BEFORE THE EPA
SHELL Taranaki Limited Marine Consent Application

IN THE MATTER of the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012

AND

IN THE MATTER of a decision-making committee appointed to consider applications by Shell Taranaki Limited for a marine consent to place a jack-up rig and associated activities to assist it to undertake existing operations in the Māui natural gas field, and for a marine discharge consent to discharge any harmful substances from offshore processing drainage through deck drains from any drilling rig

STATEMENT OF NON-EXPERT EVIDENCE OF OWEN MICHAEL HEY FOR SHELL TARANAKI LIMITED

DATED 11 SEPTEMBER 2017
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EXECUTIVE SUMMARY

1. Shell Taranaki Limited (Shell Taranaki) and the Māui joint venture parties have been undertaking hydrocarbon extraction and processing activities in the Māui Natural Gas Field (Māui Field) for over 37 years. Shell Taranaki operates the Māui Field on behalf of the Māui Joint Venture.

2. Shell Taranaki’s offshore facilities in the Māui Field primarily consist of two platforms Māui Platform Alpha (MPA) and Māui Platform Beta (MPB) and associated wells, three submarine pipelines and the buildings, equipment and devices associated with them. There are also some unused exploration wells and other equipment associated with Shell Taranaki’s historical activities.

3. Shell Taranaki was granted a marine consent (EEZ000010) for its existing and future operations in the Māui Field in 2015. Shell Taranaki’s existing marine consent authorises activities associated with the use of platform and semi-submersible tender assisted drilling (semi-TAD) rigs to support drilling activities. However, it does not authorise the placement, removal and associated use of an additional type of rig, a jack-up rig in the Māui Field.

4. Shell Taranaki wishes to use a jack-up rig to support its next drilling campaign and potential future drilling campaigns. Accordingly, Shell Taranaki’s current application is to enable the placement and removal of such a rig in the Māui Field and other associated activities, including the potential discharge of harmful substances through deck drains (offshore processing drainage) from the jack-up rig.

5. Activities included in this marine consent application include: pre-installation works prior to installation of a drill rig; installation, operation and removal of a jack-up rig; activities that occur during well drilling, servicing and well commissioning; activities associated with logistics and some general field activities not covered by the existing marine consent.
6. The current marine discharge consent application covers the potential discharge of harmful substances from offshore processing drainage on a drill rig (whether it is a jack-up rig or another type of rig contemplated under Shell Taranaki’s existing marine consent). These potential discharges would be from the deck drain system on board the drill rig. Shell Taranaki is seeking consent for these discharges now as they are classified as notified activities under the relevant regulations.

7. Health, Security, Safety, the Environment and Social Performance (HSSE & SP) is a priority for Shell Taranaki. Shell Taranaki has a range of systems and procedures in place to ensure that all safety and environmental laws and regulations are complied with and to avoid, remedy and mitigate the potential effects of Shell Taranaki’s activities on existing interests and the environment. These include: routine environmental monitoring; reporting systems for seabird incidents and mammal sightings; regular environmental audits; internal and external reporting of environmental incidents; emergency and spill response preparedness; and environmental training and awareness programmes.

8. All Shell Taranaki operations are undertaken in compliance with relevant New Zealand regulatory requirements, Shell Taranaki’s Policy on HSSE and SP, and in accordance with international best practice. I am confident that Shell Taranaki will undertake the activities sought under these marine consent and marine discharge consent applications in a safe and environmentally responsible way.

INTRODUCTION

9. My full name is Owen Michael Hey.

10. I have an honours degree in Chemical Engineering from the University of Canterbury. I have over 29 years of experience in the oil and gas industry. I have worked in various roles including as a petroleum production engineer, well engineer and senior well engineer before moving into team leader and management positions.

11. I am currently employed as General Manager Wells for Shell Taranaki (formerly known as Shell Todd Oil Services Limited (STOS)) based in New Plymouth. I have held that position since August 2012. Prior to that, I was
the Well Delivery Manager for the Bapetco Joint Venture in Egypt (on secondment from Shell Egypt) for approximately three and a half years. Before that I was Wells Manager at Shell Taranaki for two years. I have also worked for NAM Holland (Nederlandse Aardolie Maatschappij BV) from 1996 to 2000 as Well Engineer and Senior Well Engineer.

12. As General Manager Wells I am responsible for well engineering, well delivery, completion and well intervention operations on all Shell Taranaki and Shell New Zealand fields and permits. In addition to the Māui Field, this includes the Pohokura field and exploration permits. The Well Engineering Manager, Wells Operations Manager and the Well Support Team Lead report to me.

13. In respect of the Māui operations my responsibilities include:

(a) ensuring that Shell Taranaki has the appropriate equipment and drilling rigs for well operations;

(b) ensuring appropriate levels of inspecting, monitoring and maintenance of wells and wellheads on MPA and MPB and any other temporary rigs;

(c) supervising the design and construction of side track wells to deliver the gas and condensate resources to the wellhead;

(d) tendering and awarding contracts for future drilling campaigns and drilling equipment, including temporary rigs such as a jack-up rig and associated support services and equipment;

(e) ensuring that all well and drilling activities comply with the Shell Taranaki Commitment and Policy on Health, Security, Safety, the Environment and Social Performance;

(f) ensuring that all well and drilling activities comply with the Shell Taranaki and Shell Wells Standards, Policies and best practices;

(g) ensuring that all well and drilling activities comply with New Zealand legislation including legislation relevant to Health, Security, Safety and the Environment;
(h) working with the relevant regulatory authorities, including Environmental Protection Authority (EPA), Maritime New Zealand (MNZ), WorkSafe New Zealand (the High Hazards Unit) and New Zealand Petroleum & Minerals, Ministry of Business, Innovation and Employment; and

(i) leading a team to undertake all of this work. The team includes Shell Taranaki and contractor drilling specialists, including well engineers, completions and well intervention engineers, offshore well supervisors, HSSE advisors, drilling administration and logistics personnel. I also have a team of permanent well and CWI engineers for planning and operations supervision. The number of personnel increases when actual operations are conducted.

14. In relation to this marine consent application my role has included the preparation of this evidence and, through my team, technical information to support the drafting of the application and Impact Assessment (IA).

15. I have reviewed the draft conditions proposed by Shell Taranaki and referred to in the evidence of Ms Catherine Clarke. I support those conditions and consider that they are appropriate to avoid, remedy or mitigate any potential adverse effects of the activities proposed.

16. I have also read the evidence of Ms Bridget Abernethy.

Scope of evidence

17. In this evidence I will discuss the following:

(a) The history of the Māui Field;

(b) The history of Shell Taranaki (and earlier entities) and its presence in New Zealand’s Exclusive Economic Zone (EEZ);

(c) Shell Taranaki’s facilities and operations in the Māui Field;

(d) Shell Taranaki’s existing marine consent and its relationship with the additional marine consent sought by Shell Taranaki;

(e) Shell Taranaki’s current application for marine consent;
(f) Jack-up rig services, including installation, operation, and removal of a jack-up rig;

(g) Discharges of water from drill rig deck drains;

(h) Implementation of Shell Taranaki’s Commitment and Policy on HSSE & SP;

(i) Response to points raised in submissions.

HISTORY OF THE MĀUI FIELD

18. Shell Taranaki activities in the Māui Field are not new. For over 37 years Shell Taranaki and the Māui joint venture parties have been undertaking hydrocarbon extraction and processing activities in the Māui Field.

19. The Māui Field was first discovered by Shell BP and Todd Oil Services Limited in 1969 following successful discoveries in the Kapuni Field. The Māui Field covers an area of 157 square kilometres and is situated offshore of Taranaki, on the west coast of New Zealand. The oil, gas and condensate reserves within the Field are situated approximately 3,000 metres below the sea floor.

20. Shell Taranaki is not the only operator who extracts and produces hydrocarbons in the Taranaki Basin. The table below indicates the approximate distances of other existing operators with installations in the area to Shell Taranaki’s installations. Shell Taranaki’s activities do not overlap with the areas in which these other existing operators operate and, like other operators, Shell Taranaki carries out its activities mostly to the exclusion of others (particularly within the Protection Area¹ and Exclusion Area²).

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¹ The Submarine Cables and Pipelines Protection Area in place under the Submarine Cables and Pipelines Protection Act 1996 for Shell Taranaki’s three existing submarine pipelines.

² The 500m safety zones surrounding MPA and MPB established under the Continental Shelf (Māui A Safety Zone) Regulations 1975 and Continental Shelf (Māui B Safety Zone) Regulations 1991.
Table of distances between Shell Taranaki’s installations and the installations of other existing operators in the Taranaki basin

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Distance (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Māui A (Shell Taranaki)</td>
<td>Maari (OMV New Zealand Limited)</td>
<td>50</td>
</tr>
<tr>
<td>Māui B (Shell Taranaki)</td>
<td>Maari (OMV New Zealand Ltd)</td>
<td>38</td>
</tr>
<tr>
<td>Māui A (Shell Taranaki)</td>
<td>Kupe (Origin Energy Resources (Kupe) Limited)</td>
<td>66</td>
</tr>
<tr>
<td>Māui B (Shell Taranaki)</td>
<td>Kupe (Origin Energy Resources (Kupe) Limited)</td>
<td>73</td>
</tr>
<tr>
<td>Māui A (Shell Taranaki)</td>
<td>Umuroa FPSO (Tamarind Management Sdn. Bhd.)</td>
<td>23</td>
</tr>
<tr>
<td>Māui B (Shell Taranaki)</td>
<td>Umuroa FPSO (Tamarind Management Sdn. Bhd.)</td>
<td>25</td>
</tr>
</tbody>
</table>

21. Petroleum Mining Licence (PML) 381012 was granted under the Petroleum Act 1937 to Shell BP and Todd Oil Services Ltd in 1973. The PML was granted for a term of 42 years commencing on 28 June 1973. The PML authorises mining operations in a defined area within the Māui Field and the use, take, and disposal of all petroleum existing in its natural condition on or below the seabed. Since the PML was granted there have been a number of changes to the permit holder, reflecting changes to the participating companies and changes to those companies’ names.

