



Department of Conservation
Te Papa Atawhai

3 June 2020

s9(2)(g)(ii)

Contract Wild Animal Control NZ Ltd

CC: permissions@epa.govt.nz

Delivery Planner (Biodiversity)

s9(2)(g)(ii)

ATTENTION: s9(2)(g)(ii)

PERMISSION ID: 6158130

**WET JACKET PENINSULA POSSUM, RODENT AND STOAT
CONTROL OPERATION**

This permission is granted to take immediate effect. Permission is granted under:

- Section 95A of the Hazardous Substances and New Organisms Act 1996
- Sections 53 and 54 of the Wildlife Act 1953
- Sections 5 and 51A of the National Parks Act 1980

for Contract Wild Animal Control New Zealand Limited (CWAC NZL) or any of its staff or contractors acting under the authority of the Director-General of Conservation to apply:

- Sodium fluoroacetate 1.5g/kg Cereal pellet (0.15% 1080 Pellet) aerial and handlaid

on or after the date of this letter until 30 April 2021 and to undertake the actions approved under the above Acts on the lands managed or administered by the Department of Conservation listed below and the land shown on the **attached maps**:

- 40,399 ha of the Fiordland National Park, a National Park under the National Parks Act 1980

Non-toxic prefeed may be applied no earlier than the date of this letter.

This operation is approved for the purpose of controlling rats (with a by-kill of stoats) and possums in an attempt to increase native species survival and recruitment success (particularly for the Southern Fiordland tokoeka species of kiwi).

It is recognized that this operation may kill other pests.

The permission is given subject to the requirement that this operation:

- Is carried out as generally described in the Application Form submitted in completion May 2020;
- Meets the conditions shown in the attached sheets of DOC Performance Standards for Pesticide Uses # 1, #2, #140 and #141 (subject to the exemption to the aerial 1080 in kea habitat code of practice);
- Has a readiness check completed to the satisfaction of the Director Operations, Southern South Island prior to any application of non-toxic or toxic bait.

An exemption to standard 6 of the aerial 1080 in kea habitat code of practice is granted to allow the operation to occur after 31 August 2020 if necessary, provided that there is evidence that rodents have persisted into winter throughout the operation area so that it can confidently be expected that the operation will deliver effective stoat control.

Notwithstanding that the permission holder must comply with these requirements, it is acknowledged that indigenous animals may be killed and so this permission authorizes such deaths for the greater protection of indigenous species.

Auditing may occur to establish whether those conditions are being met. If not, the permission will be revoked and further action may ensue.

s9(2)(g)
(ii)

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Director Operations Issues and Programmes

Pursuant to a written delegation from:

- The Chief Executive, Environmental Protection Authority for section 95A of the Hazardous Substances and New Organisms Act 1996
- The Director-General of Conservation for sections 53 and 54 of the Wildlife Act 1953
- The Minister of Conservation for sections 5 and 51A of the National Parks Act 1980

Enc:

Map:

DOC-6158354

DOC Performance Standards:

PU#1 DOC-6158137

PU#2 DOC-6158142

PU#140 DOC-6158284

PU#141 DOC-6158310

Application Assessment Report:

See DOC-6158126

Ref: 6158130

Released under the Official Information Act

Application Form for Predator Control in the Wet Jacket Operational Area

Tiakina Ngā Manu
May 2020 – April 2021

Name of applicant:

s9(2)(g)(ii)

Company/organisation:

**Contract Wild Animal Control
New Zealand**

Postal address:

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RD1
Te Anau 9679

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Prepared by: s9(2)(g)(ii)

Phone: s9(2)(a)

Date: December 2019 (updated
May 2020)



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1. Introduction

1.1 Overview

The primary focus of this operation is to reverse the decline of the Southern Fiordland tokoeka species of kiwi by controlling introduced predators. This operation was initially planned for 2019 but due to an early snow event and lower than expected rodent tracking results in 2019 this operation was postponed until autumn 2020.

It is proposed that the following pesticide uses will be applied to control possums, rodents and stoats. Target species are rodents and possums with an expected by-kill of stoats in the operational area:

- Pesticide Use #1 - sodium fluoroacetate 1.5g/kg cereal pellet aerial (Pestoff)
- Pesticide Use #2 - sodium fluoroacetate 1.5g/kg cereal pellet hand-laid (Pestoff)
- Pesticide Use #140 - sodium fluoroacetate 1.5g/kg cereal pellet aerial (Pestex)
- Pesticide Use #141 - sodium fluoroacetate 1.5g/kg cereal pellet hand-laid (Pestex)

Permission is sought for toxic application starting on or after 1 June 2020 and ending on or before 30 April 2021.

Non-toxic prefeed will be applied no earlier than 1 June 2020.

Primary method to be employed is aerial 1080 with hand laid 1080 to be used within buffer areas if/as required.

1.2 Treatment area

Wet Jacket Treatment Area – approximately 37 994ha within the permission boundary.

See map - Appendix 2

1.3 Treatment block(s)

As above.

1.4 Geographical location

The treatment area is contained within Fiordland National Park. It consists of a remote, back-country stretch of Fiordland coastline and includes two mainland peninsulas between Breaksea Sound and Dusky Sound plus a section of the mainland south of Dusky Sound. Included in the treatment area

are several uninhabited inshore islands.

