
From: [REDACTED]
Sent: Thursday, 26 August 2021 9:02 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Additional information - Investigation IVT 10524
Attachments: Otway2DMSS - Acceptance letter with limitations.PDF; Report - Petroleum Environmental Inspection Report - Final- issued to SLB 31 Dec 2019.pdf; Thread - Issue of final report - Close out of recommendation 2101-1.pdf

OFFICIAL

Hi [REDACTED]

Please see responses below that correspond to the items you raised in your email:

1. It would be appreciated if SLB is able to voluntarily provide copies of the remaining documents at the NOPSEMA office. We are available between 1-2pm today. Please let me know if that works.
2. I mentioned the decision letter and the response to recommendations from the SLB inspection undertaken in Dec 2019 (ID2101). I have attached a copy of the decision letter, inspection report and response to recommendation 2101-1 which specifically relates to blue whale detection using PAM (all of which SLB should have on file). In the decision letter, I draw your attention to the limitations imposed on the activity and the reasons for those limitations.
3. Noted.
4. Noted.
5. Noted.

Regards

[REDACTED]

[REDACTED] | Environment Specialist

Offshore Projects and Seismic

Environment & Decommissioning

National Offshore Petroleum Safety and Environmental Management Authority

[REDACTED] | **W:** nopsema.gov.au

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OFFICIAL

From: [REDACTED]
Sent: Wednesday, 25 August 2021 11:58 AM
[REDACTED]
Subject: Additional information - Investigation IVT 10524

Good morning [REDACTED]

I wanted to collate a few items of discussion and actions from yesterday's meeting and also provide updates as necessary.

- 1) The raw navigation P2/94 is being copied over from Houston this morning and we will copy to a USB drive and arrange to get this to you this afternoon. **If the warrant has expired may we bring this to your office directly?**
- 2) Deep dive investigation into PAM validation, hence night time acquisition in Buffer zone (we are looking through all material with our contractors – operational, environmental etc..). You mentioned numerous documents/letters you could share which communicate PAM validation requirements for Blue whales specifically. Could you please send us a copy to help us along?
- 3) Colour coding for the shape files relating to source activity. We are looking more deeply into the data which produced these files (JNCC data from the MFO team) and with the help of the P2/94 data we hope to produce a more accurate dataset give the obvious discrepancies in the data we have so far. In the meantime the map provide shows white lines as valid acquisition points going into data processing (these comprise full power – red/magenta and also soft starts – green/blue).
- 4) Why does it appear from the shape files plotted that not all lines commence with a soft start process. We are looking into this now and will focus on the P2/94 data to plot source activity due to the lower confidence in the provided shape files from the MFO team (as supplied to NOPSEMA during the investigation)
- 5) What is the process followed by the MFO when logging positional data through spreadsheets and final daily report with respect to sightings? I have the following further input from the MFO team Seiche.

The exact process for each person inputting the data usually differs from person to person but it would be taking data from the instruments on the ship and then entering this information manually into the JNCC forms. Normally then copy the data from the effort tab to the sighting tab but this clearly wasn't the case for sighting 53 as the data in the sightings tab was different to the effort form for the same time. The effort tab appears to be the most consistent with where we would expect the vessel to have been at that time. As for transferring the data from the JNCC excel forms to the daily, this was copied out rather than copy and pasted, otherwise that minor typo in the daily for sighting 72 wouldn't have occurred.

Putting in a step-by-step process the following would be the likely case:

- *Data read from instrument and input to JNCC work sheets*
- *For sightings, the data is either copied from effort tab into sightings tab or enter separately*
- *Details including position of sightings are then entered manually onto the daily report*

Thanks and regards,

[REDACTED]
Australasia
Schlumberger WesternGeco
[REDACTED]

Schlumberger-Private

Our ref: RMS 4834 A701545
Your ref: 640.1193.00000-R01

[REDACTED]

Schlumberger Australia Pty Ltd
Level 5, 256 St Georges Terrace
PERTH WA 6000

environment@slb.com

Dear [REDACTED]

RE: ENVIRONMENT PLAN ACCEPTANCE WITH LIMITATIONS – OTWAY BASIN 2D MC MARINE SEISMIC SURVEY

Please be advised that the Otway Basin 2D MC Marine Seismic Survey environment plan (EP), comprising:

- Otway Basin 2DMC Marine Seismic Survey Environment Plan (Document No. 640.11793.00000-R01, Revision 5.0 dated September 2019); and
- Otway Basin 2DMC Marine Seismic Survey Environment Plan, Sensitive Information (Document No. 640.11793.00000-R01, Revision 6.0, dated October 2019)

has been accepted subject to limitations in accordance with regulation 10(6)(b) of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Environment Regulations).

An assessment of the EP was conducted in accordance with the Environment Regulations and NOPSEMA's assessment policies. This included a general assessment of the whole EP and two detailed topic assessments of the EP content, as follows:

- Matters protected under Part 3 of the EPBC Act - Robust evaluation to demonstrate that underwater noise impacts on protected marine mammals (including impacts to food sources) and the conservation values of Australian marine parks will be of an acceptable level.
- Socio-economic - Evaluation of impact and risk to socio-economic factors (including through consultation and public comment) and suitability of control measures to manage impacts and risks, with a focus on crustacean, trawl, and squid fisheries operations and fish resources.

In accordance with regulation 11(1)(c) this acceptance is granted subject to the following limitation:

No discharge of seismic airguns in the pygmy blue whale biological important areas (BIAs) (including the Bonney Upwelling Key Ecological Feature) from 1 November 2019 to 30 April 2020; and implement measures that limit anthropogenic noise in BIAs for the duration of the activity so that any blue whale continues to utilise the area without injury, and is not displaced from a foraging area.

The reason for my decision to accept the plan subject to limitations is because the impacts and risks of underwater sound from seismic acquisition inside the pygmy blue whale BIA has not been demonstrated to be of an acceptable level (regulation 10A(c)). Specifically:

1. The detection and control measures provided in the EP do not demonstrate that the defined acceptable level of impact: *'No injury to pygmy blue whales and No interference with foraging behaviours in the pygmy blue whale BIA including no displacement from foraging areas'* (Table 43) can be met:
 - i. The EP evaluation has predicted that the distance at which blue whales may be displaced from foraging is a 10km radii. This equates to an area of approximately 314km². An area too large in practice for marine fauna observers (MFO) on the survey and support vessel to effectively monitor for the presence of blue whales.
 - ii. The 10 day aerial survey frequency would not be an effective mechanism for informing reactive management on a daily basis given blue whales are highly mobile and can swim at speeds of up to 13 knots for long periods, easily covering 100 nm in a 24hr period (EP, p99).
 - iii. The weight of evidence in published scientific literature does not support the case that passive acoustic monitoring (PAM) is an effective method for detecting blue whales in foraging habitats when towed directly behind an active seismic and / or support vessel. NOPSEMA has taken into account the following relevant considerations in forming this conclusion:
 - All blue whale vocalisations appear to be in the frequency bands within which seismic sound is focused. Blue whale vocalisations (including D-calls) fall between 17 and 150 Hz with no harmonics above 150 Hz. The fundamental frequencies of calls are 17 to 28 Hz for song, and up to 100 Hz for non-song vocalisations;
 - While PAM has been successfully used to detect beaked whales, pilot whales, sperm whales and dolphins, all mid/high frequency cetaceans, there are no published scientific studies that NOPSEMA is aware of for reliably detecting blue whales in foraging life stage during a seismic survey when the PAM system is towed in close proximity to an active source / support vessel;
 - Stone (2015)ⁱⁱ reported lower acoustic detection rates when using PAM compared to visual observation for some species or species groups and an almost complete lack of detection of baleen whales. The authors concludes that PAM should complement rather than be a substitute for visual observations at times when visual monitoring is possible;
 - Studies have concluded that blue whales do no produce characteristic vocalisations while feeding and of those that do vocalise, the majority of detections were in relatively shallow waterⁱⁱⁱ;
 - Melcon *et al.* (2012)^{iv} found that anthropogenic noise, even at frequencies well above the blue whales' sound production range, has a strong probability of eliciting changes in call production to blue whales. The study concludes that long-term impacts of call changes due to anthropogenic noise is uncertain;
 - The EP references a study by Barlow and Taylor (2005)^v to make a case for the use of PAM. However, this study used a hydrophone towed on a cable at 15 km/hr at 100 m depth to detect sperm whale vocalisations. Sperm whales produce much high frequency vocalisations than blue whales. The hydrophone was offset from the vessel and towed at a constant depth to improve

detectability of animals that move throughout the water column. There was no seismic source in this study and animals were only detectable in favourable noise conditions.

- Abadi et al (2015)^{vi} attempted to localise baleen whales with MV beamforming techniques to minimize the error between the calculated travel time and observed arrival. The study indicates that although many humpback whales were observed in the survey area, just a few whale calls were found in the streamer data. This study did not provide evidence of confirmed acoustic detections of blue whales with PAM in close proximity to an active seismic source. Further Abadi (2017)^{vii} reported visual monitoring effort producing a total of 52 baleen whale detections while data was being recorded from seismic streamers. The PAM systems used in this study did not detect calls from the visually observed animals.
- In conclusion, the combination of vessel noise, predominantly cavitation noise from the propeller, and the seismic airgun itself create high levels of background noise. This noise is in the frequency bands of blue whale vocalisations. This contributes to a high level of uncertainty that the signal noise ratio of any vocalisations is high enough for reliable PAM detections of blue whales.

iv. Several environmental performance standards (EPS) state that a 4 km extended shut-down zone will be implemented when operating within the BIAs and a 10km buffer (EPS 88, EPS 106, EPS 128, EPS 134, EPS 163). While NOPSEMA notes that there is an EPS that requires the source to be shut-down if a blue whale is observed by the PAM operator or MFO (EPS 148), this conflicts with other standards that refer to shut-down of 4 km in the BIA. Clearly defined, and consistent statements of performance for control measures are important for effective implementation and compliance monitoring.

