nursing areas in Lüderitz and Elizabeth Bay." However, this doesn't factor in round trip travel, which would mean 84 trips per well past sensitive coastal receptors (i.e., 14 weeks x 3 trips x 2 directions = 84). That means disturbance would occur twice a day for 42 days in the approximate 100-day period. Because the wells would be drilled	The ESIA Report (Section 8.2.3) notes that "indiscriminate low altitude flights over whales and seal / bird colonies by helicopters used to support the drilling unit could thus have an impact on behaviour and breeding success. The intensity of disturbance would depend on the distance and altitude of the aircraft from the animals (particularly the angle of incidence to the water surface) and the prevailing sea conditions. The impact could range from low to high intensity for individuals but of low intensity when considered at the population level". Thus, it is acknowledged that indiscriminate low altitude fights could have an impact of high intensity. This said, the impact can be easily mitigated with the proposed recommendations, which include specified flight paths that avoid of these sensitive receptors (e.g. islands, breeding colonies, etc.) and maintaining an altitude of ≥762 m. With mitigation, the residual impact is considered to be of VERY LOW significance. SLR disagrees that the impact of helicopter noise has been underestimated. Furthermore, it is an incorrect assumption that the ESIA does not consider 43 return trips to and from the drilling unit. This has been taken into consideration in the assessment.

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	one at a time over a two year period and at different locations in the block, the actual impact to sensitive coastal receptors would cover a longer period of time and, therefore, the disturbance factor would need to be multiplied by a factor of four.	
1.22.	**Noise Impacts of Vessels and Vertical Seismic Profiling are Mischaracterized** The Marine Ecology Impact Assessment incorrectly equates the noise generated by seismic exploration and drilling activities with the noise generated by generic vessel traffic with respect to the health and safety of marine mammals.[18] Vessel traffic noise typically covers a broader range of frequencies at lower intensity while seismic exploration generates loud blasts concentrated at low frequencies that are important to marine mammals. Page 126 of the Marine Ecology Impact Assessment states: "Since Block 2814A is located in a main marine traffic route experiencing increased vessel noise and as the sound source during drilling operations will be stationary, the intensity of the impact of potential behavioural disturbance as a result of drilling and vessel noise on cetaceans is considered to be **low**." This is faulty logic that is not supported by the science of sound nor marine mammal physiology. Marine animals rely on sound to find food, reproduce, communicate with the group and their young, avoid predators and dangers, navigate, and sense their surroundings. Seismic survey noise is a widespread degradation of their acoustic habitat. The stress response to noise is highly conserved among all species in which it has been studied. Documented impacts of noise on whales include: masking (i.e., obscuration or obliteration of sounds of interest); change in call rate; avoiding important habitats; reduction of feeding and feeding success; decreased	Detailed modelling predictions have been undertaken for noise emissions from impulsive[1] (e.g. Vertical Seismic Profiling, VSP) and non-impulsive[2] (e.g. DPS sources from drilling vessel activities) signals. The zones of noise impact have been estimated for different marine faunal groups based on comparisons between noise levels and noise impact criteria for two location scenarios. In considering the noise impact related to drilling vessel activities (non-impulsive), it is prudent to take cognisance of the surrounding ambient noise levels (which includes existing marine traffic). The Underwater Noise Modelling (Appendix G of the ESIA Report) notes that shipping traffic is an important component of ocean ambient noise in the project area. Given the shipping traffic in the Block 2814A, the ambient noise levels are expected to be at most 5 to 10 dB higher than the lowest level, within 80 and 90 dB re 1 µPa for the 10-10 kHz frequency range. Thus, the shipping noise component of the ambient noise environment is expected to be present over the entire Block, and has been taken into account in the noise modelling. SLR disagrees with the comment, "*this is faulty logic that is not supported by the science of sound nor marine mammal physiology*". The comment makes reference to "seismic exploration". In this regard, the proposed appraisal activities applied for include well drilling (and associated VSP). VSP is not the same as conventional seismic surveys. No conventional 2D or 3D seismic surveys or Low-Frequency Active (LFA) sonar are proposed as part of this ECC application. The generation of noise from VSP have been modelled and the potential noise impact on marine fauna is assessed and the required mitigation included in Section 8.2.3 and 8.2.4 of the ESIA Report. VSP uses a small airgun array; with volumes and the energy released into the marine environment being significantly smaller than what is required or generated during conventional seismic surveys.

[1] Impulsive noise: Noise that is typically very short (in seconds), broadband and has high peak pressure with rapid time and decay back to ambient levels (e.g., noise from pile driving, seismic surveys and explosives).
[2] It is typically continuous and produces sounds that can be narrowband, or tonal, and brief or prolonged. It does not have the high peak sound pressure with rapid rise time typical of impulsive sounds (e.g., drilling and vessels).

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	reproduction; decreased awareness of predators or dangers; disruption of migration, hearing damage; stress (e.g., impaired immune and reproductive function); strong escape responses, and death. For context, the scale of noise impact from a single air gun seismic survey can cover an area of > 300,000 km^2, raising background noise levels 100-fold (20 dB), continuously for weeks or months. Nieukirk et al. (2012) analysed 10 years of mid-Atlantic ridge recordings, finding that seismic air cannons were heard at distances of 4,000 km from reconnaissance vessels and featured 80-95% of days per month for more than 12 consecutive months in some locations. When several studies were recorded simultaneously, the sounds of the whales were masked (drowned) and the noise of air guns became the dominant feature of background noise levels.	
1.23.	**The Cumulative Impact Assessment for the Marine Environment Ignores Existing Oil Wells in Block 2814A and Makes Incorrect Claims About Impacts from Offshore Oil Wells in the Region** Section 5.3 Cumulative Impacts of the Marine Ecology Impact Assessment describes oil operations in adjacent blocks and the primary impacts of these activities: "With regards to offshore exploration operations, recent and current exploration drilling activity has taken place/is planned in adjacent Block 2813A and nearby Block 2813B (Galp Mobane wells) as well as Block 2912 (TEEPNA - Nara well), 2913B (TEEPNA - Mangetti and Venus wells), 2913A (Shell - Cullinan, Jonkers, Lesedi and Graff wells), and 2914B (Shell - La Rona well). Additionally, an ECC was recently granted (2024) for exploration well drilling in Block 2813B (Harmattan / Chevron) and neighbouring Block 2914A (Rhino)... The primary impacts associated with the drilling of exploration and appraisal wells (normal drilling operations), relate to physical disturbance of the seabed, discharges of drilling solids and muds to the benthic environment, the presence of infrastructure remaining on the seabed and underwater noise associated with vessels and the drill unit." However, this section does not mention the fact that wells are already present in Block 2814A –shown as green dots in Figure 3-30 – nor does it	The EIA Regulations 2012 require the consideration of the 'cumulative impact', which requires the consideration of "*past, current and reasonably foreseeable future impact of an activity*" (see Item 1.10). Thus, the cumulative assessment focuses on activities proposed as part of the current appraisal project, in conjunction with other activities that have or may result in a cumulative impact. In this context the assessment of normal operations in Chapter 8 of the ESIA Report already, by its nature, considers the: • Cumulative impact of the total project, i.e. assesses the impact of the total number of wells to be drilled, and associated activities; and • Interaction of the project with past and current activities and impacts, as these are captured in the baseline. In particular, when rating the sensitivity of the receptors, the status of the receiving environment (benthic ecosystem threat status, protection level, protected areas, etc.) or threat status of individual species is taken into consideration, which is based to some degree on past and current actions and impacts (e.g., the IUCN conservation rating is determined based on criteria such as population size and rate of decline, area of geographic range / distribution, and degree of population and distribution fragmentation)[3]. The cumulative impact assessment thus focuses on the potential cumulative impact of the project, which includes the wells already drilled in the Block, with other concurrent and reasonably foreseeable future activities. Activities that could lead to cumulative impacts are those whose impacts may overlap with those of the project, e.g. affect the same or similar features or areas. Of the key offshore activities discussed in the baseline (Section 6.9 of the ESIA Report), mining and recreational use are primarily situated

[3] As an example of the interaction with past and current activities, a portion of the benthic habitat within the Block is classified as 'Endangered' due to habitat degradation from trawling (refer to Section 6.4.4 of the ESIA Report).

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	consider these wells would have their own footprints of impact already in the block.  	in nearshore areas and do not overlap with Block 2814A, and undersea cables are located well offshore of Block 2814A, and are not expected to contribute to cumulative impacts with the proposed appraisal drilling activities. Activities that could possibly lead to cumulative impacts include: • Shipping, as the block overlaps with a busy shipping route off the African West Coast, leading to potential cumulative noise impacts on marine fauna; • Fishing, as large pelagic longline, demersal trawl, demersal longline and pole-line fisheries periodically overlap with the project area, leading to potential cumulative noise and behavioural impacts on marine fauna; and • Oil and gas exploration / appraisal, which is underway in the southern Namibian and northern South African West Coast regions (see Section 6.9.2 of the ESIA Report), including a potential application for a production right in Block 2913B (TEEPNA). Concurrent activities could lead to potential cumulative impacts on marine fauna and habitats related to noise, physical disturbance and changes in water quality. This could add to the cumulative impact on fisheries. The comment incorrectly states that the Marine Ecology Impact Assessment "*does not mention the fact that wells are already present in Block 2814A*". Section 5.3 of the Marine Ecology Impact Assessment states the following: "*Historically, oil and gas exploration and production activities in Namibia have focused on the Kudu gas field, which lies within Block 2814A. To date approximately 381 and 35 wells have been drilled in the South African and Namibian offshore environment, respectively, with a resurgence in offshore exploration activities along the southern African west coast over the past several years*". The activities specifically listed related to "*recent and current exploration drilling activity*", and not all previously drilled wells. Additional text has been included in the Marine Ecology Impact Assessment to substantiate this point.
1.24.	Furthermore, this section incorrectly claims there is no evidence of cumulative impacts from offshore oil wells in South African and Namibian waters: "Despite the number of wells drilled in the South African and Namibian offshore environment, there is no evidence of long-term negative change (cumulative impacts) to faunal population sizes or irreparable harm as a direct result of these exploration and appraisal activities." A National Biodiversity Assessment conducted in South Africa in 2018 provides an analysis of cumulative impacts – the resulting figure below shows a significant portion of the western South African coast and shelf edge is already experiencing high levels of cumulative pressures and impacts. The study notes: "areas of high cumulative pressures translate	The extract pasted in the comment has been taken out of context. This paragraph relates specifically to well drilling and the impact cuttings discharge and sediment plume, and not all "cumulative pressures and impacts". The Marine Ecology Impact Assessment (Section 5.3) notes that "*the total cumulative area impacted by the installation and cuttings fall-out of approximately 35 wells in the Namibian EEZ (which has a total area of approximately 562 212 km^2) is estimated at 16 km^2. In reality the total cumulative impacted area at any one time is considerably less, due to the natural dispersion and recovery of benthic communities in unconsolidated sediments over the short to medium (shallow waters) and long term (deeper waters)*". As noted in Item 1.23, interaction of the project with past and current activities and impacts, are captured in the baseline. In particular, when rating the sensitivity of the receptors, the status of the receiving environment (benthic ecosystem threat status, protection level, protected areas, etc.) or threat status of individual species is taken into consideration, which is based to some degree on past

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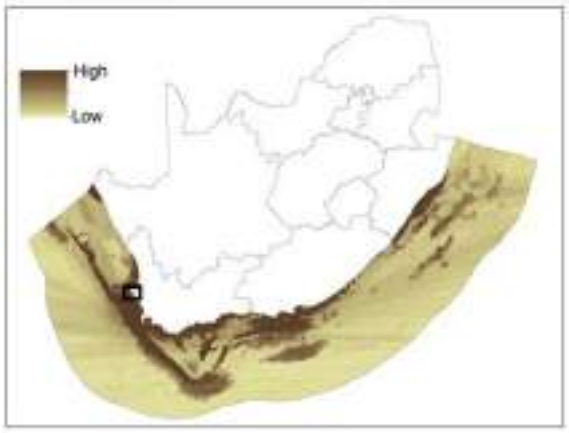
	into areas of severe ecosystem degradation and poor ecosystem condition, particularly in the inner shelf and shelf edge…"  	and current actions and impacts (e.g., the IUCN conservation rating is determined based on criteria such as population size and rate of decline, area of geographic range / distribution, and degree of population and distribution fragmentation).
1.25.	**Mitigation Measures are Inconsistently Described and Woefully Inadequate** Benthic The Marine Ecology Impact Assessment (MEIA) includes inconsistent information on the proposed pre-drilling ROV surveys and ultimately proposes inadequate survey distances. On page 106, the document states: "International best practice recommends that pre-drilling site surveys be carefully designed to provide sufficient information on seabed habitats on and in the vicinity of the proposed drill sites, and appropriate technologies and monitoring surveys implemented to reduce the risks of, and assess the damage to, vulnerable seabed habitats and communities should they occur in the target area (Jødestøl & Furuholt, 2010; Purser & Thomsen, 2012; Purser, 2015). In this regard, a set-back distance of 610 m (2 000 ft) for sea surface discharge of drilling discharges from sensitive deep-water communities is mandated in US territorial waters." [emphasis added]	Mitigation should, as far as possible, be project specific taking cognisance of project location, water depths, metocean conditions, environmental sensitivities, etc. This is aligned with the extract pasted in the comment, specifically "*international best practice recommends that pre-drilling site surveys be carefully designed to provide sufficient information on seabed habitats on and in the vicinity of the proposed drill sites*". The mitigation proposed to avoid / minimise the smothering impact of drill cuttings discharge of sensitive or potentially vulnerable hardground habitats has been proposed based on the findings of the drilling discharge modelling study. Drilling discharge modelling predicted that areas of significant deposition (>6.5 mm) will be confined to a maximum distance of ~155 m. The recommended survey radius (200 m) encompasses this predicted impact zone, while remaining within the technical constraints of typical ROV operations at these depths. Toxicity tends to accumulate in soft sediments rather than on hardgrounds because sediments have a higher capacity to absorb and retain pollutants. The drilling discharge modelling study assumes a homogenous unconsolidated sediment habitat. Thus, the toxicity impact in sediments is estimated to extend to a maximum of 1.3 km over the long term and is assessed as such. However, this is not necessarily the situation for hardground habitats as due to less absorption and accumulation of chemicals in these habitats the risk zone would likely be less. This is due to their sorptive nature (i.e. ability of a material to retain or bind other substances to its surface), where fine grained sediments tend to accumulate contaminants on their surfaces so that

