From: [redacted]
Sent: Tuesday, 31 December 2019 3:06 PM
To: [redacted]
Cc: [redacted]
Subject: Notice - Issue of final report - Petroleum environmental inspection Otway Basin 2DMC MSS
Attachments: Letter - Petroleum Environmental Inspection Final Report - Otway Basin 2D MSS.pdf; Report - Petroleum Environmental Inspection Report - Final- issued to SLB 31 Dec 2019.pdf; Form - Recommendations Follow Up List for Operator Response 31 December 2019.xlsx

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
[redacted]
National Offshore Petroleum Safety and Environmental Management Authority
[redacted] | W: nopsema.gov.au

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DLM Only

Our ref: ID: 2101 A710239
Your ref: SLR 40.11793.00000-R01
Contact: [redacted]
Email: [redacted]

[redacted]
Schlumberger Australia Pty Ltd
Level 5, 256 St Georges Terrace
Perth, 6000

[redacted]

Dear [redacted]

RE: PETROLEUM ENVIRONMENTAL INSPECTION REPORT – OTWAY 2DMC MARINE SEISMIC SURVEY

Thank you for the assistance extended to [redacted] during their inspection of the Otway Basin 2DMC Marine Seismic Survey between 16 and 17 December 2019. Enclosed with this letter is a copy of the inspection report.

The report contains the conclusions and recommendations from the NOPSEMA inspectors.

In accordance with the requirements of Clause 13 (5) of Schedule 2A to the *Offshore Petroleum and Greenhouse Gas Storage Act 2006,* I hereby request that you provide details of any action proposed to be taken as a result of the conclusions and recommendations contained in the report. This should include the nature of the action that will be taken, the position of the person responsible for taking the action, and the date for completion.

Please submit responses to recommendations via submissions@nopsema.gov.au or the Secure File Transfer (https://securefile.nopsema.gov.au/filedrop/submissions) (attention the Lead Inspector) by 8 January 2020.

Please also refer to the form *NOPSEMA Recommendations and Follow-Up List*, a copy of which is being sent electronically to facilitate and track your responses. NOPSEMA inspectors may request information to track progress in addressing the recommendations by the agreed due date.

Should you have any queries regarding the above, please [redacted].

Yours sincerely

[redacted]

31 December 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.

NOPSEMA

Petroleum Environmental Inspection

Report

INTERNAL USE ONLY

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]
0	31-12-2019	Final	[redacted]	[redacted]

Table of Contents

Attachments

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 law[1]. 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. 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

- ***Relevant requirements***
- *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 (decision notice limitation).*
- *The acoustic source will have a maximum source volume no greater than 5,265 in3, which will produce an equivalent 0-peak SPL no higher than 258.5 dB re 1 µPa @ 1 m (EPS 79)*
- *10 km observation zone when the acoustic source is active within the blue whale BIA and 10 km buffer (EPS 88)*
- *The MMO will provide visual observation coverage during day light hours, while the PAM operator will provide acoustic monitoring with a PAM system specifically programmed to receive the frequencies of the cetaceans likely to be within the Operational Area. The PAM operator will provide coverage during the night and periods of low visibility (EPS 146).*
- *If the MMO or PAM operator onboard the support vessel observes a blue whale or southern right whale, the seismic vessel will be notified, and the acoustic source will be shut down immediately (EPS 148).*

3.1.1. Controls for managing acoustic impacts to pygmy blue whales to an acceptable level

NOPSEMA inspectors focussed on the control measures that would in place during the MSS to ensure that the limitation '*any pygmy blue whale (PBW) can continue to utilise the PBW biologically important area (BIA) without injury and is not displaced from foraging*' will be met. Schlumberger explained all control measures in the accepted EP that applied to the BIA and operating in the BIA buffer will remain in place with the exception of the aerial survey. It was confirmed that the aerial survey was in place for the purpose of detecting the arrival of PBW in the Bonney Upwelling which is now not needed given the limitation imposed by NOPSEMA preventing any operation of the seismic array in the BIA. In addition, through application of the

management of change process (MOC) Schlumberger proposed to modify four EPSs within the accepted EP to impart clarity that control measures for extended shut downs and adaptive management will apply when operating in the BIA buffer (i.e. EPS88, EPS 28, EPS 130, EPS 149) (Document 1). With these control measures in place, Schlumberger expressed confidence that the specified limitation in the decision notification could be met.

NOPSEMA inspectors specifically questioned how Schlumberger had confidence that existing controls will be able to prevent PBW injury and displacement given the distance predictions for temporary thresholds shift (TTS) in hearing (48km) and behavioural disturbance (10km) presented in the modelling report in the accepted EP (Appendix A). In response, Schlumberger provided a recent documented analysis of seabed composition using drilled well data relevant to survey area (Document 2). This document concludes *'given the vast majority of the Otway 2D survey being located in the shelf slope setting it is expected almost the entirety of the sub-cropping sea bed surface is composed of Tertiary Carbonates'*. As such Schlumberger has confidence that the limestone / carbonate based geo-acoustic properties (used in the initial modelling to predict sound attenuation into the BIA (EP, s7.2.2.1.8) remain relevant and subsequently the 10km shutdown zone applied to pygmy blue whales within the BIA and when operating in the BIA buffer was evaluated to be effective in preventing both TTS and displacement from foraging habitats.