Dusky Sound contains a number of inshore islands and the mainland terrain is remote and mountainous. Access to the area is generally via sea-going vessel or aircraft, with the only formed track into the site being the Dusky Track which connects the head of Lake Hauroko to West Arm (of Lake Manapouri) with an additional track leading to Supper Cove, at the head of Dusky Sound. Approximately 5kms of the sidetrack is within the treatment area.

The forest is predominantly silver beech (*Nothofagus menziesii*), with snow tussock, alpine communities, bare rock and snowfields above the bush line. Coastal area contains some mixed forest of beech, rata and kamahi with small patches of podocarp.

Please see Appendix 1 – Map (1)

**1.5
Adjacent land
tenure and
uses**

- Part-only of Fiordland National Park; a National Park under section 4 of the National Parks Act 1980
- Coastal Marine Reserve Area

**1.6
Nearby
residential
areas or
facilities**

The treatment area is remote. The main divide separates all the closest townships from the treatment area.

Manapouri – 43km / West Arm – 18km / Deep Cove – 11km/
Clifden – 63km / Tuatapere – 67km / Te Anau – 55km

**1.7
Community
interests**

Commercial & Recreational Interests

Fiordland is the location of several commercial fisheries, with associated water supply locations, helicopter landing sites and storage pot holding locations. These activities occur in the marine area adjacent to the treatment area.

Commercial deer recovery operations have historically and continue to make a significant contribution to wild animal control in this area.

Recreational opportunities are limited by the remoteness of this site, however those who access the area have opportunity to undertake remote back-country pursuits.

- Sea kayaking
- Recreational hunting
- Tramping
- Fishing
- Diving

Tracks and Walkways

Public walking tracks in the Dusky Sound area are limited to the Dusky Track. It is an 84km tramping track that connects the head of Lake Hauroko to the West Arm of Lake Manapouri. A section of the track leads to Supper Cover at the head of Dusky Sound. Approximately 5kms of this section is within the treatment area. This is the most remote section of a remote back country track. It is recommended that only 'experienced, well equipped groups with high levels of fitness' use this track due to the rough terrain and remoteness.

Iwi Interest

Dusky Sound was an important site for iwi for hunting, fishing and collecting. Visits to the area are likely to have occurred between the months of November to April. A comprehensive compilation of information on iwi settlement and use in this area is available on the Journal of the Polynesian Society website (J.F. Coutts, 1969). Ngäi Tahu, which hold the mana whenua of the area, is also involved in the management of Fiordland National Park. They are kaitiaki (guardians) of the area, through long association and use. (Fiordland National Park Management Plan - FNPMP).

Historical Interest

Significant historical sites listed in the FNPMP include:

- Astronomer Point in Dusky Sound, where James Cook's astronomer determined the latitude and longitude of New Zealand (14kms from treatment area)
- Luncheon Cove in Dusky Sound, which was the site of the first European house in New Zealand (16kms from treatment area),
- Richard Henry's house site, also in Dusky Sound, where some of the earliest conservation work in the country was undertaken (14kms from treatment area).

The first recorded shipwreck on New Zealand shores occurred in Dusky Sound at Facile Harbour in 1795. This was the Endeavour, captained by William Bampton. The ballast stones from this ship can still be seen in the Harbour.

1.8 Management history

This is the first predator control operation at this site other than some localised trapping at the western end of the block to help slow reinvasion of stoats onto the adjacent Resolution Island.

Extensive native species and predator monitoring networks have been established and run regularly since 2017. These include:

- Fiordland tokoeka chick recruitment study
- Seed rain collection
- Phenology monitoring

- Rodent and stoat monitoring

Management of the wider operational area is governed through the Fiordland National Park Management Plan, and all associated Acts and Laws that support the management plan. Islands in the sound are included in the Mainland Southland / West Otago Conservation Management Strategy. Coastal pest plant surveillance of the Dusky Sound area, including islands, is undertaken regularly by the Department of Conservation. Few plants are found, and those that are found are immediately removed to halt the spread.

Island Management

Resolution Island, Anchor Island, Indian Island, Breaksea Island, Cooper and Long Islands (plus many other 'stepping stone' islands) are actively managed by the Department of Conservation (DOC). Some of these islands hold no mammalian pest-species and the rest hold reduced or managed populations.

Pest control on the mainland is considered an important step in maintaining the pest-free and semi-pest free status of Dusky Sound islands, and would also help to maintain vegetation health and indigenous species populations on the mainland (Wildlands. 2013).

Marine Protection

Environment Southland governs the marine parts of Fiordland and is the statutory authority for resource consent applications in the marine area, including applications for coastal surface water activities.

MPI Fisheries is responsible for developing a compliance plan to inform and educate fishers on fisheries regulations and to provide surveillance and prosecution capabilities

DOC is responsible for managing marine mammals, marine reserves, and some commercial concessions relating to tourism.

A group of representative stakeholders, the Fiordland Marine Guardians ("the Guardians"), were appointed by the Ministry for the Environment to advise on and manage issues relating to the FMA (Wildlands. 2013). Marine Reserves established in 2005 include:

- Moana Uta (Wet Jacket Arm) - 2007ha
- Taumoana (Five Fingers) Marine Reserve – 1466ha

Biosecurity

The Ministry for Primary Industries (MPI), Ministry for the Environment, Environment Southland, and DOC all contribute towards developing and implementing a Biosecurity Plan (Wildlands. 2013)

Important Bird Areas (IBA)

'Important Bird Areas' (IBAs) is a BirdLife International

initiative, aimed at identifying, monitoring and conserving the most important sites for the world's birds. Important areas for New Zealand seabirds are presently being compiled (Gaskin 2013). The draft boundaries of the 'Dusky Sound Wet Jacket Arm IBA (multiple sites)' covers a number of islands in the Dusky Sound project area, including Anchor Island, Indian Island, and Parrot Island, and the Seal Islands and Petrel Islands (Wildlands. 2013).