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		about 99% of heavy metals in the aquatic system are associated with sediment (Akcil et al., 2015 in Eggleton & Thomas 2004[4]). So, from this one can deduce that hardgrounds (cemented sediments) have low porosity and, therefore, contaminants cannot 'attach' as readily as in unconsolidated sediments. It is thus smothering impacts that are more of concern for hardgrounds as they typically host more sensitive, long-lived species, which are often not tolerant of sedimentation. As noted above, the proposed mitigation of a 200 m buffer is to mitigate the smothering impact on hardgrounds.
1.26.	On page 149, the Cumulative Impacts states: "In addition, BW Kudu will actively avoid and reduce potential impacts on sensitive and potentially vulnerable habitats by ensuring that wells are ≥500 m from such habitats (using ROV survey prior to drilling). Cumulative impacts are therefore less likely." [emphasis added] In contrast to what's described above (610-m mandated set-back in the U.S.; ensuring wells are ≥500 m from potentially vulnerable habitats), the mitigation plan indicates technical constraints will limit the ROV survey radius to 200 m: **Table 5-4: Mitigation to reduce impacts from smothering and disturbance of benthic fauna.** [20] Drilling discharge modelling predicted that areas of significant deposition (>6.5 mm) will be confined to a maximum distance of ~155 m. The specified survey radius (200 m) encompasses this predicted impact zone while remaining within the technical constraints of typical ROV operations at these depths. ****It's important to note** that the MEIA and Drilling Discharge Modelling report describe impacts to benthic communities could extend much further than the ~155 m described above in Footnote 20 from Table 5-4 and which only corresponds to sediment deposition. Detrimental changes to oxygen	Inaccuracy (typos) in the Marine Ecology Impact Assessment (specially reference to 500 m instead of 200 m) is noted and has been corrected in Final ESIA Report. This inaccuracy does not change the findings of the ESIA. Refer to Item 1.25 above for a discussion on impact of smothering and the recommended 200 m buffer between the well site and any sensitive and potentially vulnerable habitats.

No.	Mitigation measure	Classification
1	Undertake operational and seabed ROV surveys to ensure there is sufficient information on seabed habitat at the well site, including investigating potentially sensitive and/or vulnerable habitats and identifying any colony forming corals and structural features within a distance of 200 m[20] from proposed well site.	Avoid / reduce at source
2	If potentially sensitive species or structural features are identified during the pre-drilling ROV surveys, the footage should be reviewed by a marine	Avoid / reduce at source

[4] Eggleton, J. & Thomas, K.V. 2004. A review of factors affecting the release of contaminants during sediment disturbance events. Environmental International. Vol. 30. Issue 7. Sept 2004. Page 973-980.

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	levels and the chemical footprint of drilling muds is expected to extend much further (1.4 km) – page 117 of the MEIA: "The environmental risk to the sediment is found to be more chemical than physical for the risered stage, due to the hydrotreated light petroleum distillate (base oil) EDC-99 DW, EZ MUL NT-A (mostly fatty acid component of the product) and INVERMUL NT-B (mostly the fatty acid component), which make up NADFs, and which together contribute between 52.4% to 56.4% of the risk to sediments. Risk due to total concentration of chemicals in the sediment extended up to 1.4 km (within/near site), reducing over time to within 310 m and 444 m from discharge point L1 (209 m) and L2 (257 m), 10 years after operation, respectively."	
1.27.	<u>Marine Fauna</u> The MEIA notes that data collected by other organizations make it clear that Vulnerable, Endangered, and Critically Endangered species are present in the project area, including the following: • Blue whale is considered Critically Endangered; • Fin whale and Sei whale are considered Endangered; • Sperm whale, • Bryde's whale (inshore) and the Humpback B2 subpopulation 6 are considered Vulnerable; and 10 cetacean species are listed as Data Deficient with respect to their distributions and population trends in southern Africa. • Leatherback, Loggerhead and Olive Ridley sea turtles are listed as Vulnerable on one or more conservation status list • Hawksbill sea turtle is listed as Critically Endangered • Green sea turtle is listed as Endangered Furthermore, Table 3-8 shows that there would be high (H) abundances and likely encounter rates for protected species of whales throughout the year. While the species shift in abundance due to their migration and behavior patterns, there is not a single month in which the abundance/likely encounter rate is characterized as low for all species. Thus, no matter what time of year the project work may occur, it is expected that some species of concern will be in high abundance.	As noted in Item 1.23, the sensitivity of receptors (e.g. IUCN classification) has been taken into consideration in the assessment of potential impacts. It is not correct to state that "*despite the presence of these sensitive species, the document doesn't describe appropriate precautions*". Various measures are proposed in the ESIA Report that, if implemented, will avoid and / or reduce potential impacts on marine fauna, particularly marine mammals and turtles, including sensitive species or species of concern. For example, • Mitigation for VSP to reduce faunal injury (Section 8.2.3.7 of the ESIA Report), includes a pre-start faunal scan, "soft-start" procedure and temporary termination of the acoustic source if cetaceans, penguins, shoaling large pelagic fish or turtles are sighted within the 500 m mitigation zone. • Mitigation for helicopter trips to reduce faunal injury and disturbance (Section 8.2.3.7 of the ESIA Report), including specified flight paths that avoid sensitive receptors and maintaining an altitude of ≥762 m. • Mitigation for vessels to reduce risk of faunal collisions (Section 9.1.4 of the ESIA Report), including vessel speed regulation. These examples provide some evidence of mitigation that will avoid / reduce potential impact on sensitive species or species of concern. These are aligned with international and industry best practice.

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	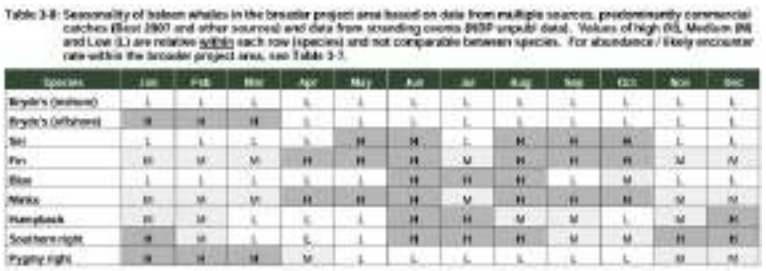 Despite the presence of these sensitive species, the document doesn't describe appropriate precautions. In fact, the mitigation measures to reduce potential impacts to marine mammals would not meet the standards of good practice even if there were only species of Least Concern in the area (which is not the case).	
1.28.	The mitigation plan does not employ best practices for seabird and marine mammal monitoring by not having enough observers for the work plan described and by allowing drilling activity to occur with visual or acoustic monitoring alone instead of always requiring both. In particular, the project plans to allow seismic activity at night with only passive acoustic monitoring (PAM) as a means of preventing marine mammal impacts when PAM is best used as a complementary tool to visual monitoring. Seismic exploration should only occur during the day when appropriate visual surveillance conditions exist. In addition, the project proposes to have a total of only 2 observers on board, while best practices require 2 observers to be active simultaneously whenever seismic activity is underway. It is not realistic that only 2 observers in total could provide coverage for up to 12 hours of daylight with each taking appropriate breaks to maintain reasonable and safe health. The use of trained observers located on the seismic vessel with binoculars to detect the presence of marine mammals, and give orders to immediately turn off acoustic equipment when observing a marine mammal – is a fundamental requirement for conducting seismic surveys.	With regard to the comment on seismic activity, refer to Item 1.22. No conventional 2D or 3D seismic surveys or Low-Frequency Active (LFA) sonar are proposed as part of this ECC application. Only Vertical Seismic Profiling (VSP) activities are proposed as part of the current ECC application, which if undertaken, may occur for up to 9 hrs per well. The generation of noise from VSP has been modelled and the potential noise impacts on marine fauna are assessed and the required mitigation included in Section 8.2.3 and 8.2.4 of the ESIA Report. VSP uses a small airgun array; with volumes and the energy released into the marine environment being significantly lower than what is required or generated during conventional seismic surveys. The underwater noise modelling study determined the zones of impact (for injury and disturbance) for reasonable "worst-case" scenarios by using the maximum predicted noise level across the water column to determine the zone of impact. Since noise levels vary with depth at any location, there will be areas in the water column within the identified zone of impact that are exposed to lower noise levels than implied by the identified zones of impact, which represent the worst case. As reported in the Underwater Noise Modelling Study (Appendix G of the ESIA Report), the maximum zones of impact for **behavioural and injury** from impulsive VSP noise are listed below. **Animal hearing group** / **Zone of Impact (m)**: **Behaviour** / **Injury** Marine mammals: 690 m / 350 m Fish: 1 510 m / 170 m Turtles: 150 m / 40 m

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		One of the international standards / guidelines commonly referenced to minimise the risk of injury to marine fauna from geophysical surveys, including seismic, is the Join Nature Conservation Committee (JNCC) guidelines (2017). The proposed mitigation for VSP operations is aligned with the JNCC Guidelines, e.g.: • Appointment of a dedicated Marine Mammal Observer (MMO) on board to undertake marine fauna observations. • Use Passive Acoustic Monitoring (PAM) during night-time and periods of poor visibility. • Ensuring sufficient MMO and PAM operators are employed, considering the size and duration of the survey, etc. A minimum of one PAM operative is required when PAM equipment is deployed. Considering that VSP will be undertaken for only up to 9 hours per well, one MMO and one PAM operator is deemed sufficient for VSP operations. • Undertaken a 60 min pre-shooting search in water depths deeper than 200 m. • Implementing a "soft-start" procedure of a minimum of 20 minutes' duration when initiating the acoustic source. • Delay soft-start if marine mammals are identified within the 500 m mitigation zone. In certain instances, the mitigation proposed in this ESIA is more stringent than that required by the JNCC guidelines, e.g. the current mitigation recommends that the acoustic source is shut down if cetaceans, penguins, shoaling large pelagic fish or turtles are sighted within 500 m mitigation zone. This is not a requirement of the JNCC guidelines. Additionally, the mitigation states that VSP profiling should, as far as possible, only commence during daylight hours with good visibility. However, if this is not possible due to prolonged periods of poor visibility (e.g. thick fog) or an unforeseen technical issue which results in a night-time start, then PAM use if recommended. The proposed mitigation is considered adequate to mitigate the impact of VSP operations.
1.29.	**General Issues** Many figures are at a low resolution that makes text difficult to read and the figures difficult to interpret (potentially limiting access to information critical to understanding the project). For example, in Figure 5-1, "Locality Map of Block 2814A (with co-ordinates) off the southern coast of Namibia", the coordinates are illegible.	Thank you for highlighting the legibility of the co-ordinates in Figure 5-11 of the ESIA Report. Although legible in electronic copy (zoom in), it is not very clear in print. As such, as table has been inserted in the Final ESIA Report with the Block co-ordinates – refer to Table 5-2.

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1.30.	The underwater noise modeling used two deepwater source locations in Block 2814A: L1 at 250 m, and L2 at 700m. While these locations provide a good spread of depths located within Block 2814A, they differ from L1 (209 m) and L2 (257 m) used in the oil spill modeling and the drill cuttings discharge modeling. Additionally, Table 10 of the Underwater Sound Transmission Loss Modelling appears to mislabel deep and shallow scenarios.	A slightly different approach was undertaken for the oil spill and underwater noise modelling studies. For the oil spill modelling reasonable worst-case locations were selected based on a number of criteria, including metocean dataset (including surface and subsea currents), water depths, and proximity to coast and sensitive areas) in order to assess representative scenarios for oil spill dispersion for an unplanned event. However, the rationale differed for the noise modelling, where the aim was to model two water depth extremes (namely shallow vs deep). Water depth significantly influences how sound travels and is attenuated underwater: • *Sound speed:* Sound travels faster in deeper water due to higher pressure and often lower temperatures. This is because sound speed increases with both temperature and pressure. • *Reflection and refraction:* In shallow waters, sound waves frequently interact with the surface and the seabed, causing reflection and scattering. This can lead to complex propagation patterns and increased attenuation. In deeper waters, sound waves can travel longer distances with fewer interactions, reducing attenuation. • *Thermocline effects:* The thermocline, a layer where water temperature changes rapidly with depth, can create a sound speed gradient. This gradient can bend sound waves, trapping them in certain layers and allowing them to travel further with less attenuation. Overall, deeper water generally allows for more efficient sound propagation with less attenuation, while shallow water environments tend to cause more complex interactions and greater attenuation of sound waves. Thus, in order to determine the extent of the zones of impact for behaviour and injury, a shallow and a deep water location were selected as reasonable worst-case modelling scenarios covering the water depth range.
1.31.	The Marine Ecology Impact Assessment contains errors throughout and is missing references (e.g., DEAT 2004, ITOPF 2022), see instances of "Error! Reference source not found." below: Page 110 **Residual Impact** This potential impact cannot be eliminated due to the nature of the drilling approach and the need for and nature of the cuttings discharge. As no mitigation is proposed for communities in unconsolidated sediments (except for monitoring and the minimising discharge of cement, see Section **Error! Reference source not found.**), the significance of residual impacts r emains **medium** (Table 5-2). Page 112 5.2.1.5 Mitigation Measures Table 5-4**Error! Reference source not found.** lists the recommended mitigation measures to avoid or mitigate impacts on benthic fauna from smothering and disturbance.	Formatting errors are noted and have been corrected in Final ESIA Report.