22. Shell Taranaki (known then as STOS) became a holder of the PML in January 1991. On 9 May 2015 Shell Taranaki, and the Māui joint venture parties, were granted an extension to the PML by the Minister of Energy and Resources, for an additional term of 21 years commencing on 28 June 2015 to enable it to continue its operations in the Māui Field. This is the maximum extension that could be granted under the transitional provisions of the Crown Minerals Act 1991 (CMA) and section 9(7) the Petroleum Act 1937.
23. In 2015 Shell Taranaki (again, known at the time as STOS) was granted a marine consent under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 for a term of 35 years for its existing and future operations in the Māui Field (EEZ000010). The scope of this consent and its relationship to Shell Taranaki’s current application for marine consent is discussed in further detail later in my evidence.

24. A summary of Shell Taranaki’s activities in the Māui Field over the past 37 years is set out below.

25. Production in the Māui Field first began in 1979. At that time the infrastructure included MPA and two submarine pipelines from MPA to MPS at Oaonui, Taranaki. MPB was constructed in 1991/92 and is connected to MPA by a single 15 kilometre submarine pipeline, with gas production from MPB commencing in 1993.

26. Between 1996 and 2006 the Floating Production Storage and Offtake vessel (FPSO) Whakaaropai was located near MPB to receive and process crude oil from the Māui Field. Crude oil was produced from six wells located on MPB. The FPSO was decommissioned in April 2006 when the production of crude oil from the field ceased. The six wells were subsequently side-tracked and converted to gas production wells.

27. Māui gas is exported around New Zealand via pipelines. It supplies a range of downstream users including both manufacturing and power generation customers. Condensate produced in the Māui Field is shipped via tanker from New Plymouth to both domestic and offshore customers. LPG, propane and butane is used domestically and shipped to offshore customers.

28. Shell Taranaki is well into the life cycle of its operations at Māui and Shell Taranaki intends to continue operations into the foreseeable future. At this stage, there are no confirmed dates at which future drilling campaign will be undertaken but Shell Taranaki is continuing to mature a number of possible development drilling opportunities. Side-track drilling activities at both MPA and MPB are authorised by its existing marine consent.

29. Energy investment is a long game. Decisions about such long term investments are made based on a range of variables including production rates and technological developments, the estimated resource available and
the demand for it, as well as regulatory requirements. The 35-year term of Shell Taranaki's existing marine consent has provided Shell Taranaki with the certainty that it needs for planning and investment decisions necessary to undertake its activities in the long-term future. This application supplements that consent and requires the same duration to provide certainty.

THE HISTORY OF SHELL TARANAKI LIMITED (AND EARLIER ENTITIES) AND ITS PRESENCE IN NEW ZEALAND'S EEZ

30. Shell Taranaki (initially as Shell BP Todd) was one of the original gas and oil operators in New Zealand and has been exploring, developing and operating fields in New Zealand for more than 55 years.

31. The roots of the company go back to 1955 when a consortium comprising Shell Petroleum Mining, BP Oil Exploration and Todd Petroleum Mining was established. This formed to explore oil and gas deposits in the Taranaki Basin.

32. Four years later, in 1959, the consortium discovered the Kapuni gas and condensate field in South Taranaki. This consortium established an operating company, Shell BP Todd, to develop the field on behalf of the joint venture. By 1969, the Kapuni Field was in full operation enabling New Zealanders to tap into the valuable hydrocarbon resources within the Taranaki region. This discovery signalled a new energy era enabling the country to take advantage of gas as an efficient, low cost and alternative energy source.

33. Exploration success, such as that achieved at Kapuni, fuelled further exploration interest in the region. In 1969 the Māui Field was discovered 40 kilometres off Taranaki’s coast. The Māui Field was one of the largest in the world at the time. 10 years of development and preparation followed before first production began from the Māui A platform in 1979, with a second platform, Māui B, added in 1992.

34. In 1990, BP Oil Exploration sold its New Zealand interest in the Kapuni Field to the Shell and Todd Petroleum Mining companies thereby exiting exploration and production activities within New Zealand. The joint venture operating company was re-named STOS.
35. At the time of lodging these marine consent and marine discharge consent applications STOS was owned by Shell Petroleum Mining Limited and Todd Petroleum Mining Limited each of which hold a 50% stake in the company. At the time of lodging these applications there was an agreement in place to transfer the Todd Petroleum Mining Company stake in STOS to Shell Petroleum Mining Company Limited. Since lodging these applications the agreement has completed and that transfer has happened. Now the company is 100% owned by Shell Petroleum Mining Company Limited. The sale has also been accompanied by a change in the company name from STOS to Shell Taranaki Limited.

36. Shell Taranaki continues to operate the Māui Field on behalf of the Māui Joint Venture and there is no change to the Māui Joint Venture as part of the agreement. Shell Taranaki also provides operating services to the Pohokura operator Shell Exploration New Zealand Limited. Collectively, these fields produce the majority of New Zealand’s gas supply. This has been the case for a number of years.

37. During its 55 plus years of operating, Shell Taranaki has set operational, environmental and safety benchmarks in the New Zealand oil and gas industry. Shell Taranaki is consistently introducing innovations while operating technically challenging fields.

38. Shell Taranaki currently employs approximately 300 local and expatriate personnel in a wide variety of specialist technical and business roles including operators, sub-surface specialists, project and maintenance engineers and well engineers supported by oil and gas specialists in finance, commercial, legal and corporate management.

SHELL Taranaki’S FACILITIES AND OPERATIONS IN THE MĀUI NATURAL GAS FIELD

Description of facilities

39. As noted already, Shell Taranaki’s facilities in the Māui Field primarily consist of two platforms (MPA and MPB) and associated wells, three submarine pipelines and the buildings, equipment and devices associated with them. There is also an onshore production station located at Oaonui on the Taranaki coast. I describe the facilities in further detail below.
40. A map showing the location of Shell Taranaki’s facilities in the Māui Field is provided in the IA (see Figure 1.1).

**MPA**

41. MPA was constructed and installed during the late 1970s and is situated approximately 35km offshore of Taranaki, in New Zealand’s EEZ in approximately 108m of water depth. It has been operational since 1979.

42. MPA comprises of an existing four-legged steel tower (also known as a ‘jacket’) pinned to the seabed upon which is fixed a platform with the following features (together, the ‘topsides’).

   (a) Three main structural decks;

   (b) Six hydrocarbon production modules;

   (c) Two utility modules containing power generation turbines, fire pumps, sea water lift pumps, workshops and control room;

   (d) Three-storey living quarters for up to 70 personnel who operate and maintain the platform;

   (e) Water and waste treatment facilities:

      (i) Potable water – Up to 60 m$^3$ of water per day can be produced via the reverse osmosis water maker (desalination) or can be bunkered from supply boat; and

      (ii) Sewage - Sewage and grey water from the living quarters are passed after maceration to the drain pile for dispersal in the sea in accordance with the Māui Discharge Management Plan (DMP) (this is a Deemed Marine Discharge Consent).

   (f) Life support, communications and safety facilities.

43. A photograph of MPA is provided in Annexure C of the IA (see Figure C.1).

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3 The coordinates of MPA are 39°33’18.111”S, 173°26’57.600”E (for NZGD2000 and WGS84 datum)
44. MPA has a jacket weight of 11,800 tonnes and a topsides weight of 9,000 tonnes. The topsides measure approximately 80m by 50m, and the upper deck is situated approximately 35m above the water surface. The vent stack, which allows for the emergency de-pressurisation of the production facilities, rises a further 60m above the upper deck on the north-east corner of the platform.

45. The platform’s control system allows the hydrocarbon process to be operated from the onshore production station at Oaonui (MPS). This allows the number of personnel on the offshore facilities to be minimised and so avoids exposing personnel to unnecessary risk. However, the amount and nature of the equipment on MPA requires it to be manned 24 hours a day, 365 days a year.

**MPB**

46. MPB was installed during the early 1990s and is situated approximately 50km offshore of Taranaki in the EEZ in approximately 108m of water depth. It has been operational since 1992. MPB is located approximately 15km from MPA.

47. MPB comprises of an existing four-legged steel tower (also known as a ‘jacket’) pinned to the seabed upon which is fixed a platform with the following features (together, the ‘topsides’):

(a) Two main structural decks;

(b) Bulk water separation facilities which remove produced water from the reservoir from the production stream. Produced water, after separation and removal of condensate and continuous testing for hydrocarbon content, is disposed of overboard;

(c) Living quarters for a typical workforce of 20-25 personnel who operate and maintain the platform when it is manned. The living quarters can accommodate up to 41 personnel;

(d) Utilities and maintenance workshop areas;

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4 The coordinates for MPB are 39°38'42.864"S, 173°18'57.106"E (for NZGD2000 and WGS84 datum).
(e) Power generation facilities;

(f) Water and waste treatment facilities:

(i) Potable water – Up to 6m³ of water per day can be produced via the reverse osmosis watermaker (desalination) or can be bunkered from supply boat; and

(ii) Sewage - Sewage and grey water from the living quarters are passed after maceration to the drain pile for dispersal in the sea in accordance with the DMP.

(g) Life support, communications and safety facilities.

48. A photograph of MPB is provided in Annexure C of the IA (see Figure C.4).

49. MPB has a jacket weight of 5,000 tonnes and a topsides weight of 3,300 tonnes. The topsides measure approximately 60m by 40m, and the upper deck is approximately 30m above the water surface. The vent stack rises a further 50m from the upper deck on the north-western corner of the platform.

50. The main differences between MPA and MPB are that MPB has no gas processing facilities and is designed as a ‘Not Normally Manned Installation’ satellite platform. MPB can be operated and controlled remotely from MPA or MPS with no need to have staff on the platform to facilitate day-to-day operations. However, in the event of a platform shutdown initiated by either the control system or by staff at MPA or MPS, staff may be required to be mobilised to re-establish production.

51. The platform also becomes a manned installation when workloads, maintenance and ongoing projects or a platform shutdown requires personnel to live aboard, with a typical crew of 20 to 25 personnel.