2. The culmination of the above limitations has led to the conclusion that control measures will not be effective in managing noise to defined acceptable levels (Table 43), and to a level that is consistent with the requirements of the Blue Whale Conservation Management Plan 2015, in particular Action Area A.2 that requires that *'Anthropogenic noise in biologically important areas will be managed such that any blue whale continues to utilise the area without injury, and is not displaced from a foraging area'*.

This acceptance is based on the document submissions provided in accordance with the Environment Regulations. Please note that the responsibility for the ongoing environmental performance of the Otway Basin 2D MC Marine Seismic Survey activity remains, at all times, with Schlumberger Australia Pty Limited.

Schlumberger Australia Pty Limited is reminded that once a title for the activity is granted, titleholders have a duty under section 571 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* to maintain sufficient financial assurance. NOPSEMA may seek evidence of compliance with the duty through its compliance monitoring activities which may include Schlumberger Australia Pty Limited providing a declaration of financial assurance compliance. For further information, see NOPSEMA's Guideline N-04750-GL1381 Financial assurance for petroleum titles.

NOPSEMA will communicate this acceptance decision on its website and will publish the final environment plan, excluding the sensitive information part, in accordance with regulation 9(2A). To provide transparency of its assessment decision, NOPSEMA will also publish a key matters report outlining the factors

contributing to the decision, including how matters raised through public comment were taken into account.

Please be advised that in accordance with regulation 7, an activity must not be undertaken in a way that is contrary to the EP in force for the activity, or any limitation applying to operations for the activity under the Environment Regulations.

You are reminded that in accordance with regulation 29, Schlumberger Australia Pty Limited must notify NOPSEMA at least ten days before commencement and within ten days after completion of any stage of an activity outlined in the EP.

Should you have any queries regarding the above, please contact the lead assessor for your submission

[Redacted]

Yours sincerely

[Redacted]

SAN: wA278086

11 November 2019

SAN: All regulatory correspondence issued by NOPSEMA, including this letter, bear a signature authorisation number (SAN) in place of a traditional signature. The SAN is a unique, secure identifier applied to the letter upon approval by the named signatory. If you wish to enquire further about SAN and its use in this or other correspondence, please contact information@nopsema.gov.au quoting the reference provided above.

Report

Environment Plan:	Otway Basin 2DMC Marine Seismic Survey
Title(s):	Vic-01-SPA; T-01-SPA; SA-05-SPA
Titleholder:	Schlumberger Australia Pty Ltd
Nominated titleholder's representative:	[REDACTED]
Anticipated dates of onsite inspection:	Onshore: 16-17 December 2019
Regulated Business Premises and/or Offshore Petroleum Premises:	Level 5, 256 St Georges Terrace, Perth, 6000
Prepared by:	[REDACTED]
NOPSEMA Reference:	2101

REPORT DISTRIBUTION

Position	Company
Records management	NOPSEMA
	Schlumberger Pty Ltd

REVISION STATUS

Rev:	Date:	Description:	Prepared by:	Approved by:
A	23-12-2019	Draft for discussion with titleholder	[REDACTED]	[REDACTED]
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Abbreviations and Acronyms

ALARP	As Low As Reasonably Practicable
ANZECC	Australian and New Zealand Environment and Conservation Council
ASBTIA	Australian Southern Bluefin Tuna Industry Association
EP	Environment Plan
EPO	Environmental Performance Outcomes
EPS	Environmental Performance Standards
MSS	Marine Seismic Survey
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
OPGGS Act	Offshore Petroleum and Greenhouse Gas Storage Act 2006
PAM	Passive acoustic monitoring
PEL	Petroleum environmental law
SBT	Southern Bluefin tuna
Schlumberger	Schlumberger Australia Pty Ltd

1. Petroleum Environmental Inspections

NOPSEMA conducts petroleum environmental inspections as part of its legislated function to implement effective monitoring and enforcement strategies to ensure compliance with petroleum environmental law¹. Petroleum environmental inspections are undertaken by NOPSEMA inspectors appointed by NOPSEMA under Section 602 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGs Act).

This inspection report has been prepared in accordance with Schedule 2A, Part 2, Division 3 of the OPGGS Act. It presents the inspection team's:

- Conclusions from conducting the inspection, along with the reasons for these conclusions
- Recommendations arising from the inspection that have been raised to address non-compliance with petroleum environmental law and / or to draw the titleholder's attention to matters that are to be considered by the titleholder in relation to continuous improvement and good environmental management practice.

Note: Findings of compliance are not listed in this report.

2. Inspection Method

The inspection team prepared a petroleum environmental inspection brief and discussed this with Schlumberger Australia Pty Ltd prior to the inspection. The brief set out the proposed inspection scope and methodology.

The inspection related to the Otway Basin 2DMC Marine Seismic Survey activity described in the in force Otway Basin 2DMC Marine Seismic Survey EP and the limitation specified in the decision notice dated 11 November 2019.

The proposed scope for this inspection included:

- **Item 1:** Environment Management - Acoustic disturbance - confirmation that the titleholder has processes in place to manage the activity in accordance with the 'limitation' issued in the decision notification.
- **Item 2:** Ongoing Consultation with Relevant Persons - confirmation that there is an appropriate consultation process in place, focusing on interaction between the survey and southern blue fin tuna operations and industry association.
- **Item 3:** Biosecurity / IMS - confirmation that biosecurity risk assessment processes and control measures to achieve an acceptable level of biofouling risk have been implemented prior to the commencement of the activity.

Other issues arose during the course of the inspection and, as a result, were added to the scope. These additional items were:

- **Item 4:** Management of change process – environmental management system appropriate for ensuring environmental impacts and risks continue to be managed to ALARP and an acceptable level.

¹ Petroleum Environmental Law as defined in Schedule 2A of the OPGGS Act.

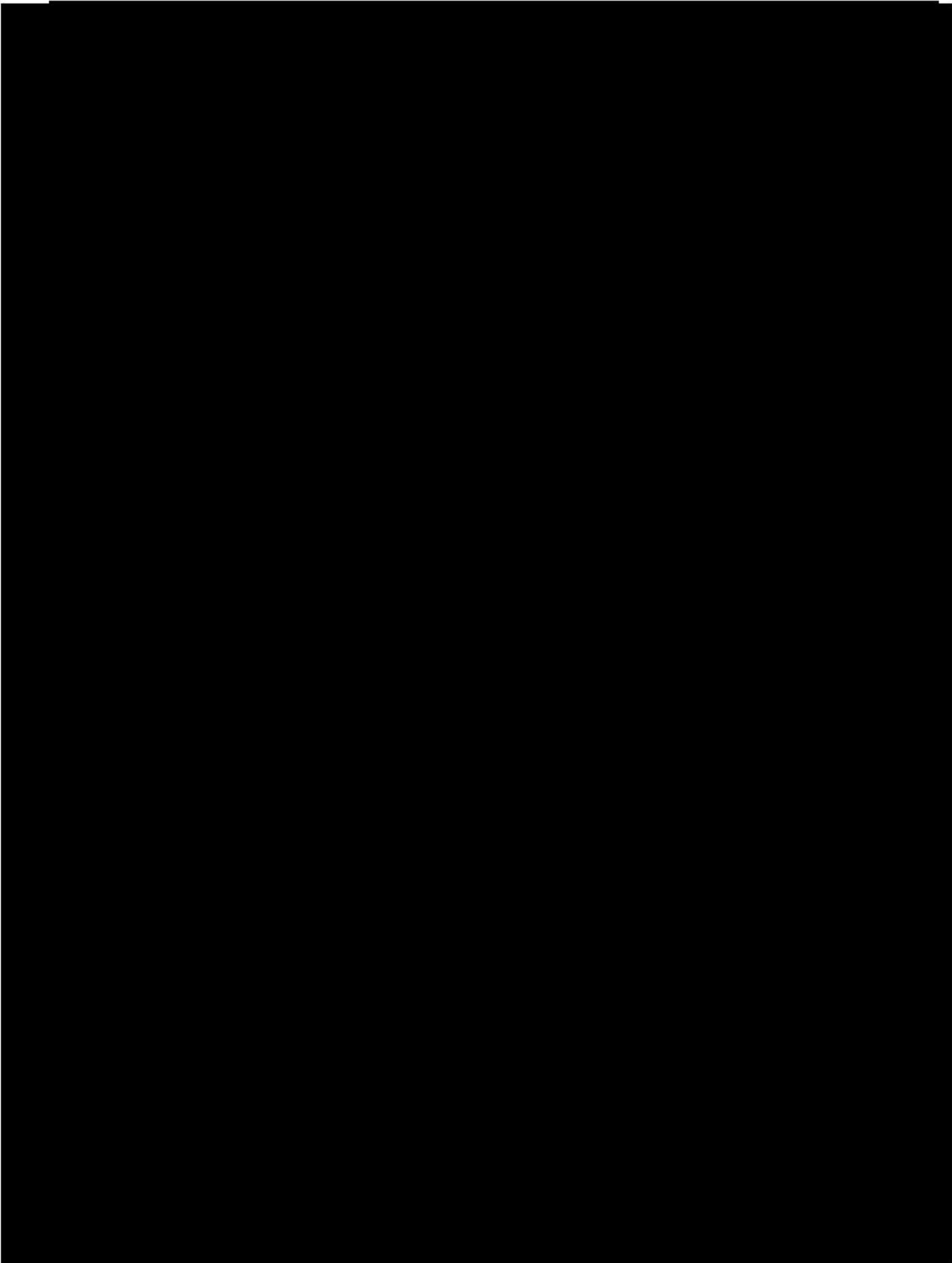
On arrival at the premises, the inspection team held an opening meeting to discuss the format and process of the inspection. Prior to departing the premises on 17 December 2019 an exit meeting was held to provide an overview of the preliminary inspection findings. Attendees at these meetings are listed in Attachment A.

The inspection team reviewed documented evidence relevant to the scope of the inspection, with the assistance of Schlumberger Australia Pty Ltd personnel. A list of documents inspected is provided in Attachment B.

3. Conclusions and Recommendations

At the time of the inspection Schlumberger was in the process of preparing for the commencement of the Otway Basin 2D seismic survey. Seabird Exploration had been contracted by Schlumberger to supply the *Nordic Explorer* seismic vessel. The titleholder indicated that the vessel was due to arrive in Portland, Victoria in early January 2020 and that the seismic survey is expected to commence the activity sometime between 10 and 14 January 2020.