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	Page 121  5.2.2.5 Mitigation Measures Table 5-8 lists the recommended mitigation measures: **Table 5-8: Mitigation to reduce impacts from reduced sediment and water quality.** No. | Mitigation measure | Classification 1 | Refer to Section **Error! Reference source not found.** for mitigation measures t o avoid colony forming corals and/or structural features on the seafloor. | Avoid / reduce at source	
2.	**Namibian Association of Oil and Gas Service Providers (NAOGSP), Carl Pesat (received via email on 18 March 2025)**	
2.1.	**Introduction:** This position paper has been prepared by Peter Armitage, Technical Advisor to the NAOGSP. Mr. Armitage is a senior Oil and Gas Executive, with over 60 years in the energy business, and 56 years in oil and gas. His background is in electrical engineering, marine operations, oil and gas well drilling, production and construction. A first class Honours Degree in Environmental Science (Earth Sciences and Biological / Ecological Sciences) and with a Master's Degree in Petroleum Engineering from Stanford University, California. Mr. Armitage has been a Consultant to most of the major International Oil Companies for over forty years and an expert appointed by the United States Department of Justice after the prosecution of BP as a result of the Macondo Well blowout in the US Gulf of Mexico in April 2010. He also was appointed as an expert witness by Freshfields Bruckhaus Derringer, London, for a mature oilfield in Yemen. He was the lead Petroleum Engineer in the development of the first Environmental Impact Assessment prepared for the Argentine Government, by Shell Argentina. This was for an exploration well in the West Atlantic, offshore Mar de Plata, drilled in 1996. The EIA was adopted by the Argentine Government as the Environmental Impact Assessment template for the 1995 Joint Declaration concluded with the UK for the common exploration and exploitation of hydrocarbons offshore the Malvinas / Falklands Islands. He also led the development of the first Environmental Impact Assessment presented to the Government of Oman, when new legislation was introduced. This was for a 13,000 ft wildcat exploration well drilled in a remote desert environment in northern Oman in1993.	Comments from NAOGSP were received on 18 March 2025. Despite being submitted after the comment period closed (14 March 2025), the comments have been included in the Comments and Responses Report.

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	Background BW Kudu (hereafter BWK) commissioned an Environmental and Social Impact Assessment study and issued a draft report on 10 February 2025. BW Kudu intend to apply to the Government of Namibia for an Environmental Clearance certificate (ECC) prior to undertaking seabed sampling and the drilling of up to four appraisal wells. The draft report has been prepared in compliance with section 15 (two) of the AIA regulations 2012. The study and report purports to identify what will be the consequences of the intended activities in terms of potential impacts on the bio-physical, social and economic environment. BWK requested interest parties to comment on any aspects of the proposed activities and the findings of this ESIA process. The NAOGSP has commissioned this review of the draft report in order to provide input to BWK on issues that are considered to be of importance in the context of protecting the physical environment and the socio-economic environment for Namibia and Namibians.	
2.2.	**Objective of the BW Kudu Study** BWK states (2.2) that the objective of the "Impact Assessment Phase" was "To carefully study and understand the potential impacts identified during the Scoping Phase and to develop mitigation measures to avoid and / or reduce their effects. This phase aims to ensure the proposed activities, if authorised, move forward with minimal negative effects on the environment and society". This NAOGSP review of the BWK study report makes the assumption that the authors consider that all the potential impacts were assessed, consequences of such impacts identified and mitigations identified with the intention that BWK would put in place such mitigation measures.	The assumption that all potential impacts were assessed is an incorrect assumption. As noted in Section 7.4 of the ESIA Report "*a number of potential impacts identified in the screening during the Scoping Phase … are deemed to be minor and not significant in the larger context of the proposed activities. These include impacts that are commonplace in the marine environment, where existing legal requirements impose adequate management requirements, and/or where impacts are of a negligible intensity in relation to receiving environment before implementation of mitigation. These impacts have thus been screened out … and are not formally assessed in this report. It should, however, be noted that the management measures presented below have been included in the ESMP …)".* The above approach was agreed to and accepted with the regulatory authority's acceptance of the Final Scoping Report, which set the scope of work for detailed assessment in the Impact Assessment Phase of the ESIA.

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2.3.	**2.2 Key Activities – Specialists Studies** It is considered that some of the required "Specialist Studies ", that have not been conducted, should have been conducted, and their conclusions included in the BWK ESIA. This is considered a major failing; significant environmental and socio-economic impacts appear to have been neglected and this should be of concern to the Government of Namibia and its peoples. Individual shortcomings are identified throughout this document. It is further considered that the Namibian Government should insist that the further specialist studies identified herein as being required, must be conducted and that any negative impacts identified, and their mitigations, BW identified and put in place as part of BWK's plans. This must occur prior to issue by the Government of an ECC.	The comment states that additional specialist studies should have been undertaken as part of the ESIA, but no context is provided and it does not indicate which additional specialist studies should have been undertaken as part of this ESIA. One of the objectives of the Scoping Phase is to screen and identify potential impacts that require further investigated in the Impact Assessment Phase. As such, the Final Scoping Report (FSR) presented the terms of reference for detailed specialist assessment. Based on the scope agreed with the acceptance of the FSR, three technical modelling studies and five specialist studies were commissioned to address the key issues associated with the proposed project. These includes: • Technical Modelling Studies: – Drilling Discharges Modelling (Appendix E). – Oil Spill Modelling (Appendix F). – Underwater Noise Modelling (Appendix G). • Specialist Studies / Assessments: – Marine Ecology Impact Assessment (Appendix H). – Fisheries Impact Assessment (Appendix I). – Socio-Economic Impact Assessment (Appendix J). – Climate Change Risk Assessment (Appendix K). – Air Quality Impact Assessment (Appendix L). As noted in Item 2.3, a number of potential impacts were screened out for further assessment. With MME's and MEFT's acceptance of the FSR, the scope of the ESIA was agreed to, and has been implemented by SLR. Based on the findings of the ESIA and associated technical and specialist studies, SLR is of the opinion that the ESIA Report is sufficiently robust and provides sufficient information for MME and MEFT to make an informed decision on the proposed project taking into consideration the significance of potential impacts and National strategic policy issues relating to energy and climate change. Furthermore, the scope of the current ESIA is aligned with other ESIAs undertaken for offshore well drilling in Namibia and South Africa. Based on the above, SLR's view is that all the necessary specialist studies have been undertaken as part of this ESIA.

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2.4.	**Table 1:** • Water Depth Range for the appraisal wells is scoped as between 150 m and 750 m depth. Such variations in water depth allow for a wide range of choice of drilling unit, the technologies for which are potentially very different. The different impacts that may arise due to choice of the type of drilling unit are not addressed in the study in any way. The final ESIA report, and Government approvals, should not be issued until the drilling rig planned to drill the appraisal wells has been decided, specific impacts identified and mitigations put in place. • Water-based muds (WBM) will be used to drill top-holes during the riserless drilling phase. For a further detailed discussion on the impacts of drilling cuttings see further below **3.2 Safety Zone** In the event an anchored drilling rig is contracted, the size of the safety zone around the rig and anchor-spread should be determined beforehand and included in the final ESIA report.	The ESIA does consider and assess the different technologies and associated impacts. As noted in the ESIA Report (Section 3.2), since the precise well locations are not known, the ESIA considers and assesses reasonable worst-case well drilling locations within Block 2814A. Thus, the impact assessment is representative of well drilling in any location (and water depth) within the Block. Based on this assumption, the ESIA Report further notes (Section 5.4.1.1) that either a drillship or semi-submersible drilling unit may be used to undertake the proposed appraisal activities. Furthermore, the ESIA Report notes that the drilling unit will either be dynamically positioned (water depths > 450 m) or anchored (water depths < 450 m). If dynamically positioned, the temporary safety zone around the drilling unit will be 500 m; however, if anchored, the temporary safety zone may extend out to 2 km. These technology alternatives are considered and assessed in this ESIA. Refer to Section 5.5 and 13 for the alternatives considered in this ESIA.
2.5.	**3.3 Drilling Operations / Initial Riserless Drilling Stage** It is noted that 26" hole will be drilled to a depth of 625 m below the seabed, using sea-water with water-based mud (products) and viscous sweeps for hole cleaning. Given that: • There have been a number of wells drilled in the Kudu field over the last half-century and more; • That drilling techniques have significantly improved over that time period, especially casing cementation; • Previous exploration and appraisal wells drilled, which intersected hydrocarbon zones, should have been securely cemented-off to prevent their oil and gas flowing to previous casing shoes or to the surface. There is a possibility that poorly-cemented deeper-set casings through hydrocarbon zones in any of those many prior exploration and appraisal wells, could have allowed gas from the Kudu reservoir to flow / leak behind those deeper casing strings into small, shallow stringers of porous and permeable formations. This should be of particular concern for wells drilled as long ago as sixty (60) years, which might have suffered corrosion of the casings if left exposed to water and without oxygen scavengers in the fluids used for suspension or	The ESIA does consider an unlikely leak from a plugged well. As noted in Section 7.1 of the ESIA Report, the ESIA also considers "unplanned events" such as oil spills related to leaks and well blow-outs, including a leak from a plugged well. Refer to Item 1.18 for further information on this topic. Furthermore, BW Kudu is not aware of any leaks from previously plugged wells. In addition, since the Block overlaps with various fishing sectors (including large pelagic longline, demersal trawl, demersal longline and pole-line), it is reasonable to believe that if any leaks had occurred to date from previously plugged wells this would have been picked up and raised by the various fishing sectors that operate in the Block, which it has not. BW Kudu will perform a shallow hazard seismic analysis (using existing data), covering a ~2 km^2 area, at each well site prior to drilling (this has been added in Section 5.4.3.1 of the Final ESIA Report). If potential areas of shallow gas are identified or suspected, the surface location will be moved and the well will be drilled directionally to the original sub-surface targets. The initial surface hole sections will be drilled riserless, which eliminates the most common cause of blow-outs associated with drilling in shallow, unconsolidated gas-bearing formations (i.e. the loss of hydrostatic head). Additionally, there is no conduit to the drilling unit, which greatly reduces the risk to the drilling unit and personnel. Irrespective of the findings from these studies, as per BW Energy's Well Operations Policy, the riserless hole sections will be drilled with full shallow gas procedures in place.

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	abandonment. The BWK report makes no mention whatsoever of this possibility. It is generally accepted, globally in the industry, that because of such considerations, precautions should have been taken to determine the a possibility that a shallow reservoir could be present that has become charged with high pressure gas and that this could lead to a shallow gas blowout. While the volumes of such shallow gas reservoirs are generally limited, such blowouts have historically led to loss of life and loss of drilling rigs. In the fifteen-year period 2000 to 20151, a total of thirty-four (34) shallow gas blowouts occurred worldwide. Ten (10) of these were being drilled by floating rigs, three (3) drillships and seven (7) semisubmersibles. BSEE (the US Bureau of Safety and Environmental Enforcement) concluded that "Shallow gas releases from LOWC events occurring when drilling with drillships and semisubmersibles are normally released on the sea floor. The risk for the installation (i.e. drilling vessel) will depend on the water depth and the gas flow rate. In deepwater the gas will pose limited danger for an installation …. In shallow water shallow gas released on the seafloor can represent a danger. While the danger of an explosion may be limited, loss of buoyancy due to gasification of the sea around the rig may lead to loss of the rig and fatalities. BSEE estimates that the "Loss of Well Control frequency for shallow ga"s has steadily increased over that time period and as of 2014 was of the order of 0.008 shallow gas blowouts per well drilled, or a probability of 0.8%, i.e. a recurrence interval of 125 years. This is considered "a relatively high risk". Mitigations that should have been considered by BWK, and should now be considered before applying for environmental clearance. These should include: • A review of the necessity of conducting shallow seismic surveys over the planned well sites, i.e. a shallow gas hazard study. • Pre-drilling an offset small diameter pilot hole to the planned surface casing depth, which is stated to be approximately 625 m. Such a small diameter hole would limit the gas flowrate to such that its density at surface would not create vessel instability and would allow the entire reservoir to be discharged safely before commencing drilling the appraisal well by opening up the pilot hole to the required diameter for surface casing. It should be noted that as long ago as 2003, the US Government Minerals Management Service (MMS), the regulator at that time (prior to the Macondo well blowout) issued a "Safety Alert2".	Shallow gas procedures require the drilling unit operations to be fully prepared for shallow gas specific; examples include: • Actions to take are discussed and drills are completed before drilling commences; • No hot work allowed; • ROV watch the well at seabed; • Moonpool watch; • Kill mud mixed and available in the mud pits; • Float Valve in the drill string; • Limit rate of penetration (ROP) if required (ROV monitoring seabed returns for signs of flow); and • Worst case – shear or drop the drill-string and drive or winch (moored) off location a minimum of 150 m in the opposite direction to the prevailing current.

<table>
<tr><th>No.</th><th>Comment Received</th><th>Response</th></tr>
<tr><td></td><td>This addressed the need to plan for shallow gas hazards in any well drilled from (i.e. close to) a previously drilled surface location, and that s shallow-gas hazard studies should be conducted.</td><td></td></tr>
<tr><td>2.6.</td><td>3.3 Drilling Operations / Well Logging – VSP

There is no mention of the extent to which the discharge of air-guns at surface during VSP logging operations affects marine mammals, which are sensitive to noise. This matter is addressed briefly only in 5.1.1.2, and which is almost dismissive: it states that impulsive noise is predicted to occur only up to 690 m from the source.</td><td>The ESIA does consider the extent of the impact associated with VSP operations.

In order to assess potential acoustic impact associated with the proposed project, including VSP operations, an underwater noise modelling study was undertaken (refer to Appendix G of the Final ESIA Report). This study determined the zones of impact for relevant marine fauna groups for the major noise sources associated with the proposed drilling programme.