2. Outcomes and targets

2.1

Conservation outcome(s)

The main outcome of this operation is to provide learnings for an adaptive management program of Southern Fiordland tokoeka (SFT). Matching kiwi outcomes to results from an aerial 1080 operation will inform what is required for a successful management regime that may then be applied at other sites, allowing the sustainable conservation of the species throughout its range. There are three main outcomes for the 2020 Wet Jacket Peninsulas operation:

- Increased chick recruitment of Southern Fiordland tokoeka (SFT) (*Apteryx australis australis*) enables the SFT population in the operational area to increase in the 2020/21 season.
- The efficacy of 1080 to protect SFT on large Fiordland peninsulas is tested, including quantifying net population growth expected in the treatment year and the following two seasons.
- Ecosystems are protected and restored against the pressures of rats, stoats, and possums. This includes:

Protection of the health and integrity of the fauna species susceptible to predation by rats, stoats and possums in this area, particularly:

- Kiwi Southern Fiordland Tokoeka *Apteryx australis* (status: Threatened - Nationally Vulnerable)
- Kakariki / Yellow crowned parakeet *Cyanoramphus auriceps auriceps* (status: Not Threatened)
- Kea *Nestor notabilis* (status: Nationally Endangered)
- South Island kaka *Nestor meridionalis meridionalis* (status: Nationally Vulnerable)
- Piwauwau / rock wren *Xenicus gilviventris* (status: Nationally Endangered)
- Fiordland crested penguin *Eudyptes pachyrhynchus* (status: Nationally Endangered)
- Bats recorded on motion sensor cameras in Herrick Creek, Wet Jacket Arm. Could be either long-tailed bat (*Chalinolobus tuberculata*); or short-tailed bat (*Mystacina tuberculata tuberculata*)

Protection of the health and integrity of flora species susceptible to possum browse in this area, particularly:

- Kamahi (*Weinmannia racemosa*)
- Rimu (*Dacrydium cupressinum*)
- Miro (*Prumnopitys ferruginea*)
- Halls Totara (*Podocarpus cunninghamii*)
- Southern rata (*Metrosideros umbellata*)

- Tree fuchsia (*Fuchsia excorticata*)

In addition to the above, desired outcomes from this aerial baiting operation are also described in the 'Revised Stoat Operational Plan for Secretary and Resolution Islands 2014' (McMurtrie. P, 2014). This operation will trial the effectiveness of large-scale aerial baiting of the mainland to control rats, as a method of decreasing the immigration pressure of stoats, through secondary poisoning, to Resolution Island.

2.2
Target(s)

1. To reduce possum abundance within the treatment area to a bite mark index (BMI) of 15 possums per 100 wax tag nights or less ($\leq 15\%$ BMI), within three months after the operation.
2. To reduce rat and stoat tracking rate to below 5% within one month after bait application.

3. Consultation and consents

3.1 Consultation

DOC has identified and initially approached key-stakeholders to consult on the proposed operation. The role of CWACNZL is operational delivery and to inform and notify interested and affected parties.

Consultation has included the following:

- Information on this operation has been provided to all rūnanga who have been identified as having an interest in this area through the recent, formal Kaitiaki Roopu forum
- All adjoining landowners/occupiers adjacent to the proposed operational boundary
- Commercial fishing operators
- Vessels that use the area
- Commercial hunters
- Concessionaires

All communications undertaken during these consultation processes will be entered into the Communication Register specific to this operation. The Communications Register identifies all individuals and groups who have, or who will be, consulted with and notified as part of the planning, consenting and/or operational communication processes for this operation.

An uncontrolled copy of this register is attached. It will be regularly updated and copies will be supplied to DOC.

3.2 Consents

The following documents are attached as Appendix 4:

- ☒ Public health permission (including application form)
- ☐ Copies of landowner/occupier consents (if obtained in writing)
- ☒ Other (specify): Key Fact Sheet
- ☒ Other (specify): Communications Register

N.B. All documents related to this consent application will be secured and maintained by DOC in their document management system.

4. Methods

4.1

Treatment block 1

Pesticides—aerial

Pesticide use #1

1080 1.5g/kg Cereal pellet
Aerial (0.15% 1080 Pellet)

Target pest

Rodents
Possums

Brand name of pesticide	0.15% 1080 Pellets (Pestoff)
Lure/mask (& %)	Pre feed 6g (16mm), single cinnamon Toxic 6g (16mm), double cinnamon
Type of pre-feed (lure/dye)	Cereal Rs5 cinnamon, undyed
Number of pre-feeds (if any)	One
Nominal sowing rates for pre-feed and toxic bait	1.5kg/ha pre feed 1.5kg /ha toxic
Other details about this method	

Pesticide use #140

1080 1.5g/kg Cereal pellet
Aerial (Pestex)