The following sections present the inspectors' conclusions and reasoning in relation to each inspection topic scope. Where considered appropriate, recommendations have been made in relation to these conclusions. The detailed recommendations are included in the following section and will also be provided electronically to the titleholder's representative with the final report.



3.1.2. No discharge of seismic airguns in the pygmy blue whale biologically important areas

Inspectors focused on confirming that Schlumberger has appropriate processes in place to verify that seismic airguns would not be discharged in the BIAs to ensure pygmy blue whales (PBW) can continue to utilise the area without injury and/or displacement from foraging.

NOPSEMA inspectors checked the method used by Schlumberger to communicate the requirement for no discharge of the acoustic array inside the PBW BIA to its seismic contractor, Seabird Exploration. Schlumberger provided documented evidence in the form of email correspondence (Document 6) to demonstrate that the Australia government BIA shapefile had been issued to the seismic operator and that a 'no discharge zone' over the BIA would be integrated within the acquisition plan. While it was evident that Schlumberger has issued the shapefile to the seismic survey operator (Document 6), it did not appear that a systematic verification process has been established in order to verify, on an ongoing basis, that the airguns would not be discharged within the BIA as this requirement was not documented in the Environmental Execution Plan (Document 3).

NOPSEMA inspectors concluded that prior to commencement of the activity, Schlumberger should verify that suitable assurance processes are in place so that no airguns will not be discharged in the BIA in accordance with the limitation in the decision notice.

Recommendation 2101-2

Ensure that a systematic verification process is developed and implemented to:

- Confirm that the authoritative spatial data layer for the pygmy blue whale BIA (acquired from the Australian government) has been accurately uploaded to the Nordic Explorer's navigational system; and
- Verify that seismic airguns are not discharged in the pygmy blue whale BIA (including for testing and soft starts) with consideration given to the use of real-time alarms, automated airgun shutdowns or an equally effective compliance assurance tool.

3.1.3. Consistency between operational and training documentation

Inspectors focussed on confirming that Schlumberger has undertaken appropriate preparedness measures to demonstrate readiness for implementing the requirements of the accepted EP and limitation requirements applying to the operations of the activity.

Schlumberger explained that preparations are underway to develop the key documentation to be used to induct, train and provide ongoing procedural guidance to personnel responsible for implementing EP commitments. These documents were the (a) Environmental Execution Plan (Document 3); (b) Operational flowcharts (Document 4) to be displayed in the vessel's bridge; and (c) MMO and PAM operator induction package (Document 5). Based on a sampled review of these documents, inspectors found that there were some inconsistencies and omitted environmental management requirements that need to be addressed prior to the commencement of relevant inductions. Examples of these inconsistencies and / or omissions include:

- Inconsistency in the adaptive management requirements and 10 km shutdown zone between the 'start up procedure', 'whale detection summary' / 'stop work procedure' in the Project Execution Plan and 'Standard operations within BIA and 10km buffer' flow diagram.
- Limited instruction in relation to support vessel environmental management commitments and communication protocols with respect to surveying the BIA for the presence of blue whales.
- Omission of the decision criteria that must be met before PAM can be validated as suitable for estimating distances for low frequency cetaceans during the application of the 10km shut down.
- Absence of a requirement the prohibits soft starts until pre-start up requirements are met AND the vessel is verified to be outside of the BIA in the BIA buffer operational flow diagram, environmental execution plan and induction packages.
- Omission of the requirement to implement the 10 km shutdown if species identification during a detection is uncertain.

Recommendation 2101-3

Ensure that that all relevant EP requirements and the limitation imposed by NOPSEMA are adequately articulated and communicated in all operational procedures and induction materials for personnel who have a role implementing acoustic mitigation measures.

3.2. Item 2: Ongoing Consultation with Relevant Persons - confirmation that there is an appropriate consultation process in place, focusing on interaction between the survey and southern blue fin tuna operations.

Relevant requirements:

- *As part of the ongoing stakeholder engagement programme, if stakeholders raise any concerns or provide feedback that has not previously been considered within the development of the EP, the potential impacts and risks would be reassessed based on the inclusion of the new information and any literature relevant to the particular issue (EP, Page 124).*

- *SLB will take reasonable steps to avoid or minimise conflict with other marine users, should such a conflict be identified during ongoing consultation with stakeholders (EPS 38).*

The inspection checked Schlumberger's ongoing consultation processes and the appropriateness of measures undertaken in response to relevant persons' concerns. In particular, the inspection focused on ongoing consultation with the Australian Southern Bluefin Tuna Industry Association (ASBTIA), Seafood Industry Victoria (SIV) and Tasmanian Seafood Industry Council (TSIC).

During the inspection it was evident consultation was continuing with SIV and TSIC, with reasonable efforts were made by SLB to address concerns. This is evidenced by meeting minutes from 2 December 2019 (Document 10) and the confirmation with SIV and TSIC that there are no timing or operational implications to their members given the changes to the acquisition area.

In relation to ASBTIA, NOPSEMA is aware that information had been received by Schlumberger with respect to the potential for the seismic survey to overlap with fishing operations should fishing occur in the north-west portion of the survey area. Further, NOPSEMA notes there is some uncertainty with respect to specifically where and when fishing may take place given the range of influencing factors. Consequently, there may be a relatively short period of time between making SBT observations and commencing the on-water fishing activities in particular locations including those within the north-west portion of the acquisition area. .

Given this, NOPSEMA inspector's focused on confirming that Schlumberger were continuing to actively engage with ASBTIA to better understand concerns and the potential overlap in operational timing with the tuna fishing operations (Documents 7, 8 & 9). Schlumberger explained that a further meeting is planned with ASBTIA prior to the commencement of the seismic survey to discuss what additional control measures could be feasibly adopted to better manage the risk of on-water conflicts. Schlumberger explained that some consideration had been given to amending north-west survey line scheduling to avoid the potential for impacts on tuna fishing operations and that this consideration had been communicated to ASBTIA.

Notwithstanding this potential change to environmental management, Schlumberger confirmed that the existing control measures and associated EPSs to manage interactions with the SBT operations will remain in place (namely EPS 31 and 32) regardless of any additional control that may be adopted to alter the scheduling of seismic lines.

While inspectors found that ongoing consultation with ASBTIA has occurred and more is proposed, inspectors concluded that any new or additional information provided by ASTBIA in relation to the timing and location of fishing operations would need to be appropriately evaluated. In order to do this, Schlumberger should use their environmental management system (EMS) and change management processes to determine whether new or modified controls are required to ensure impacts and risks will be managed to ALARP and acceptable levels. This evaluation should take place in a timely manner noting the need to finalise the acquisition plan and procedural environmental management documentation prior to the commencement of the activity.



Recommendation 2101-4

Ensure that Schlumberger continues to undertake ongoing consultation with ASBTIA to:

- (a) Understand any concerns in relation to new or increased impacts or risks of the activity to SBT fishing operations
- (b) Undertake a documented evaluation the environmental management implications of new relevant information to determine whether new or modified controls are required to manage impacts to SBT fishing operations to ALARP and acceptable levels
- (c) Appropriately apply management of change processes prior to the commencement of the survey should changes to environmental management controls be warranted.

3.2.1. Pre-survey notifications to relevant persons

Relevant requirements:

- Stakeholders will be notified prior to the commencement of the Otway Basin 2DMC MSS in accordance with the following Pre-Activity Notifications: Director of National Parks following approval of EP; All relevant stakeholders – 4 weeks prior; Australian Defence Force – 4 weeks prior; Australian Hydrographic Office – 4 weeks prior; Director of National Parks – 10 days (at least) prior to seismic activities occurring within the marine park and conclusion of that activity; NOPSEMA – 10 days prior; and AMSA’s JRCC – up to two days prior (EPS 20).
- SETFIA will send out SMS notifications at the following intervals: Monthly contact will be made at 3 months, 2 months and 1 month prior to start of the survey; Weekly contact will be made 2 weeks and 1 week prior to the start of the survey; Daily contact will be made 3 days, 2 days and 1 day prior to the start of the survey; Contact will be made on the day the survey commences; Further contact will be made as required during the Otway Basin 2DMC MSS or for updates to the survey, such as weather delays etc.; and Once the survey is completed, a final message will be sent as a thank-you and to confirm completion of the survey (EPS 24).

The inspection focused on confirming that Schlumberger had issued notification as per commitments in the accepted EP. Inspectors found that Schlumberger issued pre-survey notifications to relevant stakeholders on 2 December 2019, four weeks prior to the survey start date (Documents 9 and 11). Notifications were made mainly via emails to relevant persons listed in the ‘Spreadsheet for pre-activity notifications’ as well as utilising SIV and TSIC to distribute information to their respective members. At the time of the inspection Schlumberger was yet to confirm whether SIV and TSIC had distributed information to their members. Given the survey is due to commence in the proceeding weeks, inspectors concluded that it is important that Schlumberger has an understanding of whether relevant fishers have been notified so that the need for additional notifications and / or communication can be determined prior to the commencement of the survey to minimise the risk of unforeseen on-water interactions with commercial fishers.

Recommendation 2101-5

Consider consulting with SIV and TSIC to confirm that the pre-survey notifications have been issued to active fishers to provide confidence that relevant persons that may be affected during the activity have been notified in accordance with EP notification commitments.

3.3. Item 3: Biosecurity / IMS - confirmation that biosecurity risk assessment processes and control measures to achieve an acceptable level of biofouling risk have been implemented prior to the commencement of the activity.