The predicted zones of impact define the environmental footprint of the noise generating activities and indicate the locations within which the activities may have an adverse impact on a marine fauna species, either behaviourally or physiologically (injury), based on noise exposure thresholds for various species from the scientific literature (refer to Southall and Popper papers). This information was then used by the other specialists (e.g., marine ecology, fisheries and socio-economic) to assess the likelihood and significance of potential adverse noise impacts, by combining the acoustic zones of impact with ecological (e.g. habitat sensitivity spawning areas, MPAs, migratory routes, etc.) and social (e.g. key fishing areas, etc.) information in the affected area.

In all the modelling scenarios, the zones of impact identify the maximum horizontal distance from an area where VSP noise activities could have an adverse impact on marine species. The zones of impact were conservatively determined by using the maximum predicted noise level across the water column. Since noise levels vary with depth at any location, there will be areas in the water column within the identified zone of impact that are exposed to lower noise levels than implied by the identified zones of impact, which represent the worst case.

The maximum zones of behavioural and physiological impact from impulsive VSP noise are listed below.

<table>
<tr><th rowspan="2">Animal hearing group</th><th colspan="2">Zone of Impact (m)</th></tr>
<tr><th>Behaviour</th><th>Injury</th></tr>
<tr><td>Marine mammals</td><td>690 m</td><td>350 m</td></tr>
<tr><td>Fish</td><td>1 510 m</td><td>170 m</td></tr>
<tr><td>Fish <2g</td><td>-</td><td>240 m</td></tr>
<tr><td>Turtles</td><td>150 m</td><td>40 m</td></tr>
</table>
Refer to the Noise Modelling study for further detail – see Appendix G in the Final ESIA Report.</td></tr>
</table>

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2.7.	Table states that "as many as thirty-five (35) species of whales and dolphins are known or likely to occur in Namibian waters … and thus could be encountered in Block 2814". However, appendix H (3.3.3.6. Marine Mammals) states only that "Namibian waters host resident species such as the endemic Heaviside's dolphin, bottlenose and dusky dolphins", but there is no mention of any specific whale species populations or their sizes, other than "The most common species within the broader project area (in terms of likely encounter rate not total population sizes) are likely to be the humpback whale and pilot whale.". It is noted that there is then a contradiction, in that it goes on to state "The Namibian shelf and deeper waters have been poorly studied with most available information in deeper waters (>200 m) arising from historic whaling records … Current information on the distribution, population sizes and trends of most cetacean species, especially smaller cetaceans, occurring in Namibian waters is lacking.". Walvis Bay was the most active whaling area historically, but whaling activities ceased towards the end of the 19th century, mainly due to the advent of the oil and gas industry. The main data on which this part of BW Kudu's study is based is therefore likely well over one hundred years old.	As noted in Item 2.6 above, the noise modelling result were then used by the other specialists in the assessment of potential noise impacts. With regards to the Marine Ecology Impact Assessment (Appendix H of the ESIA Report), the commentor states that this report makes "*no mention of any specific whale species populations or their sizes, other than "The most common species within the broader project area (in terms of likely encounter rate not total population sizes) are likely to be the humpback whale and pilot whale*"". This report provides a comprehensive summary of marine mammals in Section 3.3.3.6, including tables with all 35 cetacean species likely to occur in Namibia waters, highlighting hearing frequency, location on or off the shelf, seasonality, and classification status (refer to Table 3-7 and 3-8). The Marine Ecology Impact Assessment was compiled based on an extensive literature review, with the report citing 417 references (see Section 7), many of which are recent (e.g. Marine Mammal Observer (MMO) reports, input from MFMR and data from the Namibian Dolphin Project).
2.8.	The report concludes that "… drilling noise is considered to be of VERY LOW significance" presumably because it is concluded that "behavioral effects are generally short-term, with duration of the effect being less than or equal to the duration of exposure". We take issue with this conclusion, because it is generally accepted by marine biologists that the effect of marine noise is little understood and there has been remarkably little research. So much so that various USA departments[3] identified a large number of research projects that should be initiated. It is also generally accepted by marine biologists that determining the responses of marine mammals to marine noise has proved difficult, due to variability in species-, population-, and individual-specific characteristics and responses. Many studies have suffered bias historically from observer presence because most marine mammal studies are, by necessity, vessel-based. This introduces a potential source of bias from the presence of the research vessel and the noise it creates. Many studies failed to differentiate between the effects of vessel presence and vessel noise. Due to the challenges associated with studying these fast-moving, far-ranging, often-submerged animals, the majority of marine mammal behavioral response	As noted in Item 2.6, underwater noise modelling water undertaken to assess potential noise related impacts. In all the scenarios used for the noise modelling, the zones of impact were conservatively determined by using the maximum predicted noise level across the water column to determine the zone of impact (represent worst case). The modelling study was based on the noise produced by drilling activities, primarily noise emanating from Dynamic Positioning System (DPS) sources, which is considered non-impulsive and continuous and Vertical Seismic Profiling (VSP) operations which is considered impulsive and intermittent. The cumulative impact of DPS sources is predicted to cause permanent (PTS) and temporary (TTS) physiological impacts for all marine mammal species within 120 m and 3.1 km of the noise source (for 12 hours of exposure), respectively. For VSP (impulse noise) operations, the impact zones are reduced to 40 m (PTS) and 350 m (TTS), respectively. Potential immediate impacts such as behavioural disturbances may occur for marine mammals within 12.5 km for drilling activities and 690 m for VSP operations. These zones of impact (or impact extent) were then considered in relation to key sensitivities (including key calving and nursing areas, spawning areas, fishing areas, etc.), as well as ambient conditions (such as the higher natural ambient noise levels due to high surrounding marine traffic), to determine impact intensity. Impact intensity was then considered together with the impact duration (drilling = 3 months; VSP = 9 hrs) and extent to determine impact consequence and significance. It

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	studies in the wild have concentrated on visible changes to physical behavior at the sea surface, such as changes in occurrence or cessation of certain activities. Few have considered a combination of behavioral changes, including acoustical behaviors, and it is generally accepted that little to nothing is known about whether the observed responses of any marine mammal actually matters in terms of biological significance.	is thus expected that, with mitigation, the noise generated by the major drilling activities is of VERY LOW significance. This assessment is also based on the review of various drilling close-out report and observer reports for drilling undertaken in southern Namibia, which have not indicated that the noise impact is more significant. As noted in Section 8.8.3.2 of the ESIA Report (cumulative impact), Despite the density of seismic survey coverage off the southern African West Coast over the past 18 years and the recent increase in well drilling in southern Namibia and off the South African West Coast, the southern right whale population is reported to be increasing by 6.5% per year (Brandao, et al., 2017), and the humpback whale by at least 7.4% per annum (IWC, 2012; Wilkinson C., 2021) over a time when exploration and appraisal activities have increased, suggesting that, for these populations at least, there is no evidence of long-term negative change to population size as a direct result of exploration and appraisal activities. Although surveys have revealed a steady population increase since the protection of the species from commercial whaling, more recent results, however, indicate changes in the prevalence of southern rights on the South African breeding ground, including a marked decline of unaccompanied adults since 2010 and extreme fluctuations in the number of cow-calf pairs since 2015. Vermeulen et al. (2020), however, contribute the change in demographics to likely spatial and/or temporal displacement of prey due to climate variability, and not seismic surveys. To date, no trophic cascades off the southern African coast have been documented despite the completion of several exploration and appraisal activities.
2.9.	Mitigation measures proposed by BW Kudu during VSP operations would appear to be ineffective in lessening the impact, since they are limited to only visually observing them (with what intent?); acoustic monitoring (again with what intent?); soft start procedures (how does one “soft start” a VSP gun?); low visibility procedures (again, with what intent, since the rig could not maneuver out of the way of a large mammal) and shut-down procedures; it is not clear if this means that VSP shots will not be activated if marine mammals are observed, nor what actions would be taken to “make them go away”, and to what distances (and how to track them) before VSP shots were initiated! Concern about the potential effects of ship noise on marine mammals is not recent, but has been raised for decades. As ship noise peaks in the low frequencies, early studies primarily focused on low-frequency specialist species such as mysticetes (i.e., baleen whales). Mysticetes produce and use sound at the frequencies emitted by large ships[5], and they are considered to be more sensitive at these low frequencies than are other marine mammals. However, ships also emit significant energy at higher frequencies (tens of kHz) and so odontocetes (i.e., toothed whales,	As noted in Item 1.28, one of the international standards / guidelines commonly referenced to minimise the risk of injury to marine fauna from geophysical surveys, including seismic, is the JNCC guidelines (2017). The proposed mitigation for VSP operations is aligned with the JNCC Guidelines, e.g.: • Appointment of a dedicated Marine Mammal Observer (MMO) on board to undertake marine fauna observations. • Use Passive Acoustic Monitoring (PAM) during night-time and periods of poor visibility. • Ensuring sufficient MMO and PAM operators are employed, considering the size and duration of the survey, etc. A minimum of one PAM operative is required when PAM equipment is deployed. Considering that VSP will be undertaken for only up to 9 hours per well, one MMO and one PAM operator is deemed sufficient for VSP operations. • Undertaken a 60 min pre-shooting search in water depths deeper than 200 m. • Implementing a “soft-start” procedure of a minimum of 20 minutes’ duration when initiating the acoustic source. • Delay soft-start if marine mammals are identified within the 500 m mitigation zone. To clarify, “soft start” refers to a procedure used to gradually increase the intensity of the acoustic source. The goal is to give marine mammals and other marine life time to move away from the area before the full power of the equipment is reached.

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	dolphins, and porpoises), which specialize in high-frequency sound usage, can also be affected.	In relation to the "shut-down" procedure, the current mitigation recommends that the acoustic source is shut down if cetaceans, penguins, shoaling large pelagic fish or turtles are sighted within 500 m mitigation zone, and would only be started up again should the animals move outside of the mitigation zone. Note, this mitigation is in fact more stringent that the JNCC guidelines. Additionally, the mitigation states that VSP should, as far as possible, only commence during daylight hours with good visibility. However, if this is not possible due to prolonged periods of poor visibility (e.g. thick fog) or an unforeseen technical issue which results in a night-time start, then PAM is recommended or: • there have not been three or more occasions where cetaceans, penguins, shoaling large pelagic fish or turtles have been sighted within the 500 m mitigation zone during the preceding 24-hour period; and • a two-hour period of continual observation of the mitigation zone was undertaken (during a period of good visibility) prior to the period of low visibility and no cetaceans, penguins, shoaling large pelagic fish or turtles were sighted within the 500 m mitigation zone. The proposed mitigation is considered adequate to mitigate the impact of VSP operations. The Underwater Noise Modelling (Appendix G of the ESIA Report) notes that shipping traffic is an important component of ocean ambient noise in the project area. Given the shipping traffic in the Block 2814A, the ambient noise levels are expected to be at most 5 to 10 dB higher than the lowest level, within 80 and 90 dB re 1 µPa for the 10-10 kHz frequency range. Thus, the shipping noise component of the ambient noise environment is expected to be present over the entire Block and has been taken into account in the noise modelling.
2.10.	VSP signals are generated typically using a seismic source (air gun) suspended from a buoy at around seven (7) meters below the surface of the sea. The widespread use of powerful, low- frequency air gun pulses for seismic seabed exploration has raised concern about their potential negative effects on marine wildlife. An array of air guns creates a downward-directed, low- frequency pulse with most energy concentrated around 50 Hz and a source level between **230 dB and 260 dB** with ***ocean-traversing potential***[6]. Note that workplace noise is hazardous to humans with repeated exposures of **85 dB** or higher; most countries have health legislation that limits exposure to noise levels of **100 dB** to less than 15 minutes per day. Being around a jet plane taking off with no hearing protection gear can cause immediate damage or even cause eardrums to rupture. Noise pulses of sudden onset and brief duration (less than 1 second) that usually exceed an intensity of **140 dB** includes those that result from firing a handgun, detonating a firework, backfiring of a piston engine, high-volume squelching of radio equipment, and a sonic boom	The proposed appraisal activities applied for include well drilling (and associated VSP). No conventional 2D or 3D seismic surveys or Low-Frequency Active (LFA) sonar are proposed as part of this ECC application. The generation of noise from VSP has been modelled and the potential noise impact on marine fauna is assessed and the required mitigation included in Section 8.2.3 and 8.2.4 of the ESIA Report. VSP uses a small airgun array; with volumes and the energy released into the marine environment being significantly smaller than what is required or generated during conventional seismic surveys. It is also mathematically and scientifically incorrect to compare underwater noise levels with airborne noise levels due to the difference in impedance and reference pressure used in both mediums. The different types of underwater noise cannot be compared solely by amplitude, either. Frequency spectra and pulse duration must also be taken into account. The peak sound pressure level modelled for the VSP source was 239 dB re 1 µPa at 1 meter distance from the source and the pulse duration is about 25-30 milliseconds. Marine mammals also have hearing capabilities that are different from those of humans. Each of these capabilities was taken into account when predicting hearing impairment (PTS and TTS) and behaviour response to the propagation of noise levels if these animals were to near the noise source.

