Otago Regional Council

Section 42A Staff Recommending Report

Discharge Permit Application

Mobil Oil New Zealand Limited

The recommendation in the staff report represents the opinion of the writers and it is not binding on the Hearing Commissioner. The report is evidence and will be considered along with any other evidence that the Hearing Commissioner will hear.

Shay McDonald
Consents Planner

16 December 2022

Executive Summary of Recommendation

Mobil Oil New Zealand Limited (Mobil, the Applicant) has applied for resource consent under the Regional Plan: Waste for Otago (RPWaste) and the Regional Plan: Water for Otago (RPW) to passively discharge hazardous substances onto or into land in circumstances that may result in those substances entering water. The location of this activity is at the former Mobil bulk oil terminal at 199 Fryatt Street, Dunedin.

The Applicant seeks a term of 10 years for these passive discharges, which have not previously been authorised by a resource consent. The Application was limited notified to Dunedin City Council, based on contamination extending into the road reserve, who submitted in opposition.

The key issues arising from this application are:

- Long-term passive discharge of hazardous substances into soil and groundwater;
- Potential for hazardous substances to be discharged into Otago Harbour directly via groundwater or indirectly via leaching into stormwater pipes; and
- Long-term responsibilities imposed upon the Dunedin City Council.

After assessing the actual and potential effects of the application, considering submissions, and considering all of the matters in section 104 of the Resource Management Act 1991 ("RMA"), the recommendation of the Consent Planner is to grant this consent for a duration of ten years subject to the recommended conditions of consent.

Report Author

Shay McDonald

My name is Shay Maree McDonald. I am a Consents Planner employed by the Otago Regional Council since 2021.

I hold the qualification of a Bachelor of Science (Honours) in Chemistry from the University of Otago.

I have been involved with the Mobil Oil New Zealand Limited application since the first s92 request for further information was made. I have undertaken a site visit for this application.

Shay McDonald

Abbreviations

AEE	Assessment of environmental effects
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Guidelines
bgl	Below ground level
CSM	Conceptual Site Model
DCC	Dunedin City Council
EMP	Environmental Management Plan
ESA	Environmental Site Assessment
HAIL	Hazardous Activities and Industries List
GIS	Geographic Information System
ORC	Otago Regional Council
LNAPL	Light Non-Aqueous Phase Liquid
MMA	Mobil Management Area
NPS-FM	National Policy Statement for Freshwater Management 2020
NRMP	Natural Resource Management Plan
PFAS	per- and poly-fluoroalkyl substances
P-RPS 2021	Proposed Regional Policy Statement 2021
PO-RPS 2019	Partially Operative Regional Policy Statement 2019
RFI	Request for Further Information s92(1)
RMA	Resource Management Act 1991
RPW	Regional Plan: Water for Otago
RPWaste	Regional Plan: Waste for Otago

OTAGO REGIONAL COUNCIL
SECTION 42A REPORT

ID Ref:	**A1712407**
Application No:	**RM22.099**
Prepared For:	**Hearings Commissioner**
Prepared By:	**Shay McDonald – Consents Planner**
Date:	**16 December 2022**

Subject: **Section 42A Recommending Report – Application to passively discharge hazardous substances onto or into land in circumstances that may result in those substances entering water for the purpose of long-term site management.**

1. Purpose

This report has been prepared under Section 42A of the Resource Management Act 1991 (RMA) to assist in the hearing of the application for resource consent made by Mobil Oil New Zealand Limited. Section 42A enables local authorities to require the preparation of a report on an application for resource consent and allows the consent authority to consider the report at any hearing. The purpose of the report is to assist the Hearing Commissioner in making a decision on the application.

The report assesses the application in accordance with Sections 104 and 104B of the Resource Management Act 1991 and makes a recommendation as to whether the application should be granted, and a recommendation on the duration of the consent and appropriate conditions.

This report contains the recommendations of the Consents Planner and is not a decision on the application. The recommendations of the report are not binding on the Hearing Commissioner. The report is evidence and will be considered along with any other evidence that the Hearing Commissioner will hear.

2. Summary of the Application

2.1 Overview

Applicant: Mobil Oil New Zealand Limited (Mobil)

Applicant's agent: Andrew Hart of WSP (formerly Golder)

Site address or location: 199 Fryatt Street, Dunedin

Legal description: Lot 2 DP482844, Road Reserve

Map reference (NZTM2000): E1407362 N4916984 (approximate site midpoint)

HAIL Reference: HAIL.00496.01

Consent sought: Discharge Permit RM22.099.01 for the passive discharge of hazardous substances onto or into land in circumstances that may result in those substances entering water.

Purpose: Long-term site management

Information requested: Request sent 13 May 2022 seeking:

- Details on historic use of PFAS on the site
- Proposed future monitoring
- Updates to Environmental Management Plans (EMP)

Request sent 11 October 2022 seeking:

- Stormwater monitoring data and data related to measurements of volatile organic compounds from stormwater manholes
- An assessment of effects on Otago Harbour relating to the potential discharge of hazardous substances to the harbour

Notification decision: The application was limited notified on 30 August 2022

Submissions: Total submissions received by due date: 1

- in support: 0
- in opposition: 1
- neutral: 0

Number of late submissions: 0
Wishing to be heard: 1

Site visit: I undertook a site visit on 5 December 2022. I walked around the perimeter of the site. The site was fully fenced, vacant, and covered in grass. I observed nearby buildings and the Otago Harbour.

Key Issues: It is considered that the key issues with this application are:

- Long-term passive discharge of hazardous substances into soil and groundwater
- Potential for hazardous substances to be discharged into Otago Harbour directly via groundwater or indirectly via leaching into stormwater pipes
- Long-term responsibilities imposed upon the Dunedin City Council

2.2 Description of Application

Historic Activities on Site

Mobil (the Applicant) operated a bulk storage terminal at 199 Fryatt Street, Dunedin from 1927 until 1995. During this time, a variety of hydrocarbon products were stored on site, including leaded and unleaded petrol, diesel, turpentine, kerosene, white spirits, and lubricant oils. The storage, use, or testing of Class B fire-fighting foams containing poly-fluorinated alkyl substances (PFAS) on the site is unlikely but cannot be discounted.

The bulk fuel storage facility was decommissioned from 1995 and aboveground infrastructure on site was progressively removed from site until 2007. Environmental site assessment (ESA) works at and around the site were completed between 1992 and 2017. The site has remained vacant since decommissioning.

Activities Relevant to Application

The historic operational use of the site resulted in discharges of petroleum hydrocarbons to land. These discharges occurred at least 27 years ago; however, the ESA works to determine the nature and extent of soil and groundwater contamination associated with the historic site activities have identified the presence of residual petroleum hydrocarbon impacts at the site. Light Non-Aqueous Phase Liquid (LNAPL) comprised primarily of diesel and diesel/petrol mixture is present in the ground beneath the site and extends to the southwest into Fryatt and Halsey Streets. Dissolved phase contaminants are detectable in groundwater up to 40 m to the south of the site.

Subsurface LNAPL may provide an ongoing source for the dissolution of substances into groundwater resulting in a spreading dissolved phase plume. Contaminants continue to partition from contaminated soil and LNAPL source areas into groundwater, which emanates from the site. It is for these passive discharges that Mobil seeks resource consent.

Monitoring by the Applicant has shown that the quantity and concentration of contaminants in soil and groundwater is reducing over time via a process termed natural attenuation. Based on this, the Applicant is not proposing to actively remediate the existing soil and groundwater contamination. Environmental Management Plans, proposed by the Applicant, set out management controls and procedures to mitigate adverse effects on human health and the environment in the event that future works are undertaken on the site or within the wider Mobil Management Area.

The Applicant has proposed a round of monitoring in the form of an environmental site assessment in year 8 or 9 of the consent to reassess the site conditions and to evaluate whether a renewal of the resource consent will be required.

Additional Information Since Notification

Since the notification of this consent application and receipt of the Dunedin City Council (DCC) submission, a s92(1) RFI was sent to the Applicant, requesting analysis of any existing relevant stormwater monitoring data as well as an updated assessment of effects on Otago Harbour. The purpose of these questions was to obtain information to address concerns raised by DCC about the potential for contaminants to leach into the underground stormwater network and be discharged into Otago Harbour.

2.3 Application Documents

The Applicant has provided the following documentation with the application:

- Resource Consent Application and Assessment of Effects on the Environment – Discharge of Contaminants, prepared by Golder Associates (NZ) Limited and dated February 2022;
- Former Mobil Dunedin Terminal – 199 Fryatt Street, Dunedin – Closure Report, prepared by Golder Associates (NZ) Limited and dated November 2019;
- Former Mobil Dunedin Terminal – 199 Fryatt Street, Dunedin – Environmental Management Plan, prepared by Golder Associates (NZ) Limited and dated March 2020;
- Former Mobil Dunedin Terminal – 199 Fryatt Street, Dunedin – Environmental Management Plan – Fryatt Street Adjacent to Former Terminal, prepared by Golder Associates (NZ) Limited and dated March 2020;
- Further information response dated 1 August 2022, including report prepared by WSP Golder titled *Phase 1 Review of Per- and Polyfluoroalkyl Substances (PFAS)* and dated July 2022; and
- Further information response prepared by Andrew Hart of WSP Golder dated 25 October 2022.

3. Notification and Submissions

3.1 Notification Decision

ORC made an interim decision on 17 August 2022 to process the application on a non-notified basis provided the unconditional written approval from DCC could be obtained. On 25 August 2022 the Applicant notified ORC that the unconditional written approval of DCC could not be obtained and requested that the application proceed to limited notification.

Consequently, on 29 August 2022 ORC made the decision to process the application on a limited notified basis under Section 95B of the RMA. Notice was duly served upon DCC, who lodged a submission in opposition to the proposal.

Table 1: Parties notified of application based on potential adverse effects

Person	Reasons why they are adversely affected
DCC	Contamination extends into groundwater below the Halsey Street and Fryatt Street Road Reserve. In the event that future works are required within the Road Reserve, the EMP imposes upon DCC an ongoing responsibility to manage this contamination. This level of effect is considered to be minor.

Table 2: Parties not considered to be affected and why

Person	Reasons why they are not adversely affected
Chalmers Properties Limited (100% owned subsidiary of Port Otago Limited, whose 100% shareholder is ORC)	Chalmers Properties Limited is the owner of 199 Fryatt Street. As the owner of the site, Chalmers Properties Limited will be responsible for implementing the on-site EMP. Although the controls within the on-site EMP are reasonable, this arrangement imposes on Chalmers Properties Limited an ongoing responsibility which indicates a level of effect that is considered to be minor.

	However, Chalmers Properties Limited provided unconditional written approval to this application on 27 July 2022. As such, adverse effects on Chalmers Properties Limited have been disregarded and they are not considered to be an affected party to this application.
Aukaha on behalf of mana whenua	Adverse impacts on water quality, including water quality within Otago Harbour, will be less than minor. The extent of contamination is decreasing over time via natural attenuation processes. Therefore, Aukaha are not considered to be an affected party to this application.

3.2 Submissions Received

Submissions were received from the following persons:

Table 3: Summary of Submissions

Submitter	Submission Points	Wishes to be heard
DCC	DCC requested that the Application be declined based on: 1. Concerns that contaminated groundwater could enter aging stormwater pipes located below Halsey Street and then discharge into Otago Harbour. 2. The financial impacts to DCC resulting from the responsibility to manage future works within the road reserve in accordance with the EMP. The submission includes consent conditions that DCC request are adopted by the Applicant or imposed upon the Applicant, should consent be granted.	Yes

3.3 Pre-Hearing Meeting

A pre-hearing meeting was held at ORC Offices at Stafford Street, Dunedin on 26 October 2022. This meeting was attended by representatives of the Applicant, DCC, ORC, and was chaired by Independent Commissioner Allan Cubitt. The pre-hearing meeting was adjourned on the basis that the Applicant and Submitter would meet with relevant technical experts to discuss a resolution. On 17 November 2022 the Applicant advised that a resolution had not been reached and they requested that the application progress to a hearing.

4. Description of the Environment

4.1 Description of the Site and Surrounding Environment

The descriptions of the site and surrounding environment are as described in the application material and in Section 4 of the Notification Recommendation Report. A brief summary is provided here:

- The site is located at 199 Fryatt Street within an industrial area approximately 1.5 km from central Dunedin. The site covers an area of 1.12 hectares (ha) and is bounded by Halsey Street to the southwest, Jutland Street to the northwest, Akaroa Street to the northeast and Fryatt Street to the southeast. The site is located approximately 60 metres (m) from the Otago Harbour.

- The former Mobil terminal is currently a grassed, vacant block of land and is owned by Chalmers Properties Limited on behalf of Port Otago Limited.

- The site, including the former Mobil terminal and the affected road reserve, is registered on the ORC HAIL Register as verified HAIL.00496.01 category A13: *Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above or below ground.*

- A network of underground services is present in the streets adjacent to the site.