Relevant requirements:

- *EP control measure: All vessels will have 'clean' hull and niche areas upon arrival*
- *Vessel will have had recent dry-docking or IMS hull inspection and show certification (EPS 218)*
- *All equipment deployed from vessel (e.g. streamers, birds, tailfloats, etc.) must be thoroughly cleaned, and then dried for at least 24 hours prior to being deployed in the Operational Area for the first time (EPS 219).*
- *Completion of the Department of Fisheries Vessel Check biofouling risk assessment tool: <https://vesselcheck.fish.wa.gov.au/> with any actions required from this assessment being completed (EPS 220)*
- *Suspected or confirmed presence of any marine pests or disease must be reported to authorities within 24 hours by email (biosecurity@fish.gov.au) or telephone (Fishwatch tel. 1800 815 507) (EPS 221).*

Prior to the inspection, NOPSEMA became aware that the Nordic Explorer, proposed seismic vessel for the activity, was located in South Africa and was confirmed to have tertiary levels of biofouling on its hull and in niche areas. Schlumberger provided documentation that demonstrated the vessel was subject to a full in-water inspection and clean in Durban, South Africa, between 3 and 5 December, 2019 (Document 12). A final inspection was completed on 4 December overseen by an [REDACTED] which reported that, due to access limitations, some niche areas of the external hull had biofouling exceeding 5% and could not be cleaned. The [REDACTED] achieved a moderate level of confidence that macroscopic IMS of concern would have been detected had they been present.

NOPSEMA inspectors noted that [REDACTED] report concludes that the Nordic Explorer is compliant with all stated biofouling management obligations and that the risk of transferring IMS of concern into the Project Area is low (Document 12). The [REDACTED] noted that the uncleaned sections of the hull could represent a residual risk of transferring IMS of concern to Australian coastal waters. Schlumberger verbally explained that the Nordic Explorer is likely to be subject to further in-water cleaning outside of South Africa prior to its arrival in Australian waters. While there was no documented information provided to confirm that this additional cleaning would take place, NOPSEMA advised that additional cleaning could assist in increasing the [REDACTED] confidence regarding the risk presented by the current level of biofouling. NOPSEMA also found that, given the [REDACTED] was only recently issued to Schlumberger, Schlumberger was yet to complete their internal risk assessment that is needed to be confident that the activity would meet its environmental performance outcome: 'No introduction or establishment of any Invasive Marine Species' (EP, Table 97).

Inspectors advised that, given the risk to Victorians coastal waters, the State biosecurity agency (Biosecurity and Agricultural Services, Department of Jobs, Precincts and Regions) is the relevant authority for the purposes of ongoing consultation in accordance with sub-regulation 14(9)). While it was evident that consultation has commenced (Document 13), consultation will need to be ongoing to ensure that Biosecurity and Agricultural Services remain up to date with the arrival of the Nordic Explorer, its biofouling risk and its activities in state waters. Inspectors also advised that Schlumberger should work closely with the State in developing additional control measures needed to provide assurance that IMS would not be introduced to coastal water environments. In addition, engagement with the Federal Department of Agriculture is recommended with respect to the uncertain risk presented to areas outside of the Commonwealth offshore area (refer to guidance

https://www.agriculture.gov.au/biosecurity/avm/vessels/offshore_installations/marine-pest-biosecurity#offshore-consultation-guidance-for-environmental-plans-and-offshore-project-proposals).



Recommendation 2101-6

Ensure that the final risk assessment of the biosecurity risk posed by the Otway Basin MSS is completed and any additional controls are implemented to provide confidence that there will be no introduction or establishment of any invasive marine species.

Recommendation 2101-7

Ensure that that ongoing consultation with Department of Agriculture (Australian Government) and Biosecurity and Agricultural Services (Victoria) continues particularly with respect to port calls prior to, during and at the completion of the seismic survey.

3.4. Item 4 Management of change process – environmental management system appropriate for ensuring environmental impacts and risks continue to be managed to ALARP and an acceptable level.

- **Relevant requirements:**
- *Regulation 14(3) of the Environment Regulations*
- *EP Implementation Strategy (section 10.1) - planning various control measures to reduce impacts and risks to ALARP and Acceptable Levels, implementing these controls during the Otway Basin 2DMC MSS, checking these controls are operating effectively utilising appropriate monitoring, recording and auditing, then ensuring any changes required are done through a Management of Change (MoC) process.*
- *EP implementation strategy (section 10.4) - Any opportunities for improvement are identified promptly to further reduce potential impacts and risks, and any non-conformances are identified to allow appropriate corrective action is undertaken*
- *EP implementation strategy (section 4.5.8) - As part of the ongoing stakeholder engagement programme, if stakeholders raise any concerns or provide feedback that has not previously been considered within the development of the EP, the potential impacts and risks would be reassessed based on the inclusion of the new information and any literature relevant to the particular issue."*
- *The following criteria will trigger the requirement for a review/resubmission of the EP: ... The existing suite of control measures are no longer considered suitable to reduce the environmental risk of the survey to ALARP and Acceptable Levels (EP, s10.4.5)*

3.4.1. Documented evaluation of new information relevant to environmental management

In connection with inspection scope item 2, NOPSEMA inspectors questioned whether Schlumberger had utilised its Environmental Management System (EMS) to evaluate the environmental management implications of the revised *DMAC 12 – Safe Diving Distance from Seismic Surveying Operations* guidance updated on 25 October 2019.

Schlumberger was not able to demonstrate that this relevant recently revised guidance had been evaluated to determine whether existing control measures remain appropriate for ensuring that impacts to divers from

acoustic emissions remain ALARP and acceptable.

Inspectors concluded Schlumberger should evaluate whether the control measures in the EP (i.e. the separation distance of 15 km between the source and divers set out in EPS 32) continue to provide an acceptable level of protection to divers associated with SBT fishing operations. Inspectors also concluded that Schlumberger should review the effectiveness of their EMS to ensure that it adequately identifies and evaluates new information relevant to environmental impacts and risks in a timely manner.

Recommendation 2101-8

Ensure that control measures and associated environmental performance standards for managing acoustic impacts on divers are reviewed to take into account the revised DMAC 12 guidance.

Recommendation 2101-9

Ensure that the Schlumberger’s environmental management system is effective in identifying and evaluating new information relevant to environmental impacts and risks in a timely manner to determine whether changes to control measures are required to manage the activity to ALARP and acceptable levels.

3.4.2. Triggers for EP revision as part of management of change processes

During the inspection it was evident that Schlumberger was in the process of completing three management of change (MOC) processes to:

- Remove the control measure for aerial surveys on the basis that NOPSEMA’s limitation imposed for operations of the activity, has excluded the activity from acquisition in the Bonney Upwelling
- Clarifying several control measures to ensure they are clearly applicable to the BIA buffer (Document 1)
- Change the acoustic source from size from 5,265 in3 to 4,470 in3. (Document 14)

While inspectors noted that these MOCs are currently in draft and are yet to be completed through Schlumberger’s MOC management system (Quest), inspectors identified that the draft MOC documentation did not consider whether Regulation 17(5) and 17(6) (EP revision triggers) were met as part of evaluating the implications of the those proposed changes.

Recommendation 2101-10

Ensure that the Schlumberger’s management of change process evaluates whether proposed changes made to the content of an EP warrant submission of a revised EP in accordance with Regulation 17 of the Environment Regulations.

4. Report Close-out

It is NOPSEMA’s expectation that the titleholder considers the findings detailed in this inspection report, and acts upon them. Recommendations identified in this report may also be considered during future petroleum environmental inspections undertaken by NOPSEMA.



Attachment A – Meetings

An inspection opening meeting was held on 16 December 2019

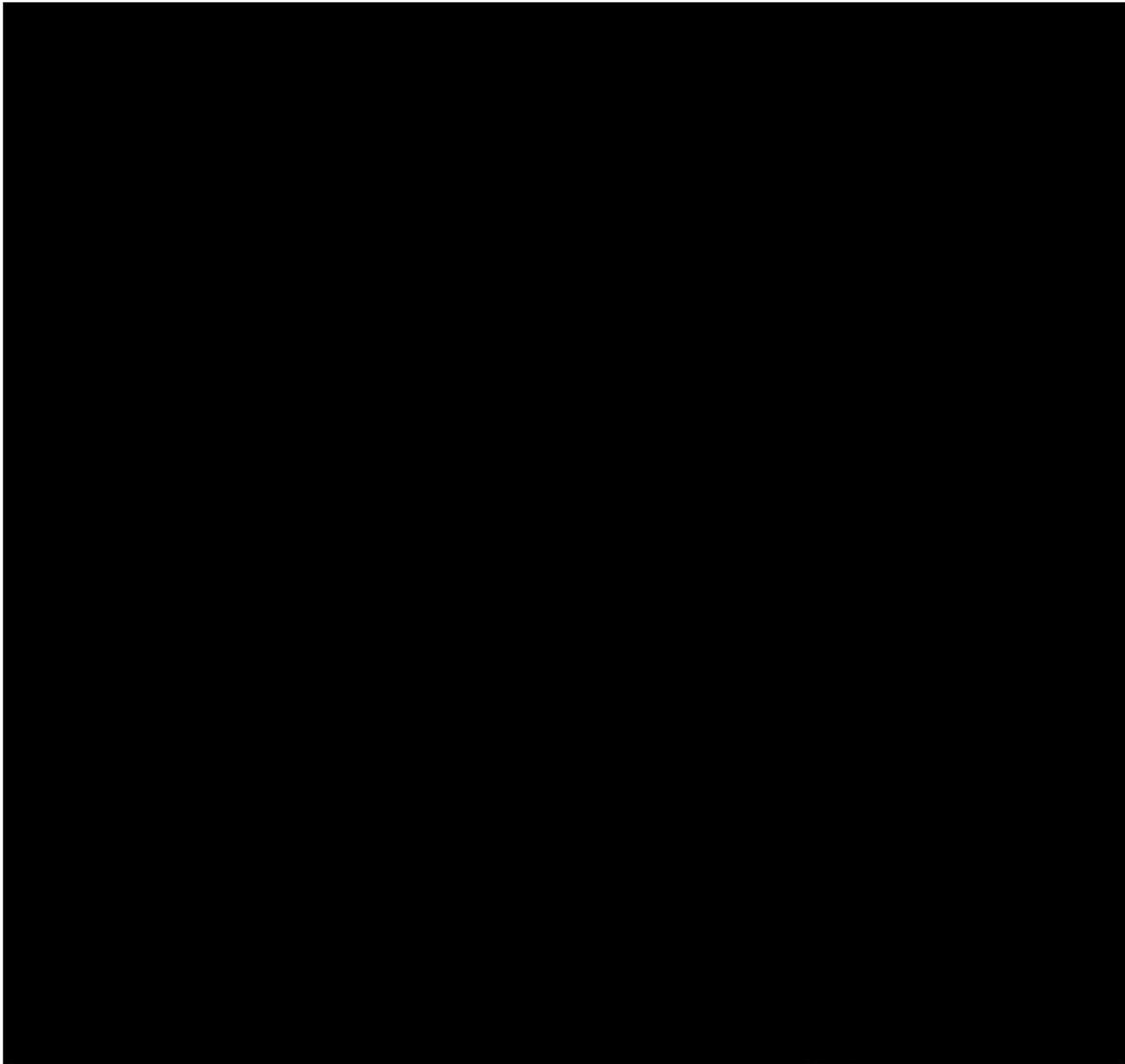
An inspection closing meeting was held on 17 December 2019