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	caused by breaking the sound barrier. Permanent damage to humans occurs[7], including the eardrum being rupture, with intense levels (**140 dB**) of impulse- or blast noise. Each noise level increase of 10 dB represents a tenfold (10x) increase in the intensity of sound; therefore a noise level of 260 dB is 10^{15} times more intense than a noise level of 85 dB; massively more! This is of particular importance because of the phenomenon of cetacean stranding, better known as whale beaching. This is one in which whale and dolphins strand themselves on land, usually on a beach. Beached whales often die due to dehydration, collapsing under their own weight, or drowning when high tide covers the blowhole. Several explanations for why they strand themselves have been proposed, including changes in water temperatures, peculiarities of whales' echolocation in certain surroundings, and geomagnetic disturbances. None have so far been universally accepted as a definitive reason for the behavior. However, a link between the mass beaching of whales and use of mid-frequency active sonar has been found. On some occasions cetaceans have stranded shortly after military sonar was active in the area, suggesting a link. Theories describing how sonar may cause whale deaths have also been advanced after necropsies found internal injuries in stranded cetaceans. The low frequency active sonar (LFA sonar) used by the military to detect submarines is the loudest sound ever put into the seas; the U.S. Navy deploys LFA sonar across much of the world's oceans. At an amplitude of two hundred forty decibels (**240 dB**), it is loud enough to kill whales and dolphins and has already caused mass strandings and deaths in areas where U.S. and/or NATO forces have conducted exercises[8]. It should be noted that such sound levels, claiming to be "the loudest sound ever put into the sea", are similar levels to the emissions of VSP guns. It is also known that the large and rapid pressure changes made by loud sonar can cause hemorrhaging. Evidence emerged after seventeen cetaceans were stranded in the Bahamas in March 2000 following a United States Navy sonar exercise[9]. The Navy accepted blame, agreeing that the dead whales experienced acoustically induced hemorrhages around the ears. It was also accepted that the resulting disorientation probably led to the beach stranding. Other investigations of similar beaching of dolphins found that the powerful sonar pulses resonated within their internal air spaces, tearing tissue around the ears and brain.	As noted in the Marine Ecology Impact Assessment, the frequency of the VSP pulse is below the peak hearing sensitivity of most odontocetes (toothed whales) but overlaps broadly with the vocalisation frequency and peak hearing sensitivity of many mysticetes (baleen whales). As stated above, the source frequency spectra and pulse duration of an LFA sonar pulse are not comparable to those of a VSP pulse. Additionally, Beaked whales are all considered to be true deep water species usually being seen in waters in excess of 1 000 – 2 000 m deep, offshore of the continental shelf. Therefore, occurrence within Block 2814A is expected be unlikely.

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	While this evidence is not definitive, it is difficult to accept BW Kudu's assertions and conclusions that "… drilling noise is considered to be of **VERY LOW significance**" and that "behavioral effects are generally short-term, with duration of the effect being less than or equal to the duration of exposure". It seems reasonably obvious that this issue was studied somewhat superficially and should be the subject of further consideration.	
2.11.	**3.3 Drilling Operations / Well (flow) testing** There is no mention of what will be the maximum oily water content or maximum oil content of the 300 cubic meters (300 tons) of produced water, and whether or not it is planned to discharge it to the sea. It is not well understood even in the oil and gas industry, but the international marine legislation that in some circumstances allows oily water of parts per million (ppm) concentrations to be discharge overboard is limited to engine-room operations, not the industrial effluents that may arise from drilling operations. While there is no mention that it is intended that these 300 tons of produced water are to be transported to shore, it should be stated quite specifically that this will be the case and that this produced water will be disposed of safely and without causing any environmental impact.	In most instances the volume of produced water would only be known after some drilling had been undertaken; however, in this instance, an estimate is provided in the ESIA Report based on previous drilling activities. The ESIA Report (Section 5.4.5.2) notes, that if water from the reservoir arises during well flow testing, the volume could be in the order of 300 m^3 based on previous drilling campaigns. Since BW Kudu would only discharge produced water overboard where, after onboard treatment, the hydrocarbon content is < 30 mg/l. Assuming treatment to a concentration of below 30 mg/l, the discharge of 300 m^3 would result in 9 kg of diluted reservoir hydrocarbons being discharged to sea per well. This has been taken into consideration in the assessment of potential impacts relating to produced water discharge. Section 5.4.5.2 of the Final ESIA Report has been updated to clear up any uncertainties in this regard. It should be noted that if the hydrocarbon content of produced water is > 30 mg/l, it will be subject to a second treatment or directed to tank prior to transfer to supply vessel for onshore treatment and disposal.
2.12.	**3.3 Drilling Operations / Demobilisation** The intention is to leave the wellhead on the seabed "if deemed safe to do so". There is no mention of what considerations will be addressed during such risk assessments, thereby leaving the reader concerned at the possible residual risks of leaving such wellhead(s) on the seafloor. Considerations might include: • Possible damage to trawling fishing vessels, including loss of stability and capsizing of such vessels; • The maximum length of time (risk exposure time) that they will be left on the seabed prior to the wells being hooked up to production facilities, and possibility thereafter subject to safety exclusion zones; • At what stage would such wellheads be removed, i.e. the wells subsequently properly abandoned and made safe, if BWK's current plans for field development should change. Who would subsequently make these wells safe, and pay for their proper abandonment, if BWK	As noted in the ESIA Report (Section 8.3.2.2), the suspension of a wellhead on the seafloor could pose an obstruction to any fishing activity directed towards the seabed (specifically the demersal trawl sector). Within Block 2814A, demersal effort is concentrated along the shelf edge and north-western region of Block in waters deeper than 300 m. As noted in the ESIA Report (Section 5.4.4), it is BW Kudu's intention to leave suspended wellhead(s) on the seafloor, if it is deemed safe to do so based on a risk assessment. This specifically applies to the area where demersal trawling takes place within the Block, as there is minimal risk of any impact outside of the trawl grounds. Thus, if a well is drilled within the demersal trawl grounds and the intension is to suspend the well on the seafloor, BW Kudu would need to consider the risks by weighing up the catch and effort in the well locations, as well as discussion with the demersal trawl sector and relevant authorities. If deemed safe to suspend on the seafloor, BW Kudu will still need to install an over-trawlable cap to reduce the risk of damage to demersal trawling gear and the wellhead (see Section 8.3.2.4 of the ESIA Report). The decommissioning procedures will, however, be subject to approval by the Petroleum Commissioner. With regards to when a suspended well would be removed, this ESIA assumes wellhead(s) will be removed after production or if the Block is relinquished. It is the Block operator's responsibility to ensure that suspended wells are removed. SLR is not in a position to comment on the effectiveness

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	were to relinquish its license for the Kudu block? It would appear that under current Namibian legislation (or rather lack of such legislation) it would be left to the people of Namibia to bear the burden and risk of such costs.	of the Namibian legislation with regards to ensuring a suspended well is removed upon relinquishment. The following extract on relinquishment by holder of exploration licence from Petroleum (Exploration and Production) Act, 1991 (No. 2 of 1991) may be applicable for well abandonment and the obligations of holder of production licence (Section 53 read together with Section 38, which is pasted below). *"38. (1) It shall be a term and condition of an exploration licence that the holder of an exploration licence shall -* *(a) carry out exploration operation in the exploration area in accordance with good oilfield practices.* *(b) take all reasonable steps necessary to secure the safety, welfare and health of persons employed for purposes of such operations in the exploration area.* *(c) maintain in good condition and repair all structures, equipment and other goods in the exploration area and used in connection with the exploration operations.* *(d) remove from such exploration area all structures, equipment and other goods not used or intended to be used in connection with such exploration operations.* *(e) take reasonable steps to warn persons who may from time to time be in the vicinity of any such structures, equipment or other goods of the possible hazards resulting therefrom.* *(2) Without derogating from the generality of subsection (1), the holder of an exploration licence shall -* *(a) Control the flow and prevent the waste, escape or spilling in the exploration area of petroleum, water or any gas.* *(b) Prevent the waste or spilling in the exploration area of water or drilling fluid or water and drilling fluid or any other substance extracted from a well drilled for purposes of or in connection with exploration operations or used in relation to the drilling of such a well.* *(c) Prevent damage to petroleum-bearing strata in any area outside the exploration area.* *(d) Prevent petroleum reservoirs in the exploration area or such water sources as may be determined by notice in writing by the Commissioner and addressed and delivered to such holder, from being connected with each other.* *(e) Prevent water or any other substance entering any petroleum reservoir through the wells in the exploration area, except if required by, and in accordance with, good oilfield practices.* *(f) Prevent the pollution of any aquifer, estuary, harbour, lake, reservoir, river, spring, stream, borehole and all other area of water by the spilling of petroleum, drilling fluid, chemical additive, any gas or any waste product or effluent.* *(g) Furnish to Commissioner prior to the drilling of any well a report containing particulars of the technique to be employed, an estimate of the time to be taken, the material to be used and the safety measures to be employed in the drilling of such well.* *(h) Not flare any combustible gas, except –* *(i) For purposes of testing such gas, or for operational reasons. Or*

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		(ii) With the approval in writing, previously obtained in every particular case, of the Minister and in accordance with such terms and conditions as may be determined by the Minister, and *(i) Not abandon, close or plug a well without the approval in writing, previously obtained in every particular case, of the Minister and in accordance with such terms and conditions as may be determined by the Minister".* For a response to risk of wells leaking after decommissioning, refer to Item 1.18
2.13.	**3.4 Emergency Response / 5.2.4 Well Blowout** In a document that purports to seek approval from the Government of Namibia for Environmental approval to commence drilling appraisal wells, these entire sections appear woefully inadequate. Its states "In the unlikely event of an oil spill, BW Kudu and the drilling contractor will have an emergency response plan and equipment in place to clean-up such a spill". Such an Emergency Response Plan must be entirely the responsibility of BWK, not the drilling contractor. Obviously the drilling contractor would be expected to have an input into such plans, since it would be its personnel on board the drilling rig who would execute the drilling rig's required actions in the event of such an oil spill. The Emergency Response Plan must cover multiple potential accidents. This is not intended to be a complete list, since any competent Operator must know this these should include: - Oil spill continency plan - Collision avoidance plan - Blowout Contingency Plan - Et cetera	One of the key recommendations of the ESIA (Section 9.4.3.3 of the ESIA Report), and standard practice, is that BW Kudu develop an Oil Spill Contingency Pan (OSCP) for each well location where it plans to undertake well-drilling which identifies the resources (including available dispersants) and response required to minimise the risk and impact of oiling (shoreline and offshore). This campaign-specific response strategy and associated plans will take cognisance to the local oceanographic and meteorological seasonal conditions, local environmental receptors, and local spill response resources. The primary objective of the OSCP is to identify all possible spill scenarios, level of response requirements and set in motion the necessary actions to stop any discharge of oil and to minimise its effects. The OSCP, thus, provides for a comprehensive response to all oil and chemical pollution emergencies in the marine environment. The inputs (e.g. location, type of resource, season, contractor, response services) to an OSCP and Blow-out Contingency Plan (BOCP) are unique and specific to each drilling campaign and contractor. Thus, the specific content of these plans cannot be developed in detail ahead of time. The ESMP thus specifies commitments on the approach to and key components of such plans. The structure of a standard Shell OSCP was presented in the ESIA Report (Section 11.3.5.4). The OSCP will be submitted to the relevant Namibian authorities (e.g. Ministry of Works & Transport: Department of Maritime Affairs) prior to drilling.
2.14.	Becoming a member of OSRL is a necessary, but on its own it is an insufficient action to effectively manage such risks. As such, it fails to recognize the following: • Again, access to a capping stack is a necessary but insufficient action. A thorough Blowout Contingency Plan is required by most IOC's policy documents for all offshore wells. It is necessary and customary for such plans to be in place, "bench-tested" by the Operator, drills conducted on board the rig and verified as adequate by the Regulator before approval is given for drilling of any well. The limitations imposed on potential effectiveness of mitigations, by only considering the	The commentor notes that the "*becoming a member of OSRL … on its own it is an insufficient action to effectively manage such risks*". Agreed, which is why numerous other mitigation actions are recommended in the ESIA Report (refer to Section 9.4.3.3) in order to reduce the risks of a well blow-out and mitigate any impacts, in the unlikely event of an oil spill. By ensuring that BW Kudu is a member of ORCL would ensure that it has access to the capping stack in Saldanha Bay (the closest capping stack to the Block), which would reduce the duration of a spill in the unlikely event of a well blow-out. The ESIA Report makes recommendations with regard to a BOCP and that one needs to be prepared and put in place prior to drilling – refer to response in Item 2.13.

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	availability of a capping stack, and the likely negative consequences of not having a proven effective Blowout Contingency Plan in place in the event of such an event, are discussed further in Attachment 1.	

2.15.	• There is no mention of the very high probability that in the event of a total loss of well control, with a large amount of gas (and possibly volatile condensate10) enveloping the rig, an explosion will result. It is not possible to fight a "gas" fire after an explosion, the source must be shut off. There is no mention of the potential loss of the vessel, resulting pollution and the potentially total loss of life of the entire rig/vessel complement.
	• This fails to recognize:
	  • A major potential source of pollution on loss of the vessel (drilling rig), from vessel fuel, base-oil, mud and cement chemicals;
	  • The socio-economic impact of multiple injuries and the loss of a large number of lives;
		The ESIA assessed potential impact related to various unplanned events (see Chapter 9 of the ESIA Report), including a well blow-out or loss of well control.
		With regards to risk to Project staff or sub-contractors, ESIAs primarily focus on assessing the potential environmental and social impacts of a project on the surrounding environment and communities. While ESIAs may consider human health risks, these are usually related to the broader public and not specifically a company's / sub-contractor's own staff (risk that they subject themselves to). This said, companies normally conduct separate occupational health and safety assessments to address risks to its employees. These assessments are designed to ensure a safe working environment and comply with relevant health and safety regulations.
		The potential loss of a vessel, which could result in a minor spill of diesel, is addressed in Section 9.3 of the ESIA Report.

2.16.	• The fact that there is no Namibian legislation that addresses such possible events, and that:
	  o As a result, BWK could not be held financially liable for the consequences, which could be excessive and comparable to Namibia's GDP.
	  o Under Namibian and International Maritime Law, legislation concerning pollution from all sea-going and coastal vessels, including floating drilling rigs, relates only to pollution arising from the vessel, i.e. from the marine functions of any vessel (fuel transfers, oily bilge-water disposal, etc); therefore pollution arising from the "industrial process" conducted by drilling rigs is specifically excluded from such legislation.
	  o This is a major gap in Namibian legislation, which results in a very large risk to Namibia and its people.
	The potential to severely damage Namibia's reputation in the global energy industry.
		With regards to liability relating to an unlikely well blow-out, the ESIA Report (Section 9.4.3.3) recommends that BW Kudu must ensure that damages and compensation to Third-Parties are included in insurance cover to financially manage the consequences of any unplanned pollution event on environmental and social aspects. Evidence in this regard must be provided to NAMCOR.