- According to the DCC's Geographic Information System (GIS), the Halsey Street underground stormwater lines are 1.950 m and 1.3 m in diameter with invert levels of 99.893 m relative level (RL) (2.36 m bgl) at Jutland Street and 99.829 m RL (2.94 m bgl) at Fryatt Street.

- Groundwater is present at depths between approximately 0.45 m and 3.0 m below ground level (bgl). Groundwater levels are typically lower (0.5 m) in monitoring wells closer to Otago Harbour.

- Groundwater flow is typically in a southeast direction toward the harbour. Tidal influence on the groundwater levels is up to 0.23 m in the Fryatt Street area, with little to no tidal influence within the confines of the site.

- The aquifer is not identified in Schedule 3 of the RPW. The groundwater beneath the site is not sensitive with respect to abstractive uses; there are no known takes of water within 1.5 kilometres of the site

- Z Energy 2015 Limited hold Discharge Permit RM12.312.01 which authorises the discharge of hazardous substances to land in circumstances that they may enter water for a duration of 35 years from 203 Fryatt Street. This Z site is located to the northeast of the former Mobil Terminal, separated only by Akaroa Street. This permit expires 10 July 2048.

- Within 500 m of the midpoint of the former Mobil terminal, the following other activities are authorised by resource consents:

Table 4. Consented activities in close proximity to the site.

Consent Number	Consent Type	Purpose	Consent Holder	Consent Expiry
2008.144.V1	Discharge to Air	Operation of fuel burners	Fulton Hogan Limited	01 March 2024

2009.146 and .147	Coastal Permit	Activities associated with dredging	Port Otago Limited	15 April 2045
RM11.313.03	Coastal Permit	Discharge stormwater from Halsey Street Catchment	DCC	8 August 2048
RM15.367.01	Discharge Permit	Passive discharge of contaminants to land	Z Energy Limited	20 February 2054
2010.011.V1	Coastal Permit	Coastal occupation	Port Otago Limited	30 September 2026
RM22.289.01	Land Use Consent	Disturb contaminated site	Port Otago Limited	8 August 2027
2002.380	Water Permit	Take coastal water	ENZA Limited	30 Jan 2024
RM11.313.05	Coastal Permit	Discharge stormwater from Mason Street Catchment	DCC	8 August 2048
RM21.225.01 and .02	Land Use Consent and Discharge Permit	Residential earthworks	JKM OFTB LP	19 July 2024

- There are unlikely to be any permitted activities occurring within the area. Almost every nearby site is identified on the HAIL database. Land use activities on these sites are likely to require resource consent.

5. Status of the Application

Resource consents are required under both the RPW and the RPWaste.

Rule 5.6.1 of the Regional Plan: Waste (RPWaste) states:

5.6.1 Hazardous wastes at contaminated sites

1. The disturbance of land; or

2. The discharge of hazardous waste into water; or

3. The discharge of hazardous waste onto or into land in circumstances that may result in that hazardous waste (or any other hazardous waste emanating as a result of natural processes from that hazardous waste) entering water; or

4. The deposit of any hazardous waste, in, on or under land; or

5. The discharge of hazardous waste into air at or from a contaminated site;

*is a **discretionary** activity.*

There are no permitted activity rules for these activities under the RPWaste.

The residual petroleum hydrocarbons meet the definition of 'waste' as defined in the RPWaste. They would also be considered a hazardous substance as defined in Section 2 of the Hazardous Substances and New Organisms Act 1996 and adopted by the RPWaste. As such, it is considered that the discharge would be incorporated by the overall intent of Rule 5.6.1(3) above. Therefore, RPWaste discretionary rule 5.6.1(3) applies.

Rule 12.B.4.2 of the Regional Plan: Water for Otago (RPW) states:

The discharge of any hazardous substance to water or onto or into land in circumstances which may result in that substance entering water is a discretionary activity, unless it is:

(a) Permitted by a rule in 12.B.1; or
(b) Provided for by a rule in 12.B.2 or 12.B.3.

The discharge activity cannot meet any permitted activity rules set out in 12.B.1 because it does not involve the discharge of herbicides, pesticides, fertiliser, sullage or cooling water, water that has held live organisms, water impounded by a dam, stormwater, or contaminants associated with hydro-electric generation. The discharge activity is not provided for by rules 12.B.2 or 12.B.3 because it does not involve the discharge or tracer dye or stormwater. Therefore, consent is required as a ***discretionary activity*** under rule 12.B.4.2 of the RPW.

Overall, the application is considered to be a **discretionary** activity.

6. Section 104 Evaluation

Section 104 of the Act sets out the matters to be considered when assessing an application for a resource consent. These matters are subject to Part 2, the purpose and principles, which are set out in Sections 5 to 8 of the Act.

The remaining matters of Section 104 to be considered when assessing an application for a resource consent are:

(a) the actual and potential effects on the environment of allowing the activity;

(ab) any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity;

(b) any relevant provisions of a national environmental standard, other regulations, a national policy statement, the Regional Policy Statement (RPS), the Regional Plan: Water (RPW); and

(c) any other matter the Council considers relevant and reasonably necessary to determine the application.

6.1 S104(1)(a) – Actual and potential effects on the environment of allowing the activity

Section 104(1)(a) of the RMA requires the council to have regard to any actual and potential effects on the environment of allowing the activity. This includes both the positive and the adverse effects.

Permitted baseline

The permitted baseline refers to the effects of permitted activities on the subject site and does not include activities authorised by a resource consent. The permitted baseline may be taken into account and the council has the discretion to disregard those effects where an activity is not fanciful.

Neither the RPW nor RPWaste provides for a discharge of this type as a permitted activity. Therefore, the permitted baseline is not applicable in this instance.

Receiving Environment Assessment

When processing a resource consent regard must be had to what constitutes the "environment" to inform the assessment of the effects of a proposal. Section 95A(8) and section 104(1)(a) each require an assessment of the adverse effects or actual and potential effects on the environment respectively in order to make a decision on notification as well as make the substantive decision whether to grant or to refuse a consent.

The receiving environment beyond the subject site includes permitted activities under the relevant plans, lawfully established activities (via existing use rights or resource consent), and any unimplemented resource consents that are likely to be implemented.

Case law has confirmed that in situations where consents granted by a regional council are being reconsented, the activities subject to those consents should not form part of the environment. The Court has noted that it should not be assumed that existing consents with finite terms will be replaced or replaced on the same conditions. Unlawful activities also do not form part of the receiving environment, therefore even if there is a known activity occurring, if it is not lawful, it must not be considered.

The receiving environment is as described in the notification report and summarised in Section 4.1 of this report.

6.1.1 Positive effects

The proposal will have the following positive effects:

- The ongoing impacts of a previously unassessed historic activity are identified and appropriately managed

6.1.2 Adverse effects

In considering the adverse effects, the Consent Authority:

- may disregard those effects where the plan permits an activity with that effect; and
- must disregard those effects on a person who has provided written approval.

Any adverse effects on persons who have provided written approvals (Chalmers Properties Limited) are disregarded.

The adverse effects of the activity were identified and discussed as part of the s95 notification recommendation. For completeness, I will summarise the relevant adverse effects below before discussing adverse effects as they relate to the matters raised in the DCC submission.

Effects on Human Health

The Applicant developed a Conceptual Site Model (CSM) to identify potentially complete source-pathway-receptor relationships and to determine the risk the activity poses to human health and the environment.

Four potentially complete pathways relevant to human health were identified. I have grouped these into onsite and off-site categories.

The on-site risks to human health are associated with vapour intrusion into future buildings on the site, and risks to workers undertaking sub-surface excavation works on the site. The potential exposure route is through inhalation, dermal contact, or ingestion of contaminants.

The off-site risks to human health are associated with workers undertaking sub-surface excavation works within the Fryatt and Halsey Street road reserves. The potential exposure route is through inhalation, dermal contact, or ingestion of contaminants.

The Applicant proposed that these risks will be adequately managed via controls proposed in the on-site and off-site EMPs.

A technical audit of the application was undertaken by Simon Beardmore, Senior Environmental Scientist (now Technical Director) of E3 Scientific. Mr Beardmore concluded that the controls outlined in the EMPs are comprehensive and appropriate for the site.

I adopted this expert opinion and concluded that adverse effects on the health of future users, occupiers, and workers both on-site and off-site within the MMA would be less than minor.

The DCC submission did not raise specific issues related to human health. Nonetheless, I have considered the points raised in the DCC submission and the information provided by the Applicant in response, and I conclude that adverse effects on human health remain less than minor.

Effects on Water Quality

The CSM identified two potentially complete source-pathway-receptor relationships relevant to water quality. These were the migration of impacted groundwater from the site towards Otago Harbour and associated marine ecosystems, and the leaching of PFAS into groundwater and then into Otago Harbour and associated marine ecosystems.

The lateral extent of the LNAPL is reducing by way of natural attenuation processes and is not known to be mobile. The associated dissolved-phase plume was shown in the most recent monitoring round to extend no further than 40 m downgradient of the leading edge of the LNAPL and does not reach Otago Harbour. The Applicant states that for these reasons, the dissolved-phase hydrocarbons are unlikely to migrate beyond the current extent and unlikely to pose a future risk to Otago Harbour.

In a technical audit of the application on behalf of ORC, Mr Beardmore agreed with this assessment. I accepted this assessment and concluded that adverse effects on water quality were likely to be less than minor.

The potentially complete pathways for PFAS were listed but not specifically discussed in the notification recommendation report. For completion, I discuss these here. PFAS compounds were potentially stored in small quantities on the site in the past. The Applicant prepared a CSM to identify any potentially complete source-pathway-receptor relationships. Based on this model, the Applicant concludes that there is a low potential for soil or groundwater concentrations to be present at levels likely to have adverse environmental effects. No updates were required to the EMPs. This information was technically audited by Mr Beardmore on behalf of Council, and he stated that the conclusions were reasonable and supported by the available information. Based on this, I conclude that adverse effects of PFAS on water quality are likely to be less than minor.

In their submission, DCC expressed concern about certain dissolved phase contaminants having been detected in three monitoring wells in concentrations exceeding the ANZECC (2000) guidelines for 95% species protection, and the potential for these contaminants to enter the Halsey Street stormwater pipes. I requested further information from the Applicant in regard to these concerns, particularly any analysis of stormwater discharge monitoring data or previous measurements of volatile organic compounds from stormwater manholes. In response, the Applicant identified that measured concentrations of total PAH (which incorporate the contaminants of interest) discharged from the Halsey Street stormwater catchment into Otago Harbour are at least two orders of magnitude lower than both the measured dissolved phase contaminant levels in groundwater and the ANZG (2018) guideline values for 95% species protection. These data were obtained from the DCC monitoring reports. Therefore, ingress of contaminants into these pipes is unlikely to be occurring.

Expert evidence from Simon Beardmore of E3, appended to this report, evaluates the likelihood of contaminant ingress to the stormwater pipes and considers this is unlikely to be occurring in significant quantities. Suggestions for possible ways in which more information could be obtained are included within the evidence; however, if ingress were to occur, Mr Beardmore concludes that impacts on Otago Harbour would be less than minor.

I would also note that the Applicant's site is located at the end of the Halsey Street stormwater catchment, and that contaminants discharged into the harbour via these pipes represent the total load of contaminants funnelled by that catchment. Stormwater monitoring data suggest that

contaminants relevant to this application are not reaching the harbour in levels likely to have adverse effects on water quality, regardless of their source within this catchment.

I have considered the points raised in the DCC submission, the new information provided by the Applicant in response, and the expert evidence of Mr Beardmore. In my opinion, adverse effects on water quality remain less than minor.

Cumulative Effects
Adverse cumulative effects can arise due to ongoing impacts of a particular activity or as a result of several similar activities occurring within the same catchment. There is another discharge of similar contaminants to land in circumstances that they may enter water on the adjacent Z Energy site. Additionally, almost all sites within the area are identified on the HAIL register, with several in the same category A13.

In the technical audit of the application material, Mr Beardmore provided the following comment:

"…Based on the demonstrated attenuation of contaminant concentrations, it is unlikely that measurable concentrations of contaminants are entering the receiving water and the contribution to cumulative effects within the harbour would be negligible."

Based on the expert opinion of Mr Beardmore, I concluded that adverse cumulative effects on Otago Harbour would be less than minor.

I have considered the points raised in the DCC submission and the new information provided by the Applicant in response. In my opinion, adverse cumulative effects remain less than minor.

Effects on Cultural Values
The site is not a known site of cultural significance, and the Applicant did not provide an assessment of adverse effects on cultural values. Based on the expected level of effect on water quality, in particular on water quality within Otago Harbour, I concluded that adverse effects on cultural values would also be less than minor.

I have considered the points raised in the DCC submission and the new information provided by the Applicant in response. In my opinion, adverse effects on cultural values remain less than minor.

Summary – adverse effects
Overall, I consider that adverse effects on the environment are less than minor, while adverse effects on DCC are minor, for the reasons outlined in Section 3.1 Table 1.