Wells

52. There are 14 well slots (conductors) on MPA and 12 well slots (conductors) on MPB but not all contain currently producing wells. There are currently six producing wells at the MPA platform and seven producing wells at the MPB platform.
53. Side track wells are wells which are re-entered from the surface location deviating from the existing well bore to achieve production from an alternate zone or bottom hole location. In total there are 30 side track wells from MPA and MPB mother bore wells including both wells currently producing and those no longer producing.

54. In addition to the producing wells, one of the MPA wells (MA-12) is used as a produced water reinjection well. Produced water is a combination of formation water from the wells and condensed water from the gas processing facilities. This water is disposed of by reinjection back into the reservoir via injection well MA-12. Reinjection of produced water on MPA is undertaken due to the residual hydrocarbon content exceeding allowable levels for disposal overboard.

Previous Drilling Rigs Used in Māui Field

55. Previous drilling of wells at MPA and MPB has been undertaken using either semi-submersible rigs or platform rigs. A jack-up rig has not previously been used to drill wells at MPA or MPB. The various exploration wells within the Māui Field were drilled using drill ships or semi-submersible rigs. Jack-up rigs have not been used to drill any exploration wells within the Māui Field.

Submarine pipelines

56. There are three existing submarine pipelines associated with MPA and MPB.

(a) A 15km submarine pipeline from MPB to MPA which was installed in 1992. It is trenched and buried with a minimum cover of 1.2m and is backfilled with gravel to improve thermal insulation. The pipeline consists of a single 20 inch carbon steel multi-phase submarine pipeline with a corrosion resistant alloy lining. This pipeline is used for the transportation of both condensate liquid and natural gas from MPB to MPA for initial process separation.

(b) A 35km submarine pipeline from MPA to MPS which consists of a single 24 inch carbon steel submarine pipeline. This pipeline transports dry hydrocarbon gas to MPS.
(c) A 35km submarine pipeline from MPA to MPS which consists of a single 10 inch carbon steel submarine pipeline. This pipeline transports condensate.

57. The distance between the two submarine pipelines from MPA to MPS varies between approximately 10m to 100m but for the majority of the route, the distance between the two submarine pipelines is between approximately 50m and 100m.

58. The placement and maintenance of the two MPA to MPS pipelines within the 12 nautical mile limit is authorised by a resource consent granted to STOS (as it was known then) by the Taranaki Regional Council on 10 March 1998.5

Existing unused structures

59. There are some existing structures associated with Shell Taranaki’s historical operations at Māui that are no longer used and remain on or under the seabed. This includes unused exploration wells and wellheads and the Whakaaropai FPSO anchors, chains, wires and flow lines.

Unused exploration wells and wellheads

60. There are 11 exploration wells within PML381012 which were drilled between 1969 and 2015. These exploration wells all have existing conductors, casing and downhole equipment associated with them. Three exploration wells (Māui-01, Māui-02 and Māui-03) have wellheads in place. Shell Taranaki is currently considering options to achieve fully abandoned status for these three wells and for the future removal or otherwise of these wellheads. Once this decision is made, the appropriate consents to execute the selected option will be sought by Shell Taranaki. The remaining eight exploration wells have been fully abandoned in compliance with the regulatory requirements that were in place at the time.

SHELL TARANKAI’S EXISTING MARINE CONSENT AND ITS RELATIONSHIP WITH THESE APPLICATIONS

5 Resource consent TRK985224 authorises the placement and maintenance of two pipelines in, under and over the foreshore and seabed in the coastal marine area between mean high water springs and the outer limit of the territorial sea at or about GR: P20:782-000. The resource consent expires on 1 June 2025.
61. As I have already noted, in 2015 Shell Taranaki was granted a marine consent (EEZ000010) for its existing and future operations in the Māui Field. A copy of the marine consent is included with the application and IA. The marine consent authorises a wide range of activities relating to the extraction, processing and transport of natural gas and condensate. The marine consent was granted for the term of 35 years.

62. Shell Taranaki’s existing marine consent authorises the placement, removal and associated use of platform and semi-submersible tender assisted drilling (semi-TAD) rigs to support Shell Taranaki’s drilling activities. However, it does not authorise the placement, removal and associated use of an additional type of rig, a jack-up rig (which is different from a semi-TAD), in the Māui Field.

63. Shell Taranaki wishes to use a jack-up rig to support its next drilling campaign and potential future drilling campaigns. Accordingly, Shell Taranaki’s current application is to enable the placement and removal of such a rig in the Māui Field and other associated activities, including the potential discharge of harmful substances through deck drains (offshore processing drainage) from the jack-up rig.

64. The full list of activities that are the subject of Shell Taranaki’s current applications and which are described in the IA and my evidence include:

   (a) Pre-installation works prior to installation of a drill rig;

   (b) Installation, operation and removal of a jack-up rig;

   (c) Activities that occur during well drilling, servicing and well commissioning;

   (d) Activities associated with logistics;

   (e) General field activities that may occur outside of drilling activities; and

   (f) Discharges of harmful substances from drill rig deck drains.

**Preparation of the Impact Assessment**

65. To assist with the application process, Shell Taranaki engaged ERM New Zealand Limited to prepare a comprehensive IA in accordance with the
requirements of the EEZ Act. ERM is a leading global provider of environmental, health, safety, risk, and social consulting services. ERM consultants worked closely with the Māui marine consent team at Shell Taranaki to provide expert advice and support over the application process.

66. As required by the EEZ Act, Shell Taranaki has assessed all relevant effects of the activity on the environment and existing interests for which marine consent is sought.

67. Shell Taranaki’s IA includes an assessment of unplanned spills that may result from accidental spills on the top-side of the jack-up rig or in the event of an incident involving a vessel supporting the jack-up rig installation, operation or removal (including any cumulative effects). Other unplanned spills (such as a loss of well control or an unplanned hydrocarbon spill resulting from accidental spills on the topsides of MPA and MPB or in the event of a supply vessel incident) were considered as a potential effect of the activities in Shell Taranaki’s previous application for marine consent. Shell Taranaki does not need to assess the effects of any unplanned spill from activities already assessed and consented by the EPA. These are not effects of activities which form part of the application and are not required to be assessed under the EEZ Act.

68. To expand on the IA and the evidence presented by myself and Ms Bridget Abernethy, Shell Taranaki has engaged a range of expert witnesses to present technical evidence in support of Shell Taranaki’s application. We have gone to considerable lengths to ensure that the EPA has the best available information before it to assess the application.

**The stakeholder engagement process**

69. Stakeholder engagement is an integral part of the way Shell Taranaki does business. Preparing the application for marine consent was no exception. As detailed in the IA, Shell Taranaki undertook a broad stakeholder engagement programme in compiling its application for marine consent.

70. Ms Bridget Abernethy who is Shell New Zealand Limited’s Country Manager, External Relations, is responsible for communications and stakeholder engagement for the business. Ms Abernethy has described further in her Statement of Evidence the engagement process that Shell Taranaki
undertook in preparing its application. She will also talk to Shell Taranaki’s overall approach to stakeholder engagement and partnership with the community.

71. We understand that good stakeholder relationships underpin our business and the importance of being a good neighbour to those undertaking activities in the Māui Field and with existing interests in the area as well as the wider community. We recognise that our business success over its 55 year history has relied heavily on the mutual trust and respect that we have established with our neighbours, local iwi and regulators.

72. We know communities do not stay static, and views and expectations change over time. As a business, Shell Taranaki is working hard to meet the changing demands of the communities where we operate. In all aspects of our business, we aspire to reflect the community within which we operate.

SCOPE OF MARINE CONSENT APPLICATION

Overview of jack-up rig and its components

73. Shell Taranaki’s application is intended to enable the temporary placement and removal of a jack-up rig in the Māui Field plus other associated activities which are not authorised by its existing consent.

74. A jack-up rig is a type of mobile offshore drilling rig which allows a work platform to be raised to a certain height by jacking its legs down to penetrate into the seabed. The hull of the jack-up rig, with all of the drilling equipment on it, is buoyant; this allows the rig to be towed to and from the site. Once installed at a site, the jack-up rig provides a stable structure for undertaking drilling or other seabed works due to the placement of the legs on the seabed and the ability to raise the work platform above the wave height. A jack-up rig may be placed next to an existing platform to access existing conductors. However, they are also able to operate independently.

75. Spud cans are structures attached to the bottom of the trussed legs of the jack-up rig and form the temporary foundation within the seabed for the jack-up rig. They are steel, generally conical structures that sink in to the seabed sediment (this may be up to 10m) and support the legs of the rig. Spud cans form an integral part of the overall leg structure and are removed, with the
legs, at the time of demobilisation of the drill rig. Examples of jack-up rigs are shown in the IA (see Figures 4.1 and 4.2) and also in Appendix 1.

76. The jack-up rig would have all personnel accommodation and services on it. If located next to a platform, personnel transfer would be by gangway between the two installations. There may also be flexible fluid hoses installed between the two installations for the duration of the drilling to transfer water, fuel, drilling muds and other chemicals required as part of the drilling operation and ongoing operation of the platform. Power cables may also be installed between the two installations. The drilling derrick would be cantilevered over the top of the section of the existing production platform where drilling is to occur.

77. In the event the jack-up rig is operating independently, the integration described above would not be required. This could occur in the event of utilising a jack-up rig to drill or abandon exploration wells which are not associated with a production platform. For example, some or all of the work required to achieve abandoned status of the Māui-01, Māui-02 and Māui 03 exploration wells mentioned previously could potentially be undertaken using a jack-up rig.

**Pre-installation works prior to installation of a drill rig**

78. Pre-installation works are required to ensure the site is ready for drilling operations. This includes preparing the seabed and platform for the arrival of the jack-up rig and support vessels. This approach facilitates the efficient and safe conduct of the drilling operations and represents best industry practice. Consent is sought for the necessary pre-installation surveys, sampling and measurements as well as the seabed site clearance and preparation works.

**Surveys, sampling and measurement**

79. It may be necessary to supplement Shell Taranaki’s existing geotechnical data with further geotechnical data prior to the arrival of the jack-up rig. This is because jack-up rig stability depends on the predictable performance of the shallow sediments against the loads imposed by the jack-up rig and the environmental loads on it. Further geotechnical data would confirm the
nature of shallow sediments at the planned location the jack-up rig spud cans.