Attendees at the opening and closing meetings were as follows:



Form

Entry and Exit Meeting Register and Notification of Entry



4.1. Attachment B – Documentation inspected

No.	Title, Document Number and Revision Number
1	Otway Basin 2DMC Marine Seismic Survey – Draft EP MOC – Operations up to the BIA boundary (13 Dec 2019)
2	Seabed composition analysis Otway Basin V2
3	Environmental Execution Plan – WesternGeco – December 2019 (Draft)
4	Flow diagram / procedure – Standard operations within the BIA and 10km buffer – Nordic Explorer communication protocol
5	MMO and PAM operator environment plan induction V2 (draft)
6	Seabird correspondence trail - [REDACTED] No discharge zone (date 7 – 27 November 2019)
7	ASBTIA Email Correspondence Thread - Otway regional 2D Update
8	Meeting Minutes – SLB Otway 2D ASBTIA Skype call 26 Nov 2019
9	Excel spreadsheet - SLB Pre-Post Activity Stakeholder Notification Requirements
10	Meeting Minutes – SLB Otway 2D SIV-TSIC Skype Call 2 December 2019
11	Email Burst – 4 Week Pre-Survey Notifications 2 December 2019
12	An inspection of the Nordic Explorer for invasive marine species of concern – Biofouling solutions (12 December 2019)
13	Correspondence between Schlumberger and Biosecurity & Agriculture Services, Agriculture Victoria
14	Array Source Comparison 20191209

From: [REDACTED]
Sent: Thursday, 6 February 2020 10:05 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Ext] Notice - Issue of final report - Petroleum environmental inspection Otway Basin 2DMC MSS [DLM=For-Official-Use-Only]

For Official Use Only

[REDACTED]

Thank you for providing Schlumberger's revised response to recommendation 2101-1. NOPSEMA advises that this recommendation is now closed.

Please note that Schlumberger's implementation of EP control measures for the Otway Basin 2D MSS may be subject to future inspection.

[REDACTED] ds

[REDACTED] Environment Specialist
Environmental Effects

National Offshore Petroleum Safety and Environmental Management Authority

[REDACTED] W: nopsema.gov.au

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For Official Use Only

From: [REDACTED] >
Sent: Friday, 24 January 2020 7:06 PM

[REDACTED]

Subject: RE: [Ext] Notice - Issue of final report - Petroleum environmental inspection Otway Basin 2DMC MSS [DLM=For-Official-Use-Only]

H [REDACTED]

Thanks for your comments.

We've revised our statement in response to the requested action as per green text below:

- *PAM validation – the PAM system needs to be validated for distance estimation with the visual sightings from the MMOs with an agreement of distance <20%. If this happens, then the PAM system is considered validated. PAM will then be considered reliable for judging distance of blue whales and can be used at night time for estimating distance and used for shut down procedures and implementing the controls.*

If PAM is not validated, the vessel can still operate at night, but any low frequency cetaceans detection results in a shut down.

[REDACTED]

Please let us know if you have any questions or concerns.

Have a good long weekend.

Regards,

[REDACTED]

Australasia
Schlumberger – WesternGeco
Level 5, 256 St. Georges Terrace, Perth, WA 6000, Australia

[REDACTED]

Schlumberger-Private

From [REDACTED]

Sent: Wednesday, 22 January 2020 4:10 PM

To: [REDACTED]
[REDACTED] - Petroleum environmental inspection Otway Basin 2DMC MSS
[DLM=For-Official-Use-Only]

For Official Use Only

Good afternoon [REDACTED]

Thank for you for sending through a summation of our conversation on 16 Jan and copies of the Project Execution Plan and Training Package.

NOPSEMA notes the ongoing consultation you have been undertaking with fishing stakeholders and measures implemented to address their concerns. We encourage you to continue this ongoing consultation to ensure claims are resolved in a timely manner and impacts and risks reduced to an acceptable and ALARP level.

There is one items that requires additional clarity / commitment from SLB in order to close out recommendation [REDACTED]

Requirement:

Schlumberger is required to manage the activity so that there is *'No discharge of seismic airguns in the pygmy blue whale biological important areas (BIAs) (including the Bonney Upwelling Key Ecological Feature) from 1 November*

2019 to 30 April 2020; and implement measures that limit anthropogenic noise in BIAs for the duration of the activity so that any blue whale continues to utilise the area without injury, and is not displaced from a foraging area'.

Response:

Schlumberger has included the following commitment to address night time / low visibility conditions in event that PAM is not demonstrated to be effective in detecting low frequency cetaceans. *"If PAM has not been demonstrated to be effective in detecting low frequency cetaceans and there are higher than anticipated blue whales (IE More than 3 shutdowns in the preceding 24 hours), consideration of ceasing night time operations or excluding acquisition in the BIA buffer during night time and low visibility conditions."*

Clarification:

The term 'consideration' used in this adaptive management control introduces ambiguity regarding if suitable measures will be implemented to ensure that the outcome stated above will be met. If there is a demonstrated presence of blue whales observed and these are not detected acoustically, continuing to undertake the survey in the BIA buffer resulting in sound levels within the BIA above injury and behavioural disturbance thresholds would not be considered appropriate in achieving the stated outcome.

Requested action:

Please revise the statement to confirm what will be done, update the EP Execution Plan and MMO training package to make a clear / firm commitment to either excluding night time operations or excluding the BIA buffer in the event that there are three or more shut downs in the preceding 24 hours and PAM is not demonstrated to be effective in detecting pygmy blue whales.

Please call me if you have any questions.

Regards

[Redacted]

[Redacted] | Environment Specialist
Environmental Effects

National Offshore Petroleum Safety and Environmental Management Authority

[Redacted]

W: nopsema.gov.au

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For Official Use Only

From: [Redacted]

Sent: Tuesday, 21 January 2020 4:33 PM

[Redacted]

Subject: RE: [Ext] Notice - Issue of final report - Petroleum environmental inspection Otway Basin 2DMC MSS [DLM=For-Official-Use-Only]

Hi [Redacted]

Hope this finds you well.

Apologies for not getting back to you earlier. I've summarized the following for you based on our telephone conversation last Thursday.

- **ASBTIA:** We received new information from ASBTIA on 15th Jan 2020 on expected tuna fishing operations, based on assessment we ceased mobilisation to the Northern end of the Operational Area on 16th Jan and prepared a Management of Change (MOC) to allow acquisition to commence from mid-point of the survey moving in northern direction to avoid expected tuna fishing operations.
- **SIV/TSIC/SETFIA:** Pre-Survey Notification & Look Ahead: Both TSIC and SIV have confirmed the circulation of pre-survey notification to their members with SLB to provide cost recovery for additional time needed for the associations to prepare and send out notifications. Going forward they will continue to circulate updates to their members on SLB Otway 2D operations coordinate/vessel movements and provide any feedback received back to us.
- **48 Hour Look-Ahead / SMS notifications:** Both the processes are up and running. However, fishing industry has strongly expressed that reissue of look ahead within 24hrs of circulating the earlier significantly confuses and overloads recipients. Associations have requested these notifications be revised to go out only when operations in the coordinate area in the previous look ahead changes or if poor weather arises and vessel needs to move into anchorage. A MOC is being prepared to accommodate this request to improve ongoing communications.
- **VRLA:** We have responded VRLA with requested information and relevant person has been added to the SMS as well as look-ahead distribution list.
- As requested in response for item 2101-3, we have send the following files via NOPSEMA secured file transfer portal.
 - Environment Project Plan
 - MMO Induction Package Presented to crew
 - Management of Change Otway 2D work instructions

Please let me know if you have any questions or concerns.

Regards,

[REDACTED]
[REDACTED]
Australasia
Schlumberger - [REDACTED]
[REDACTED]



Files Sent, Thank you!

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For routine enquiries,
please call NOPSEMA
during business hours
8:30am to 5:00pm
Perth 08 6158 8700
Melbourne 03 8866 5700

NOPSEMA
Level 8, 58 Mounts Bay Road, Perth, WA 6000
GPO Box 2568, Perth, WA 6001

Schlumberger-Private

From: [REDACTED]

Sent: Wednesday, 15 January 2020 4:39 PM

To: [REDACTED]

Subject: RE: [Ext] Notice - Issue of final report - Petroleum environmental inspection Otway Basin 2DMC MSS [DLM=For-Official-Use-Only]

For Official Use Only

Dear [REDACTED]

Thank you for providing a response to NOPSEMA's requests for additional detail / clarification in relation to the actions that SLB will take to address recommendations raised in inspection 2101. I have included NOPSEMA's response below in orange text.

Further, I wish to draw Schlumberger's attention to recent concerns raised by a fisher that were communicated to NOPSEMA by the Victorian Rock Lobster Association (VRLA) in relation to the potential for the Otway Basin 2D MSS seismic activity to impact on fishing operations shoreward of the 150 m depth contour. Based on correspondence received, it appears that some stakeholders are unclear of the area that is to be surveyed and are concerned about the potential for line turns / seismic streamers to interfere with deployed rock lobster pots. Therefore, NOPSEMA advises that when SLB meets with SIV and TSIC this week, that these concerns be discussed and an agreed way forward to address the concerns developed. Based on these discussions, or any new information received from relevant persons, SLB should consider whether additional control measures or additional consultation with relevant persons is necessary. We recognise that there are existing commitments in the EP that may already address these concerns (short duration of the vessel being in those water depths, 48 hour look aheads etc) however these may not have been communicated to all relevant parties.