Target pest

Rodents
Possums

Brand name of pesticide	Pestex
Lure/mask (& %)	Pre feed 6g (16mm), single cinnamon Toxic 6g (16mm), double cinnamon
Type of pre-feed (lure/dye)	Cereal Rs5 cinnamon, undyed
Number of pre-feeds (if any)	One
Nominal sowing rates for pre-feed and toxic bait	1.5kg/ha pre feed 1.5kg /ha toxic
Other details about this method	

Pesticides—handlaid**Pesticide use #2**

1080 1.5g/kg Cereal pellet
handlaying (0.15% 1080
pellet)

Target pest

Rodents
Possums

Brand name of pesticide	0.15% 1080 Pellets (Pestoff)
Lure/mask (& %)	Pre feed 6g (16mm), single cinnamon Toxic 6g (16mm), double cinnamon
Type of pre-feed (lure/dye)	Cereal Rs5 cinnamon, undyed
Number of pre-feeds (if any)	One
Sowing rates for pre-feed and toxic bait	1.5kg/ha pre feed 1.5kg /ha toxic
Other details about this method	To be used in areas where aerial application is not possible.

Pesticide use #141

1080 1.5g/kg Cereal pellet
handlaying (Pestex)

Target pest

Rodents
Possums

Brand name of pesticide	Pestex
Lure/mask (& %)	Pre feed 6g (16mm), single cinnamon Toxic 6g (16mm), double cinnamon
Type of pre-feed (lure/dye)	Cereal Rs5 cinnamon, undyed
Number of pre-feeds (if any)	One
Sowing rates for pre-feed and toxic bait	1.5kg/ha pre feed 1.5kg /ha toxic
Other details about this method	To be used in areas where aerial application is not possible.

**4.2
Justification
for proposed
method**

Stoats are the primary agent of decline in Southern Fiordland tokoeka (SFT) kiwi. Monitoring of juvenile kiwi at the study site showed no monitored kiwi chicks survived in either the 2017 or 2018 seasons. Possums were also recorded visiting nests and it is possible they would target kiwi chicks. Possums also present a general threat to ecosystem health. Rats, mice and possums are a listed threat for many of the forest species listed.

The treated area needs to be sufficiently large that increases in SFT chick production within the block within infrequent treatments (currently limited to mast years) will lead to a net increase in total SFT population through the species' distribution.

Current best practice uses 1080 to target stoats via secondary poisoning, in years with high rodent numbers following beech and podocarp masting (mass seeding) events. Heavy beech and rimu seeding have occurred in 2019. Rodent numbers have been slow to respond but are increasing. The ideal timing for a 1080 operation to protect SFT would be:

- A) **Once abundance of rodent vectors is believed sufficient to ensure by-kill of stoats:** the sufficient rodent vector required to achieve good stoat knockdown is currently unknown. Rodent monitoring using tracking tunnels is a coarse measure. The Tiakina Ngā Manu Technical Advisory Group advise that providing rodent tracking is widespread i.e. some tracking in most habitats there should be sufficient vector for stoats which have a significantly greater home range than rodents.
- B) **Before stoat kits emerge from maternal dens:** from early November.
- C) **Before SFT chicks emerge from burrows and become independent of the parent birds:** The Median emergence date for the first clutch of SFT over first 2 seasons at shy lake is October 21st. Based on these data, an operation before October 13 would precede >80 % of SFT chick emergence.

5. Further information

Details of contractor or principle

Contract Manager

Company/organisation:	Department of Conservation
Contact person:	Site Lead: s9(2)(g)(ii)
Contact number:	Fiordland District s9(2)(a) s9(2)(g)(ii)

Project Manager

Company/organisation:	Contract Wild Animal Control New Zealand Ltd
Contact person:	s9(2)(g)(ii)
Contact number:	s9(2)(a) s9(2)(g)(ii)

Bait Sowing

Company/organisation:	Helicopters Otago Ltd
Contact person:	s9(2)(g)(ii)
Contact number:	s9(2)(a) s9(2)(g)(ii)

Further information

Nil

Appendix 1: DOC Performance Standards

(Templates below - final versions to be supplied by DOC)

Pesticide Use #1	Sodium fluoroacetate 1.5g/kg Cereal pellet Aerial (0.15% 1080 Pellet)	Target Pests: Possums, Rats
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Location of operation
<i>Wet Jacket</i>



Caution Period

The estimated caution period for this operation is *[assessor to complete]* months after last date of bait application and is subject to compulsory bait and carcass monitoring. This estimated caution period cannot be reduced to less than 4 months, and must be extended if the endpoints for monitoring have not been met at the end of the period.

Performance Standards

Compulsory for **all** operations

- For operations targeting rats, prefeed with this pesticide use.
- The DOC Code of practice for aerial 1080 in kea habitat [DOC-2612859](#) must be followed.
- Flight paths to and from the bait loading zones by aircraft equipped with loaded or uncleaned bait sowing equipment must avoid: stocked paddocks, residential dwellings, and any other 'no fly zones' specified by consent providers.
- An aircraft must not, when flying to or from the treatment area, fly over a public drinking water supply or waterway that is less than 100 metres upstream of a point of extraction from a water source for a drinking water supply (not being a water supply exclusively for stock).
- For operations targeting possums, baits will have a mean size in excess of 6g and 95% of baits should weigh more than 4g.
- The baits must be dyed green or blue.
- The boundaries of the bait preparation and loading site are marked and loading site signs [docdm-181171](#) erected. At the end of every day of the operation (including the final day), the loading site and any storage area must be fenced so that people do not inadvertently enter the site and stock cannot gain access to the area. The fence and signs remain in place until you judge that there is no longer a risk to stock.
- If there is any likelihood that farm stock has been exposed to 1080, the owner must be advised as soon as possible and stock removed from the area.
- The product must only be used as specified on the manufacturer's product label.