80. As described in the IA, geotechnical data from the top 50m to 100m of the seabed would be gathered. Methods to gather this data may include physical extraction and testing of the seabed material by methods such as geotechnical coring, soil boring, in-place cone penetrometer tests and subsequent laboratory testing of cores.

81. Physical extraction of the seabed materials would use an industry standard subsea geotechnical spread in accordance with best industry practice. The geotechnical spread would be lowered from a support vessel and placed on the seabed to extract cores and to carry out in-situ testing. The geotechnical cores would be gathered by using either hydraulic techniques or by vibracoring. These are described in more detail in the IA. Cone penetration tests may also be undertaken from the vessel. This method uses a penetrometer cone which is pushed into the seabed to measure the resistance of shallow subsurface material.

Seabed site clearance

82. If surveys identify debris or other material in the area where the jack-up rig is to be installed these may need to be removed from the site. It is anticipated this material would generally be able to be moved to a new location nearby by using a remotely operated vehicle (ROV) deployed subsurface pump system. Alternatively, larger man-made debris may be able to be recovered to a vessel and returned to shore for appropriate disposal.

83. Certain types of spud-cans on jack-up rigs are required to be placed into a slightly deeper and higher strength sand layer. This may mean that a quantity of fine mud-line ‘silt’ on the seabed will have to be relocated or displaced prior to the arrival of the jack-up rig. A ROV deployed with a subsurface pump system as described above would undertake this work. The removal of silt would be limited to the area in the immediate vicinity of the planned spud can locations. If required, the maximum required area to be excavated is likely to be in the order of 30 m diameter and 4.0 m depth for each of the three spud-cans. This would result in a maximum volume of silt of approximately 8,500 m$^3$ to be relocated from the planned spud-can
locations. The removed material would be relocated to a nearby seabed location of similar composition approximately 50-100m away.

**Installation, operation and removal of a jack-up rig**

84. Once the site has been prepared, the jack-up rig will be brought into the field and positioned either independently, or next to the platform, where drilling is to occur. The placement of a jack-up rig involves a number of steps that I will discuss. The steps described represent standard industry practice to facilitate safe and efficient operations and to minimise the risk of incidents that may lead to safety risks or environmental harm. When positioned next to an existing platform, the platform operations would normally be suspended and the wells ‘shut-in’ during the installation and removal process.

**Installation and removal of temporary anchors for the jack-up rig**

85. Temporary anchors and tug boats are required to install a jack-up rig in close proximity to an existing platform or other required location. Generally, two to four anchors are used to install a jack-up rig. The initial placement and embedment of each anchor as well as the catch and release of the wire or chain and subsequent removal of each anchor would disturb the seabed in the vicinity of where a jack-up rig is being positioned. Anchors can either be pre-laid before the jack-up rig arrives on location or can be run into position from the jack-up rig. In both situations anchor handling tugs undertake this activity.

86. Anchors are recovered from the seabed once the jack-up rig is safely positioned alongside the platform. I anticipate that the anchors that are run into position from the jack-up rig would need to be embedded in the seabed for a period of less than two weeks, safe weather conditions and availability of support vessels permitting. Alternatively, pre-laid anchors may remain in place until the rig is demobilised, after which they would be removed.

87. A similar use of anchors is required for the removal of the drill rig and demobilisation phase.

**Installation of the jack-up rig legs with attached spud cans on the seabed**
88. The jack-up rig would be initially towed into the Māui Field and positioned at a location within the platform 500m Safety Zone or close to the desired location. While attached to the tow vessel, the rig then will jack down its legs until the spud cans rest on the seabed to stabilise the rig prior to attaching it to the pre-laid anchors as described above or running the anchors into position.

89. The rig legs are then raised clear of the seabed and the anchors are slowly tensioned or released as required to control the speed while positioning the rig to its final drilling location. It is possible localised seabed disturbance may occur due to the spud cans contacting the seabed while the rig is being moved due to wave action and uneven seabed conditions.

90. Once placed in its final position, the legs with spud cans are lowered to take the full weight of the rig and to raise its hull above the sea surface. Each leg is then gradually pre-loaded to transfer the full operational loads to the seabed formation. To achieve this, pre-load ballast tanks on the jack-up rig uptake ballast seawater. The ballast seawater is sourced and subsequently discharged onsite and is therefore not subject to ballast water controls. During this elevating and pre-loading procedure, the tow vessel is disconnected and all anchors are recovered from the seabed. The rig will then jack-up to the full drilling elevation with the bottom of the hull between 20 and 40 m above the sea surface to allow waves to pass safely beneath the hull. This process is presented diagrammatically in Appendix 1.

91. While drilling is taking place the jack-up rig will remain in place next to the platform. Drilling may not be undertaken in a single campaign so it is possible that a rig may have to be demobilised and then the same rig, or a different rig, mobilised again later.

92. There may be requirements to modify the jack-up rig while it is in place. These are expected to be minor and might include activities such as the repair or replacement of equipment or installation or removal of supporting structures for equipment and supplies.

*Potential clean gravel or rock deposit*

93. It is essential that the rig remains stable for the duration of drilling activities. Stabilisation of the seabed in the vicinity of the jack-up rig legs may be
required during the drilling activities in the event that scour occurs around the base of the jack-up rig legs due to the natural movement of seabed material. Stabilisation may include the deposit of clean gravel or rocks, directly onto the seabed around the legs of the jack-up rig. Any material placed for this purpose would remain on the seabed following demobilisation.

**Removal of the drill rig and demobilisation**

94. Once the drilling campaign is complete the jack-up rig will be removed from the site. If the jack-up rig was beside a platform then disconnection of any joint facilities, including hoses, gangways and pipework would be required. The hull of the jack-up rig would be lowered to the water and the legs of the jack-up rig would then be raised from the seabed with the attached spud cans. Once floating freely it would be towed from site by a tow vessel. Water jetting may occur as part of this removal operation to loosen seabed material and to release the suction between the spud cans and seabed. It is anticipated that an approximately 20-30m diameter area of seabed would be disturbed for each spud can where jetting is required. The equipment to carry out this task is an integral part of the jack-up rig spud cans.

95. Anchor handling vessels maintain tow lines to the jack-up rig to ensure its stabilisation and control during the removal to prevent collision with the platform (if located beside one). The rig can also be attached to anchors during this process for additional control.

**Activities that occur during well drilling, servicing and well commissioning**

96. Shell Taranaki’s existing marine consent authorises all activities associated with the drilling process itself and these activities will generally be undertaken in the same manner with the same type of equipment regardless of what type of rig is employed.

97. There are some activities involved in the drilling, servicing and commissioning of wells that were not specifically addressed in Shell Taranaki’s existing marine consent. Consent is therefore sought to address these activities. Namely, the deposition of cement on the seabed that is discharged during tank and equipment cleaning, excess cement returned from the well, dispersal of stored dry cement by wind, and the deposit of material removed from wells on or under the seabed.
Deposit of cement

98. Cement is mixed to fix well casings into side-track wells and to abandon wells or sections of wells. This placement of cement into the seabed for the purposes of drilling and well servicing or abandonment activities is authorised by Shell Taranaki’s existing marine consent. The volume of cement required is carefully measured each time however small amounts of surplus cement may remain in cement tanks or be returned from the well. These small amounts will need to be discharged immediately before the cement hardens. On rare occasions, the full cement batch may also need to be discarded if the cement does not meet the required specification for use within the well.

99. The cement needs discharging immediately to prevent it hardening in the tanks, pumps and pipelines. If allowed to harden the cement can create logistical issues, safety concerns and high costs that are associated with trying to clean or safely handle these items of equipment for disposal.

100. Small amounts of harmful substances may also be present in the surplus cement. These harmful substances will be addressed through a future Marine Discharge Consent application which I discuss below.

Deposit of material removed from wells

101. Residual amounts of steel, elastomers and cement may be deposited on the seabed during well drilling, servicing and commissioning. However, Shell Taranaki uses best industry practice, separating materials by using large magnets and filters, to ensure the majority of this material is disposed onshore at a waste disposal facility.

Activities associated with logistics

102. A support vessel, or vessels, will be required to support a drilling campaign. This support vessel would undertake a variety of tasks including, transport of supplies, emergency response, liaison with unauthorised vessels approaching the safety exclusion zone, assisting other support vessels with logistic activities and retrieval of any floating debris that is accidentally lost overboard. Helicopters will also be used to supply and support drilling activities.
Installation and removal of moorings for support vessels on standby

103. Shell Taranaki may place structures on the seabed that can be used as moorings for support vessels on standby. This would reduce fuel use and assist the vessel to hold position. A mooring for this purpose would consist of a concrete weight of up to 3m² and 7,000kg. It would include the use of a chain or cable (of up to 300m in length) and floating buoy attached to the mooring. The mooring would be removed when it is no longer required.

104. Moorings would be removed by lifting them and any associated mooring lines from the seabed using a winch on one of the supply or anchor handling vessels and would be returned to land.

General field activities

105. General field activities that may occur incidentally to well drilling, servicing and abandonment activities, but may also be relevant to general field operations, include the use of temporary structures for subsea works, and the deposition of clean fill (gravel or rock) on the seabed to fill indentations from previous works.

Placement of temporary structures for subsea works

106. While subsea works are authorised by Shell Taranaki’s existing marine consent, the use of temporary structures and equipment to facilitate these works is not specifically authorised. Subsea works may require the use of ROVs or other pieces of equipment. These works may include the construction or placement of small frames or other types of light equipment on the seabed. These may be in position for a temporary period of time (from hours to weeks). Any structures or devices for subsea works would be removed once the works have finished.

Deposit of materials to fill seabed depressions

107. The removal of the spud cans at the completion of a drilling campaign can leave indentations in the seabed. While these indentations would normally be left to fill in naturally over time there is a low chance that these indentations would need to be actively filled. This activity would only be undertaken if necessary to maintain the integrity of current or future facilities.
The indentations may need to be filled (likely with gravel or rocks) in scenarios such as a large storm and scour event occurring which could threaten the integrity of a platforms piles, pipelines or future mobilisation of another jack-up rig.