Summary – Actual and Potential Effects
Overall, taking into account both the adverse and positive effects on the environment, I consider that the actual and potential effects of the proposal are acceptable.

6.2 S104(1)(ab)

The Applicant has not proposed to offset or compensate for any adverse effects on the environment, nor do I consider that any such measures are necessary. This is because adverse effects on the environment, including on persons, will not be more than minor.

6.3 S104(1)(b) Relevant Planning Documents

The relevant planning documents in respect of this application are:

- The National Policy Statement for Freshwater Management 2020;
- TheProposed Regional Policy Statement and Partially Operative Regional Policy Statement;
- The Regional Plan: Water for Otago (RPW);
- The Regional Plan: Waste for Otago (RPWaste); and
- Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.

6.3.1 National Policy Statement Freshwater Management 2020 (NPS-FM)

The National Policy Statement for Fresh Water Management 2020 (NPS-FM) provides direction to local authorities and resource users regarding activities that affect the health of freshwater and sets out objectives and policies for freshwater management under the RMA.

The NPS-FM came into force on 3 September 2020, replacing the previous 2014 NPS-FM. Although it retains some of the same principals as the NPS-FM 2014, including a strengthened focus on Te Mana o te Wai, the NPS-FM 2020, amongst other things:

- Sets out a framework of objectives and policies to manage activities affecting freshwater in a way that prioritises first, the health and well-being of water bodies and freshwater ecosystems, second, the health needs of people, and third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.
- Requires regional councils to develop long-term visions for freshwater in their region and include those long-term visions as objectives in their regional policy statement.
- Requires every local authority to actively involve tangata whenua in freshwater management.
- Sets out a more expansive National Objectives Framework, and Freshwater Management Unit, environmental flows and levels setting, and take limit setting processes. This includes 13 new attribute states for ecosystem health, including national bottom lines and national targets.
- This NPS-FM was amended in December 2022 to clarify the definition of a natural inland wetland, provide consent pathways for certain activities, make restoration and wetland maintenance easier to undertake, improve the clarity of policies, reduce the complexity of drafting, and correct errors. These amendments will take effect from 5 January 2023; however, none of these amendments are of relevance to this application.

The Applicant has not provided an assessment against the NPS-FM. However, this National Policy Statement applies to all freshwater (including groundwater) and, to the extent they are affected by freshwater, to receiving environments (which may include estuaries and the wider coastal marine area). Given that this application involves impacts on groundwater and potential flow-on impacts to the coastal marine area, I consider that the application should be assessed against the relevant provisions of this NPS. I have provided my assessment below.

Part 2 of the NPS-FM sets out the national objective for future freshwater management and 15 separate policies that support this objective. The objective and relevant policies from the NPS-FM are considered below.

Objective

(1) The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:

(a) first, the health and well-being of water bodies and freshwater ecosystems

(b) second, the health needs of people (such as drinking water)

(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

- The passive discharge of residual petroleum hydrocarbons described in this application has resulted from historic activities that supported the ability of people and communities to provide for their social, economic, and cultural wellbeing. These historic activities ceased many years before this NPS-FM was introduced. However, passive discharges continue. The Applicant has not proposed to actively remediate the site and affected surrounds. Instead, they have proposed a passive management strategy supported by EMPs to mitigate adverse effects in the event of any disturbance of the contamination. They have concluded that the current and reasonably anticipated future impacts of the residual contamination and ongoing passive discharge will not result in unacceptable effects on the environment or on persons. These conclusions are supported by monitoring data and have been audited by an independent suitably qualified and experienced person. In my opinion, the passive management strategy, supported by EMPs where disturbance to the site or MMA is undertaken, sufficiently prioritises the health and wellbeing of freshwater such that it can be considered consistent with this objective.

Policies

- *Policy 1: Freshwater is managed in a way that gives effect to Te Mana o te Wai.*

  The NPS-FM defines the concept of Te Mana o Wai as:

  "Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community."

  - As per the assessment of the application against the Objective of the NPS-FM, the passive management strategy adequately prioritises the health and wellbeing of freshwater. Expert technical advice indicates that the expected trend of decreasing contamination concentrations will continue in the future. Therefore, in my opinion, the passive management strategy proposed by the Applicant does not compromise the health of freshwater and will contribute to the gradual restoration of the balance between water, the wider environment, and the community. As such, I consider that the application is generally consistent with the intent of this policy.

- *Policy 2: Tangata whenua are actively involved in freshwater management (including decision-making processes), and Māori freshwater values are identified and provided for.*

    - Otago Harbour is a waterbody of cultural significance to Kāi Tahu and can be considered in the context of this application because it forms part of the receiving environment affected by freshwater. The Applicant did not involve tangata whenua in the application process, did not specifically identify relevant Kāi Tahu freshwater values, and did not assess the application against the relevant Kāi Tahu ki Otago Natural Resource Management Plan. As such, in my opinion, the application is inconsistent with the intent of this policy.

- *Policy 3: Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.*

    - The CSM prepared by the Applicant considers all possible source-pathway-receptor linkages and is used to identify and assess the level of risk posed to various receptors, which includes the receiving environment. The passive management strategy proposed by the Applicant includes EMPs which take into account the potential future uses of land within the MMA and the potential impacts on the receiving environment. Therefore, in my opinion, the application is consistent with the intent of this policy.

- *Policy 13: The condition of water bodies and freshwater ecosystems is systematically monitored over time, and action is taken where freshwater is degraded, and to reverse deteriorating trends.*

    - The Applicant has undertaken monitoring in the form of ESAs since 1992. These data have shown that the contamination is decreasing in extent via natural attenuation processes. Expert technical advice indicates that the expected trend of decreasing contamination concentrations will continue in the future. The Applicant has proposed a round of groundwater monitoring in the eight or ninth year of the consent term. In my opinion, the application is consistent with the intent of this policy.

- *Policy 15: Communities are enabled to provide for their social, economic, and cultural well-being in a way that is consistent with this National Policy Statement.*

    - The passive management strategy, supported by EMPs, will enable the site owner, being Chalmers Properties Limited, and the authority responsible for the affected road reserve, being DCC, to provide for their social, economic, and cultural wellbeing in a way that is consistent with this NPS. However, it is relevant to note here that the DCC contends that the contamination and resulting obligation to implement the controls in the EMP when undertaking works within the road reserve will have a significant negative financial impact on them, with flow on impacts to rate payers. DCC have not quantified this impact. It is also pertinent to consider that, regardless of whether consent is granted, the road reserve is contaminated, and DCC would need to manage this contamination when undertaking works, irrespective of the

source of the contamination. Works on contaminated sites are generally expected to be undertaken in accordance with an EMP, such as that prepared by the Applicant. In my opinion, while it is possible that there may be some additional financial impact upon DCC, the proposed management strategy does not preclude any reasonably foreseeable future works on or use of the road reserve, and the application remains consistent with the intent of this policy.

6.3.2 Proposed Regional Policy Statement and Partially Operative Regional Policy Statement

The partially operative RPS was made partially operative on the 14th of January 2019 ("PO-RPS") and through various court orders. Since then, there have has been number of appeals resolved through the Environment Court. On 15 March 2021, the Council approved and provided notice for these further provisions to be added to the PO-RPS. The provisions that are the subject of court proceedings and are not made operative is now limited to Policy 4.3.7 (significant infrastructure) and specific methods of Chapter 3. None of the remaining proposed provisions are applicable to the application, therefore full weight and consideration can be provided to the PO-RPS.

On 26 June 2021 Council notified the proposed Otago Regional Policy Statement. This P-RPS gives effect to the NPS-FW 2020 and includes freshwater visions, FMU's and rohe. On 30 September 2022 Council notified the freshwater instrument components of the proposed Otago Regional Policy Statement that was originally notified in June 2021**.** As this RPS has been notified, it has been included and assessed below.

6.3.2.1 Partially-operative regional policy statement (PO-RPS 2019)

Objective 2.2 Kāi Tahu values, interests and customary resources are recognised and provided for.

Policy 2.2.1 Manage the natural environment to support Kāi Tahu wellbeing by all of the following:

- *a) Recognising and providing for their customary uses and cultural values in Schedules 1A and B; and,*
- *b) Safeguarding the life-supporting capacity of natural resources.*

As discussed for the assessment against Policy 2 in Section 6.3.1 of this report, the Applicant has not specifically demonstrated within the application material that they have recognised or provided for relevant Kāi Tahu customary uses or values. However, the ongoing passive discharge of hazardous substances from the site is not expected to negatively impact the life-supporting capacity of the relevant natural resources, being groundwater and the Otago Harbour. Therefore, I consider that the application is inconsistent with objective 2.2 and partially consistent with policy 2.2.1.

Policy 3.1.1 Safeguard the life-supporting capacity of fresh water and manage fresh water to:

- *a) Maintain good quality water and enhance water quality where it is degraded, including for:*
  - *i. Important recreation values, including contact recreation; and,*
  - *ii. Existing drinking and stock water supplies;*
- *b) Maintain or enhance aquatic:*
  - *i. Ecosystem health;*
  - *ii. Indigenous habitats; and,*

iii. Indigenous species and their migratory patterns.

c) Avoid aquifer compaction and seawater intrusion;

d) Maintain or enhance, as far as practicable:

i. Natural functioning of rivers, lakes, and wetlands, their riparian margins, and aquifers;

ii. Coastal values supported by fresh water;

iii. The habitat of trout and salmon unless detrimental to indigenous biological diversity; and

iv. Amenity and landscape values of rivers, lakes, and wetlands;

e) Control the adverse effects of pest species, prevent their introduction and reduce their spread;

f) Avoid, remedy or mitigate the adverse effects of natural hazards, including flooding and erosion; and,

g) Avoid, remedy or mitigate adverse effects on existing infrastructure that is reliant on fresh water.

Policy 3.1.5 Manage coastal water to:

a) Maintain coastal water quality or enhance it where it has been degraded;

b) Maintain healthy coastal ecosystems, the range of indigenous habitats provided by the coastal marine area, and the migratory patterns of indigenous coastal water species or enhance these values where they have been degraded;

c) Maintain or enhance important recreation values;

d) Maintain or enhance, as far as practicable:

i. Coastal values; and

ii. The habitats provided by the coastal marine area for trout and salmon unless detrimental to indigenous biological diversity.

e) Control the adverse effects of pest species, prevent their introduction and reduce their spread.

As discussed in section 6.3.1 of this report, the application gives effect to Te Mana o te Wai and is consistent with the freshwater management framework as outlined in the NPS-FM. There are no recreational or drinking water values associated with the groundwater beneath the site. The coastal environment does support marine ecosystems; however, as discussed earlier in this report, the water quality is not expected to be adversely impacted by the ongoing passive discharge activity. As such, I consider that the application is consistent with the intent of these policies.

Objective 4.6 Hazardous substances, contaminated land and waste materials do not harm human health or the quality of the environment in Otago

Policy 4.6.4 Identify sites of known or potentially contaminated land in Otago.

Policy 4.6.5 Ensure contaminated or potentially contaminated land does not pose an unacceptable risk to people and the environment, by:

a) Assessing and, if required, monitoring contaminant levels and environmental risks;

b) Protecting human health in accordance with regulatory requirements;

c) Minimising adverse effects of the contaminants on the environment.

Policy 4.6.9 Avoid the creation of new contaminated land or, where this is not practicable, minimise adverse effects on the environment.

As previously discussed in Section 6.3.1 of this report, the ongoing passive discharge of hazardous substances to land in circumstances that may result in them entering water will not result in unacceptable effects on the environment or on persons. The site, including the wider MMA, are identified on the HAIL database and can be updated at any time that new information is obtained. The Applicant does not propose any new discharges to land on the site, and there is no infrastructure remaining on site that could give rise to new discharges. I consider that the application is consistent with the objective and three policies.

Overall, I consider that the application is consistent with the relevant provisions of the Partially Operative Regional Policy Statement.

6.3.2.2 Proposed Otago Regional Policy Statement (P-ORPS 2021) and Proposed Otago Regional Policy Statement – Freshwater Instrument Components 2021 (notified September 2022).