Compulsory for this operation (delete those that you won't be applying to your operation)

- Bait sowing rate must be no greater than 5kg/ha for 6gm baits (or equivalent bait density per hectare for other bait sizes).
- Designate a "Safety Officer" on loading site who audits and ensures adherence to safety standards.
- [Add further standards as required. These could include local performance standards as well as any recommendations from [Current Agreed Best Practice](#) that you want to apply to your operation. Attach conditions from other consents as separate pages.]*

Information Needs

Compulsory for **all** operations

Nil

Compulsory for this operation

- [Add as required.]*

Operational Planning & Design Considerations

- Apply bait in coldest months of year.
- For operations targeting possums, do not repeat aerial operations within 4 years using the same bait.
- Current Agreed Best Practice – Possum Control – Aerial Application of 1080 Cereal Pellets [docdm-341728](#)
- Current Agreed Best Practice – Rat Control – Aerial Application of 1080 Cereal Bait [docdm-29375](#)

My approval dated *[date]* is subject to these performance standards being met. Compliance monitoring may occur.

Pesticide Use #140	Sodium fluoroacetate 1.5g/kg Cereal pellet Aerial (Pestex)	Target Pests: Possums, Rats
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Location of operation

Wet Jacket

**Caution Period**

The estimated caution period for this operation is [assessor to complete] months after last date of bait application and is subject to compulsory bait and carcass monitoring. This estimated caution period cannot be reduced to less than 4 months, and must be extended if the endpoints for monitoring have not been met at the end of the period.

Performance Standards*Compulsory for **all** operations*

13. For operations targeting rats, prefeed with this pesticide use.
14. The DOC Code of practice for aerial 1080 in kea habitat [DOC-2612859](#) must be followed.
15. Flight paths to and from the bait loading zones by aircraft equipped with loaded or uncleaned bait sowing equipment must avoid: stocked paddocks, residential dwellings, and any other 'no fly zones' specified by consent providers.
16. An aircraft must not, when flying to or from the treatment area, fly over a public drinking water supply or waterway that is less than 100 metres upstream of a point of extraction from a water source for a drinking water supply (not being a water supply exclusively for stock).
17. For operations targeting possums, baits will have a mean size in excess of 6g and 95% of baits should weigh more than 4g.
18. The baits must be dyed green or blue.
19. The boundaries of the bait preparation and loading site are marked and loading site signs [docdm-181171](#) erected. At the end of every day of the operation (including the final day), the loading site and any storage area must be fenced so that people do not inadvertently enter the site and stock cannot gain access to the area. The fence and signs remain in place until the area is decontaminated.
20. If there is any likelihood that farm stock has been exposed to 1080, the owner must be advised as soon as possible, and stock removed from the area.
21. The product must only be used as specified on the manufacturer's product label.

Compulsory for this operation (delete those that you won't be applying to your operation)

22. Bait sowing rate must be no greater than 5kg/ha for 6gm baits (or equivalent bait density per hectare for other bait sizes).
23. Designate a "Safety Officer" on loading site who audits and ensures adherence to safety standards.
24. Use bait sowing buckets with retractable legs.
25. [Add further standards as required. These could include local performance standards as well as any recommendations from [Current Agreed Best Practice](#) that you want to apply to your operation. Attach conditions from other consents as separate pages.]

Information Needs*Compulsory for **all** operations*

Nil

Compulsory for this operation

2. [Add as required.]

Operational Planning & Design Considerations

These are considerations used during planning and assessment of an operation.

Assessor to delete this section from the approved performance standard sheet for the operation.

- Apply bait in coldest months of year.

DOC application form Version 3.3

- For operations targeting possums, do not repeat aerial operations within 4 years using the same bait.
- Current Agreed Best Practice – Possum Control – Aerial Application of 1080 Cereal Pellets [docdm-341728](#)
- Current Agreed Best Practice – Rat Control – Aerial Application of 1080 Cereal Bait [docdm-29375](#)

My approval dated *[date]* is subject to these performance standards being met. Compliance monitoring may occur.

Pesticide Use #2	Sodium fluoroacetate 1.5g/kg Cereal pellet Handlaying (0.15% 1080 pellet)	Target Pests: Possums, Rats
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Location of operation

Wet Jacket

**Caution Period**

The estimated caution period for this operation is *[assessor to complete]* months after last date of bait application and is subject to compulsory bait and carcass monitoring. This estimated caution period cannot be reduced to less than 4 months, and must be extended if the endpoints for monitoring have not been met at the end of the period.

Performance Standards*Compulsory for **all** operations*

1. For operations targeting rats, prefeed with this pesticide use.
2. For operations targeting possums, baits will have a mean size in excess of 6g and 95% of baits should weigh more than 4g.
3. The baits must be dyed green or blue.
4. The product must only be used as specified on the manufacturer's product label.