108. The ability to fill in these indentations, if necessary, would provide additional stabilisation and would enable the subsea surface to be levelled for future rig installations in accordance with industry best practice. The fill material used would likely be gravel or rocks with an estimated volume of approximately 1,600m$^3$ per spud can indentation that requires filling. The clean fill, if deposited, would be left permanently on the seabed for this purpose.

**SCOPE OF MARINE DISCHARGE CONSENT APPLICATION**

109. As noted above, Shell Taranaki holds an existing DMP for discharges from MPA and MPB, approved by the Director of MNZ. The DMP is treated as if it were a marine discharge consent under the EEZ Act.

110. There are potential discharges of harmful substances from offshore processing drainage on a drill rig (whether it is a jack-up rig or another type of rig contemplated under Shell Taranaki’s existing marine consent). These potential discharges would be from the deck drain system on board the drill rig. These discharges from a drill rig are not covered by Shell Taranaki’s existing DMP / marine discharge consent. Shell Taranaki is seeking consent for these discharges now as they are classified as notified activities under the relevant regulations.

111. The harmful substances potentially discharged through the deck drain system may also be discharged via other routes such as residual amounts of drilling muds adhering to drill cuttings discharged overboard. These other routes will be addressed in a future application for a marine discharge consent application for non-notified discharge activities from a drill rig.

112. The specific harmful substances that could be discharged from an offshore processing drain on a drill rig are unable to be confirmed at this stage as chemical selection is made closer to the time the works are to begin. The general nature of chemicals potentially discharged through the deck drainage system is described in the IA. In addition to the chemicals described in the IA, depending on the configuration the drill rig, there may be a requirement to
discharge fire-fighting foam if this system requires testing while located within the Māui Field.

113. The details of the deck drain system are not confirmed at this early stage of Shell Taranaki’s proposed activities as different rigs have a variety of different configurations. Once a specific rig is identified to be used for this work these details will be able to be confirmed. However, I will canvass the general type of deck drain system and the potential discharge routes and controls that are in place to manage these potential discharges.

**Deck drainage system**

114. A typical deck drain system is contained in the IA (see Figure 4.3). Deck drains receive rainwater and any other liquid run-off from adjacent areas. Deck drain systems typically separate hazardous and non-hazardous drains and have controls and treatment measures for hazardous areas. Deck areas are also typically protected with kick plates to prevent any spills discharging to the marine environment.

115. Harmful substances are stored in bunded areas and/or within hazardous drain areas. Operations and handling of harmful substances also occurs in areas where any possible release would be within areas that only flow to the hazardous drain system or are otherwise contained (e.g. bunded areas). That containment provides for analysis and/or treatment, prior to discharge.

116. Spill kits are held on board rigs. These would be used to contain, as far as practicable, all accidental spills of harmful substances on the drill rig. Rig personnel would be trained in spill response and the use of relevant response equipment.

117. While any clean-up activities are being undertaken, drains may be temporarily blocked to prevent discharge into the deck drain system. Any residual spilled harmful substances may enter the deck drains during rainfall events and deck washing, and be collected in tanks.

118. Liquid in the collection tanks associated with hazardous areas is treated to reduce the oil-in-water content in accordance with MARPOL\(^6\) standards prior

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to discharging it overboard. Any oil collected is transferred to shore for disposal or treatment. Regular monitoring of the oily water separator is undertaken to ensure that the treatment is meeting design specifications. Any significant loss of harmful substances that cannot be recovered before it enters the drain system may be able to be recovered from collection tanks, if necessary, depending on the design of the system.

Possible discharged substances

119. Harmful substances could only enter the drainage system through residual spills or splashes that are then washed into the drainage system by rainfall or deck washing.

120. Generally, harmful substances that could potentially enter a rig’s drainage system include products that are used as part of the drilling mud systems, cement additives, products used during well clean-up and completion, detergents used in deck cleaning and general maintenance and machinery products.

121. If any residual product enters the drainage system, it would be significantly diluted within the drains (i.e. with rainwater). Oil-based products released in the hazardous areas will be removed via the system described above.

122. As previously noted, specific chemicals are unable to be confirmed at this stage. Shell Taranaki regularly reviews all chemicals used in drilling activities to select products with the lowest practicable toxicity, while still meeting its operational requirements. This same process will be applied to the selection of products that are used during activities sought for this application. The IA describes potential harmful substances in more detail. However, prior to any drilling campaign Shell Taranaki would confirm with the EPA all harmful substances that have a reasonable potential to enter the deck drain system.

COMMITMENT AND POLICY ON HEALTH, SECURITY, SAFETY, THE
ENVIROMENT AND SOCIAL PERFORMANCE

123. As noted, HSSE & SP is a priority for Shell Taranaki. Shell Taranaki prides itself on having a good HSSE & SP record of compliance for the duration of its operations in the Māui Field.

124. Set out below is a summary of:

(a) Shell Taranaki’s HSSE & SP principles, policies and objectives;

(b) Shell Taranaki’s compliance with the Health and Safety at Work (Petroleum Exploration and Extraction) Regulations 2016 (HSW Regulations) and the objectives and content of the MPA and MPB Safety Cases produced under the HSW Regulations;

(c) Shell Taranaki’s systems and procedures for responding to incidents;

(d) Spill response preparedness; and

(e) Shell Taranaki’s systems to manage the potential effects of its operations on the environment.

Shell Taranaki’s HSSE & SP principles, policies and objectives

125. Shell Taranaki manages HSSE & SP in accordance with a number of policies and objectives. This includes:

(a) Shell Taranaki’s business principles. These reflect core values of honesty, integrity and respect for people and they underpin all the work Shell Taranaki does. Shell Taranaki commits to contribute to sustainable development. This approach requires balancing short and long term interests, integrating economic, environmental and social considerations into business decision-making. Shell Taranaki’s objectives are to engage efficiently, responsibly and profitably in the oil and gas business, and to play an active role in the search for and development of further hydrocarbon reserves. In keeping with Shell Taranaki’s business principles and objectives, Shell Taranaki’s assets are designed, operated, maintained and decommissioned in a manner that safeguards their integrity and ensures their planned availability throughout their life cycle.
(b) The Shell HSSE & SP Control Framework which is a Shell-wide resource setting out requirements for health, security, safety, the environment and social performance. It contains manuals, standards and specifications in relation to a range of HSSE & SP topics and reflects industry best practice. The standards and specifications in the HSSE & SP Control Framework are reflected within the Shell Taranaki Corporate HSSE & SP Plan and specific project HSSE & SP plans as appropriate.

(c) Shell Taranaki’s Business Plan and Corporate HSSE & SP Plan capture Shell Taranaki's strategic HSSE & SP objectives. These plans are reviewed annually, by Shell Taranaki, in line with actual performance and changing expectations of stakeholders. The Shell Taranaki Corporate HSSE & SP Plan sets out the following HSSE & SP vision for the company:

(i) We are proud of our business in New Zealand. We have a culture of deeply felt care for our people and the environment.

(ii) Our people, both staff and contractors, feel engaged and supported and they go home safe and well every day.

(iii) We have confidence in the integrity of our assets; we have confidence in the design, planning and execution of our work.

(iv) We achieve this through;

(aa) Open dialogue, speaking up and intervening is natural, encouraged and valued.

(bb) Felt ownership and accountability for HSSE.

(cc) Being an effective learning organisation that continuously improves.

(dd) Discipline rigour and consistency in all that we do, and we deliver what we say.
(ee) Valuing and using systems and processes and engagements to effectively manage the risks and achieve excellence.

(ff) A strong sense of unease that leads to enquiry and learning

(v) We are passionate about personal and process safety and environmental stewardship. We are widely admired in NZ and in Shell as the safest and most environmentally responsible business.

This Vision is cascaded throughout the organisation.

(d) Shell Taranaki’s Commitment and Policy on HSSE & SP is included in the IA. This sets out Shell Taranaki’s commitment and high level policy in relation to all aspects of HSSE & SP. The commitments contained in the HSSE & SP Policy reflect Shell Taranaki’s dedication to ensuring that HSSE & SP receive the utmost attention by Shell Taranaki’s management, staff, contractors and the local community.

(e) Shell Taranaki HSSE & SP Management Manual. This describes the company HSSE & SP management system and related processes to achieve continual improvement of HSSE & SP performance. This includes environmental management elements supporting Shell Taranaki’s certification to the Environmental Management System Standard, ISO 14001. This document describes how HSSE & SP requirements are met and takes into account the compliance requirements of:

(i) EEZ Act;


(iii) Resource Management Act 1991;

(iv) New Zealand Health and Safety at Work Act 2015 and subsequent regulations; and
126. Shell Taranaki’s major onshore facilities, including the MPS are certified to the requirements of the ISO14001 Environmental Management System standard. This standard requires Shell Taranaki to “identify the environmental aspects of its activities, products and services” and “to determine those aspects that have or can have significant impacts(s) on the environment”. Where appropriate, hazards resulting in environmental effects are identified within HSSE & SP hazard registers and also within the Shell Taranaki Environmental Aspects Register to ensure that all environmental aspects of Shell Taranaki’s activities are captured and appropriately managed. The Environmental Aspects Register is maintained by the lead Shell Taranaki Environmental Advisor and documents all of the potential interactions between Shell Taranaki’s activities and the environment, the control measures in place to minimise the effects of those interactions, and potential improvement opportunities.

127. Shell Taranaki has a stringent reporting culture where all incidents are reported via a global reporting system to ensure learnings, where applicable, are shared across the business. All incidents and near misses are reported and investigated in accordance with the Shell Taranaki Incident Reporting and Follow-up Procedure and recorded in the incident database, Fountain. The seniority of investigation leadership is guided by the “potential risk significance” of the incident or near miss. Incident investigation reports, and the actions arising are recorded and tracked in the Fountain incident database. Follow up is monitored by the HSSE & SP Strategy & Assurance Committee Meeting chaired by the Shell Taranaki HSSE & SP Manager.

Shell Taranaki compliance with the HSW Regulations and Safety Cases

128. The operation, maintenance and modification of all of Shell Taranaki’s structures and rigs is undertaken in accordance with the requirements of the HSW Regulations.