LF-WAI-O1 Te Mana o te Wai
The mauri of Otago's water bodies and their health and well-being is protected, and restored where it is degraded, and the management of land and water recognises and reflects that:

1) *water is the foundation and source of all life – na te wai ko te hauora o ngā mea katoa,*
2) *there is an integral kinship relationship between water and Kāi Tahu whānui, and this relationship endures through time, connecting past, present and future,*
3) *each water body has a unique whakapapa and characteristics,*
4) *water and land have a connectedness that supports and perpetuates life, and*
5) *Kāi Tahu exercise rakatirataka, manaakitaka and their kaitiakitaka duty of care and attention over wai and all the life it supports.*

LF-WAI-P1 management of freshwater
In all management of fresh water in Otago, prioritise:

1) *first, the health and well-being of water bodies and freshwater ecosystems, te hauora o te wai and te hauora o te taiao, and the exercise of mana whenua to uphold these,47*
2) *second, the health and well-being needs of people, te hauora o te tangata; interacting with water through ingestion (such as drinking water and consuming harvested resources) and immersive activities (such as harvesting resources and bathing), and*
3) *third, the ability of people and communities to provide for their social, economic, and cultural wellbeing, now and in the future.*

IM-P2 Unless expressly stated otherwise, all decision making under this RPS shall:
(1) firstly, secure the long-term life-supporting capacity and mauri of the natural environment,
(2) secondly, promote the health needs of people, and
(3) thirdly, safeguard the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

As discussed in section 6.3.1 of this report, the application gives effect to Te Mana o te Wai and is consistent with the freshwater management framework as outlined in the NPS-FM and reproduced in this policy statement. As such, this application is consistent with the above objective and policy.

LF-VM-O7 Land and water management apply the ethic of ki uta ki tai and are managed as integrated natural resources, recognising the connections and interactions between fresh water, land and the coastal environment, and between surface water, groundwater and coastal water.

LF-WAI-P3 integrated management/ki utu ki tai
Manage the use of fresh water and land in accordance with tikaka and kawa, using an integrated approach that:

1) *recognises and sustains the connections and interactions between water bodies (large and small, surface and ground, fresh and coastal, permanently flowing, intermittent and ephemeral),*
2) *sustains and, wherever possible, restores the connections and interactions between land and water, from the mountains to the sea,*
3) *sustains and, wherever possible, restores the habitats of mahika kai and indigenous species, including taoka species associated with the water body,*
4) *manages the effects of the use and development of land to maintain or enhance the health and well-being of fresh water and coastal water,*
5) *encourages the coordination and sequencing of regional or urban growth to ensure it is sustainable,*
6) *has regard to foreseeable climate change risks, and*
7) *has regard to cumulative effects and the need to apply a precautionary approach where there is limited available information or uncertainty about potential adverse effects.*

The connections and interactions between the groundwater beneath the site and the nearby coastal waters within Otago Harbour are recognised by the Applicant. A CSM was used to determine potentially complete pathways and to assess the potential adverse impacts. EMPs have been produced to manage future use and development of land such that the health of freshwater and coastal water can be maintained. Contaminant concentrations in groundwater have largely attenuated below relevant guideline levels, and expert evidence suggests that these trends are expected to continue. The contribution to cumulative effects is expected to be minimal. Therefore, I consider that this application is consistent with the relevant provisions of this objective and policy.

LF-VM-O5 Dunedin and Coast FMU vision
By 2040 in the Dunedin & Coast FMU:

1) *fresh water is managed in accordance with the LF-WAI objectives and policies,*
2) *the ongoing relationship of Kāi Tahu with wāhi tūpuna is sustained,*
3) *healthy estuaries, lagoons and coastal waters support thriving mahika kai and downstream coastal ecosystems, and indigenous species can migrate easily and as naturally as possible to and from these areas,*
4) *there is no further modification of the shape and behaviour of the water bodies and opportunities to restore the natural form and function of water bodies are promoted wherever possible, and*
5) *discharges of contaminants from urban environments are reduced so that water bodies are safe for human contact.*

The ongoing passive discharge of hazardous substances is not expected to prevent or significantly inhibit this vision. The application is consistent with this objective.

HAZ-CL-O3 contaminated land

Contaminated land and waste materials are managed to protect human health, mana whenua values and the environment in Otago.

HAZ-CL-P13 identify contaminated land
Identify sites of known or potentially contaminated land in Otago using the Ministry for the Environment's Hazardous Activities and Industries List.

HAZ-CL-P14 managing contaminated land
Actively manage contaminated or potentially contaminated land so that it does not pose an unacceptable risk to people and the environment, by:

1) *assessing and monitoring contaminant levels and environmental risks,*
2) *protecting human health in accordance with regulatory requirements,*
3) *avoiding, as the first priority, and only where avoidance is not practicable, mitigating or remediating, adverse effects of the contaminants on the environment, and*
4) *requiring closed landfills to be managed in accordance with a closure plan that sets out monitoring requirements and, where necessary, any remedial actions required to address ongoing risks.*

HAZ-CL-P15 new contaminated land
Avoid the creation of new contaminated land or, where this is not practicable, minimise adverse effects on the environment and mana whenua values.

The ongoing passive discharge of hazardous substances to land in circumstances that may result in them entering water will not result in unacceptable effects on the environment or on persons. The site, including the wider MMA, are identified on the HAIL database and can be updated at any time that new information is obtained. The Applicant does not propose any new discharges to land on the site, and there is no infrastructure remaining on site that could give rise to new discharges. I consider that the application is consistent with the above objective and three policies.

Overall, I consider that the application is consistent with the relevant provisions of the Proposed Regional Policy Statement.

6.3.3 Regional Plan: Water for Otago

Objective 7.A.1 To maintain water quality in Otago lakes, rivers, wetlands, and groundwater, but enhance water quality where it is degraded.

Objective 7.A.2 To enable the discharge of water or contaminants to water or land, in a way that maintains water quality and supports natural and human use values, including Kāi Tahu values.

Objective 7.A.3 To have individuals and communities manage their discharges to reduce adverse effects, including cumulative effects, on water quality.

Policy 7.B.3 Allow discharges of water or contaminants to Otago lakes, rivers, wetlands and groundwater that have minor effects or that are short-term discharges with short-term adverse effects.

Policy 7.B.4 When considering any discharge of water or contaminants to land, have regard to:

a) *The ability of the land to assimilate the water or contaminants; and*
b) *Any potential soil contamination; and*
c) *Any potential land instability; and*
d) *Any potential adverse effects on water quality; and*
e) *Any potential adverse effects on use of any proximate coastal marine area for contact recreation and seafood gathering.*

Policy 7.C.2 When considering applications for resource consents to discharge contaminants to water, or onto or into land in circumstances which may result in any contaminant entering water, to have regard to:

a) *The nature of the discharge and the sensitivity of the receiving environment to adverse effects;*
b) *The financial implications, and the effects on the environment of the proposed method of discharge when compared with alternative means; and*
c) *The current state of technical knowledge and the likelihood that the proposed method of discharge can be successfully applied.*

As already discussed in other sections above, the ongoing passive discharge of hazardous substances to land in circumstances that may result in them entering water will not result in unacceptable effects on the environment, in particular water quality, or on persons. Natural attenuation processes are occurring and will continue to occur, resulting in the gradual decrease in contaminant concentrations in groundwater. This proposed passive management strategy has been assessed by a technical expert on behalf of ORC as being appropriate in this context. Therefore, I consider that the application is consistent with the above objectives and policies.

Objective 9.3.3 To maintain the quality of Otago's groundwater.

Policy 9.4.1 In managing any activity involving the taking of groundwater or the discharge of contaminants, to ensure that the suitability of aquifers to support the recognised uses of groundwater identified in Schedule 3 is maintained.

Natural attenuation processes are occurring and will continue to occur, resulting in the gradual decrease in contaminant concentrations in groundwater. Thus, groundwater quality, with respect to the discharges in question, is expected to gradually improve over time. The aquifer is not identified in Schedule 3 of the RPW. The groundwater beneath the site is not sensitive with respect to abstractive uses; there are no known takes of water within 1.5 kilometres of the site. The area is serviced by the DCC reticulated water supply. I consider that the application is consistent with this objective and policy.

Overall, I consider that the application is consistent with the relevant provisions of the RPW.

6.3.4 Regional Plan: Waste for Otago

Objective 5.3.1 To avoid, remedy or mitigate any adverse effects of contaminated sites.

Objective 5.3.2 To avoid further site contamination.

Policy 5.4.1 To recognise and provide for the relationship Kai Tahu have with Otago's natural and physical resources through:

a) *Carrying out investigations of, and works to remedy and mitigate, contaminated sites in a manner which takes into account Kai Tahu cultural values;*
b) *Protecting waahi tapu and waahi taoka, and access to them by Kai Tahu, from the effects of contamination;*
c) *Acknowledging that future generations will inherit the results of work carried out to remedy or mitigate contaminated sites; and*
d) *Maintaining consultation with Kai Tahu on issues relating to site contamination.*

Policy 5.4.2 To locate and investigate contaminated sites in Otago.

Policy 5.4.3 To contain contaminated sites and rehabilitate them to the extent that is practicable having regard to the use to which the land is to be put.

Policy 5.4.5 To prepare and maintain a register outlining details of sites which are contaminated.

The ongoing passive discharge of hazardous substances to land in circumstances that may result in them entering water will not result in unacceptable effects on the environment or on persons. Extensive monitoring has been undertaken on the site in the form of ESAs. Potential adverse effects associated with the future use and works on the site and affected road reserve will be avoided or mitigated through implementation of the measures and controls outlined in the EMPs. No new discharges will occur on the site; the discharges are passive and result from historic site use. The site and affected road reserve are identified on the HAIL register. Passive management is considered by relevant technical experts to be an appropriate method of rehabilitation in this case.

I consider that this application is consistent with the relevant objectives and policies of the RPWaste.

6.3.5 Resource Management National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011

These regulations do not deal with Regional Council functions under section 30 of the Act. Any future disturbance of the contaminated area may require resource consent from DCC under these national environmental standards.

6.4 Section 104(1)(c) - Any other matters

6.4.1 The Kāi Tahu ki Otago Natural Resource Management Plan 2005

The Kāi Tahu ki Otago Natural Resource Management Plan 2005 (NRMP) is considered to be a relevant other matter for the consideration of this application. This is because the RPW is yet to be amended to take into account this Plan and this Plan expresses the attitudes and values of the four Papatipu Rūnaka: Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga. The following objectives and policies are of most relevance to this application:

- To require monitoring of all discharges be undertaken on a regular basis and all information, including an independent analysis of monitoring results, be made available to Kāi Tahu ki Otago.

- To require visible signage informing people of the discharge area; such signs are to be written in Māori as well as English.
- To require groundwater monitoring for all discharges to land.

The Applicant has undertaken extensive monitoring to develop the current understanding of the site contamination status and the anticipated environmental impacts. The Applicant does not consider that additional monitoring, in the short-term, is warranted. This is supported by a technical expert on behalf of Council. The Applicant has proposed to undertake a round of monitoring in the form of an ESA in year 8 or 9 of the consent term. I have not recommended that signage be installed, because the contamination is largely underground. The contamination status of the site is described within the HAIL register and could be incorporated into the DCC GIS as a flag for any party considering tendering for works within the affected road reserve.

Overall, I consider that the Application is consistent with the relevant provisions of this NRMP.

7. Sections 105 and 107

Matters relevant to discharge permits – s105(1)
This is an application for a discharge permit under s15 of the Act. Under section 105(1), the council must have regard to the following additional matters for any application for a discharge permit or a coastal permit that would contravene s15 or s15B of the RMA:

1. the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and
2. the applicant's reasons for the proposed choice; and
3. any possible alternative methods of discharge, including discharge into any other receiving environment.

The Applicant has described the nature of the discharge (passive discharge of petroleum hydrocarbons) and the sensitivity of the receiving environment (groundwater, Otago Harbour).

The Applicant has provided justification for not actively remediating the site. This has been assessed by an independent and suitably qualified expert who agrees that passive site management supported by EMPs is appropriate in this situation.

The passive discharge cannot be undertaken in another location or by another method; there are no new discharges to land.

I have considered the matters outlined in s105(1) with respect to the application. It is not possible to change the nature or the location of the discharge and, in my opinion, the Applicant has provided sufficient explanation and justification to demonstrate that active remediation of the site is not required.

Restrictions on discharge permits – s107(1)
Under s107(1), the consent authority shall not grant a discharge permit to discharge contaminants onto or into land in circumstances where the contaminants may enter water if, after reasonable mixing, the contaminant is likely to give rise to any of the following effects in the receiving waters:

- the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials
- any conspicuous change in the colour or visual clarity
- any emission of objectionable odour
- the rendering of fresh water unsuitable for consumption by farm animals
- any significant adverse effects on aquatic life

The discharge is not expected to give rise to any of the above effects in receiving waters because the contaminants will not reach Otago Harbour.

In summary, s105(1) and s107(1) do not preclude the granting of resource consent for this application.

8. Part 2 of the RMA

Under Section 104(1) of the RMA, a consent authority must consider resource consent applications "subject to Part 2" of the RMA, specifically, sections 5, 6, 7 and 8.

Section 5 identifies the purpose of the RMA as the sustainable management of natural and physical resources. This means managing the use of natural and physical resources in a way that enables people and communities to provide for their social, cultural and economic well-being while sustaining those resources for future generations, protecting the life supporting capacity of ecosystems, and avoiding, remedying or mitigating adverse effects on the environment.

Section s6, 7 and 8 outline the principles of the Act. Section 6 sets out a number of matters of national importance which need to be recognised and provided for, section 7 identifies a number of “other matters” to be given particular regard by the council, and section 8 requires the Council to take into account the principles of the Treaty of Waitangi.