Compulsory for this operation (delete those that you won't be applying to your operation)

5. The DOC Code of practice for aerial 1080 in kea habitat [DOC-2612859](#) must be followed.
6. *[Add further standards as required. These could include local performance standards as well as any recommendations from [Current Agreed Best Practice](#) that you want to apply to your operation. Attach conditions from other consents as separate pages.]*

Information Needs*Compulsory for **all** operations*

Nil

Compulsory for this operation (delete those that you won't be applying to your operation)

1. Monitoring: For operations targeting possums, follow best practice for pre and post control result monitoring to estimate percentage kill and report results in operational report.
2. Monitoring: Monitor for native non-target animals in operational area, send samples for residue testing and report search effort and results in operational report. The Vertebrate Pesticides Residue Database SOP [docdm-33461](#) applies.
3. *[Add as required.]*

Operational Planning & Design Considerations

- Current Agreed Best Practice – Possum Control – Handlaying 1080 Cereal Pellets [docdm-29797](#).

My approval dated *[date]* is subject to these performance standards being met. Compliance monitoring may occur.

Pesticide Use #141	Sodium fluoroacetate 1.5g/kg Cereal pellet Hand laying (Pestex)	Target Pests: Possums, Rats
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Location of operation

Wet Jacket

**Caution Period**

The estimated caution period for this operation is *[assessor to complete]* months after last date of bait application and is subject to compulsory bait and carcass monitoring. This estimated caution period cannot be reduced to less than 4 months, and must be extended if the endpoints for monitoring have not been met at the end of the period.

Performance Standards*Compulsory for **all** operations*

7. For operations targeting rats, prefeed with this pesticide use.
8. For operations targeting possums, baits will have a mean size in excess of 6g and 95% of baits should weigh more than 4g.
9. The baits must be dyed green or blue.
10. The product must only be used as specified on the manufacturer's product label.

Compulsory for this operation (delete those that you won't be applying to your operation)

11. The DOC Code of practice for aerial 1080 in kea habitat [DOC-2612859](#) must be followed.
12. *[Add further standards as required. These could include local performance standards as well as any recommendations from [Current Agreed Best Practice](#) that you want to apply to your operation. Attach conditions from other consents as separate pages.]*

Information Needs*Compulsory for **all** operations*

Nil

Compulsory for this operation (delete those that you won't be applying to your operation)

4. Monitoring: For operations targeting possums, follow best practice for pre and post control result monitoring to estimate percentage kill and report results in operational report.
5. Monitoring: Monitor for native non-target animals in operational area, send samples for residue testing and report search effort and results in operational report. The Vertebrate Pesticides Residue Database SOP [docdm-33461](#) applies.
6. *[Add as required.]*

Operational Planning & Design Considerations

These are considerations used during planning and assessment of an operation.

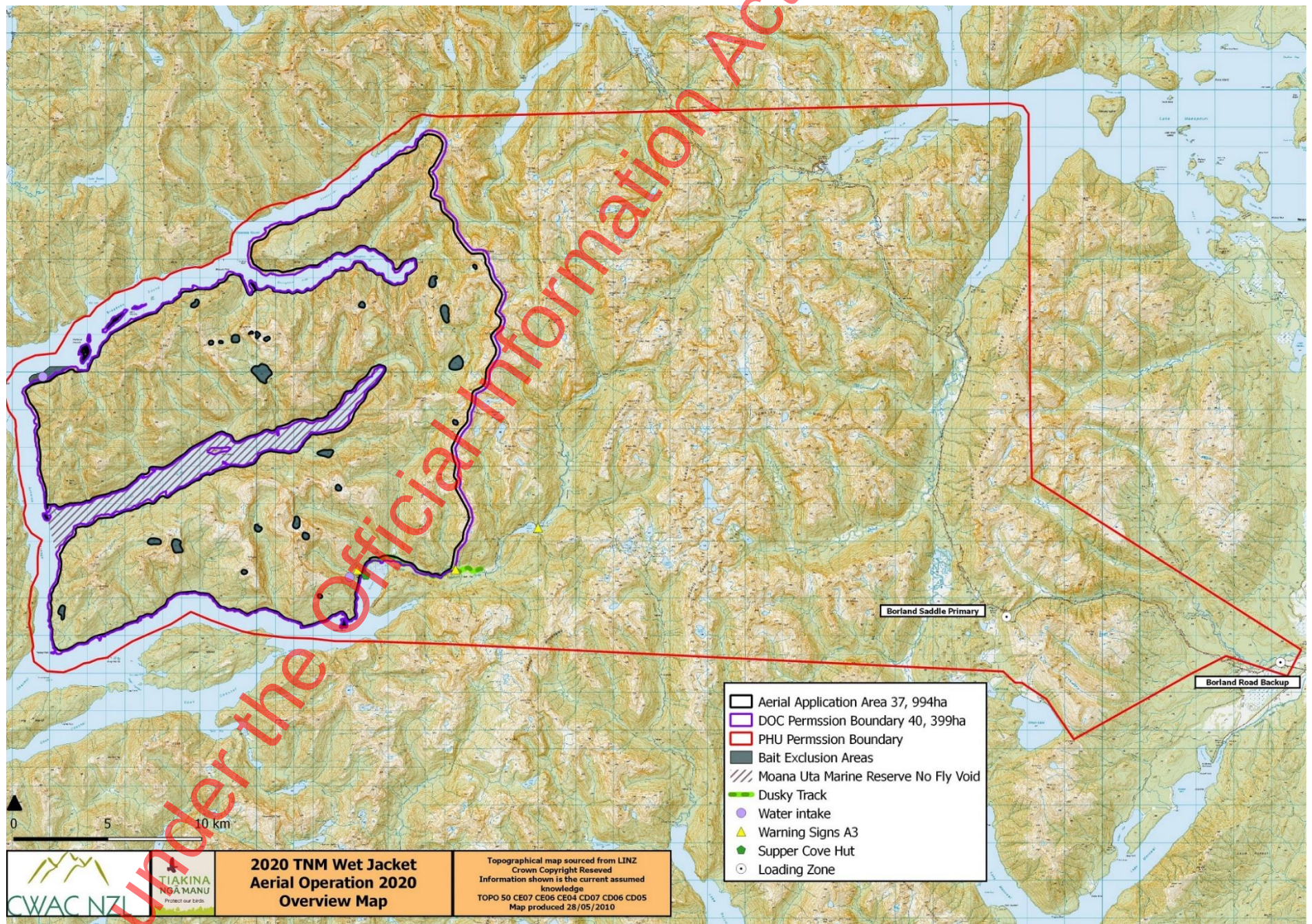
Assessor to delete this section from the approved performance standard sheet for the operation.