Based on SLB's response to recommendation 2101-5, it appears that the 4 week pre-survey notification intended to be disseminated via SIV and TSIC may not have been issued to relevant persons in this instance, including members of the VRLA. The concerns raised by the fisher that they have not received any recent communication in regards to the survey also appears to support this. Again, this should be discussed with SIV and TSIC during your meeting to ensure future notifications and engagement occurs as per EP commitments, especially when there are direct on-water conflicts to manage.

NOPSEMA also expects that a recordable incident report would be issued to NOPSEMA for any non-compliance with EPSs such as with EPS 20: *"Stakeholders will be notified prior to the commencement of the Otway Basin 2DMC MSS in accordance with the following Pre-Activity Notifications: ... All relevant stakeholders – 4 weeks prior"*. This

recordable incident report needs to document the corrective actions that will / have been taken to address any matters that have arisen from the breakdown in communication that meant that the 4 week notification of activity commencement was not issued to TSIC and SIV members.

Please contact [REDACTED] or I should you have any further queries about the actions SLB will take to address the matter identified in this email.

Kind regards

[REDACTED]



2101-2

Action: Inadequate detail provided in the action. This recommendation relates to how SLB will verify their conformance with the limitation specified in the EP decision notification. While it is noted that the [REDACTED] is responsible for ensuring that the contractor Work Instruction is implemented, detail in relation to the process used to verify contractor implementation has not been included. In addition, the response to this recommendation does not consider the use of real time verification systems or automated alarms.

Timeframe for action: Inappropriate as verification processes would need to be determined and integrated into SLB contractor assurance processes prior to commencement of the survey.

Further information: By COB 14 Jan please provide detail of SLB's verification process that will be implemented by the [REDACTED] to confirm compliance with the decision notification limitation and revise the action date.

Orca Navigational System will have obstruction targets loaded onto the system for line coordinates upon entering or departing the buffer zone. This is an alarm that alerts the [REDACTED] on the proximity of the no source zone. The line coordinates (controlling first and last shotpoint) are automatically loaded onto the system and the [REDACTED] will check these. The system automatically shuts the source down at LSP and the source will no longer be activated. Likewise, early discharge upon entering the buffer zone from the BIA when source will be activated is protected. A detailed work instruction has been developed by the Contractor to reflect this requirement.

Timeframe: Jan 15 20

NOPSEMA response: Satisfactory

2101-3

Action: Appropriate

Timeframe for action: Inappropriate as control measures would need to be determined and integrated into relevant procedural and training documents prior to commencement of the survey.

Information to close out recommendation: By 14 Jan 2020, please provide a copy of the final Environmental Project Plan and Party Chief, MMO and PAM operator induction package.

NOPSEMA response: Please provide information as requested above. It is anticipated that the Environmental Project Plan and Induction package will include the response to recommendation 2101- as documented by SLB above.

2101-4

Action: Inadequate. The proposal to meet ASBTIA prior to the commencement of the survey does not address the elements of the recommendation relating to undertaking a documented evaluation of any new or increased impacts and risks and adopting new controls if warranted. Noting that ASBTIA has already provided additional information on 30 December 2019, SLB should have already commenced an evaluation of this information in relation to new or increased impacts and risks (raised in this information) that may need to be addressed prior to the commencement of the survey.

Timeframe: No timeframe for addressing this recommendation is provided.

Further information: SLB to evaluate concerns / new information provided by ASBTIA on 30 Dec 2019 to determine whether new or modified controls are needed to manage impacts to SBT and associated operations to ALARP and acceptable levels. In addition, the timeframe for addressing the recommendation needs to be revised. Please revise the action due date to a date that is prior to the commencement of the survey.

- *ASBTIA letter received 30th Dec 2019, ASBTIA still unable to determine where or when fishing will occur. No new information was provided that indicated fishing effort would occur in areas overlapping the survey changing the current risk assessment.*
- *SLB responded on the 8th of January confirming that in the absence of new information changing the risk profile that the acquisition plans could not be changed and that measures exist in the EP allowing changes to the acquisition plan based on real time information that we receive from fishers on the water or by stakeholders via pre-established communication lines. If fishing activities are planned to enter the operational area adaptive measure will be implemented as per the EP.*
- *SLB meeting with ASBTIA 15th Jan 2020 to discuss existing mitigation measures and communication plan in more detail to ensure communication protocol is clear and robust.*
- *Continuous communication will be maintained with ASBTIA through the course of project to discuss any new information.*
- *SLB has committed to providing ASBTIA a 48 hour look ahead every 24 hour*
- *Timeframe: Jan 15 20*

NOPSEMA response: Satisfactory

2101-5

Action: Inadequate detail. The response has not clarified whether SIV and TSIC have now issued notifications to their members.

Timeframe for action: Please include an appropriate timeframe for action

Further information: Please clarify whether both SIV and TSIC have undertaken the 4 week pre-survey notification on SLB's behalf. In addition, please clarify how SLB will maintain oversight of upcoming communications going out to SIV/TSIC members (e.g. receiving confirmation from SIV and TSIC that it has been undertaken). Please provide this response by COB 14 Jan 2020.

- [REDACTED] requested SLB forward 4-week pre-survey notification to SIV administration for circulation. SLB actioned the request on the 15th Dec 2019 to ensure distribution.
- SIV contacts have been away on leave and have been tough to reach, although communicated that information would be sent out via their administrator. Requests for meetings to discuss ongoing engagement once they return from holidays 16-17th Jan.
- SLB provided 1 week pre survey notification to SIV/TSIC on 9th Jan 2020.
- Meeting requested with SIV on 16th or 17th Jan to discuss further engagement on distribution of notifications and look ahead to its members.
- SLB has committed to providing SIV/TSIC a 48 hour look ahead every 24 hour
- Timeframe: Jan 17 20

NOPSEMA response: Satisfactory in the context of the recommendation raised. However please refer to matters raised in email above and take further actions accordingly.

2101-6

Action and timeframe: Appropriate subject to clarification that SLB is referring to the VIC Biosecurity agency when referring Department of Agriculture in the context of this recommendation.

Further information: By COB 14 Jan 2020, please clarify that the Victorian Biosecurity agency is what SLB means when referring to Dept of Agriculture.

Risk assessment has been completed and approved. A copy has been sent to Biosecurity in Victoria.

Timeframe: Jan 14 20

NOPSEMA response: Satisfactory. Based on phone conversation on 13 Jan 2020, it is understood that SLB is referring to Biosecurity Victoria.

2101 – 7

Action: Inadequate detail. The response does not clarify that ongoing consultation will take place with both the Department of Agriculture (Australian Government) and Biosecurity and Agricultural Services (Victoria).

Timeframe for action: Not appropriate. Action would need to be taken prior to the next port call.

Further information: By 14 Jan 2020, please confirm that ongoing consultation will take place with both Department of Agriculture (Australian Government) and Biosecurity and Agricultural Services (Victoria) and that consultation with Agricultural Services (Victoria) will take place prior to the next port call.

Confirmation that ongoing consultation with both Department of Agriculture (Australian Government) and Biosecurity and Agricultural Services (Victoria) and that consultation with Agricultural Services (Victoria) will take place prior to the next port call.

Timeframe: Jan 14 20

NOPSEMA response: Satisfactory.

2101- 8

Action: Requires further clarification. While SLB's response commits to undertaking a risk assessment and management of change in the event that diving operations are anticipated within 50km of the seismic activity, it is not clear that this change management process will consider modifying control measures and associated EPSs to address key DMAC guideline considerations.

Timeframe for action: No timeframe for addressing this recommendation is provided.

Further information: By COB 14 Jan 2020, please confirm that change management processes will be implemented, including consideration of additional control measures, prior to seismic survey within 50km of diving operations. In addition, please provide an updated action timeframe.

When the risk assessment and management of change reflecting DMAC requirements, it will also refer to and comply with Regulation 17 (5) and (6) to ensure any changes to the EP are reviewed for and comply to the Regulation requirements, if needed.

Jan 14 20

NOPSEMA response: Satisfactory.

2101-9

Action: Inappropriate. There is no clear action in response to this recommendation to explain how SLB will update its systems to ensure new information, such as changes to guidelines, new plans of management, recovery plans and legislative requirements, will be identified and where applicable, incorporated into management documentation via the environmental management system (EMS).

Timeframe for action: No timeframe for addressing this recommendation is provided.

Further information. By Friday 17 Jan 2020, please explain what actions will be taken to ensure that new information relevant to environmental management and legislative compliance, is identified and reviewed as part of the SLB EMS. In addition, please provide an appropriate timeframe for SLB's proposed actions to address this recommendation.

A specific Work Instruction has been compiled to demonstrate how the template will apply to the 2D Otway MSS EP requirements and the interaction with the [REDACTED] and EMS within Schlumberger for current and future operations to ensure SLB is aligned with modifications to existing Acts and Regulation requirements.

Jan 17 20

NOPSEMA response: Satisfactory.

2101-10

Action: Inadequate - the response does not clarify how the personnel undertaking the MOC will ensure that impacts and risks are assessed to determine whether an EP revision is warranted because of 'a significant modification or new stage of the activity' OR 'new or increased environmental impact or risk' that is not provided for in the environment plan.

Timeframe: No timeframe for addressing this recommendation is provided.

Further information: By Friday 17 Jan 2020, please clarify whether SLB's change management processes will include specific prompts to consider changes in the context of Regulations 17(5) and 17(6) of the Environment Regulations.

The new work instruction specifies that all modifications are subject to Regulations 17 (5) and (6) during the review period. This will ensure any modifications to a new stage or activity or an increase of environmental impact act are acknowledged and addressed.

Jan 17 20

NOPSEMA response: Satisfactory.