129. The HSW Regulations require the development of a Safety Case for offshore installations and the approval of Safety Cases by WorkSafe New Zealand (High Hazards Unit).
130. Operational Safety Cases have been prepared by Shell Taranaki for both MPA and MPB and were approved by WorkSafe New Zealand (High Hazards Unit) on 22 April 2016 and are therefore valid until April 2021.

131. A safety case specifically relating to the operation of a rig would be developed and submitted to WorkSafe New Zealand for approval prior to any rig operating within the Māui Field. It will be a contractual requirement for any rig contracted by Shell Taranaki to undertake activities in the Māui Field that a Safety Case is approved by WorkSafe New Zealand prior to activities commencing.

132. In general, it is not anticipated that the operation of a rig next to either MPA or MPB would require modification of the existing MPA and MPB Safety Cases as the presence of a rig would not significantly affect the operation of the platforms or the safety management systems. However, this would be considered on a case by case basis and amendment of the existing Safety Cases would be undertaken and submitted to WorkSafe New Zealand for approval if required.

133. In addition to the Safety Cases applying to the existing platform and a rig, whenever a rig operates at the existing MPA or MPB platforms, an HSSE Bridging Document would be prepared by Shell Taranaki in conjunction with the rig contractor and other relevant contractors to ensure that the interfaces between the various safety management systems are clear and documented. In particular, the HSSE Bridging document would ensure that:

(a) Shell Taranaki, contractors and service providers can conduct operations safely;

(b) Personal safety requirements are defined and are clearly stated;

(c) Interfaces between Shell Taranaki, contractors and service providers are clearly defined and operable;

(d) Foreseeable major hazards associated with the operation have been identified, assessed and are fully understood.
(e) Suitable and sufficient barriers and controls are, or will be, in place such that risks to people, assets, environment and company reputation are tolerable and are as low as reasonably practicable;

(f) There is adequate provision for full and safe escape of all personnel from in the event of a major incident; and,

(g) Procedures and systems are in place for control and recovery in the event of an emergency situation.

134. The approval of the HSSE Bridging document is not a regulatory requirement but this document would normally be provided to WorkSafe New Zealand for information.

135. Shell Taranaki’s Safety Cases provide a roadmap to the company systems and processes used to manage Major Accident Hazards (MAH) that may arise from operating the facilities. These include hazards that are unlikely to eventuate. Similarly, the Safety Case for a specific rig would identify MAH that may arise from operation of the rig and the systems and processes in place to manage those MAH.

136. The Safety Cases identify all MAHs and demonstrate that appropriate barriers have been provided and there are robust activities, procedures and competencies in place to ensure these barriers remain effective over the life of the facility and that MAH are managed to as low as reasonably practicable. This includes specific training exercises to ensure that all platform or rig staff can respond to MAH.

137. The HSW Regulations require Shell Taranaki and the relevant drilling contractors to provide WorkSafe New Zealand with a notice of combined operations whenever a rig (or other installation) will be operating in a combined operation with MPA or MPB. This notification is required at least 21 days prior to the combined operation commencing.

138. The HSW Regulations also require operators of offshore production installations and drilling contractors, in relation to offshore non-production installation (such as a rig) to ensure that the installation has a current certificate of fitness in respect of the safety of:
(a) The structure of the installation; and

(b) All equipment necessary for the safe operation of the installation.

139. Certificates of fitness for MPA and MPB are in place and are renewed on an annual basis. Any rig operating within the Māui Field will be required to have a certificate of fitness in place prior to operations commencing.

**Shell Taranaki systems and procedures for responding to incidents**

140. During the 37 years the Māui facilities have been operating, none of the potential major accident scenarios identified in the safety cases have occurred. Nevertheless, Shell Taranaki has developed procedures for responding to identified major accidents and other hazards in case of emergency.

141. In addition to the barriers designed to prevent a major accident occurring, Shell Taranaki has a system of procedures, manuals and trained personnel that ensures the following objectives are achieved in the event of an emergency situation. This is set out in the Safety Case and the Shell Taranaki Corporate Emergency Response Manual and includes:

(a) Controlling and containing an emergency through prompt and effective response measures such that the effects are minimised;

(b) Preventing injury to personnel as well as damage to the environment and asset;

(c) Ensuring that trapped or injured persons are rescued and given prompt and appropriate medical assistance;

(d) Communicating information on the emergency throughout the period to the Emergency Operations Centre, Facility Response Team, Muster Station and other relevant parties;

(e) Preserving information and records for investigation into the incident;

(f) Restoring normality if the situation can be recovered;

(g) Ensuring the safe evacuation of personnel if the situation escalates out of control.
142. Shell Taranaki has adopted the principles of the New Zealand Coordinated Incident Management System (CIMS) as the management system to be used in response to MAH. CIMS is New Zealand’s system for managing the response to an incident involving multiple responding agencies. Shell Taranaki has adopted this to ensure cross-agency responses are consistently and effectively managed. By adopting the principles within this plan, co-ordination with local and national emergency and support services is enhanced.

143. The Safety Case for a rig would set out the emergency response procedures that would be applied in response to an emergency situation affecting the rig. The HSSE Bridging Document, or a separate Emergency Response Bridging document, would document the interfaces between Shell Taranaki’s emergency response procedures and those applying to a rig to ensure clarity of procedures, roles and responsibilities, and evacuation procedures in the event of an emergency incident.

144. In terms of insurance claims arising from an unplanned incident, Shell Taranaki does not hold public liability insurance itself. However, the three Māui joint venture parties provide public liability insurance coverage for Shell Taranaki’s operations. Shell Taranaki operates Māui in the capacity of an agent for the three owners of the field; Shell, OMV and Todd. As an agent, Shell Taranaki is indemnified by the owners for all costs and liabilities relating to Māui and so the funding for any public liability incidents is provided by Shell, OMV and Todd. In this context, the three owners hold the relevant public liability insurance rather than Shell Taranaki.

145. The Director of MNZ, the Maritime Transport Act and Part 102.8(2) of the Marine Protection Rules set out expectations regarding appropriate levels of insurance coverage. Shell Taranaki has demonstrated to MNZ that the requirements for financial coverage of public liability obligations have been met. MNZ’s certificates of insurance for MPA and MPB are included as Appendix 2.

146. The owner of a jack-up rig operating in the Māui Field would also be required to hold appropriate insurance to meet the requirements of the Maritime Transport Act and Part 102.8(2) of the Marine Protection Rules.
Spill response preparedness

147. To respond appropriately to a potential spill event Shell Taranaki has put in place the Māui Field Oil Spill Contingency Plan (OSCP). The objective of the OSCP is to safely mitigate the effects of a spill arising from Shell Taranaki or its contractors' activities within the Māui Field. This plan describes how Shell Taranaki will:

(a) Respond to a spill in the Māui Field;

(b) Alert MNZ as specified in the Maritime Transport Act and Marine Protection Rules;

(c) Alert EPA as specified in the Exclusive Economic Zone and Continental Shelf (Environmental Effects – Discharge and Dumping) regulations 2015; and

(d) Assist MNZ, EPA and the Regional Council where practicable and as requested.

148. The drilling contractor of any rig operation in the Māui Field would be required to address spill contingency planning within the rig Emergency Response Plan or a specific rig spill response plan. As noted above, a bridging document would be developed which would specify the interfaces between the Shell Taranaki spill response procedures and those of the rig contractor.

149. The Māui OSCP sets out in detail the immediate actions in the unlikely event of a spill, the conditions for terminating response actions, MNZ’s response framework and a directory of resources and tools that may be of use during a marine spill.

150. The Shell Taranaki emergency response system, including spill response procedures, are scalable with the same system and procedures being applied to minor spills, such as those that can be contained on the platform or rig deck, and more significant events that could potentially reach the sea.

151. Shell Taranaki maintains spill response equipment on both the MPA and MPB platforms to respond to minor spills of condensate, diesel or other hazardous substances (such spills not being included in these
applications). Spill response resources for such minor spills on the platforms include 11 ‘wheelie bin’ spill kits on MPA and seven spill kits on MPB along with other absorbent material in rolls. Each platform also has a spill tracking buoy which can be deployed in the event of a more significant spill. In addition, Shell Taranaki maintains a shipping container which has been converted into a beach clean-up facility. It can be used in the event that a beach clean-up operation is required. The container holds various items of Personal Protective Equipment and beach clean-up equipment such as shovels and tools. It also has power and lighting. Spill trailers, which hold spill response equipment in an easily transportable form, are also held at Shell Taranaki’s onshore facilities.

152. Any rig operating within the Māui Field will be required to hold and maintain appropriate spill kits to respond to minor spills on the rig.

153. Shell Taranaki undertakes a range of activities to provide training and raise awareness of staff with respect to spill response. This includes information presented and discussed at monthly HSSE meetings, formal training (for example ICS (Incident Command System) 300, spill awareness, equipment operators and aerial surveillance training). In addition, Shell Taranaki staff are regularly involved in spill response combined exercises with MNZ and Taranaki Regional Council.

**Environmental management**

154. Shell Taranaki’s Māui Activity Manager is responsible in Shell Taranaki for managing environmental compliance for the Māui facilities in relation to ongoing operations. When a drilling campaign involving a jack-up rig, or other rig type, is undertaken some or all of these responsibilities in relation to the drilling campaign will be delegated to a dedicated project management team. In addition, many of the aspects of executing a drilling campaign are undertaken by contractors and therefore the responsibility for physically undertaking many of the activities required to achieve environmental compliance will be delegated to contractor personnel via contractual requirements and would be incorporated into contractor HSSE Management Plans and procedures as appropriate.
The Māui Activity Manager or drilling campaign Project Manager is responsible for ensuring that Shell Taranaki:

(a) Obtains all necessary environmental consents/authorisations.

(b) Complies with the conditions of its environmental consents or authorisations.