The Court of Appeal has clarified how to approach the assessment of “subject to Part 2” in section 104(1). In *R J Davidson* the Court of Appeal found that decision makers must consider Part 2 when making decisions on resource consent applications, where it is appropriate to do so. The extent to which Part 2 of the RMA should be referred to depends on the nature and content of the planning documents being considered.

Where the relevant planning documents have been prepared having regard to Part 2 of the RMA, and with a coherent set of policies designed to achieve clear environmental outcomes, consideration of Part 2 is not ultimately required. In this situation, the policies of these planning documents should be implemented by the consent authority. The consideration of Part 2 "would not add anything to the evaluative exercise" as "genuine consideration and application of relevant plan considerations may leave little room for Part 2 to influence the outcome". However, the consideration of Part 2 is not prevented, but Part 2 cannot be used to subvert a clearly relevant restriction or directive policy in a planning document.

Where it is unclear from the planning documents whether consent should be granted or refused, and the consent authority has to exercise a judgment, Part 2 should be considered.

In the context of this activity, where the objectives and policies of the relevant statutory documents were prepared having regard to Part 2 of the RMA, they capture all relevant planning

considerations and contain a coherent set of policies designed to achieve clear environmental outcomes. They also provide a clear framework for assessing all relevant potential effects, and I find that there is no need to go beyond these provisions and look to Part 2 in making this decision as an assessment against Part 2 would not add anything to the evaluative exercise.

9. Recommendation

Under section 104B it is recommended that this consent application is approved subject to conditions. My recommendation is on the basis that:

- In accordance with s104(1)(a), the actual and potential effects of the proposal are acceptable because the discharge will have less than minor adverse effects on the environment, in particular water quality, and will have minor effects on DCC.
- In accordance with the assessment under s104(1)(b) the proposal is found to be generally consistent with the relevant statutory documents including the NPS-FM, the partially operative and proposed Otago Regional Policy Statements, the RPW, and the RPWaste.
- In accordance with an assessment under s104(1)(c) of the RMA the Kai Tahu ki Otago Natural Resource Management Plan 2005 has been considered.
- When assessing s105 and s107 of the RMA, the application can avoid more than minor adverse effects on sensitive receptors.
- No matters have arisen in the assessment of the application that would indicate that public notification is required.

10. Section 108 and 108AA of the RMA

Should the decision maker wish to grant the application, the attached conditions on RM22.099.01 are recommended in accordance with Sections 108 and 108AA of the Act.

Conditions have been recommended in order to avoid, remedy, mitigate, or minimise adverse effects on the environment.

- The following condition is recommended to ensure that the ability to undertake monitoring on the site during the consent term is retained:

  That critical monitoring wells are retained on site for the purpose of future groundwater monitoring

This condition has been recommended by Mr Beardmore. I agree that it is appropriate. The intention of this condition is to ensure that any wells that are required to facilitate future monitoring are retained on site. However, I do not have sufficient information to specify which wells would be considered critical for this purpose. I am happy to provide input into more detailed condition drafting at a later stage if required.

- The following condition is recommended to ensure that Council is provided with relevant monitoring data and reports within a timely manner:

Copies of all monitoring results, reports, and Environmental Site Assessments must be provided to the Consent Authority by 31 December of the year in which the monitoring was undertaken.

Conditions proposed by the Applicant

- The Applicant has proposed the following consent condition:

  The Consent Holder is required to undertake an assessment of groundwater quality, in the form of an Environmental Site Assessment, in Year 8 or 9 of the Consent Term.

I have recommended a condition to this effect. The intention of this condition is to reassess the site conditions closer to the end of the consent term. This information will be used to inform the ongoing consenting requirements. In order to make this condition effective and unambiguous, I believe that it needs to include specific detail on what constitutes acceptable monitoring in this context. However, I do not consider that I have enough information to include these specific details at this time. I am happy to provide input into more detailed condition drafting at a later stage if required.

Conditions Proposed in Submission by DCC

- DCC proposed the following consent conditions within their submission:

  The Consent Holder must, within three months of the commencement of this consent, reline the two stormwater mains in Halsey Street from up-gradient of the contaminated groundwater to the outfall to the Coastal Marine Area.

In my opinion, this condition is unreasonable. Expert technical evidence, appended to this report, indicates that it is unlikely that contaminants are infiltrating the stormwater pipes within the Mobil Management Area. At the time of writing, DCC have not provided evidence to the contrary. Therefore, I do not recommend that this condition be imposed.

The Consent Holder must update the off-site EMP to:

i. Include all parts of Halsey Street that may be influenced by the discharge
ii. Include Mobil as the Contaminant Discharge Owner
iii. Specifically describe road activities in section 4
iv. Clarify that all activities required by the EMP or otherwise required as a result of the land being contaminated (and their associated costs) are the responsibility of the Contaminant Discharge Owner

OR

- *Update EMP in collaboration with DCC to address the above matters, in the context of a discussion regarding ongoing responsibility (including financial) for the delivery of the EMP requirements.*

With regard to point (i), it is not clear which additional parts of Halsey Street DCC would like to be incorporated into the EMP; however, if this could be clarified I consider it reasonable that all potentially affected areas of Halsey Street should be included within the off-site EMP.

I consider that point (ii) does not add any relevant information. Mobil will be the Consent Holder and are therefore responsible for ensuring that any conditions on the Discharge Permit are met. Any future works to disturb the contaminated site will require a separate resource consent, which will be the responsibility of that Consent Holder. I have not recommended this change be incorporated into a consent condition.

It is not clear which specific road activities are intended to be captured in Section 4 of the EMP, so I have not recommended that this be incorporated into an EMP update.

I am not recommending a condition of consent detailing financial responsibility for future works within the road reserve. In my opinion, this lies outside the scope of this resource consent process because it does not relate to the management of a relevant environmental effect.

I consider that the current versions of the EMPs are fit for purpose. However, I have recommended that the Applicant submit finalised versions of the EMP documents to ORC, DCC, and Chalmers Properties within 30 working days of the issue of the consent. This is to enable the Applicant to incorporate any changes that may be required as a result of the hearing process. This condition may be also modified to include facility for updates to EMPs throughout the duration of the consent, if updates are required to reflect any new information about the nature of the contamination as it becomes available. Such wording may avoid a future s127 application to change consent conditions.

The full set of recommended conditions is appended to this s42A recommendation.

10.1 Lapse Period (Section 125)

Under s125, if a resource consent is not given effect to within five years of the date of the commencement (or any other time as specified) it lapses automatically, unless the council has granted an extension.

In this case, a lapse condition is not required because the passive discharge of contaminants which the Applicant seeks to authorise is already occurring.

10.2 Cancellation of Consent (Section 126)

Pursuant to section 126(1) of the RMA, the Consent Authority may cancel this consent by written notice served on the Consent Holder if the consent has been exercised in the past but has not been exercised during the preceding five years, unless expressly provided otherwise by the resource consent.

In this case, a s126(1) condition is not appropriate because the passive discharge of contaminants that the Applicant seeks to authorise is already occurring and cannot be stopped. Therefore, it is not possible for the Applicant to stop exercising the consent for any period of time.

10.3 Review Condition (Section 128)

The RMA provides for the council to review conditions at any time or times specified for that purpose in the consent where there are any adverse effects that may arise from the exercise of

the consent, or in relation to a coastal, water or discharge permit where a regional plan or NES has changed. In addition, the council can review other conditions without having to set out in a condition the timeframes within which it will review them.

A review condition has been recommended. The reasons for this are*:*

- To deal with any adverse effect on the environment which may arise or potentially arise during the exercise of this consent and which it is appropriate to deal with at a later stage.
- To ensure the conditions of this consent are consistent with any National Environmental Standards, relevant regional plans, and/or the Otago Regional Policy Statement;
- To enable a review of the frequency of monitoring or reporting required under this consent;
- In the case of a discharge permit to do something which would otherwise contravene section 15 or 15B of the RMA, to require the adoption of the best practicable option to remove or reduce any adverse effects on the environment, in particular adverse effects on groundwater and Otago Harbour.

10.4 Term of Consent (Section 123)

The application seeks a term of ten years. Reasons for the requested consent term have not been provided.

It is considered that a duration of ten years is appropriate. In reaching this recommendation the following relevant factors as distilled from case law have been considered:

- The duration of a resource consent should be decided in a manner which meets the RMA's purpose of sustainable management;
- Whether adverse effects would be likely to increase or vary during the term of the consent;
- Whether there is an expectation that new information regarding mitigation would become available during the term of the consent;
- Whether the impact of the duration could hinder implementation of an integrated management plan (including a new plan);
- That conditions may be imposed requiring adoption of the best practicable option, requiring supply of information relating to the exercise of the consent, and requiring observance of minimum standards of quality in the receiving environment;
- Whether review conditions are able to control adverse effects;
- Whether the relevant plan addresses the question of the duration of a consent;
- The life expectancy of the asset for which consents are sought;
- Whether there was significant capital investment in the activity/asset; and
- Whether a particular period of duration would better achieve administrative efficiency.

A ten-year term of consent is recommended for the following reasons:

a) There are no relevant policies in either the RPW or the RPWaste from which to seek guidance on a recommended consent term for this type of activity.
b) Ten years is considered a reasonable duration in light of the incoming Land and Water Regional Plan and the Resource Management Reform programme, which both may result in significant changes to the planning landscape for discharges of this type.

c) A ten-year term provides an enforceable basis for future monitoring to determine the contamination status of the site.

Appendix 1: Recommended Conditions of Consent

Our Reference: A1715272

Consent No. RM22.099.01

DISCHARGE PERMIT

Pursuant to Section 104B of the Resource Management Act 1991, the Otago Regional Council grants consent to:

Name: Mobil Oil New Zealand Ltd

Address: Russell McVeagh, Vero Centre, 48 Shortland Street, Auckland, 1140, NZ

To passively discharge hazardous substances onto or into land in circumstances that may result in those substances entering water for the purpose of long-term site management.

For a term expiring ten years from date of issue of this consent

Location of consent activity: 199 Fryatt Street, Dunedin

Legal description of consent location: Lot 2 DP 482844 and road reserve. Refer Appendix A

Map Reference of site midpoint (NZTM2000): E1407362 N4916984

Conditions

Specific

1. This consent authorises the passive discharge of existing hazardous substances to land within the subsurface of the subject site, in circumstances that may result in those substances entering water.
2. This consent does not authorise the discharge of hazardous substances to land or water as a result of land use activities occurring after the issue of this consent.
3. The passive discharge of hazardous substances to land must be carried out in accordance with the plans and all information submitted with the application, detailed below, and all referenced by the Consent Authority as consent number RM22.099.01:

    a) Resource Consent Application and Assessment of Effects on the Environment – Discharge of Contaminants, prepared by Golder Associates (NZ) Limited and dated February 2022;
    b) Former Mobil Dunedin Terminal – 199 Fryatt Street, Dunedin – Closure Report, prepared by Golder Associates (NZ) Limited and dated November 2019;
    c) Former Mobil Dunedin Terminal – 199 Fryatt Street, Dunedin – Environmental Management Plan, prepared by Golder Associates (NZ) Limited and dated March 2020;
    d) Former Mobil Dunedin Terminal – 199 Fryatt Street, Dunedin – Environmental Management Plan – Fryatt Street Adjacent to Former Terminal, prepared by Golder Associates (NZ) Limited and dated March 2020;
    e) Further information response dated 1 August 2022, including report prepared by WSP Golder titled Phase 1 Review of Per- and Polyfluoroalkyl Substances (PFAS) and dated July 2022; and
    f) Further information response prepared by Andrew Hart of WSP Golder dated 25 October 2022.

If there are any inconsistencies between the above information and the conditions of this consent, the conditions of this consent will prevail.

4. Where monitoring is undertaken in accordance with Condition 7 of this consent, this monitoring must be overseen by a Suitably Qualified and Experienced Person.
5. The Consent Holder must maintain critical monitoring wells on the site for the purpose of future groundwater monitoring required by Condition 7.

Performance Monitoring

6. Within 30 working days of the issue of this consent, the Consent Holder must prepare and submit finalised versions of both Environmental Management Plans to Dunedin City Council, Chalmers Properties Limited, and the Consent Authority.
7. In the eighth or ninth year of this consent, the Consent Holder must undertake a groundwater monitoring in the form of an Environmental Site Assessment. The Consent Holder must provide the Consent Authority with copy of all monitoring results, reports, and the Environmental Site Assessment produced in accordance with this condition by the 31 December of the year in which the monitoring was undertaken.