- Current Agreed Best Practice – Possum Control – Handlaying 1080 Cereal Pellets [docdm-29797](#).

My approval dated *[date]* is subject to these performance standards being met. Compliance monitoring may occur.

Appendix 2: Maps

Overview map below (see also additional operational maps attached)



Appendix 3: Communication Record

The Department of Conservation has an ongoing consultation and notification process in place.

The 'Wet Jacket Communications Plan' is held by the Department of Conservation, in its electronic document system.

Please find attached the current Communications Log landowner list, updates will be regularly sent to DOC.

Appendix 4: Consents

PHU consent has been granted. A copy of the consent and application form is attached to this application.

Landowner/occupier permissions will be recorded in the Consultation record.

Declined landowner/occupier permissions will also be recorded in the Consultation record.

Appendix 5: Assessment of environmental effects

Effects on non-target native species

Target benefit species

Native Birds

Due to the coastal to montane environmental gradient of the Fiordland area there is a wide range of habitats for a number of bird species.

Threatened and at-risk bird species recorded in and around Dusky Sound Peninsula include:

Conservation Status of New Zealand birds, 2012 (Robertson et al. (2012), Dusky Sound/Tamatea Conservation and Restoration Plan (2015).

Common Name	Scientific Name	Threat Category
Southern Fiordland kiwi / tokoeka	<i>Apteryx australis</i>	Nationally Vulnerable
Grey Duck	<i>Anas superciliosa superciliosa</i>	Nationally Critical
Black-billed gull	<i>Larus bulleri</i>	Nationally Critical
Southern falcon	<i>Falco novaseelandiae</i> "southern"	Data Deficient
South Island kaka	<i>Nestor meridionalis meridionalis</i>	Nationally Vulnerable
Reef Heron	<i>Egretta sacra sacra</i>	Naturally Endangered
Red-billed gull	<i>Larus novaehollandiae scopulinus</i>	Nationally Vulnerable
Fiordland crested penguin/tawaki	<i>Eudyptes pachyrhynchus</i>	Nationally Endangered
Pied shag	<i>Phalacrocorax varius varius</i>	Nationally Vulnerable
Piwauwau / Rock wren	<i>Xenopus gilviventris</i>	Nationally Endangered
Kea	<i>Nestor notabilis</i>	Nationally Endangered
New Zealand pipit / pihiohi	<i>Anthus novaseelandiae novaeeseelandiae</i>	At Risk
Southern blue penguin	<i>Eudyptula minor minor</i>	At Risk
South Island pied oystercatcher	<i>Haematopus finschi</i>	Recovering
Variable oystercatcher	<i>Haematopus unicolor</i>	Naturally Uncommon
Little black shag	<i>Phalacrocorax sulcirostris</i>	

Other native bird species recorded in and around the treatment area which are not threatened include:

Common Name	Scientific Name
South Island rifleman	<i>Acanthisitta chloris chloris</i>
Western weka	<i>Gallirallus australis australis</i>
Sooty shearwater	<i>Puffinus griseus</i>
Black shag	<i>Phalacrocorax carbo novaehollandiae</i>
Little shag	<i>Phalacrocorax melanoleucos brevirostris</i>
Bellbird / <i>kōparapara</i>	<i>Anthornis melanura melanura</i>
White-faced heron	<i>Ardea novaehollandiae</i>
New Zealand scaup	<i>Aythya novaeseelandiae</i>
Shining cuckoo/ <i>pipiwharau</i>	<i>Chalcites lucidus</i>
Yellow-crowned parakeet	<i>Cyanoramphus auriceps auriceps</i>
Black swan	<i>Cygnus atratus</i>
Grey warbler/ <i>riroriro</i>	<i>Gergone igata</i>
New Zealand kingfisher	<i>Sancta vagans</i>
Pigeon/ <i>kereru</i>	<i>Hemiphaga novaeseelandiae</i>
Southern black-backed gull	<i>Larus dominicanus dominicanus</i>
Brown creeper	<i>Mohoua novaseelandiae</i>
Morepork/ <i>ruru</i> <i>koukou</i>	<i>Ninox novaeseelandiae</i>
Paradise shelduck/ <i>putangitangi</i>	<i>Tadorna variegata</i>
Spotted shag	<i>Strictocarbo punctatus punctatus</i>
Spur-winged plover	<i>Vanellus miles novaehollandiae</i>
Silvereye/ <i>tauhou</i>	<i>Zosterops lateralis</i>
South Island fantail/ <i>piwakawaka</i>	<i>Rhipidura fuliginosa fuliginosa</i>
South Island robin/ <i>toutouwai</i>	<i>Petroica australis australis</i>
South Island yellow breasted tomtit/ <i>miromiro</i>	<i>Petroica macrocephala macrocephala</i>
Tui	<i>Prosthemadera novaeseelandiae</i>