NOPSEMA considered the information provided by Schlumberger documented in the draft MOC – Operating up to the BIA boundary (Document 1), draft Project Execution Plan (Document 3) and draft MMO and PAM operator induction package (Document 4) and made the following findings with respect to Schlumberger's proposed controls for achieving the outcome specified in the decision notice limitation:

- There is some inconsistency with regard to the shut zone control measures in place for PBWs. Several EPSs state that a 4 km extended shut-down zone will be implemented when operating within the BIAs and the 10km buffer (EPS 88, EPS 106, EPS 128, EPS 134, EPS 163) and do not provide clarity that a 10km shutdown zone applies to PBW when observed inside the BIA buffer or BIA buffer. Consequently it does not appear that the 10km shutdown zone for PBW (and southern right whales) has been incorporated into the draft Environmental Execution Plan (Document 3), the primary document for assuring compliance during operations.
- It is not clear from the draft procedural (Document 3 & 6) and induction material (Document 4) that the 10 km observation zone will apply to the rear the vessel during south-west seismic lines that commence at the boundary of the BIA. Control measures refer to applying the vessel observation platform 10 km 'ahead' of the seismic survey.
- It was not clear how Schlumberger will manage acoustic disturbance in the BIA during periods of low visibility or night operations in the event that collective visual and passive acoustic monitoring detections indicate that PAM is not effective for detecting PBW during seismic operations. This is particularly important during periods of higher than anticipated low frequency whale encounters.

While Schlumberger has made a reasonable case as to why modelling using a limestone seabed base is suitable for informing control measures, inspectors concluded that there are further opportunities to refine and / or adopt additional control measures to provide confidence that any blue whale continues to utilise the BIA without injury, and is not displaced from a foraging area.

Recommendation 2101-1
Prior to the commencement of the seismic survey, ensure that control measures required to prevent blue whale injury or displacement from foraging habitat in the BIA are adopted and integrated into procedural and training documentation. Specifically, • Clarify that when operating in the BIA buffer a 10km shutdown applies when blue whale (and southern right whale) observations are made. • Apply the support vessel detection platform during line turns in the BIA and when entering the BIA buffer so that the 10km observation / shutdown zone is in place to the rear of the vessel during south-west seismic lines that commence outside the BIA boundary. • Review adaptive management controls that would be applied in the event that PAM is not demonstrated to be effective in detecting low frequency cetaceans and there are higher than anticipated blue whales (i.e. more than 3 shutdowns in the preceding 24hrs). This should include consideration of ceasing night time operations or excluding acquisition in the BIA buffer during night time and low visibility conditions.

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 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] report 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 be 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:

NOPSEMA

Form

Entry and Exit Meeting Register and Notification of Entry

Titleholder:	Schlumberger Pty Ltd	REGULATED BUSINESS PREMISES:	Level 5, 256 St. Georges Terrace, Perth, WA 6000, Australia
Entry meeting date:	16 December 2019	Exit meeting date:	17 December 2019

NAME (Please Print)	COMPANY	POSITION	Entry (Please Initial)*	Exit (Please Initial)*
[redacted]	NOPSEMA	[redacted]		
	NOPSEMA			
	SLB			
	SLB			
	SLB			
	SLB			

Revision: 3
Revision Date: 1 October2014

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Reference: N-02100-FM0042
Objective ID: A15392

National Offshore Petroleum Safety and Environmental Management Authority

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

NOPSEMA

NOPSEMA Recommendations and Follow-Up List

NOPSEMA	**ID**	2101-1
	Recommen-dation	Prior to the commencement of the seismic survey, ensure that control measures required to prevent blue whale injury or displacement from foraging habitat in the BIA are adopted and integrated into procedural and training documentation. Specifically, •Clarify that when operating in the BIA buffer a 10km shutdown applies when blue whale (and southern right whale) observations are made. •Apply the support vessel detection platform during line turns in the BIA and when entering the BIA buffer so that the 10km observation / shutdown zone is in place to the rear of the vessel during south-west seismic lines that commence outside the BIA boundary. •Review adaptive management controls that would be applied in the event that PAM is not demonstrated to be effective in detecting low frequency cetaceans and there are higher than anticipated blue whales (i.e. more than 3 shutdowns in the preceding 24hrs). This should include consideration of ceasing night time operations or excluding acquisition in the BIA buffer during night time and low visibility conditions.
	Status	Open
		Please provide your response below
Titleholder	**Response**	
	Action	
	Position	
	Due Date	

NOPSEMA	**ID**	2101-2
	Recommen-dation	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.
	Status	Open
		Please provide your response below
Titleholder	**Response**	

	Action	
	Position	
	Due Date	

NOPSEMA	**ID**	2101-3
	Recommen-dation	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.
	Status	Open
		Please provide your response below
Titleholder	**Response**	
	Action	
	Position	
	Due Date	

NOPSEMA	**ID**	2101-4
	Recommen-dation	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
	Status	Open
		Please provide your response below
Titleholder	**Response**	
	Action	
	Position	
	Due Date	

NOPSEMA	**ID**	2101-5
	Recommen-dation	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.

	Status	Open
		Please provide your response below
Titleholder	**Response**	
	Action	
	Position	
	Due Date	

NOPSEMA	**ID**	2101-6
	Recommen-dation	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.
	Status	Open
		Please provide your response below
Titleholder	**Response**	
	Action	
	Position	
	Due Date	

NOPSEMA	**ID**	2101-7
	Recommen-dation	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.
	Status	Open
		Please provide your response below
Titleholder	**Response**	
	Action	
	Position	
	Due Date	