General

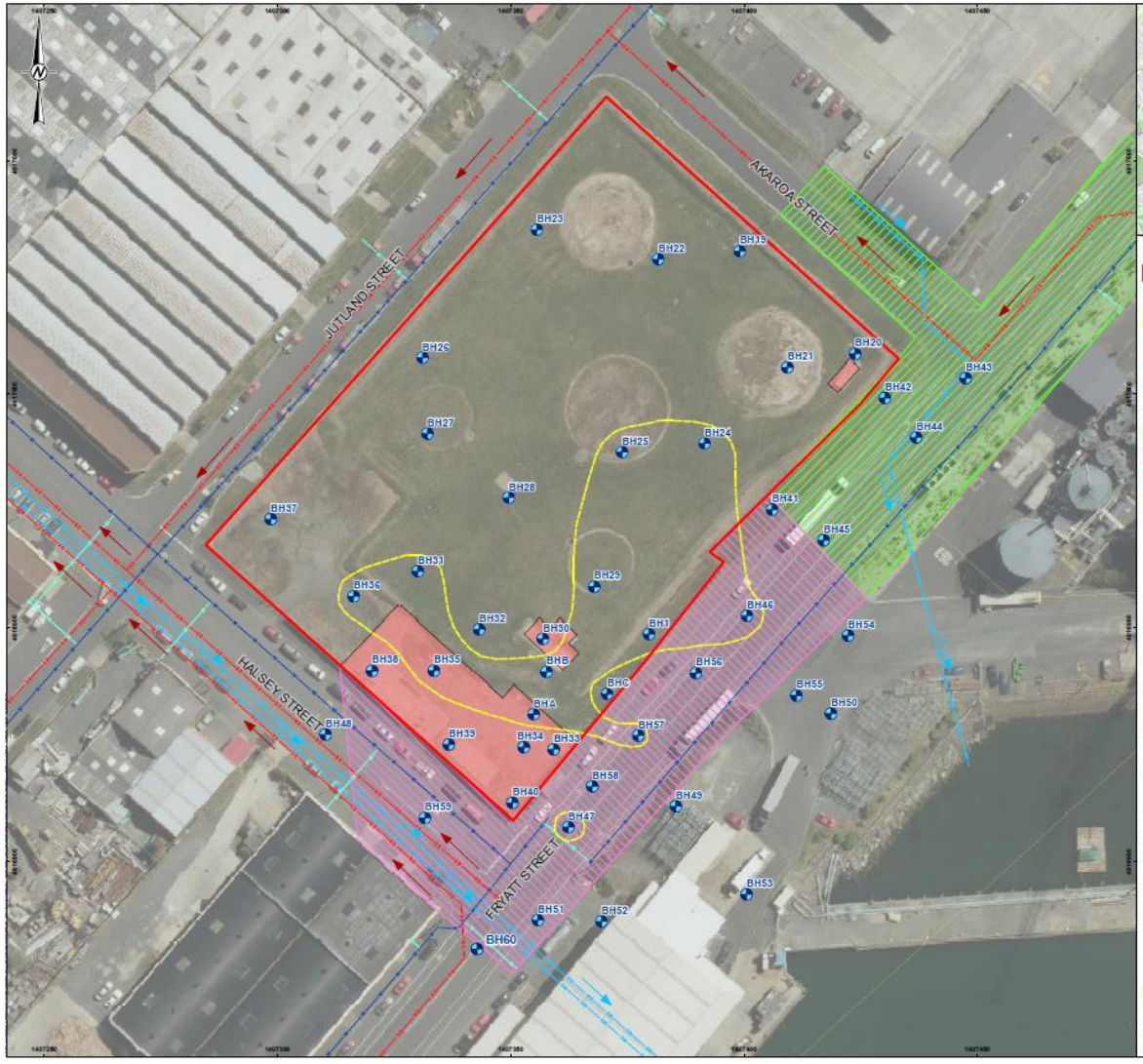
8. The Consent Holder must ensure that all persons working on the site or within the Mobil offsite management area are aware of the contamination and the Environmental Management Plans.

Review

9. The Consent Authority may, in accordance with Sections 128 and 129 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of this consent during the period of three months either side of the date of granting of this consent each year, or within two months of any enforcement action taken by the Consent Authority in relation to the exercise of this consent, for the purpose of:

    a) Determining whether the conditions of this consent are adequate to deal with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage, or which becomes evident after the date of commencement of the consent;
    b) Ensuring the conditions of this consent are consistent with any National Environmental Standards, relevant regional plans, and/or the Otago Regional Policy Statement;
    c) Reviewing the frequency of monitoring or reporting required under this consent;
    d) Requiring the Consent Holder to adopt the best practicable option, in order to prevent or minimise any adverse effect on the environment arising as a result of the exercise of this consent. Best practicable option includes, but is not limited to, active remediation of the site, should such an option become available to the Consent Holder.

Appendix A – the site and the Mobil Management Area



LEGEND

- Site boundary
- Groundwater monitoring wells
- Inferred LNAPL extent - April 2017
- Water pipe
- Water service pipe
- Stormwater pipe
- Sewer pipe
- Z Energy Management Area*
- Mobil Management Area
- Concrete pad / surface structure
- Parcel boundaries

NOTES

1. Aerial: LINZ and Eagle Technology, CC-BY-3.0-NZ.
2. Map image: © OpenStreetMap (and) contributors, CC-BY-SA
3. Schematic only, not to be interpreted as an engineering design or construction drawing.

* Z Energy Management Area defined by ORC Permit RM12, 312 (refer Figure 5-2 of URS (2013)).

REFERENCE SCALE: 1:800 (at A3)

PROJECTION: NZGD 2000 New Zealand Transverse Mercator

CLIENT
MOBIL OIL NEW ZEALAND LIMITED

PROJECT
FORMER MOBIL DUNEDIN TERMINAL

TITLE
OFF-SITE MANAGEMENT AREA

CONSULTANT
GOLDER

YYYY-MM-DD	2020-02-10
PREPARED	AE
REVIEW	DD
APPROVED	AH

PROJECT NO.	REPORT	REV.	FIGURE
19129937	002	0	01

Otago Regional Council

Appendix 2: Technical Audit of Application by Simon Beardmore – E3 Scientific

Ref: 21018
12 May 2022

Louis Brown
Senior Consents Planner
Otago Regional Council

By email: louis.brown@orc.govt.nz

RE: RM22.099 - Mobil Dunedin Terminal - Technical Review

1 Introduction

Mobil Oil New Zealand Limited (Mobil) is applying for consent under the Regional Plan: Waste and Regional Plan: Water to passively discharge hazardous substances onto or into land in circumstances that may result in those substances entering water, at the former Mobil bulk oil terminal, 199 Fryatt Street, Dunedin.

Overall, this activity is discretionary and an application, including assessment of environmental effects (AEE), has been prepared by Golder Associates (NZ) Limited (Golder Associates - now WSP New Zealand Limited) dated 21 February 2022. Supporting documents, also prepared by Golder Associates, include:

- A Closure Report dated November 2019
- Two separate Environmental Management Plans (EMPs) dated March 2020, covering on-site and off-site areas.

e3Scientific Limited (e3s) have been commissioned by Otago Regional Council (ORC) to provide a technical review of the consent application. A list of specific questions from the ORC are addressed in section 7.

1.1 Scope of Work

The scope of this technical assessment includes:

- Providing a technical assessment of the adequacy of Closure Report and EMPs.

- Providing a technical review of the assessment of effects associated with discharge of contaminants at the site.

This assessment is based on the information provided in the application, Closure Report, EMPs and information held by the Otago Regional Council associated with Hazardous Activities and Industries List (HAIL) Register HAIL.00496.01.

2 Proposal

Mobil operated the bulk storage terminal from 1927 until 1995. During operation, the site stored a variety of hydrocarbon products, including leaded and unleaded petrol, diesel, turpentine, kerosene, white spirits, and lube oils. The bulk fuel storage facility was decommissioned from 1995 and aboveground infrastructure on site was progressively removed from site until 2007.

Environmental site assessment (ESA) works at the terminal and surrounding area were completed between 1992 and 2017. These investigations have documented the presence of residual petroleum hydrocarbon impacts at the site. Light Non-Aqueous Phase Liquid (LNAPL), comprised primarily of diesel and diesel/petrol mixture, is present in the ground beneath the site and extending to the southeast into Fryatt and Halsey Streets. Dissolved phase contaminants are present in groundwater up to 40 m to the south of the site. While the original discharges of petroleum hydrocarbons to land from the operational use of the terminal occurred more than 27 years ago, contaminants continue to partition from contaminated soil and LNAPL source areas into groundwater, which emanates from the site.

Based on the findings of the ESA works, and an assessment of the risks, Mobil is seeking a resource consent from Otago Regional Council (ORC) for the ongoing discharge of residual petroleum hydrocarbon impacts onto or into land from the site.

Based on their understanding of the risks at the site, Mobil is not proposing to actively remediate the existing soil and groundwater contamination. Instead, existing risks will be mitigated through the implementation of soil and groundwater management controls under the Environmental Management Plans (EMPs) submitted with the application. A consent duration of 10 years has been sought.

3 HAIL Register Summary

The former Mobil terminal is recorded on the Otago Regional Council HAIL Register as a 'Verified HAIL' site. The reference number for the site is HAIL.00496.01. The property is listed due to current and past land uses that include the following:

- A13: Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above or below ground.

The contamination status of the site is recorded as 'New Information Received' as the recently submitted closure report and consent application have not yet been formally assessed.

4 Closure Report

The intent of the Closure Report is to describe the site history and environmental setting, summarise results of previous investigations, and demonstrate that risks to human health and the environment are acceptably low, requiring no further investigation or remediation.

The Closure Report summarises the findings of previous environmental investigations at the site, with emphasis on the investigative works that have taken place since 2012. These investigations are comprehensive and adequately characterise contaminant conditions in soil, groundwater, and vapour. The closure report uses multiple lines of evidence to assess the stability of the LNAPL and the associated dissolved phase contaminant plume, and to assess the risk to human health and the environment, both on-site and off-site.

The diesel/petrol LNAPL identified in the southern part of the site is not mobile and has been shown to be contracting and reducing in thickness over time. There is qualitative evidence that natural source zone depletion is occurring, and we can confidently expect this trend to continue.

The extent of the dissolved phase plume (where ethylbenzene and naphthalene concentrations exceed the ANZECC 2000 95% species protection values) has been delineated, and this has also been shown to reduce in area over time. In the most recent monitoring rounds, the extent of plume does not reach the

harbour, with natural attenuation processes working to degrade contaminants within 15-40 m of the LNAPL.

These findings are consistent with current understanding of hydrocarbon fate and behaviour.

Based on the conceptual site model established, potential risks are correctly identified as:

- Intrusion of vapour to indoor air in any future buildings constructed over areas of residual LNAPL.
- Risks to workers undertaking sub-surface excavation works on site and within Fyratt Street, immediately south of the site.
- Environmental risks associated with soil and groundwater disturbance in these areas.

These are all risks that can be adequately addressed using an appropriate Environmental Management Plan.

5 Environmental Management Plans

The draft Environmental Managements Plans provided with the application and include controls and procedures on ground disturbing activities to mitigate adverse effects from contaminants in soil. The on-site management plan also outlines restrictions on the future use of the site.

Controls on dust management, soil handling, stockpiling, off-site soil disposal, imported material, accidental discovery, worker H&S, and management responsibilities are included within the plans.

The contents of the EMPs generally cover the topics for a Long-term Site Management Plan outlined in Contaminated Land Management Guideline No 1. Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, 2021). The controls outlined in the CSMP are comprehensive and appropriate for the site.

6 Other matters

6.1 Potentially affected parties

The application notes that Mobil engaged with the Dunedin City Council as the local authority responsible for the Fryatt Street road reserve. An outcome of this engagement was that DCC integrated a management layer in its GIS system with respect to the residual petroleum hydrocarbon impacts in the road reserve around the site. This triggers a notification to the party proposing to undertake disturbance works as part of the approval to work process and provides a link to the EMP. This is a useful feature which adds an additional layer of assurance that the EMP will be implemented. However, without written approval from the DCC, it would be appropriate to consider them an affected party.

The application also notes that while Mobil has exited the lease of the property, it continues to engage with landowner Chalmers Property Limited (on behalf of the Port of Otago Limited) in relation to the site. To effectively manage residual risk via the EMP, the landowner must also agree. As such, we would consider it also important for Chalmers Properties Limited to be considered an affect party. As noted previously, discussions between Mobil and the landowner regarding their lease obligations are a civil matter, and ORC's position should be clear that any determination by ORC should not be construed as providing comment on the condition of the land, or suitability of the site for future uses.

6.2 Other contaminants

It is important to note that the scope of the Closure Report is limited to specific contaminants of concern – petroleum hydrocarbons and also heavy metals.

Per and Polyfluorinated Alkyl Substances (PFAS) are associated with firefighting foams which may have been used or stored on site. This contaminant class has not been assessed on site as part of previous environmental assessments. My understanding, informally, is that firefighting infrastructure was shared between oil company terminals, and the bulk foam storage and testing took place on the adjacent Chevron / Z Energy terminal. Notwithstanding, this should be clarified with the applicant.