For Official Use Only

From: [REDACTED]

Sent: Tuesday, 14 January 2020 8:35 PM

To: [REDACTED]

Subject: RE: [Ext] Notice - Issue of final report - Petroleum environmental inspection Otway Basin 2DMC MSS
[DLM=For-Official-Use-Only]

[REDACTED]

Thanks for your time yesterday. Based on the conversation, we have inserted our response in *green text* and have kept them short and to the point. Please let us know if you have any further clarifications.

[REDACTED]

Action: Inadequate detail provided in the action. This recommendation relates to how SLB will verify their conformance with the limitation specified in the EP decision notification. While it is noted that the [REDACTED] is responsible for ensuring that the contractor Work Instruction is implemented, detail in relation to the process used to verify contractor implementation has not been included. In addition, the response to this recommendation does not consider the use of real time verification systems or automated alarms.

Timeframe for action: Inappropriate as verification processes would need to be determined and integrated into SLB contractor assurance processes prior to commencement of the survey.

Further information: By COB 14 Jan please provide detail of SLB's verification process that will be implemented by the [REDACTED] to confirm compliance with the decision notification limitation and revise the action date.

Orca Navigational System will have obstruction targets loaded onto the system for line coordinates upon entering or departing the buffer zone. This is an alarm that alerts the [REDACTED] on the proximity of the no source zone. The line coordinates (controlling first and last shotpoint) are automatically loaded onto the system and the [REDACTED] will check these. The system automatically shuts the source down at LSP and the source will no longer be activated. Likewise, early discharge upon entering the buffer zone from the BIA when source will be activated is protected. A detailed work instruction has been developed by the Contractor to reflect this requirement.

Timeframe: Jan 15 20

2101-3

Action: Appropriate

Timeframe for action: Inappropriate as control measures would need to be determined and integrated into relevant procedural and training documents prior to commencement of the survey.

Information to close out recommendation: By 14 Jan 2020, please provide a copy of the final Environmental Project Plan and Party Chief, MMO and PAM operator induction package.

2101-4

Action: Inadequate. The proposal to meet ASBTIA prior to the commencement of the survey does not address the elements of the recommendation relating to undertaking a documented evaluation of any new or increased impacts and risks and adopting new controls if warranted. Noting that ASBTIA has already provided additional information on 30 December 2019, SLB should have already commenced an evaluation of this information in relation to new or increased impacts and risks (raised in this information) that may need to be addressed prior to the commencement of the survey.

Timeframe: No timeframe for addressing this recommendation is provided.

Further information: SLB to evaluate concerns / new information provided by ASBTIA on 30 Dec 2019 to determine whether new or modified controls are needed to manage impacts to SBT and associated operations to ALARP and acceptable levels. In addition, the timeframe for addressing the recommendation needs to be revised. Please revise the action due date to a date that is prior to the commencement of the survey.

- *ASBTIA letter received 30th Dec 2019, ASBTIA still unable to determine where or when fishing will occur. No new information was provided that indicated fishing effort would occur in areas overlapping the survey changing the current risk assessment.*
- *SLB responded on the 8th of January confirming that in the absence of new information changing the risk profile that the acquisition plans could not be changed and that measures exist in the EP allowing changes to the acquisition plan based on real time information that we receive from fishers on the water or by stakeholders via pre-established communication lines. If fishing activities are planned to enter the operational area adaptive measure will be implemented as per the EP.*
- *SLB meeting with ASBTIA 15th Jan 2020 to discuss existing mitigation measures and communication plan in more detail to ensure communication protocol is clear and robust.*
- *Continuous communication will be maintained with ASBTIA through the course of project to discuss any new information.*
- *SLB has committed to providing ASBTIA a 48 hour look ahead every 24 hour*
- *Timeframe: Jan 15 20*

2101-5

Action: Inadequate detail. The response has not clarified whether SIV and TSIC have now issued notifications to their members.

Timeframe for action: Please include an appropriate timeframe for action

Further information: Please clarify whether both SIV and TSIC have undertaken the 4 week pre-survey notification on SLB's behalf. In addition, please clarify how SLB will maintain oversight of upcoming communications going out to SIV/TSIC members (e.g. receiving confirmation from SIV and TSIC that it has been undertaken). Please provide this response by COB 14 Jan 2020.

- *[REDACTED] requested SLB forward 4-week pre-survey notification to SIV administration for circulation. SLB actioned the request on the 15th Dec 2019 to ensure distribution.*
- *SIV contacts have been away on leave and have been tough to reach, although communicated that information would be sent out via their administrator. Requests for meetings to discuss ongoing engagement once they return from holidays 16-17th Jan.*
- *SLB provided 1 week pre survey notification to SIV/TSIC on 9th Jan 2020.*
- *Meeting requested with SIV on 16th or 17th Jan to discuss further engagement on distribution of notifications and look ahead to its members.*
- *SLB has committed to providing SIV/TSIC a 48 hour look ahead every 24 hour*
- *Timeframe: Jan 17 20*

2101-6

Action and timeframe: Appropriate subject to clarification that SLB is referring to the VIC Biosecurity agency when referring Department of Agriculture in the context of this recommendation.

Further information: By COB 14 Jan 2020, please clarify that the Victorian Biosecurity agency is what SLB means when referring to Dept of Agriculture.

Risk assessment has been completed and approved. A copy has been sent to Biosecurity in Victoria.

Timeframe: Jan 14 20

2101 – 7

Action: Inadequate detail. The response does not clarify that ongoing consultation will take place with both the Department of Agriculture (Australian Government) and Biosecurity and Agricultural Services (Victoria).

Timeframe for action: Not appropriate. Action would need to be taken prior to the next port call.

Further information: By 14 Jan 2020, please confirm that ongoing consultation will take place with both Department of Agriculture (Australian Government) and Biosecurity and Agricultural Services (Victoria) and that consultation with Agricultural Services (Victoria) will take place prior to the next port call.

Confirmation that ongoing consultation with both Department of Agriculture (Australian Government) and Biosecurity and Agricultural Services (Victoria) and that consultation with Agricultural Services (Victoria) will take place prior to the next port call.

Timeframe: Jan 14 20

2101- 8

Action: Requires further clarification. While SLB's response commits to undertaking a risk assessment and management of change in the event that diving operations are anticipated within 50km of the seismic activity, it is not clear that this change management process will consider modifying control measures and associated EPSs to address key DMAC guideline considerations.

Timeframe for action: No timeframe for addressing this recommendation is provided.

Further information: By COB 14 Jan 2020, please confirm that change management processes will be implemented, including consideration of additional control measures, prior to seismic survey within 50km of diving operations. In addition, please provide an updated action timeframe.

When the risk assessment and management of change reflecting DMAC requirements, it will also refer to and comply with Regulation 17 (5) and (6) to ensure any changes to the EP are reviewed for and comply to the Regulation requirements, if needed.

Jan 14 20

2101-9

Action: Inappropriate. There is no clear action in response to this recommendation to explain how SLB will update its systems to ensure new information, such as changes to guidelines, new plans of management, recovery plans and legislative requirements, will be identified and where applicable, incorporated into management documentation via the environmental management system (EMS).

Timeframe for action: No timeframe for addressing this recommendation is provided.

Further information. By Friday 17 Jan 2020, please explain what actions will be taken to ensure that new information relevant to environmental management and legislative compliance, is identified and reviewed as part of the SLB EMS. In addition, please provide an appropriate timeframe for SLB's proposed actions to address this recommendation.

A specific Work Instruction has been compiled to demonstrate how the template will apply to the 2D Otway MSS EP requirements and the interaction with the [REDACTED] and EMS within Schlumberger for current and future operations to ensure SLB is aligned with modifications to existing Acts and Regulation requirements.

Jan 17 20

2101-10

Action: Inadequate - the response does not clarify how the personnel undertaking the MOC will ensure that impacts and risks are assessed to determine whether an EP revision is warranted because of 'a significant modification or new stage of the activity' OR 'new or increased environmental impact or risk' that is not provided for in the environment plan.

Timeframe: No timeframe for addressing this recommendation is provided.

Further information: By Friday 17 Jan 2020, please clarify whether SLB's change management processes will include specific prompts to consider changes in the context of Regulations 17(5) and 17(6) of the Environment Regulations.

The new work instruction specifies that all modifications are subject to Regulations 17 (5) and (6) during the review period. This will ensure any modifications to a new stage or activity or an increase of environmental impact act are acknowledged and addressed.

Jan 17 20

Regards,

[REDACTED]

[REDACTED]

Australasia

Schlumberger – WesternGeco

Level 5, 256 St. Georges Terrace, Perth, WA 6000, Australia

[REDACTED]

Schlumberger-Private

From: [REDACTED]

Sent: Monday, 13 January 2020 11:02 AM

To: [REDACTED]

Subject: RE: [Ext] Notice - Issue of final report - Petroleum environmental inspection Otway Basin 2DMC MSS [DLM=For-Official-Use-Only]

H [REDACTED]

There have been some delays in the connecting flights and a couple of us will still be in air at 11.45AM Perth time. We propose to reschedule the teleconference for 4PM Perth time this afternoon. I will resend the invite, please let me know if this doesn't work and we can revise for a later time slot accordingly.

Regards,
[REDACTED]

Schlumberger-Private

From [REDACTED]
Sent: Sunday, 12 January 2020 12:49 PM
To [REDACTED]
Subject: RE: [Ext] Notice - Issue of final report - Petroleum environmental inspection Otway Basin 2DMC MSS [DLM=For-Official-Use-Only]

H [REDACTED]

All of us are travelling to Portland Victoria for the Project start up on Monday. Just working through our flight schedule, following time windows would work for us for a teleconference on Monday, 13th Jan.

- 11.45AM Perth Time
- 4PM Perth Time

I will send a skype invite for 11.45AM for Monday morning, if that doesn't work then I can revise it accordingly.

Regards,
[REDACTED]

Schlumberger-Private

From [REDACTED]
Sent: Friday, 10 January 2020 11:15 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Ext] Notice - Issue of final report - Petroleum environmental inspection Otway Basin 2DMC MSS [DLM=For-Official-Use-Only]

For Official Use Only

Dear [REDACTED]

Please see below NOPSEMA's advice to SLB's proposed actions in response to recommendations of inspection 2101 (Otway Basin 2D MC MSS).