(c) Complies with the requirements of all relevant legislation and regulations that are applicable to managing potential environmental effects relating to Shell Taranaki’s activities in the EEZ and Continental Shelf. This includes the following Acts and any associated regulations:

(i) Maritime Transport Act 1994 and Marine Protection Rules;

(ii) Biosecurity Act 1993;

(iii) Continental Shelf Act 1964;

(iv) EEZ Act;

(v) Submarine Cables and Pipelines Protection Act 1996;


(vii) Defence Act 1990;

(viii) Fisheries Act 1996;

(ix) Marine and Coastal Area (Takutai Moana) Act 2011;

(x) Marine Mammals Protection Act 1978;

(xi) Marine Reserves Act 1971;

(xii) Resource Management Act 1991;

(xiii) Wildlife Act 1953; and

(d) Avoids, remedies and mitigates the effects of its activities associated with its operations in the Māui Field on the environment.

156. Shell Taranaki has a range of systems and procedures in place to ensure that the above objectives are met and would expect contractors involved in a drilling campaign to reflect these requirements within their systems and procedures as appropriate. These include:

(a) Compliance with consent conditions.

(b) Routine environmental monitoring.

(c) Reporting systems for seabird incidents and mammal sightings.

(d) Regular environmental audits which are completed by Shell Taranaki’s environmental advisors and external audits are undertaken by MNZ and the EPA.

(e) Internal and external reporting of environmental incidents.

(f) Environmental training and awareness programmes.

(g) Maintenance of a spill response capability.

157. These systems and procedures are explained in further detail below.

Consent Compliance Management

158. Shell Taranaki holds a large number of consents and other environmental permits which include consent conditions which Shell Taranaki must comply with. Shell Taranaki uses a consent management software system (CS-VUE) to assist in the management of, and compliance with, these various conditions.

159. The CS-VUE system enables Shell Taranaki to assign responsibility for compliance with individual consent conditions to individuals and to track close-out and compliance with those conditions. Email reminders are sent to the responsible individuals prior to the compliance due date. Summaries of compliance with consent compliance are then reviewed by Shell Taranaki’s senior leadership so that any outstanding issues can be addressed. Evidence of completion or close-out of a consent condition can be attached
to the relevant condition within the system to enable an auditable trail of consent compliance. In a situation where Shell Taranaki requires a contractor to ensure compliance with consent conditions, the system can also be set-up for external contractors to access the system and to be allocated responsibility for specific conditions.

Environmental monitoring

160. A range of environmental monitoring is currently undertaken at the Māui facilities to ensure that any impacts from the activities are identified and mitigated as far as practicable.

161. These include regulated requirements, such as benthic sampling currently required by the existing Māui marine consent (EEZ000010) and the Māui DMP, as well as operational monitoring activities.

162. Shell Taranaki has undertaken monitoring of emissions and discharges to the environment associated with MPA and MPB for many years including monitoring the volume and quality of produced water discharges to sea, fuel gas usage and bunkered volumes of chemical, diesel and water. Monitoring of the benthic environment was first undertaken in 2006 in association with a drilling campaign at the MPA platform and included monitoring of benthic ecology and sedimentology characteristics in the vicinity of MPA. From 2011, benthic monitoring including physical, chemical and ecological analysis has been undertaken in association with drilling programmes and has included pre- and post-drilling sampling. From 2014, the benthic monitoring programme was extended to include an annual operational monitoring survey and monitoring of produced water and receiving water samples for Direct Toxicity Assessment (DTA) at Māui B was also added to the annual monitoring programme.

163. Below I address current monitoring activities in the vicinity of the Māui Field that are relevant to the application.

Monitoring of the marine benthic environment

164. The existing Māui marine consent (EEZ000010) requires Shell Taranaki to implement a benthic monitoring programme within the Māui Field which has the purpose of assessing the impacts of the activities authorised by the
existing consent on the benthic environment. This includes a requirement to undertake benthic monitoring prior to and after each drilling programme.

165. Current marine benthic environmental monitoring is generally undertaken in accordance with ‘Recommendations for an Offshore Taranaki Environmental Monitoring Protocol: Drilling- and production-related discharges’ (OTEMP) (Cawthron, 2014). This guidance document was produced by the Cawthron Institute in response to a perceived need for a standardised approach to monitoring discharges from offshore installations and was developed with input from industry operators, MNZ and the EPA. Shell Taranaki has applied the protocol to provide consistency of approach and comparability of results with other Taranaki offshore operators. The following extract from OTEMP outlines the aim and objectives of the environmental monitoring programme followed by Shell Taranaki:

‘The overall aim of the OTEMP is to detect benthic ecological effects from offshore operational discharges such as production water and drilling-related discharges (e.g. from Field developmental drilling and exploration drilling). In achieving this, specific monitoring objectives are to:

(a) Provide a means of determining adverse ecological effects on benthic ecology (including macrofaunal communities, and physical and / or chemical alterations) that can be related or attributed to discharge activities.

(b) Assess the spatial extent and magnitude of project-related contamination / effects.

(c) Assess the toxicity of an effluent to ensure that its release into the aquatic environment does not harm exposed biota.

(d) Accumulate site-specific benthic ecological data, recommended to be used for testing predictions in an Environmental Impact Assessment.

(e) Ensure that regulatory guidelines and environmental standards are met.

(f) Assess the effectiveness of any implemented mitigation measures.'
Contribute to continuous improvement in the management of environmental issues relating to offshore facilities.

Assess the spatial extent and magnitude of drilling- and production-related contamination.

Provide an early warning of changes in the environment.

Improve understanding of environmental cause-and-effect.'

166. Currently, marine benthic grab samples are taken from 19 sampling stations within 250m and up to 6,000m from MPA and 19 sampling stations within 250m and up to 6,000m from MPB on an annual basis as required under the DMP. Two control sites located approximately 15km north and 30km southwest of MPA are also sampled as part of the annual sampling. Typically, three 'grab' samples of seabed sediment are taken from each monitoring station. Sub-samples are then taken for analysis of physical (grain size and organic content), chemical (metals, metalloids, total petroleum hydrocarbons (TPH) and polycyclic aromatic hydrocarbons (PAH) and biological components (taxa and abundance). Results of environmental monitoring are provided to EPA on an annual basis. The last benthic monitoring reports for MPA and MPB were provided to the EPA in March December 2016.

167. Additional marine benthic environmental monitoring is generally undertaken by Shell Taranaki in conjunction with specific drilling campaigns and typically involves surveys at the same sampling stations described above both 'before and after' drilling activities. Depending on timing of drilling, one or both of these ‘before and after’ sampling occasions may be combined with the regular annual sampling.

168. In addition to seabed samples, video imagery of the seabed is also generally obtained in conjunction with the annual benthic monitoring programme using either a remotely operated video sled or drop camera. In general, on each monitoring occasion, 250 metres of footage for each video track is recorded at six locations in the vicinity of both MPA and MPB and at two locations at each control site.
Monitoring of Drilling Activities

169. The existing Māui marine consent (EEZ000010) requires Shell Taranaki to provide a Pre-drilling and Monitoring Plan to the EPA at least 40 working days prior to commencing any drilling campaign. The plan is required to provide details of:

(a) The proposed start and finish date for the drilling campaign;
(b) The proposed mobilisation and de-mobilisation date for any drilling rigs to be used;
(c) The Drilling Muds to be used;
(d) The anticipated in-situ volume of drill cuttings to be removed and discharged from each well;
(e) Any drilling rig to be used; and
(f) The name and location of the well(s) to be drilled.

170. In addition to the Plan described above, Shell Taranaki is required to maintain a log during drilling activities which includes the following information:

(a) The name and location of the wells drilled;
(b) The total volume of cement used per well drilled, estimated by dry weight;
(c) The total volume of milling swarf taken onshore for disposal;
(d) Where synthetic based muds are used during the drilling activity, records showing the average retention-on-cuttings for the total number of wells drilled in a drilling campaign;
(e) The total volume of water based muds used in each well;
(f) The total volume of synthetic based muds used in each well; and
(g) The in-situ volume of drill cuttings removed and discharged from each well.

**Monitoring of offshore processing drainage from the rig**

171. It is anticipated that rigs will have equipment in place to undertake regular monitoring of the performance of the oily-water separator which receives deck-drain drainage to ensure equipment on the drill rig is meeting design specifications such as the treatment of hydrocarbons to MARPOL Annex I standards (15 ppm). It is likely that the drilling rig will have automated monitoring of oil-in-water content prior to discharge however this will depend on the layout and facilities available on the specific rig selected.

**Monitoring the quantity of discharges to air**

172. Emissions to air at both MPA and MPB include the operational venting of small volumes of gas and exhaust emissions from combustion equipment (e.g. diesel generators, turbines). Larger volumes may be vented on occasion due to planned (to allow maintenance to occur) or emergency depressurisation of the production facilities. The venting of gas occurs from the vent stacks located on the platforms which are located 60 m above the upper-deck of MPA and 50 m above the upper-deck of MPB.

173. Shell Taranaki undertakes regular exposure monitoring of contaminants with potential adverse health effects (e.g. benzene) to operational personnel working on the platforms. Similarly, a risk based assessment process would be used to identify potential health hazards for personnel working on a rig. This would include potential exposure from sources located on both the rig and the platform if relevant. For example, drilling crew working on the section of a jack-up rig which cantilevers over one of the platforms could be exposed to air emissions from vents or other sources on the platform. A Health Risk Assessment process is used to identify potential health hazards that could affect workers’ health and the appropriate level of monitoring based on these hazards. The monitoring plan is documented in a Health Risk Assessment report.

174. At present, annual monitoring of platform based personnel potentially exposed to benzene is undertaken. This monitoring shows that the level of exposure is within Shell Group exposure standards (which are based on
European standards). These exposure limits are more stringent than the equivalent New Zealand Workplace exposure standards.

**Monitoring of raw material usage including the use of chemicals and water**

175. Raw material usage (e.g. water, diesel and chemicals) and solid waste will be monitored as bunkered volumes or recorded transfers to the rig. Fuel use associated with the use of offshore supply vessels and helicopters is also monitored based on invoiced volumes.