6.3 Section 87BB

The applicant encourages ORC to use its discretion under section 87BB(1)(d) of the Resource Management Act 1991 to notify the activity as 'deemed permitted.' However, there is no relevant permitted activity for a discharge of this type in any of the regional plans. Therefore, the discharge cannot meet the requirements of 87BB(1)(a), and this option is not available to council.

7 Specific Questions

Responses to specific questions regarding the application are summarised the tables 1 below:

Table 1: General Questions

Q:	Is the technical information provided in support of the application robust, including being clear about uncertainties and any assumptions? Yes, or no. If not, what are the flaws?
R:	Yes, the technical information provided in support of the application is robust, and limitations associated with the Closure Report and application are clearly expressed in appendix A.
Q:	Are there any other matters that appear relevant to you that have not been included? Or is additional information needed? Please specify what additional info you require and why.
R:	As described in section 6.2, the Closure Report and application have not expressly addressed PFAS as a potential contaminant of concern at the site. It would be appropriate to a) request additional information regarding the use of these chemicals on the site, and their potential for soil and groundwater contamination, and b) clarify that currently, this class of contaminants is not within the scope of the discharge permit.
Q:	If granted, are there any specific conditions that you recommend should be included in the consent?
R:	The most critical consent condition would be to prepare and submit finalised copies of the EMPs to the consent authority, Dunedin City Council and Chalmers Properties Limited.

Table 2: Understanding of the application and discharges – proposal and site

Q	Does the application adequately characterise the proposal and site a. General b. Sensitivity of the environment, identifies all potential receptors and the current state of the environment (water quality) c. Specialist reporting – adequate in terms of who has provided and congruence with 2011 Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand and current editions of CLMG #1 and #5.
R	Yes, the application adequately characterises the proposal and site, including the sensitivity of the receiving environment. The application has been prepared by suitably qualified and experienced practitioners and is in general congruence with the relevant contaminated land management guidelines in New Zealand.
Q	Have all of the contaminants of concern been identified and accurately described – are all of the potential contaminants identified OR are there more that are a risk but haven't been investigated?
R	As described in section 6.2, the Closure Report and application have not expressly addressed PFAS as a potential contaminant of concern at the site. It would be appropriate to a) request additional information regarding the use of these chemicals on the site, and their potential for soil and groundwater contamination, and b) clarify that currently, this class of contaminants is not within the scope of the discharge permit.
Q	Has the applicant provided the information Council was requesting from a technical point of view/complete suite of discharges that would typically be expected for a site like this?
R	Yes, the applicant has provided a comprehensive set of information for a discharge of this type.

Table 3: Adverse environmental effects/risk grading

Q:	Do you agree with the Applicant's assessment of effects (and SQP) – graded as less than minor on certain affected persons? Level of confidence in characterisation of adverse effects on the wider public? Level of confidence in characterisation of adverse effects on certain affected persons including localised effects, adjoining landowners etc.?
R:	The applicant considers that there are no persons that have been identified as being affected to an extent that is minor or more than minor.

	In my opinion, the effects on the Dunedin City Council and Chalmers Properties Limited are not less than minor. For the potential risks associated with the discharge to be appropriately mitigated, the Dunedin City Council and Chalmers Properties Limited must implement the EMPs prepared by Mobil. Although the controls are reasonable, this arrangement imposes on them an on-going responsibility which indicates a level of effect that could be considered minor. The characteristics of the hydrocarbon discharge have been adequately characterised and there is high degree of confidence that the adverse effects on the wider public are less than minor.
Q	In your opinion is any further investigation required in order to characterise adverse effects? Plume to southwest of site over Halsey Street hasn't been identified on site plans, but is mentioned as a location of contamination. Stormwater system, including black "unnamed" pipe on Figure 02. PFAS analysis as indicated in the Simon Beardmore 2019 report.
R:	No, in my opinion no further investigation is required to characterise adverse effects. Exceedances of the 95% species protection values for ethylbenzene and naphthalene have been identified on Halsey Street as shown in Figures 21 to 24 of the Closure Report. This is the lateral edge of the same plume that extends south to Fryatt Street. The majority of the former stormwater system on site is isolated from the Dunedin City Council network, as shown in Figure 5 of the Closure Report. A small section of this line, as well as the unknown pipe, may remain connected to the wider reticulated system at Akaroa Street. The depth of the council stormwater line at this location is between 1.0 and 1.67 m below ground level, and the on-site stormwater lines are necessarily higher than this. Measured groundwater levels are typically below 1.5 m, indicating that it is unlikely these remaining pipes are acting as preferential pathways for contaminant migration. The discharge application only relates to hydrocarbon compounds. As discussed in section 6.2, PFAS use is associated with bulk fuel storage compounds. The applicant should confirm whether fire-fighting foams containing PFAS compounds have been used, stored, or tested on site.

Q:	In your opinion, is practical mitigation required onsite to intercept leachate discharges before they leave the site as is typical for consenting Petroleum Hydrocarbon Contaminated Sites in New Zealand? Ie mechanical remediation. If so, why not? What are the detailed reasons for this not being required in order to confirm compliance with MfE tech guidelines 2011/CLMGS/local plans and policies.
R:	No, in my opinion, intercepting groundwater (i.e., pump and treat) or other forms of active remediation are not required. Investigation confirms that risks associated with migration of contaminants is low, and no further risk reduction in this respect is required. Furthermore, a LNAPL recovery pumping trial was completed by PDP in 1995. Between 689 and 1,325 m3 of water was pumped from the recovery well over a period of approximately 2 months. During this period, a few hundred litres of LNAPL was recovered. This a very low rate of recovery, and the transmissivity of the LNAPL would have decreased further since that time. LNAPL bail-down testing by PDP in 2012 reconfirmed this finding.
Q:	Have the cumulative effects of the discharge activity been appropriately assessed? Do you concur with the assessment? Yes/No
R:	Yes. Based on the demonstrated attenuation of contaminant concentrations, it is unlikely that measurable concentrations of contaminants are entering the receiving water and the contribution to cumulative effects within the harbour would be negligible.
Q:	Natural attenuation is a proposed passive 'remediation strategy'. What it the proposed timeline for the attenuation curve for discharges to soil, ground water and air (soil vapour)?
R	Although the applicant has estimated an attenuation rate for dissolved phase ethylbenzene and naphthalene, they have not provided an estimate of degradation within the source area. The time required for natural attenuation of the plume largely depends on which end-point or clean up criteria is selected. It is likely that partitioning from soil and LNAPL to groundwater will continue for a considerable period of time; however, risks to off-site receptors are already considered low.
Q	There is no further monitoring or Long Term Management and Monitoring Plan? Is that required? The application says "It is not possible to change the

	discharge or its location." Mechanical remediation is not proposed ie considering impacts on adjoining land 'owner' Dunedin City Council, would this be appropriate given the site is still discharging 27 years after it was de-commissioned/intergenerational equity principle of clean up sites in a generation (mentioned in Simon Beardmore 2019 ORC report as per below)
R	No, based on the established conceptual site model, I do not consider that there is a need to undertake regular routine groundwater monitoring. There may be instances where a monitoring round may be warranted; for example, towards the end of the consent term, monitoring could be completed to determine whether a consent was still necessary. A monitoring round may also be appropriate in advance of any major soil disturbance or redevelopment works occurring on the site. As discussed above, an EMP to manage risks associated with soil disturbance and future development of the site will likely be required for a considerable period of time. However, environmental risks associated with the discharge are low, and remediation to this end-point is complete.
Q	Does the applicant appropriately assess any surface water users as affected ie Otago Harbour? Cultural and recreational users?
R	Yes. Based on the demonstrated attenuation of contaminant concentrations, it is unlikely that measurable concentrations of contaminants are entering the receiving water.

Table 4: Final considerations of the proposal – technical viewpoint

Q	What is the applications general congruence with current best practice for discharges of this type/ considering preclusions on grant of resource consent s107 RMA?
R	It is unlikely that any of the preclusion listed in s107 would apply. Natural attenuation is an accepted practice for remediation under the appropriate circumstances.
Q	Is there any reason the consent term should be shorter than applied for?
R	No, the conceptual site model is well established, and there is a high degree of certainty the extent of the LNAPL and dissolved phase plumes will continue to reduce. If anything, a slightly longer consent term would be more efficient,

	as, in the absence of a permitted activity rule for such discharges, I expect a consent renewal would be required after 10 years.
Q	Is the ANZECC benchmarking appropriate for aquatic environmental, or Canadian or Landcare benchmarking more appropriate?
R	Yes, the ANZECC (2000) 95% species protection values area an appropriate benchmark. These guidelines have been superseded by the ANZG 2018 freshwater and marine guidelines; however, the trigger values for the contaminants of concern have not been changed.
Q	Please review the Simon Beardmore report provided as an amendment to the application. I have made specific comments in relation to comments made about the Site Closure report provided to Council at the time.
R	I have reviewed the memo and provided responses to the comments. A copy of the memo with comments is included as Attachment A.

8 Summary and Conclusions

Overall, the consent application and Closure Report provide a thorough summary of the environmental conditions at the site. Past investigations at the site have been comprehensive and hydrocarbon contamination at the site is well understood.

Adverse effects on environmental receptors are less than minor; dissolved phase contaminants degrade rapidly within a short distance of the source area. The application correctly identifies that the potential risks associated with the discharge are related to future development of the site, and any potential soil disturbance in areas of contamination. These risks are adequately managed through the implementation of the draft EMPs.

I disagree, however, that effects on the Dunedin City Council and Chalmers Properties Limited are less than minor. As the entities responsible for implementing the EMPs, they should be considered affected persons, and imposing the obligations under the EMP could be considered a minor effect.

It is important to note that the scope of the Closure Report is limited to specific contaminants of concern – petroleum hydrocarbons and heavy metals. Per and Polyfluorinated Alkyl Substances (PFAS) are associated with firefighting foams which may have been used or stored on site. This contaminant class has not been assessed on site as part of previous environmental assessments. My

understanding, informally, is that firefighting infrastructure was shared between oil company terminals, and the bulk foam storage and testing took place on the adjacent Chevron / Z Energy terminal. Notwithstanding, this should be clarified with the applicant.

If you have any questions regarding the information provided in this letter, please contact Simon Beardmore on 03 409 8664 or via email at simon.beardmore@e3scientific.co.nz

Yours sincerely,

Simon Beardmore
Senior Environmental Scientist

Attachment A: 2019 memo w comments

Appendix 3: Statement of Evidence by Simon Beardmore – E3 Scientific

INTRODUCTION

1 My full name is Simon David Beardmore.

2 I am employed by e3Scientific Limited as the Technical Director – Contaminated Land, based in Otago.

3 I have read the Code of Conduct for Expert Witnesses contained within the Environment Court Practice Note of November 2014 and I agree to comply with it. I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express, and that this evidence is within my area of expertise, except where I state that I am relying on the evidence of another person.

QUALIFICATIONS

4 I hold a BSc (Honours First Class) in Environmental Science (Chemistry) from Simon Fraser University, British Columbia and an MSc with Distinction in Environmental Sustainability from the University of Edinburgh, Scotland.

5 I have worked as an environmental professional in laboratory, regulatory and consulting settings for 14 years, including nearly 10 years at the Otago Regional Council (ORC) where I was primarily responsible for managing ORC's contaminated land functions. Key responsibilities at ORC included development of contaminated land management strategy, undertaking site investigations, reviewing preliminary and detailed site investigations, developing and maintaining a register of contaminated land data, providing technical advice to consenting and policy teams, and managing remediation projects awarded central government funding.

6 I have worked for e3Scientific from July 2019 as a Senior Environmental Scientist, and since March 2021 as a Technical Director, overseeing a team of contaminated land specialists who complete a wide range of services including preliminary and detailed site investigations, human health and environmental risk assessment and remediation projects.

7 I am familiar with the project area. In my capacity as Senior Environmental Officer at the ORC, I attended the hearing for RM12.312, which authorises the discharge of contaminants to land from the Chevron (now Z Energy) terminal adjacent to the Mobil Dunedin Terminal.

ENGAGEMENT AND SCOPE OF EVIDENCE

8 In May and August 2022, I was engaged by the ORC to undertake technical reviews of the consent application and further information provided by Mobil Oil New Zealand Limited (Mobil) for the passive discharge of contaminants from the former Mobil Dunedin Terminal.

9 I have been asked by ORC to prepare evidence relating to the application, and in particular key issues concerning potential impacts on:

(a) Groundwater

(b) The Otago Harbour; and

(c) The Dunedin City Council stormwater network, as raised in their submission.

10 In preparing my evidence, I have reviewed the following documents:

(a) Resource Consent Application and Assessment of Effects on the Environment – Discharge of Contaminants. Former Mobil Dunedin Terminal – 199 Fryatt Street, Dunedin. Prepared by Golder Associates (NZ) Limited, February 2022.