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2.17.	**Appendix J, Socio-Economic / Findings and Conclusions** It should be noted that 7.0 Findings and Conclusions, states that "Unplanned events would have a significant, but overall limited socio-economic impact, due to the far offshore location and temporary nature of associated impacts." It continues by stating "The most significant socio-economic impact of a well blowout is the likely increase in intensity and breadth of societal discussion of and opposition to the project and sector in general, and between people, organisations and the administration who play roles in opposing or supporting the sector. The potential contribution of the project to cumulative socio-economic impacts is **low** by virtue of its **remote location, short duration and limited impact significance**." NAOGSP takes exception to these finding and conclusions, since they fail to consider the very significant socio-economic impact that historical well blowouts had, for example the bp Macondo well blowout in the US Gulf of Mexico. This blowout resulted in (only) eleven (11) lost lives; it had a major socio-economic impact on society along the entire Gulf coast. The impacts were of long duration, great societal significance and massive economic significance (well in excess of US$ 40 billion – NAD 720 billion). It is incorrect to state, as the report does, that the coast north or south of the Orange River estuary is considered a "remote area", since although Lüderitz is a modest-sized center of population it still has in excess of 13,000 inhabitants.	Oil Spill modelling confirms that an oil spill, should one occur, will not reach the coast, and as such will not have an impact sensitive nearshore receptors and activities (e.g. tourism, small-scale / artisanal fishing, etc.). Where it is believed that an oil spoil will have a more significant impact, based on the results of the il spill modelling, is on: • Marine ecology: VERY HIGH (without mitigation) and HIGH (with mitigation). • Commercial fishing: HIGH (without mitigation) and MEDIUM (with mitigation). • Reduction in income from commercial fishing: MEDIUM (without mitigation) and MEDIUM (with mitigation). If, however, the oil spill modelling confirmed shoreline oiling, impacts on socio-economic aspects, such as tourism, small-scale / artisanal fishing, etc., would have been more significant. However, this is not the case. The "*Macondo well blow-out*" example (or Deepwater Horizon event, as referenced in the ESIA Report) provided is not comparable to a blow-out in Block 2018A, due to spill duration, oil type, location and metocean conditions, which resulted in shoreline oiling, etc. For further discussion on the impacts related to the Deepwater Horizon event refer to Section 9.4.3.2 of the ESIA Report.
2.18.	**Table 2: 2 – Socio-Economic considerations, Marine Traffic** It is noted that the block overlaps ***the main marine traffic route*** from the Middle-East and Far-East to Europe and North America that passes around South Africa. The density of marine traffic on the west coast of Namibia is substantial; random access to any public on-line Marine Traffic applications better shows this (see below).	There are various references in the ESIA Report of project controls and mitigation that reduce the risks of collisions, including: • Implementation of a safety zone around the drilling unit (500 m to 2 km) (Section 5.4.1.1). • Request to issue navigational warnings (see Section 7.4.5 and 8.3.1.4), which would ensure other vessels are aware of the drilling unit location. • Distribute Notices to Mariners to warn other users of the sea of the presence of the drilling unit (see Section 7.4.5 and 8.3.1.4). • Use standard communication and navigation systems on the drill unit and support vessels (see Section 7.4.5 and 8.3.1.4). • Notify vessels at a radar range of 24 nm from the drilling unit via radio regarding the safety requirements around the drilling unit (see Section 8.3.1.4).

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	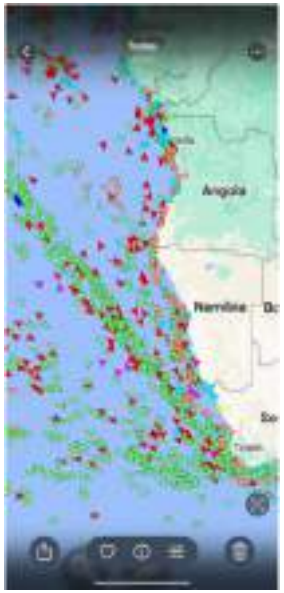 This shows the typical density of vessels sailing on the west African coast at any one time. Nowhere in the study-report is there any mention of: • What are the contingency plans to both avoid and mitigate collision between transiting vessels and the stationary drilling rig, other than a declared “exclusion zone”? • What Notices to Mariners will be published to departing vessels at Walvis Bay and other ports in South Africa and both the West Coats and East Coast of Africa; • How will the rig position and it’s Exclusion Zone be communicated to transiting vessels that might have started their voyages in North America, Europe, the Middle East or the Far East / Australasian; • What studies have been conducted to determine the probability of a rogue vessel colliding with the rig before the well could be made	The above measures, as well as others, are included in the ESMP (see Item 2.1, 3.1 and 3.2 of Table 11-7). Further to the above, and as noted in Section 5.4.1.2 of the ESIA Report, “*a support vessel will always be on standby near the drilling unit to provide support for firefighting, oil containment / recovery, rescue in the unlikely event of an emergency and supply any additional equipment that may be required. Support vessels can also be used for medical evacuations or transfer of crew if needed*”.

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	safe and the rig moved off the well location; note that this issues should be of even greater concern, and higher probability / risk, if the rig is anchored rather than dynamically positioned, which the report states is yet to be determined but which is nowhere addressed in the report; • How rogue vessels, for example not keeping a required bridge lookout, which is sometimes the case with vessels on long, deep-sea voyages, would be contacted in order to change course so as to avoid a collision; also to • What is the likelihood of the rig having insufficient time to make the well safe before a collision occurs, and whether or not the rig will keep a 24-hour bridge lookout and radio- watch (especially if anchored, since International Maritime Law has no such requirement for vessels at anchor); • What BWK processes and guidelines are in place to ensure that the Platform Supply Vessels (PSV) serving the drilling rig have a Marine Management System that ensures that the rig actual position coordinates are not entered into its autopilot system; • The possibility (and probability) of such a collision leading to a loss of well control, with potential consequences the same as mentioned in 3.2 Emergency Response above, pollution, loss of life, financial cost to Namibia, its people, and loss of reputation.	
2.19.	**Planning the Emergency Response** The BWK report makes no mention of its Management System elements (or indeed whether or not BWK has a Management System), that address either the environmental or socio-economic risks of an appraisal well blowout. There is no mention of how BWK has estimated either the risks of such an event or has properly analysed the potential consequences. BWK's approach appears to have been only superficial and it not backed up by reference to any BWK Risk Assessments, Risk Register, vessel Safety Case or Risk Matrix that might have been used in determining the level of risk, or the potential consequences, of such a Major Accident Risk. It is noted that a typical IOC HSE Risk Matrices considers that high-level consequences ("High Potential"), for example potential multiple fatalities, total loss of the drilling rig, long-term environmental impacts, even if deemed "unlikely", are considered "Intolerable Risks" and that both	As noted in Section 11.3 of the ESIA Report, BW Kudu and its contractors will need to put various plans / documents / actions in place, which would ultimately form part of BW Kudu's overall internal Health, Safety and Environment Management System (HSE-MS). BW Energy has performed similar operations with success in other regions, including Brazil and Gabon. All BW Energy activities in Namibia will align with its corporate standards, business principles, applicable Health, Safety, Environmental and Quality (HSEQ) and Social Performance policies and procedures for contractors and subcontractors. BW Energy's operations will adhere strictly to the BW Energy HSEQ and Social Performance Framework, clearly defining our minimum expectations and requirements. Contractor procedures will integrate with BW Energy's HSEQ and Social Performance management practices to ensure consistency and compliance. Refer to Section 2.5 of the ESIA Report for further information in this regard.

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	preventative and mitigating controls must be put in place. Even where considered "very unlikely", such possible events are considered "Intermediate (level) Risks) that require further evaluation".	
2.20.	**5.1.1.1 Physical Disturbance and/or Smothering of Benthic Fauna and Habitat** It is considered that the effects of sediment footprint on the seabed while drilling top hole with returns to the seabed, and to a lesser extent while drilling through a riser, is inadequately assessed. The report states "The results of the cuttings dispersion modelling study largely confirm the reports of international studies which predict the effects of discharged cuttings to be localized … modelling found that the largest depositional footprints with a thickness of > 0.1 mm (greater than, but unfortunately not defined how much greater!!) extended up to 1.3 km in a NW/N direction". However 5.1.1.2 Toxicity and Bioaccumulation (etc.) appears to show that these effects are, however, long-lasting, by stating that cuttings dispersion modelling study found that the environmental risk relating to the total concentration of chemicals initially extends up to 1.3 km from the drill site, but after 10 years the environmental risk is still present, possibly up to around half a kilometer from the well site.	To clarify, based on the findings of the technical discharge modelling specialist study (Appendix E), the maximum deposition thickness was 68 mm, which occurred in close proximity to the discharge point (well site). The deposition thickness was reduced to less than 6.5 mm within 153 m from the discharge point, and further reduced to less than 0.1 mm within 1.3 km from the discharge point. These rock cuttings are, for the most part, chemically inert, but some may contain small amounts of hydrocarbons and trace metals. When discharged into the seawater the coarse fraction of the cuttings settles to the seafloor fairly directly, but the fine cuttings and drilling muds that were not recovered onboard dissolve and disperse in a down-current direction, forming a sediment plume. The impact duration for both smothering and toxicity effects was classified as "long-term (10-20 years)" in the ESIA Report, informed by the modelling results. The mitigation proposed to mitigate the impact of smothering from drilling discharges, specifically the buffer between the well and potentially sensitive benthic habitats, is discussed in detail in Item 1.25 above.
2.21.	The industry has advanced significantly in the management of cutting disposal in the last 50 years, from a situation in which raw, untreated cutting were disposed of to the sea / seabed without consideration of their environmental impacts or consequences. Some jurisdictions now require that all cutting must be shipped back to shore, treated and disposed of onshore.	Reference is made in the ESIA Report (Table 5-9; Item 4.5) as to the various alternatives when it comes to drill cuttings disposal (including discharge to sea, onshore disposal and re-injection). For the current project, drilling discharges will be disposed at sea. This is in line with most countries (including Namibia and South Africa) for early exploration and appraisal drilling phases. The rationale for this is based on the low density of drilling operations in the vast offshore area and the high energy marine environment. As such, BW Kudu proposes to use the "offshore treatment and disposal" option for their drilling campaign in Block 2814A. In order to mitigate the potential impact related to the discharge of drill cuttings, various project controls and mitigation will be put in place, including: • Pre-drilling seabed ROV surveys, will be undertaken to detect objects, seafloor inconsistencies or structural features (e.g. colony forming corals) at the well site(s). Wells will be sited to avoid known sensitive or potentially vulnerable hardground habitats, as the preference will be to have a level surface area to facilitate spudding and installation of the wellhead. • The treatment of NADF cuttings to reduce oil content to <3% Oil On Cutting (OOC) prior to discharge overboard. • Cuttings will be discharged 5 m below surface during risered drilling to reduce dispersion of the cuttings in the surface currents.

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		• Drilling fluid volumes will be continuously monitored to detect any unexpected changes (during the riserless and risered drilling stages). Any unexpected changes in volume will immediately be diagnosed, assessed, and mitigated. • The integrity of the riser and BOP will be tested on installation. Visual inspection of the BOP and riser equipment will be completed by ROV twice a week (e.g. inspection for washout). Oily contaminated drill cuttings that cannot meet the 3% OOC discharge limit will be transported onshore for disposal arrangements. All other discharges into the sea will comply with MARPOL requirements and International Best Practices. Drill cuttings modelling undertaken confirms the extent of plume dispersion (see Appendix E of the ESIA Report) and this has been used to assess potential impacts on nearby sensitive areas (CBAs / EBSAs / MPAs) and fishing grounds.
2.22.	It is noteworthy that this report fails to address these important issues: • What is the cuttings treating process on-board the drilling rig? • The absence of knowledge of the rig that will be used means that there can have been no evaluation of the suitability of cuttings separation, mud cleaning, centrifuging, etc, therefore the type, extent and significance of contamination of cuttings by toxic drilling additives, base- oil used for the drilling fluid ("mud"), synthetic oils similarly, synthetic muds, whole(contaminated) cement from casing cementations, cement materials, cement additives; Also cuttings contaminated by reservoir hydrocarbons, while drilling through potential reservoirs. This is a major failing of this study and its report. In addition, there is no mention of whether or not, or the extent to which, cuttings clean-up will be completed fully on board the drilling rig, or whether drilling cuttings, whole fluid, or whole cement returns / contaminated cement returns while cementing casing strings and liners will be shipped to shore for disposal. Even though 5.1.1.2 mentions that "Despite the widespread dispersion of the cuttings, toxicity effects may occur in the seabed sediments and in the water column from the potential solution of the constituents and additives of the discharged WBMs and NADFs", BWK gives no details of the international standards that will be followed in such discharges to the sea and sea-bed, particularly given the absence of any Namibian legislation covering such discharges. It is worth repeating that existing Namibian marine legislation is intended to apply to oily discharges / oil wastes from the "marine" part of offshore	The exact technical details relating to the project are not known at this time, as the drilling contractor(s) have not been appointed (this is normal for such ESIAs). As a result, the ESIA has been based on indicative (representative) technical specifications for well drilling based on generic industry information, as well as existing exploration drilling activities being undertaken within southern Namibia. As such, a generic description of a mud and drilling discharges circulating system is provided in Section 5.4 in the ESIA Report. The treatment and discharge of cutting is dealt with in Section 5.4.5.2 of the ESIA Report. No cuttings will be shipped to shore for disposal for the current project. As noted in Item 2.21 above, for the current appraisal drilling, BW Kudu has committed to treating NADF cuttings offshore to reduce oil content to <3% OOC. The Drilling Discharges Modelling study (Appendix E of the ESIA Report) has been based on a notional well design and indicative drilling fluid composition (as indicated in Appenidx I of the modelling report) in order to determine the environmental risk in the sediment and water column. The modelling results were then used by the other specialist studies to confirm potential impacts, e.g. impacts on nearby sensitive areas (CBAs, EBSAs and MPAs), fishing grounds, etc., as detailed in Section 8 and 9 of the ESIA Report. SLR cannot comment on any recommendations made to the Namibian government.