I suggest that we meet (teleconference or face to face) on Monday or early Tuesday (if possible) to discuss SLB's response to the matters raised below noting the anticipated commencement date of 16 January 2020.

I'll give you a call on Monday morning to discuss.

Kind regards
[REDACTED]

2101-2

Action: Inadequate detail provided in the action. This recommendation relates to how SLB will verify their conformance with the limitation specified in the EP decision notification. While it is noted that the [REDACTED] is responsible for ensuring that the contractor Work Instruction is implemented, detail in relation to the process used to verify contractor implementation has not been included. In addition, the response to this recommendation does not consider the use of real time verification systems or automated alarms.

Timeframe for action: Inappropriate as verification processes would need to be determined and integrated into SLB contractor assurance processes prior to commencement of the survey.

Further information: By COB 14 Jan please provide detail of SLB's verification process that will be implemented by the [REDACTED] to confirm compliance with the decision notification limitation and revise the action date.

2101-3

Action: Appropriate

Timeframe for action: Inappropriate as control measures would need to be determined and integrated into relevant procedural and training documents prior to commencement of the survey.

Information to close out recommendation: By 14 Jan 2020, please provide a copy of the final Environmental Project Plan and Party Chief, MMO and PAM operator induction package.

2101-4

Action: Inadequate. The proposal to meet ASBTIA prior to the commencement of the survey does not address the elements of the recommendation relating to undertaking a documented evaluation of any new or increased impacts and risks and adopting new controls if warranted. Noting that ASBTIA has already provided additional information on 30 December 2019, SLB should have already commenced an evaluation of this information in relation to new or increased impacts and risks (raised in this information) that may need to be addressed prior to the commencement of the survey.

Timeframe: No timeframe for addressing this recommendation is provided.

Further information: SLB to evaluate concerns / new information provided by ASTBIA on 30 Dec 2019 to determine whether new or modified controls are needed to manage impacts to SBT and associated operations to ALARP and acceptable levels. In addition, the timeframe for addressing the recommendation needs to be revised. Please revise the action due date to a date that is prior to the commencement of the survey.

2101-5

Action: Inadequate detail. The response has not clarified whether SIV and TSIC have now issued notifications to their members.

Timeframe for action: Please include an appropriate timeframe for action

Further information: Please clarify whether both SIV and TSIC have undertaken the 4 week pre-survey notification on SLB's behalf. In addition, please clarify how SLB will maintain oversight of upcoming communications going out to SIV/TSIC members (e.g. receiving confirmation from SIV and TSIC that it has been undertaken). Please provide this response by COB 14 Jan 2020.

2101-6

Action and timeframe: Appropriate subject to clarification that SLB is referring to the VIC Biosecurity agency when referring Department of Agriculture in the context of this recommendation.

Further information: By COB 14 Jan 2020, please clarify that the Victorian Biosecurity agency is what SLB means when referring to Dept of Agriculture.

2101 – 7

Action: Inadequate detail. The response does not clarify that ongoing consultation will take place with both the Department of Agriculture (Australian Government) and Biosecurity and Agricultural Services (Victoria).

Timeframe for action: Not appropriate. Action would need to be taken prior to the next port call.

Further information: By 14 Jan 2020, please confirm that ongoing consultation will take place with both Department of Agriculture (Australian Government) and Biosecurity and Agricultural Services (Victoria) and that consultation with Agricultural Services (Victoria) will take place prior to the next port call.

2101- 8

Action: Requires further clarification. While SLB’s response commits to undertaking a risk assessment and management of change in the event that diving operations are anticipated within 50km of the seismic activity, it is not clear that this change management process will consider modifying control measures and associated EPSs to address key DMAC guideline considerations.

Timeframe for action: No timeframe for addressing this recommendation is provided.

Further information: By COB 14 Jan 2020, please confirm that change management processes will be implemented, including consideration of additional control measures, prior to seismic survey within 50km of diving operations. In addition, please provide an updated action timeframe.

2101-9

Action: Inappropriate. There is no clear action in response to this recommendation to explain how SLB will update its systems to ensure new information, such as changes to guidelines, new plans of management, recovery plans and legislative requirements, will be identified and where applicable, incorporated into management documentation via the environmental management system (EMS).

Timeframe for action: No timeframe for addressing this recommendation is provided.

Further information. By Friday 17 Jan 2020, please explain what actions will be taken to ensure that new information relevant to environmental management and legislative compliance, is identified and reviewed as part of the SLB EMS. In addition, please provide an appropriate timeframe for SLB’s proposed actions to address this recommendation.

2101-10

Action: Inadequate - the response does not clarify how the personnel undertaking the MOC will ensure that impacts and risks are assessed to determine whether an EP revision is warranted because of 'a significant modification or new stage of the activity' OR 'new or increased environmental impact or risk' that is not provided for in the environment plan.

Timeframe: No timeframe for addressing this recommendation is provided.

Further information: By Friday 17 Jan 2020, please clarify whether SLB’s change management processes will include specific prompts to consider changes in the context of Regulations 17(5) and 17(6) of the Environment Regulations.

National Offshore Petroleum Safety and Environmental Management Authority

| **W:** nopsema.gov.au

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From [REDACTED]

To [REDACTED]

Subject: RE: [Ext] Notice - Issue of final report - Petroleum environmental inspection Otway Basin 2DMC MSS

H [REDACTED]

Hope this finds you well.

We have submitted our response via secure transfer in the requested spreadsheet format.

Also, recommendation 2101-8,9,10 were not included in the spreadsheet provided to us. We have summarized our response (*in green*) to referred recommendation as per below as the spreadsheet is protected and is not allowing us to make the changes:

- NOPSEMA Recommendation 2101-08
SLB response:

The latest guidelines published by IMCA (PUBLICATION OF DMAC 12 REV. 2 – SAFE DIVING DISTANCE FROM SEISMIC SURVEYING OPERATIONS: 25 October 2019) has been updated to take into account incidents and the new recommendations that will be in full adopted by Schlumberger. When the potential diving operations positions are known from the SBTIA group (yet to be released on January 8), a risk assessment and Management of Change will be then submitted if diving operations are within a 50 km radius with the following guidelines incorporated:

- *Where diving and seismic activity are scheduled to occur within a distance of 45km (28 miles), it would be good practice for all parties to be made aware of the planned activity where practicable. This should include clients/operators, diving and seismic contractors.*
- *Where diving and seismic activity will occur within a distance of 30km (18.6 miles) a joint risk assessment should be conducted, between the clients/operators involved and the seismic and diving contractors in advance of any simultaneous operations. The risk assessment should consider ramp-up trials as well as other risk control measures e.g. reduction in source sizes, changes to firing intervals, timeshare/prioritisation etc.*

*Position [REDACTED]
Due Date: 15/04/2020*

- NOPSEMA Recommendation 2101-09
SLB response:

In the QUEST approval format, expert approvers can be added, such as ensuring the [REDACTED] or other external approvers are included. Schlumberger operate with a country wide check for changes to State and Federal legislation. The [REDACTED] is responsible to monitor Acts and Regulations to determine the effect it will have on Schlumberger business. The [REDACTED] has been notified on the survey requirements for advice and notifications.

- NOPSEMA Recommendation 2101-10
SLB response:

*“On a global basis, Schlumberger complies with QHSE-STD-S010: Management of Change and Exemption Standard. Within QUEST, when submitting through a template for a Management of Change, it is possible to enter external links to documents such as ‘Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009’ to ensure that sections of any documents are reviewed before the QUEST MoC is submitted for approval. A direct link was established to the following website:
<https://www.legislation.gov.au/Details/F2015C00069>.*

The Originator of the report [REDACTED] will ensure the link is saved and the following entered into the preventions tab as the responsibility of the Originator of the document:

NOTE: This MoC has been subject to the deliberations of Regulation 17 (5) and 17 (6) of the Environment Regulations. Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009. Refer to link for more information.

It is also possible for Expert Approvers to be added for review, if there are any specific issues for certain functions (Compliance Manager, for example) to review and comment before final approval. "

Please let me know if you have any questions or concerns.

Regards,

[REDACTED]

[REDACTED]

Australasia

Schlumberger – WesternGeco

Level 5, 256 St. Georges Terrace, Perth, WA 6000, Australia

[REDACTED]



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please call NOPSEMA
during business hours
8:30am to 5:00pm
Perth 08 6188 8700
Melbourne 03 8866 5700

NOPSEMA
Level 8, 58 Mounts Bay Road, P
GPO Box 2568, Perth, WA 6001

Schlumberger-Private

From [REDACTED]

Sent: Thursday, 2 January 2020 2:48 PM

To [REDACTED]

Subject: RE: [Ext] Notice - Issue of final report - Petroleum environmental inspection Otway Basin 2DMC MSS

Hi [REDACTED]

Happy New year.

We confirm the receipt of final report and will get back to you with our response to the recommendations before CoB on 8th January.

Regards,

[REDACTED]
[REDACTED]
Australasia
Schlumberger – WesternGeco
Level 5, 256 St. Georges Terrace, Perth, WA 6000, Australia

Schlumberger-Private

From [REDACTED]
Sent: Tuesday, 31 December 2019 3:06 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: [Ext] Notice - Issue of final report - Petroleum environmental inspection Otway Basin 2DMC MSS

DLM Only

Dear [REDACTED]

Please find attached NOPSEMA's final inspection report for the petroleum environmental inspection of the Schlumberger Otway Basin 2DMC Marine Seismic Survey.

NOPSEMA requests that Schlumberger provides responses to recommendations by 8 January 2020 to enable NOPSEMA to consider these responses prior to the commencement of the seismic survey activity.

Responses to recommendations should be submitted via the secure file transfer and using the attached spreadsheet.

Please give me a call if you have any questions and let me know if you would like to meet to discuss responses to recommendations prior to submitting them.

Kind regards

[REDACTED]
[REDACTED] Environment Specialist

National Offshore Petroleum Safety and Environmental Management Authority

[REDACTED] [W: nopsema.gov.au](http://www.nopsema.gov.au)

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