(b) Former Mobil Dunedin Terminal – 199 Fryatt Street, Dunedin. Closure Report. Prepared by Golder Associates (NZ) Limited, November 2019. Environmental Management Plan. Prepared by Golder Associates (NZ) Limited, March 2020.

(c) Former Mobil Dunedin Terminal – 199 Fryatt Street, Dunedin. Closure Report. Prepared by Golder Associates (NZ) Limited, November 2019. Environmental Management Plan – Fryatt Street Adjacent to Former Terminal. Prepared by Golder Associates (NZ) Limited, March 2020.

(d) Response to Request for Further Information – RM22.099 – Mobil Oil New Zealand Limited. Prepared by WSP New Zealand Limited, 1 August 2022.

(e) Phase 1 Review of Per- and Polyfluoroalkyl Substances (PFAS), Former Mobil Dunedin Terminal – 199 Fryatt Street, Dunedin. Prepared by by WSP New Zealand Limited, July 2022.

(f) Dunedin City Council Submission on Application Number RM22.099. Prepared by the Dunedin City Council, 28 September 2022.

(g) Response to Request for Further Information – RM22.099 – Mobil Oil New Zealand Limited. Prepared by WSP New Zealand Limited, 25 October 2022.

11 In giving this evidence, I am relying on the data (including analytical results) provided in the above reports.

EXECUTIVE SUMMARY

12 Mobil operated the bulk storage terminal from 1927 until 1995. During operation, the site stored a variety of hydrocarbon products, including leaded and unleaded petrol, diesel, turpentine, kerosene, white spirits, and lube oils. The bulk fuel storage facility was decommissioned from 1995 and aboveground infrastructure on site was progressively removed from site until 2007.

13 Environmental site assessment (ESA) works at the terminal and surrounding area were completed between 1992 and 2017. These investigations have documented the presence of residual petroleum hydrocarbon impacts at the site. Light Non-Aqueous Phase Liquid (LNAPL), comprised primarily of diesel and diesel/petrol mixture, is present in the ground beneath the site and extending to the southwest into Fryatt and Halsey Streets.

14 Monitoring by the applicant has shown that natural attenuation is occurring. Natural attenuation refers to the reduction in quantity and concentration of contaminants over time

as a result of naturally occurring physical, chemical, and biological processes in soil and groundwater.

15 These processes a) limit the extent of contaminant migration from the site, and over time reduce the spatial extent of groundwater affected by contamination and b) decrease the mass of contaminants, both in the source area and in the surrounding groundwater.

16 Dissolved phase contaminants are detectable in groundwater up to 40 m to the south of the site.

17 In this setting, under normal circumstances, the likelihood of people or ecological receptors being exposed to contaminants in groundwater is low.

18 However, if, during construction activities, dewatering of excavations in this area was required, and pumped water was discharged without sufficient treatment to the stormwater network or directly to the harbour, this could result in unacceptable adverse environmental effects (e.g., conspicuous sheen or deterioration in water quality). However, there are protocols in the off-site Environmental Management Plan to prevent this from occurring.

19 With respect to the Otago Harbour, based on the measured concentrations of contaminants in groundwater, the measured rate of attenuation over distance, and dilution available at the harbour, it is highly unlikely that measurable concentrations of contaminants are entering the Otago Harbour, and I consider the adverse effects associated with the direct discharge of contaminants to the harbour to be less than minor.

20 With respect to effects on the Dunedin City Council stormwater network, in particularly two stormwater lines on Halsey Street, based on the measured concentrations of contaminants in groundwater adjacent to the stormwater lines, the likely low rate of infiltration, the anticipated rate of continued attenuation over time, and dilution available at the harbour, I consider the adverse effects associated with the infiltration to the DCC stormwater lines and indirect discharge of contaminants to the harbour to be less than minor.

BACKGROUND

21 Mobil operated the bulk storage terminal from 1927 until 1995. During operation, the site stored a variety of hydrocarbon products, including leaded and unleaded petrol, diesel, turpentine, kerosene, white spirits, and lube oils. The bulk fuel storage facility was decommissioned from 1995 and aboveground infrastructure on site was progressively removed from site until 2007.

22 Environmental site assessment (ESA) works at the terminal and surrounding area were completed between 1992 and 2017. These investigations have documented the presence of residual petroleum hydrocarbon impacts at the site. Light Non-Aqueous Phase Liquid (LNAPL), comprised primarily of diesel and diesel/petrol mixture, is present in the ground beneath the site and extending to the southwest into Fryatt and Halsey Streets.

23 Dissolved phase contaminants are detectable in groundwater up to 40 m to the south of the site. While the original discharges of petroleum hydrocarbons to land from the operational use of the terminal occurred more than 27 years ago, contaminants continue to partition from contaminated soil and LNAPL source areas into groundwater, which emanates from the site.

24 Based on the findings of the ESA works, Mobil is seeking a resource consent from Otago Regional Council (ORC) for the ongoing or 'passive' discharge of residual petroleum hydrocarbon impacts onto or into land from the site.

25 Based on their understanding of the risks at the site, Mobil is not proposing to actively remediate the existing soil and groundwater contamination.

26 Monitoring by the applicant has shown that natural attenuation is occurring. Natural attenuation refers to the reduction in quantity and concentration of contaminants over time as a result of naturally occurring physical, chemical, and biological processes in soil and groundwater.

27 These processes a) limit the extent of contaminant migration from the site, and over time reduce the spatial extent of groundwater affected by contamination and b) decrease the mass of contaminants, both in the source area and in the surrounding groundwater.

28 As a result, Mobil is proposing to mitigate existing risks through the implementation of soil and groundwater management controls under the Environmental Management Plans (EMPs) submitted with the application, while natural attenuation processes continue to reduce the quantity and concentration of contaminants in soil and groundwater.

POTENTIAL EFFECTS ON GROUNDWATER

29 Based on the most recent groundwater monitoring event, which took place in April 2017, measurable LNAPL is present monitoring wells in the central and southwest portions of the site, including around three monitoring wells (BH47, BH57, and BH46) located approximately 10 m beyond the site boundary.

30 Dissolved contaminants, including total petroleum hydrocarbons (TPH), Benzene, Toluene, Ethylbenzene, meta-, ortho-, and para-Xylenes, and naphthalene are present in groundwater down hydraulic gradient of the site.

31 The concentrations of dissolved phase contaminants are typically highest close to the areas of LNAPL and decrease within a relatively short (<40 m) distance from the site, due to natural attenuation.

32 The mechanisms by which contaminants are attenuating are reasonably well understood and are consistent with current understanding of hydrocarbon fate and behaviour.

33 Based on the conceptual site model established by WSP New Zealand Limited, we can confidently expect the plume to continue to shrink and the volume and extent of LNAPL to reduce over time.

34 Using the methodology outlined in the Ministry for the Environment's Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites (Revised 2011), groundwater is not considered sensitive with respect to abstractive uses. There are no registered bores or ORC consents for groundwater abstraction within 1.5 km of the site. Unregistered groundwater abstraction near the site is unlikely, given the proximity to the Otago Harbour and tidally influenced groundwater and availability of a reticulated supply.

35 In this setting, under normal circumstances, the likelihood of people or ecological receptors being exposed to contaminants in groundwater is low.

36 However, if, during construction activities, dewatering of excavations in this area was required, and pumped water was discharged without sufficient treatment to the stormwater network or directly to the harbour, this could result in unacceptable adverse environmental effects (e.g., conspicuous sheen or deterioration in water quality). However, there are protocols in the off-site Environmental Management Plan to prevent this from occurring.

37 Overall, I consider adverse effects on groundwater to be minor.

POTENTIAL EFFECTS ON THE OTAGO HARBOUR

38 The most recent groundwater monitoring data indicate that concentrations of ethylbenzene, xylenes and naphthalene exceed the Australasian and New Zealand Environment and Conservation Council (ANZECC, 2000) trigger values for 95% marine species protection in monitoring wells up to 40 m from the site boundary.

NB: I note that the ANZECC (2000) guidelines have been superseded by the ANZG (2018) freshwater and marine guidelines; however, the trigger values for the contaminants of concern have not been changed.

39 Concentrations of contaminants of concern in wells located adjacent to the harbour (BH53 and BH54) were below the applicable guideline values.

40 Based on the demonstrated attenuation of contaminant concentrations, it is highly unlikely that measurable concentrations of contaminants are entering the Otago Harbour.

41 Moreover, as discussed in the application, Ministry for the Environment advises that dilution rates are often in the order of 1:1000 following discharge of groundwater to surface water, further decreasing the risk of adverse effect on this receiving water body.

42 Overall, based on the measured concentrations of contaminants in groundwater, the measured rate of attenuation over distance, and dilution available at the harbour, I consider the adverse effects associated with the direct discharge of contaminants to the harbour to be less than minor.

POTENTIAL EFFECTS ON THE DCC STORMWATER NETWORK

43 There are two DCC-owned concrete stormwater lines on Halsey Street, adjacent to the site.

44 The Closure Report states that, according to the DCC's Geographic Information System (GIS), the stormwater lines are 1.950 m and 1.3 m in diameter with invert levels of 99.893 m relative level (RL) (2.36 m bgl) at Jutland Street and 99.829 m RL (2.94 m bgl) at Fryatt Street.'

45 There are five monitoring wells (BH48, BH51, BH52, BH59, and BH60) located near these stormwater lines.

46 Groundwater elevations in these monitoring wells are typically higher than the reported invert of the stormwater line (e.g. 1.2 m bgl in BH48, 1.5 m bgl in BH51, and 1.3 m bgl in BH59 during the April 2017 monitoring round); therefore, it is possible that groundwater could enter the stormwater system through any cracks in the pipes and joints.

47 At this stage, the rate of infiltration, if any, is likely to be low. If groundwater was leaking into the stormwater pipe at a significant rate, we would expect to see an alteration in the

piezometric groundwater surface near the stormwater pipes. For example, the groundwater elevations would dip towards these bores, which would record groundwater elevations closer to the invert of the stormwater pipes.

48 If necessary, the rate of infiltration could be assessed using a Closed-Circuit Television (CCTV) inspection of the pipeline to confirm its current condition.

49 In their response to the second request for further information, WSP evaluate results from annual stormwater monitoring conducted on behalf of the Dunedin City Council.

50 Reported concentrations of polycyclic aromatic hydrocarbons (PAHs) during recent stormwater monitoring rounds have been below ANZG (2018) guideline values for individual PAH compounds. Other hydrocarbon compounds are not required to be analysed.

51 While the DCC stormwater monitoring results provide an additional line of evidence that significant ingress of contaminated groundwater is not occurring, the timing of stormwater sampling is not conducive to assessing effects of groundwater infiltration. Stormwater samples are collected to target a wet weather event, especially at low tide within two hours of the commencement of a rainfall event. This sampling period is intended to capture the 'first flush' of stormwater which carries the greatest concentrations of contaminants entrained in stormwater. As such, contaminants infiltrating the stormwater pipe at Halsey and Fryatt Streets could be readily diluted by high flows in the reticulated network and contaminant concentrations obscured by background concentrations of hydrocarbons in urban stormwater.

52 To evaluate whether contaminated groundwater was infiltrating the stormwater network, it would be more appropriate to undertake sampling during a period of dry weather (i.e., low flow), and to also collect samples from an upstream manhole if possible.

53 In any event, Halsey Street appears to be the lateral edge of the contaminant plume, with contaminant concentrations in groundwater adjacent to the stormwater line generally below the relevant ANZG (2018) criteria, with the exception of naphthalene and ethylbenzene at BH51. At this location, naphthalene exceeds the 95% species protection value by a factor of 3.7, and ethylbenzene exceeds the low-reliability trigger value by a factor of 15.

54 If infiltration were occurring or were to occur in the future, there is a relatively narrow segment of groundwater containing concentrations that exceed relevant environmental guidelines that intersects the pipelines.

55 Overall, based on the measured concentrations of contaminants in groundwater adjacent to the Halsey Street stormwater lines, the likely low rate of infiltration, the anticipated rate of continued attenuation over time, and dilution available at the harbour, I consider the adverse effects associated with the infiltration to the DCC stormwater lines and indirect discharge of contaminants to the harbour to be less than minor.

CONCLUSION

56 In conclusion, it is my opinion that the passive discharge of petroleum hydrocarbons from the former Mobil Dunedin Terminal will have a minor effect on groundwater, less than minor effect on the Otago Harbour, and a less than minor effect on the Dunedin City Council stormwater network.

57 Based on the established conceptual site model, I do not consider that there is a need to undertake regular routine groundwater monitoring. Although it has now been five years since the last monitoring round, we would confidently expect concentrations of groundwater to be similar or lower than previously observed, notwithstanding some expected short-term variability. However, critical monitoring wells should be retained on site so that groundwater monitoring could be completed in the future. For example, towards the end of the consent term, monitoring could be completed to determine whether a consent was still necessary. A monitoring round may also be appropriate in advance of any major soil disturbance or redevelopment works occurring on the site to benchmark ground conditions.

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02/12/2022