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	drilling rigs, i.e. fuel transfers offshore, engine-room oily waste and, as a result, vessel bilges. Such legislation does not cover the "industrial" discharges associated with the "drilling rig" part of the drilling vessel. In the absence of Namibian legislation, it is usual for International Oil Companies to adopt appropriate international technical and management standards for these matters. In the case of the BWK report, there is no mention of the standards that it intends to apply. The Offshore Energies UK Environmental Legislation website (oeuk) provides details of both UK and International (Northeast Atlantic) legislation and Guidance Notes. These cover, inter-alia, the use and disposal of chemicals used in drilling operations, protection of maritime areas so as to conserve marine ecosystems and the restoration of marine areas that have been adversely affected. These regulations governing the disposal of oil-based drill cuttings in the North Sea came into effect as a result of the OSPAR Decision 2000/3; the regulations prohibit the discharge of oil-based drill cuttings containing more than 1% oil by weight of dry cuttings. In 2006, a second regulation came into force due to OSPAR Recommendation 2006/5, which requires drill cutting piles to be assessed to confirm that the impacts of pollution by oil and/or other substances from cuttings piles are reduced to a level that is not significant. OSPAR 2006/5 also recommends that for cuttings piles which fall below the two thresholds, no further action is necessary This international legislation has been in place for well over a quarter of a century: One might consider that the internationally-adopted standards applying to Northeast Atlantic (OSPAR)11 should, in the absence of local legislation, reasonably be adopted by BWK for its Southeast Atlantic drilling operations. It is also noteworthy that elsewhere in the world, 50 years-worth of the sediments that were simply dumped on the seabed are often now required to be cleaned up and removed, as a part of production platform decommissioning[12]. While one might consider that few wells are being drilled offshore Namibia currently, the same was true of the UK North Sea in the late 1970's. However, given the oil discoveries offshore Namibia in the last three years, one could envisage that in thirty or forty years from now, such rig-originating wastes could be similar to the current situation in the North Atlantic. OSPAR13 records show that "in 2022, roughly 560,000 metric tons of chemicals were used by the offshore oil and gas industry, and 181,000 metric tons were intentionally discharged into the Northeast	

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	Atlantic, with most going into the North Sea. Another 426 metric tons of those chemicals were accidentally spilled into the ocean. That means that about one-third of the chemicals used by the offshore oil and gas industry ended up in the ocean." It is well known in the oil and gas industry that the exploration and production of oil and gas reservoirs in the North Sea has resulted in large quantities of drill cuttings being deposited onto the seafloor of the North Sea. De Groot (1996) estimated that up to 7 million m3 of drill cuttings had accumulated on the seabed surrounding oil platforms in the whole of the North Sea between the years 1964 and 1993. At present it is estimated that 12 million14 cubic meters of cuttings are on the bottom of the Northern and Central North Sea. Several oil and gas production platforms in the North Sea are reaching the end of their productive lives and abandonment of these platforms has recently started. Present European legislation largely prohibits abandonment of platforms in place. Numerous documented investigations over the past 15 years attest to the adverse impact this complex mixture of man-made and natural substances has on the benthic environment in the vicinity of the drilling platforms. These chemicals included biocides, as well as corrosion inhibitors and demulsifiers with properties so toxic they can kill most algae, crustaceans, and fish they come in contact with. **The Namibian government should consider adopting standards and legislation that would address the long-term considerations of allowing dumping of drill cuttings on the seabed. This would ensure that in the long-term, a massive volume of such wastes, such as has been the case in the Northeast Atlantic ocean, millions of tons of drill cuttings would not accumulate and contribute to significant pollution of the marine environment, threatening the long-term health of the fish-consuming local population.**	
2.23.	5.2.4 Well Blow-out - Risk and Consequences The drilling of offshore oil and gas exploration and appraisal wells is considered a high-risk operation. The potential for a well blowout is considered a "Major Accident Risk". In the upstream oil industry. Major Accident Risks (MAR) for offshore installations, whether floating or fixed, well drilling, well production or well abandonment, are considered for the severity of the consequences rather than the probability of the event occurring. Viewed in another way, such	The ESIA Report (Section 9.4.2) acknowledges that "*the greatest environmental threat from offshore drilling operations is the risk of a major spill of crude oil occurring either from a blow-out or loss of well control*" and that the impact of an oil spill ranges from high to insignificant (with mitigation) depending in the receptor affected. However, it is important to understand the risk of occurrence. The ESIA Report further notes that "*the probability of a well blow-out occurring is considered to be extremely unlikely. In the order of 35 and 40 wells have been drilled in the Namibian and South African West Coast offshore environment, respectively, to date with no well blow-outs having been recorded. Global data maintained by Lloyds Register indicates that frequency of a blow-out from normal exploration wells is in the order of 1.43 x 10^{-4} (or 1 blow-out in 6 993 wells drilled)*".

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	events must be planned for, because of the excessively large impacts, environmental, social and economic, should the event occur, irrespective of the low probability that such an event might occur. This is best exhibited by reference to the cost of the Macondo oil well blowout in April 2010, below. Such infrequent events have often been of such magnitude that they have changed the way in which the oil industry operates. The two major industry-changing events were the Piper Alpha accident: Piper Alpha was a North Sea oil production platform operated by Occidental Petroleum, a USA company. The Piper Alpha accident occurred in July 1988, and the BP Macondo well in the US Gulf of Mexico, an appraisal well, in April 2010. This latter well was planned as an eventual subsea oil production well, as are most of the "appraisal wells" being drilled offshore Namibia currently. The Macondo well suffered a loss of well control and blowout in April 2010. Piper Alpha led to major changes in how the UK government regulated the industry, changing from a "regulatory" system to a self-regulation system; the UK government took the view that in future the burden should fall to the industry to determine the risks and to put preventative and mitigation processes in place. Previously the UK Government had directing the industry, by legislation and "rules", to do what the Government considered needed to be done. In the case of the Macondo disaster, the US Federal Government, the regulator for the Federal waters in the Gulf of Mexico, post-disaster, required all oil and gas operators to have in place a Management System that would include the identification of risks, consequences, and required preventative and mitigating actions. The BWK makes no mention of whether or not BWK has such a Management System in place that directs its employees in how to management its business.	A "multi-barrier" approach (i.e. mitigation) is implemented in dealing with risks (particularly the risk of oil spills). This approach involves defining multiple preventative barriers (or avoidance mitigation measures) to manage environmental risk. The first step and most important priority in applying the Mitigation Hierarchy to manage the risk of a catastrophic oil spill is avoidance or prevention (e.g. blow-out preventor, casings, drilling fluids, etc.). If these preventative technical and control barriers fail or are not effective under certain conditions, then response capabilities (minimisation barriers) will be put in place. Thus, conventional technology includes multiple redundancies in controls to prevent and mitigate this risk. BW Energy has performed similar operations with success in other regions, including Brazil and Gabon. All BW Energy activities in Namibia will align with its corporate standards, business principles, applicable HSEQ and Social Performance policies and procedures for contractors and subcontractors. BW Energy's operations will adhere strictly to the BW Energy HSEQ and Social Performance Framework, clearly defining our minimum expectations and requirements. Contractor procedures will integrate with BW Energy's HSEQ and Social Performance management practices to ensure consistency and compliance. Refer to Section 2.5 of the ESIA Report for further information in this regard. The commenter makes reference to the "Macondo well disaster", also known as the Deepwater Horizon (DWH) event, as referenced in the ESIA Report (Section 9.4.3.2). The current state of knowledge, available technology and approach to well blow-out responses by the drilling industry have advanced since, and because of, the DWH spill event. As a result of the learning from DWH event, the oil and gas industry has reviewed guiding documents after the disaster. A training and emergency drill programme was developed to foster a blow-out prevention culture. A Real Time Support Centre with constant monitoring of sensitive operations was created. Software solutions were implemented for visualizing well barriers and predicting well control events. Furthermore, capping stacks were developed and strategically placed around the globe for quick intervention. No such equipment existed before the DWH disaster. Refer to Item 1.7 for further discussion on capping stacks. The DWH blow-out also improved the understanding of how an oil spill impacts the marine environment, and these learnings have been considered in the assessment of the potential impacts in the unlikely event of an oil spill (see Section 9.4 of the ESIA Report).
2.24.	The Piper Alpha disaster killed 167 people (168 if one includes the diver who survived, but who took his own life several years later), and is estimated to have cost US$6.4 billion (2024 dollars). The Macondo well disaster resulted in the loss of eleven (11) lives out of the 126 workers who were on board the "Deepwater Horizon" semisubmersible drilling rig. The well spilled uncontrollably, with more than 4.915 million barrels of crude oil into the Gulf of Mexico, polluted more than	With regards to liability relating to an unlikely well blow-out, the ESIA Report (Section 9.4.3.3) recommends that BW Kudu must ensure that damages and compensation to Third-Parties are included in insurance cover to financially manage the consequences of any unplanned pollution event on environmental and social aspects. Evidence in this regard must be provided to NAMCOR. SLR cannot comment on any recommendations made to the Namibian government regarding legislation.

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	1,600 km of coastline in six US States (not to mention Mexico), and covered over 40,00 square miles (104,000 square kilometers) of the Gulf of Mexico. Further, studies indicate that it will take the deep ocean ecosystems decades to recover16. It cost bp, the UK oil company, US$ 60 billion (NAD 1.1 trillion) in criminal and civil penalties, natural resources civil damage awards, economic claims and cleanup costs. This was only possible because in negligently allowing the blowout to occur, bp was found to have been grossly negligent, breaching the USA Federal "Clean Water Acts" legislation. It is noteworthy that there is currently no similar Namibian legislation that would allow the government to prosecute and IOC operating in its exploration or production licenses offshore Namibia[17]. It is recommended that such legislation must be put in place, if necessary on an "emergency basis" by the Namibian Government, on an emergency basis.	
2.25.	The report also downplays the potential impact of an oil spill associated with a blowout and leans heavily on the supposition that the Kudu field is a "gas field". While there are exceptions[18], there have been very few gas production facilities worldwide that have not produced associated liquid hydrocarbons ("oil"). The report mentions that condensates (light oil) might be produced in any well flow but elsewhere makes light of this by stating that prevailing current and wind directions are in a direction away from the coast. Only by searching carefully does it become apparent that this is not the case. Buried only in Appendix E, Drilling Discharge Modelling, 1.3.2 Metocean conditions does it show that during various seasons, the prevailing winds are strong southerly and westerly, with the Namibian coast laying in an approximately NNE-SSW orientation. We therefore consider that the probability of oil polluting the coast around and potentially to the North of Lüderitz has not been thoroughly investigated and analysed.	As described in the Oil Spill Modelling report (Appendix F of the ESIA Report), CLS Brasil modelled two oil types and two spill scenarios with and without spill response over four seasons (with 5 years representative metocean dataset) for each of the two spill locations. As noted in Item 1.3, "reasonable worst-case scenarios" for unplanned events are typically modelled and assessed. A variety of factors determine the impact of an unlikely hydrocarbons on marine and coastal flora and fauna, including location, winds, currents, etc. These factors have all been considered in the oil spill modelling study as variables. Refer to Items 1.3 to 1.6 for further information on the consideration of "reasonable worst-case scenarios". Thus, based on the modelling inputs and the current patterns for the region, there is no chance of oil arriving at the coast or in South Africa waters regardless of where a well is drilled within the Block.
2.26.	**Well Blowout Frequencies, Probability and Consequences** From a risk perspective, a blowout (surface flow) from a "deep" zone has a high potential for consequences. The table below presents an overview of the main categories of well blowout and well releases for "regulated areas", including the US Gulf of Mexico Offshore Continental Shelf. The historical "frequency" of such exploration well blowouts is 1.7×10^{-3}, or 1.7 wells blowing out for every one thousand drilled; For appraisal wells such as those planned by BWK, the frequency of a blowout is still 1.4×10^{-3}, or 1.4 wells per 1,000 well drilled. These numbers are the combined probabilities for exploration / appraisal wells seeking oil- reservoirs, and those exploration / appraisal wells seeking gas-reservoirs.	Refer to response on blow-out risk in Item 2.23.

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	The frequency of shallow gas blowouts in exploration wells is 1.9 x 10, or 1.9 wells per 1,000 for wildcat wells. Significantly, in the case of (BWK-) planned appraisal wells, it is still 1.3 x 10^{-3}, or 1.3 wells per 1,000 wells drilled. In the event of a blowout of gas-targeted exploration and appraisal wells, the probability of a fire and explosion during blowout should be considered higher than with (for example) a low GOR (gas:oil ratio) crude oil blowout or well release. This is because of the significantly greater explosion potential of gas versus (dead-) oil, and the behaviour of a gas when released at surface, in such volumes and flowrates that quickly envelop the entire rig and thus it is exposed more rapidly to multiple ignition sources.	
2.27.	**Planning for Well Blowouts** It is considered that the BWK application should have addressed the following issues, rather than simply mentioning that there is a "capping stack" available in South Africa, and that BWK "intends" to become a member of Oil Spill Response (OSRL). The report further states as follows: Quote: *In addition, BW Kudu will become a member of Oil Spill Response Limited (OSRL), which provides response equipment (e.g., dispersants, booms, and dispersant spray equipment including aircraft and the use of globally advanced capping stacks and other) in the event of a well blow-out. These capping stacks are advanced devices designed to seal o@ a well and prevent oil from spilling into the ocean. OSRL keeps one of these capping stacks at its facility in Saldanha Bay, situated on the West Coast of South Africa. This equipment can be rapidly transported anywhere in the world by sea or air in case of an emergency.* End Quote. This minor reference to the actions planned to cover the contingency of a well blowout, even of a gas well without spilling oil, is totally inadequate, in that it fails to consider the following: 1. A gas well blowout of a BW Kudu appraisal well, an explosion followed by a fire and loss of the rig, with high potential for loss of life, should be considered the most likely scenario. This scenario should have been, and must be planned for, on the basis above, i.e. the very substantial socio-economic consequences should it occur.	With regards to the potential loss of the drilling unit during a well blow-out and the risk to Project staff or sub-contractors, and as noted in Item **Error! Reference source not found.** above, ESIAs primarily focus on assessing the potential environmental and social impacts of a project on the surrounding environment and communities. While ESIAs may consider human health risks, these are usually related to the broader public and not specifically a company's / sub-contractor's own staff (risk that they subject themselves to). This said, companies normally conduct separate occupational health and safety assessments to address risks to its employees. These assessments are designed to ensure a safe working environment and comply with relevant health and safety regulations.