**Monitoring and investigation of unplanned incidents**

176. Unplanned events and incidents are initially dealt with by the Person in Charge (PIC) of the installation with support from the Shell Taranaki Emergency Response Team. This involves first response to ensure the safety of people, environment, assets and reputation and that the recovery process is managed effectively. Monitoring of all incidents is undertaken with notification to specific technical authorities both internally and externally. Investigations are managed under Shell Taranaki’s Incident Management Procedure which details how investigations are managed and led depending on the actual and potential risk factors. In the event of an unplanned event or incident involving a jack-up rig, depending on the nature of the incident, an investigation team would likely involve both Shell Taranaki and contractor personnel.

**Reporting systems for seabird incidents and marine mammal sightings**

177. Anyone working on Shell Taranaki’s Māui facilities who observes a seabird collision is required to record the event in the Shell Taranaki Marine Mammals and Bird Collision register which is maintained on the Shell Taranaki intranet. Where time and safety permits, photographs are taken. If the incident involves the death of any seabird the carcass is recovered (where this is possible) and preserved in ice for transfer to the Department of Conservation (DOC).

178. As noted in the evidence of Dr David Thompson, no seabird or marine mammal injuries or deaths have been recorded in relation to MPA or MPB to date. The existing Māui Marine Consent (EEZ000010) includes conditions
which require all seabird collisions to be recorded and reported to DOC and EPA on an annual basis.

179. Shell Taranaki also has a procedure in place for the reporting of marine mammal sightings and incidents that cause injury to or death of a marine mammal (e.g. entanglements and collisions) to the DOC. It has had this procedure in place informally for a number of years and since 2015 a requirement to record all marine mammal sightings (excluding fur seals) and report these to DOC on an annual basis has been incorporated into conditions on the existing Māui Marine Consent (EEZ000010). In addition, sightings of Māui or Hector’s dolphin are to be notified to DOC as soon as possible within 24 hours. To date no records of marine mammal collisions have been reported in relation to Shell Taranaki’s activities in the Māui Field.

180. Any personnel working on a jack-up rig within the Māui Field would be required to comply with the above requirements in relation to the reporting of marine mammal sightings and any bird collisions.

Environmental audits

181. Environmental audits are undertaken at the Māui facilities on a regular basis and include:

(a) Regular environmental audits completed by Shell Taranaki’s environmental advisor;

(b) EPA and MNZ conduct annual audits of each offshore facility to check compliance against Shell Taranaki’s DMP and Oil Spill Contingency Plan; and

(c) An Independent HSSE and SP control framework audit.

182. In addition to the regular audits undertaken at the Māui A and B facilities, additional audits and inspections would be undertaken in relation to any jack-up rig operating within the Māui Field. Pre-mobilisation audits would be undertaken to ensure that the jack-up rig is compliant with a range of requirements including environmental controls and monitoring equipment, procedures and training. A programme of audits would also be undertaken during a drilling project to ensure that the jack-up rig is operating in
accordance with Shell Taranaki standards and procedures which would be specified within contract documentation and any regulatory requirements including consent conditions.

*Internal and external reporting of environmental incidents*

183. The Shell Taranaki approach to the internal report of incidents and situations arising that had the potential to lead to an environmental incident is described earlier in my evidence. These procedures apply fully to all environmental incidents including loss of primary containment (with or without secondary containment), complaints, and exceedances of regulatory limits.

184. In addition, there are a number of requirements within Shell Taranaki consents, permits and other legal requirements for reporting of incidents or non-compliance events to the relevant statutory body (e.g. EPA; Taranaki Regional Council; MNZ; High Hazards Unit). Shell Taranaki reports any spill to the marine environment to the appropriate regulatory body (EPA; MNZ or Taranaki Regional Council) regardless of the size of the spill.

*Environmental training and awareness programmes*

185. Shell Taranaki implements a variety of tools to build awareness and ensure staff and contractors understand their roles in achieving compliance with relevant environmental legislation and performance. All personnel working offshore are required to undertake an induction before working on the location, which highlights some of the environmental aspects to be aware of when working offshore. Shell Taranaki also undertakes monthly HSSE meetings across all of its sites, where everyone onsite participates.

186. A specific induction programme would be developed for any project involving a jack-up rig. This programme would typically involve a project kick-off ‘Town Hall’ for all personnel (Shell Taranaki and Contractor) involved in the project to ensure that all project personnel are aware of the expectations and requirements in relation to HSSE performance, reporting and emergency response. In addition, a project specific HSSE induction would be developed which all personnel working on the project would have to complete prior to commencing work. This may also be supplemented with specific HSSE inductions for particular roles or disciplines. A project specific programme of HSSE awareness and training would also be developed in conjunction with
the main Contractors working on a project which would be targeted towards the project specific HSSE risks and issues including environmental performance.

187. In my opinion, Shell Taranaki places a high priority on HSSE & SP. Shell Taranaki has a number of policies, procedures and systems in place that comply both with New Zealand’s regulatory requirements and with industry best practice for operating facilities in a safe and environmentally responsible way.

RESPONSES TO POINTS RAISED IN SUBMISSIONS

188. Some submitters have asked about cumulative effects. As a general point, I note that this application does not seek consent for additional drilling as activities associated with the drilling of new side-track wells are already permitted under the existing marine consent (EEZ000010). The current application primarily seeks the ability to use a different type of rig to that already authorised under the existing marine consent in support of drilling activities that are also already authorised. A team of experts engaged by Shell Taranaki have assessed any potential cumulative effects on the environment and existing interests in their evidence.

189. Some submitters have raised concerns regarding the integrity of the Māui facilities. I would note that maintaining the integrity of the Māui facilities to a high standard, including the integrity of temporary structures such as a jack-up rig, is extremely important to Shell Taranaki. This not only assists in preventing incidents and unplanned events but it also ensures that activities run effectively and efficiently, that the facilities meet industry best practice standards and that any adverse effects of Shell Taranaki’s activities on the environment are avoided, remedied and mitigated.

190. A number of requirements and systems are implemented by Shell Taranaki to ensure the integrity of the Māui facilities. These measures are documented and approved via the Safety Cases and Certificates of Fitness, for both the production platforms and any jack-up Rig, and via the well examination scheme for the wells themselves. These are all regulatory requirements under the HSW Regulations. Within these documents, Shell Taranaki and/or a drilling contractor is required to demonstrate that it has
robust equipment, systems and procedures to ensure the integrity of the facilities that are operated by, or on behalf of, Shell Taranaki taking into account the predicted conditions that will be encountered including extreme events such as storm and seismic events.

191. The Safety Case and Certificate of Fitness are detailed, facility specific requirements and therefore cannot be developed or approved until a specific rig is identified for a particular drilling campaign. However, appropriate measures to ensure the integrity of the jack-up rig, and to meet both Shell Taranaki internal standards and regulatory requirements, must be in place before any jack-up rig would be able to operate within the Māui Field.

192. Some submitters have suggested that this application for marine discharge consent is intended to provide the ability to undertake hydraulic fracturing at Māui or to increase the discharge of produced water. I can confirm that Shell Taranaki has no intention to undertake hydraulic fracturing at Māui. In terms of produced water discharge, this is currently permitted via Shell Taranaki’s deemed Marine Discharge Consent and is not part of this application.

193. The Climate Justice Taranaki submission requests information on gas emissions associated with ‘Depressurisation of the pipeline including venting of gas’ as mentioned in Section 4.2 of the Impact Assessment. I would note that this is not an activity for which consent is sought and is an activity that would be undertaken as a safety measure during installation and removal of a jack-up rig to mitigate the risks associated with any unplanned damage to the pipeline.

194. The Climate Justice Taranaki submission also expressed concerns regarding the potential for Shell to sell its assets in New Zealand and thereby avoid future obligations. In this regard, I would note that the current regulatory obligations on Shell Taranaki and the Māui Joint Venture, including compliance with conditions on marine consents and marine discharge consents, would continue to apply regardless of any future changes in operatorship or ownership of the Māui joint venture.

CONCLUSION

195. This application seeks to enable the placement and removal of Jack-Up rigs in the Māui Field and other associated activities, including the potential
discharge of harmful substances through deck drains (offshore processing drainage) from the drill rigs. All Shell Taranaki operations are undertaken in compliance with relevant New Zealand regulatory requirements, Shell Taranaki’s Policy on HSSE and SP, and in accordance with international best practice. I am confident that Shell Taranaki will undertake the activities sought under this marine consent application in a safe and environmentally responsible way.

Dated this 11th day of September 2017

Owen Michael Hey
Appendix 1: Examples of Jack-Up Rig Equipment and Installation

Figure 1: Example of a Jack-Up Rig

Figure 2: Example of a Spudcan

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Figures 3: Jack-Up Rig Installation Process
Appendix 2: Maritime New Zealand’s certificates of insurance for MPA and MPB

CERTIFICATE OF INSURANCE OR OTHER FINANCIAL SECURITY IN RESPECT OF CIVIL LIABILITY FOR OIL POLLUTION DAMAGE FROM A REGULATED OFFSHORE INSTALLATION

Name of regulated offshore installation (if applicable)  MAUI WELLHEAD PLATFORM

Distinctive number or letters (if applicable)  A

Location of regulated offshore installation  39°33’24”S 173°28’56”E

Name and full address of the owner  Shell Taranaki Limited
Private Bag 2035
New Plymouth

This is to certify that there is in force in respect of the above-mentioned regulated offshore installation a policy of insurance or other financial security satisfying the Director of Maritime New Zealand and in accordance with the requirements of the Maritime Transport Act 1994 and Part 102 of the marine protection rules.

Type of security  Parent Company Guarantee

Duration of security  Dates from and to  28/07/2017 to 31/12/2018

Name and address of the insurer(s) and/or guarantor(s)  Shell Investments NZ Limited
Level 10
2 Hunter Street
Wellington 6011

This certificate is valid from 31/08/2017 until 30/08/2018

Issued or certified on behalf of the Government of New Zealand at WELLINGTON on 31st August 2017 by the Director of Maritime New Zealand.

Sharrn Forsyth
General Manager Maritime Standards
[Acting under delegated authority]
CERTIFICATE OF INSURANCE OR OTHER FINANCIAL SECURITY IN RESPECT OF CIVIL LIABILITY FOR OIL POLLUTION DAMAGE FROM A REGULATED OFFSHORE INSTALLATION

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General Manager Maritime Standards
[Acting under delegated authority]