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2.28.	2. The use of a capping stack is the first, and fastest, means of stopping a well from flowing uncontrollably. However it fails to recognize the following: • The most likely scenario in the event of such an explosion followed by a fire, is the loss of and foundering of the drilling rig or the collapse of the marine riser system onto the seabed. • In whichever case, there would be between 150 m and 750 m of riser pipelaying dropped onto the seabed, most likely laying across the wellhead. Prior to attempting to stab the capping stack onto the wellhead (against the high flow of gas escaping from it), it would likely be necessary to clear the riser from on top of it. Such an event was noted offshore Angola in 2008, when the Sedneth 701 dropped the BOP from 12 m (40 ft) above the wellhead, but while the rig was offset from the well by 25 m (82 ft)) in around 880 m (~2,900 ft) of water depth. It took mobilizing special equipment19 from Aberdeen, Scotland, to cut and recover the (53 cm? diameter) marine riser pipe. Recovery of the riser from seabed to surface took 72 days, with a total direct cost of recovery (excluding loss of revenue) of around US$ 66 million (2009 dollars) • In the case of the Macondo well, which could not be re-entered and killed with a “top-kill” job (the most efficient and technically /operationally effective method), it was necessary to kill the well by drilling wells “relief wells” to intersect the well at the reservoir. • In the case of the loss of and foundering of the drilling rig (as for Macondo, with the destruction and sinking of the Deepwater Horizon rig), with the rig sitting on the seabed it would require another floating drilling rig (preferably dynamically positioned to avoid the need to anchor, particularly if the “lost rig” was anchored) to attempt to kill the well by installing the capping stack over the wellhead which continues to blowout gas at an uncontrolled rate. There is no mention of where such a rig right be found and mobilized. • Given the likely conditions on the seabed after the rig sank, i.e. the likely inaccessibility of/damage to the wellhead connector, it would be necessary to intersect the flowing well at the reservoir depth by drilling relief wells. This begs the following questions: – Where would BWK obtain the necessary drilling rigs, of a similar (minimum) design to that which drilled the now-blowing out well? At least one, probably two, such rigs would be needed;	This comment relates to the failure of the capping stack and the need to drill a relief well. As noted in Item 2.23, as a result of the learning from DWH event, the oil and gas industry has reviewed guiding documents after the disaster. Furthermore, capping stacks were developed and strategically placed around the globe for quick intervention. No such equipment existed before the DWH disaster. This ESIA adopted a precautionary approach when assessing impacts. As indicated in Item 1.3, the ESIA is based on “reasonable worst-case scenarios and assumptions”. The use of a capping stack, developed in response to the DWH event (where relief well)s were drilled) is deemed to be a ““reasonable worst-case scenario” when considering the spill response mitigation. SLR is, thus, of the opinion that the ESIA considers “reasonable worst-case” scenarios.

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	– What incentive would other IOL's operating in Namibian waters (or offshore South Africa? Angola? Further afield?) have to release their own rigs to assist with killing of the BW Kudu well? – How long would it take for such drilling rigs, possibly operating in water depths of 3,000+ m (10,000 ft), to make their own well safe before they could mobilise to the Kudu field? – Making a well safe would require the following minimum considerations and operations: o Consider the risk to their own well of suspending it for weeks or months, particularly if the well had already intersected hydrocarbon-bearing formations (potential for reservoir damage); o Pull the drill string out of hole to lay down the bit and bottom hole assembly; o Run in hole open ended and set a cement plug across any hydrocarbon-bearing zones; o Pick up and cement across the last casing shoe; o Pick up and set a cement plug across the last casing string, below the wellhead; or alternatively, pull the cementing string out of the well, pick up and wireline run a mechanical plug (bridge plug) below the wellhead; o Disconnect the BOP stack (upper stack) from the wellhead and recover it to surface; o Stow the marine riser and BOP upper stack and sail to the Kudu blowout well location; o Such operations would likely take weeks to achieve. • Once a rig, or rigs, for well-kill had mobilized to the blowing-out well, the drilling of relief wells could commence while trying to clear debris from wellhead so that stabbing of the capping stack onto the wellhead might still be attempted. Once the relief wells reached the necessary depth, sufficient pump capacity would be required to (first) pump seawater for dynamic kill, then (subsequently) pump cement at a sufficient rate to cement up the flowing well and kill it. This would possibly require massive horsepower that might only be available on specialized Cementing Offshore Supply Vessels, from specialist contractors such as Halliburton, Baker Hughes (BHI) or Schlumberger. Such vessels are not currently located offshore Namibia, but might be available offshore Angola or elsewhere in West Africa. Again,	

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	locating such equipment should have formed / must form a part of the study required in preparing a Blowout Contingency Plan. Included in the study would be agreeing the necessary contracts, or at least "heads of agreement" signed, with contractors and/or their clients, to allow for assignment of such contract(s) in the event of such an emergency.	
2.29.	**Conclusions of Socio-Economic Impact Assessment - Blowout** BW Kudu APPENDIX J, Socio-Economic Impact Assessment, impact assessment of unplanned events, assesses the socio-economic impacts from a well-blowout and associated oil release and contamination. These are stated to be: 1. Potential reduction in income from commercial fishing due to a blowout The impact is deemed to be of "medium negative significance", both with and without mitigation. This fails to consider that the intense marine response to any major blowout and fire, and particularly marine activity in the area of the blowing-out well while possibly lengthy relief well drilling, with several drilling vessels and their support vessels, well cement/pumping vessels, heavy lift vessels, etc., would be employed. All of such vessels would likely be given priority in the Namibian ports for access to the quays, fuel supplies, etc, in such an emergency. We take issue with a conclusion of any level of "negative" significance, which implies "positive" benefits of such an event, and no evidence is offered for the reasons why this conclusion was reached.	SLR disagrees that there are any implied benefits assessed in the ESIA Report associated with an unlikely oil spill. The ESIA specifically has not assessed the benefits that would accrue to any response effort required in the unlikely event of an oil spill. Also see response to "relief well" in Item **Error! Reference source not found.**.
2.30.	2. Potential reduction in income from tourism due to a blowout: the impact is deemed to be insignificant. There is likely to be a major negative economic impact, as identified elsewhere above and given that the entire remediation and well control costs burden will fall to government, to the extent that BWK's insurers do not cover the costs. BWK has provided no information on the maximum insurance cover that it will obtain, and it does not appear likely that it would have insurance coverage of an amount that would cover similar costs to the Macondo well blowout. It is likely that such a financial burden falling on the shoulders of the Government of Namibia would result in substantial reduction in all infrastructure activities and expenditure provided by Government, whether airports, roads, water and electricity supplies, etc. The general level of prosperity in Namibia is also likely to be reduced, as it	With regards to liability relating to an unlikely well blow-out, the ESIA Report (Section 9.4.3.3) recommends that BW Kudu must ensure that damages and compensation to Third-Parties are included in insurance cover to financially manage the consequences of any unplanned pollution event on environmental and social aspects. Evidence in this regard must be provided to NAMCOR. Thus, the financial burden should not fall on the Government of Namibia, as suggested by the commenter. With regard to the impact on tourism, the ESIA considers the following response effort in the assessment of impacts, which is deemed to be a "reasonable" response scenario: • Subsea response: Deployment of Subsea Dispersant Injection Kit. • Surface response: 10 spray vessels, 2 aircrafts and 5 recovery vessels. In terms of the impact on tourism due to an unlikely oil spill, the assessment considers the above response effort, the results of the Oil Spill Modelling study (see Appendix F of the ESIA Report) and associated pressures on towns, accommodation, ports, etc. It is important to remember that the

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	was in the entire coast of the United States Gulf of Mexico. Such reduction in prosperity might well have a significant negative impact on tourism. Further, the impact of additional maritime activities would be expected to have an impact on both Walvis Bay port, Lüderitz port and the roads feeding them, as well as on accommodation availability close to both cities. This would likely impact upon tourism in and around both of these population centers. Again we take issue with a conclusion of "insignificant" for the reasons stated above, and again no evidence is offered for the reasons why this conclusion was reached.	assessment already considers the need to accommodate the drilling staff during crew changes in Lüderitz or Oranjemund (three return helicopter flights per week) and these changes (and accommodation required). Thus, little additional pressure on local resources. Also refer to Item **Error! Reference source not found.** for a response to the impact on tourism.
2.31.	3. Social disruption and change in social dynamics due to a blowout: the impact is deemed to be of high (negative) significance without the implementation of mitigation and **low (negative) with mitigation**. Elsewhere above, we addressed the possibility of multiple fatalities, injuries and harm to the personnel employed on the drilling rigs. Many of the unskilled workers on board the rig, floor- hands, roustabouts, semi-skilled operators, kitchen and accommodation workers, deckhands and labourers, for example, will certainly be Namibian nationals. The impact on a large number of fatalities, potentially with some remains never recovered (as was the case for the Macondo blowout) will have a very significant impact on their families and friends, indeed on all Namibians. Again, as mentioned above, the impact of additional maritime activities would be expected to have an impact on both Walvis Bay port, Lüderitz port and the roads feeding them, with an element of social disruption to residents and visitors.	With regards to the potential loss of the drilling unit during a well blow-out and the risk to Project staff or sub-contractors, and as noted in Item **Error! Reference source not found.** above, ESIAs primarily focus on assessing the potential environmental and social impacts of a project on the surrounding environment and communities. While ESIAs may consider human health risks, these are usually related to the broader public and not specifically a company's / sub-contractor's own staff (risk that they subject themselves to). This said, companies normally conduct separate occupational health and safety assessments to address risks to its employees. These assessments are designed to ensure a safe working environment and comply with relevant health and safety regulations. Also refer response to Item **Error! Reference source not found.**.

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2.32.	**Requirement for Blowout Contingency Plan** The information above supports the widely-held industry policy, that such Major Accident Risks as well blowouts should be considered, and planned for, because of their potential consequences. The data shows that for deep exploration wells, the historical frequency of combined deep- and shallow gas well blowouts and well releases (at surface), for appraisal wells is 3.202 x 10-3 3.0 wells per one thousand drilled, or one out of every 312 wells. Given the possible consequences of such an event, BWK must not neglect to have a fully-tested Blowout Contingency Plan in place prior to issue of the requested environmental clearance to Government, just because of the public's perception (and some IOC's insistence) that such an event is "very unlikely" to happen, and given the consequences should such an event occur. All of the issues referred to above should have been, and must be, considered and used to prepare, and test, a firm BW Kudu Blowout Contingency Plan. Such a plan must be approved by the regulator before, or on the same timeframe as, this BW Kudu ESIA process.	Response to the mitigation proposed for an unlikely oil spill and the need for a BOCP is provided in Item 2.13 and 2.14.
3.	**Namport, Widux Mutwa (received via email on 10 Feb 2025)**	
3.1.	Please note this email account/address is changing and will be not be in use. Kindly redirect future emails to widux.mutwa@[redacted]	Stakeholder database has been updated accordingly.
4.	**Nekkov Logistics Solutions, Katja Glöditzcsch (received via email on 11 Feb 2025)**	
4.1.	Please find attached the completed Registration Form for BW Kudu Limited.	Stakeholder database already reflects this stakeholder accurately, no update made.
5.	**Mark Ryan (received via email on 11 Feb 2025)**	
5.1.	I read with interest yesterday that the above-mentioned report is available at the Walvis Bay library for viewing and that commenting is open till 25th March. Is this report available to download at all, for viewing and commenting?	Stakeholder database already reflects the stakeholder's contract details accurately; thus, no update necessary.

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	I ask because I work in the O&G (and wind) sector for a subsea/offshore construction company and am based in the UK, although also a Namibian citizen. I have also previously worked on Kudu Gas tenders around 2013-2014 while at another construction company, so it hence my interest and query. Look forward to your reply.	
6.	**Benguela Wealth Farming, Rassie Erasmus (received via email on 13 Feb 2025)**	
6.1.	I want to register. Unfortunately I am not close to a computer, only my cell. BENGUELA WEALTH FARMING RASSIE ERASMUS +264 [redacted]	Stakeholder database already reflects the stakeholder's contract details accurately; thus, no update necessary.
7.	**Junior Investment, Toivo Gabriel (received via email on 13 Feb 2025)**	
7.1.	Received and thanx.	Noted.
8.	**Shell, Peter Mijsbergh (received via email on 6 Mar 2025)**	
8.1.	I'm on a business trip until Tuesday 11 March. Please be aware that I have moved roles in Shell from March 1. Fabiola Rossato has taken over my role as the HSSE Manager for our exploration ventures in Namibia and South Africa. I will check my emails daily, but please don't expect an immediate response.	Peter Mijsbergh has been removed from the I&AP database and replaced with Fabiola Rossato (refer to Appendix D.2 of the Final ESIA Report).
9.	**Seaflower Group of Companies, Selma Stephanus (received via email on 6 Mar 2025)**	
9.1.	Selma Stephanus is no longer employed at Seaflower Whitefish Corporation. Please revert all correspondence to rochelled@[redacted]	Selma Stephanus has been removed from the I&AP database and replaced with "rochelled[redacted]" (refer to Appendix D.2 of the Final ESIA Report).