Native Bats

Bats have been recorded on motion sensor cameras in Herrick Creek, Wet Jacket Arm/Moana Utu which could be either long tailed or short tailed bats.

Native Flora

Threatened plant species within the Dusky Sound Peninsula which will benefit from control efforts include:

Common Name	Scientific Name	Threat Category
Scarlet mistletoe	<i>Peraxilla colensoi</i>	Declining
Red mistletoe	<i>Peraxilla tetrapetala</i>	Declining
Yellow mistletoe	<i>Alepis flavida</i>	Declining

Native Invertebrates

Dusky Sound and its adjacent fiords, islands and mainland have not been fully explored for terrestrial invertebrates, but what is known is that the Dusky Sound area harbours a distinctive and important invertebrate fauna. Important features of this invertebrate fauna include:

Dusky Sound Conservation and Restoration Plan (2015), Leschen *et al* (2012), Mahfeld *et al* (2012), Stringer *et al* (2012) and Buckley *et al* (2012).

Common Name	Scientific Name	Threat Category
Beetle (Carabidae)	<i>Mecodema rex</i>	At Risk-Naturally Uncommon
Earthworm (Megascolicidae)	<i>Perieodrilus ricardi</i>	At Risk-Naturally Uncommon
Landsnail (Punctidae)	Punctidae sp. 121 (NMNZ M.57797)	At Risk-Naturally Uncommon
Beetle (Staphylinidae)	<i>Psuedopsis</i> sp.1 (NZAC 04001461)	At Risk-Naturally Uncommon
Landsnail (Charopidae)	<i>Ptychodon blacki</i>	At Risk-Naturally Uncommon
Beetle (Curculionidae)	<i>Anagotus</i> sp. [turbotti group]	At Risk-Naturally Uncommon
Moth (Noctuidae)	<i>Meterana pictula</i>	At Risk-Declining
Flax weevil (Curculionidae)	<i>Anagotus fairburni</i>	At Risk-Declining
Knobbed weevil (Curculionidae)	<i>Hadramphus stilbocarpae</i>	At Risk-Declining
Landsnail (Charopidae)	Charopidae sp.60 (NMNZ M.100283)	Data Deficient
Beetle (Lucanidae)	<i>Geodorcus helmsi</i>	Not Threatened
Landsnail (Rhytididae)	" <i>Powelliphanta</i> " <i>fiordlandica</i>	Not Threatened

Native Herpetofauna

The herpetofauna of Dusky Sound area is not well known due to a combination of the remoteness of the area, the challenging access and the difficulties of surveying lizards in the heavily forested areas

that are typical of the Doubtful Sound Ecological District. Species likely to be present include:

Dusky Sound Conservation and Restoration Plan (2015), Threat classification after Hitchmough et al.

Common name	Scientific name	Threat category
Fiordland skink	<i>Oligosoma acrinatum</i>	At Risk - Relict
Green gecko	<i>Naultinus</i> sp.	
Common skink	<i>Oligosoma chloronoton/lineocellatum</i>	
Cryptic skink	<i>Oligosoma inconspicuum</i>	At Risk - Declining
Common gecko	<i>Woodworthia maculatus</i>	
Southern forest gecko	<i>Mokopiriraku</i> 'southern forest'	Nationally endangered

Aquatic Fauna

Threat classifications for fish are from Allibone *et al* (2010) and for crustaceans from Hitchmough *et al.* (2007), Dusky Sound Conservation and Restoration Plan (2015). Species likely to be present are:

Common name	Scientific name	Threat category
Common bully	<i>Gobiomorphus cotidianus</i>	Not Threatened
Giant kokopu	<i>Glaxias argenteus</i>	At Risk - Declining
Inanga	<i>Galaxias maculatus</i>	At Risk - Declining
Koaro	<i>Galaxias brevipinnis</i>	At Risk - Declining
Banded kokopu	<i>Galaxias fasciatus</i>	Not Threatened
Longfin eel	<i>Anguilla dieffenbachia</i>	At Risk - Declining
Redfin bully	<i>Gobiomorphus huttoni</i>	At Risk - Declining
Koura	<i>Paranephrops zealandicus</i>	Chronically Threatened – Gradual Decline
Shortfin eel	<i>Anguilla australis</i>	Not Threatened

Non-target species

As above

Effect of operation on native species

A reduction in possum, rodent (and indirectly stoat) numbers will achieve the following:

- enhance breeding success of all native bird species including the Southern Fiordland tokoeka species of kiwi
- enhance the insect food supplies and fruit/seed supplies available for birds
- protect and enhance native flora

From the DOC 1080 Pesticide information review:

There have been numerous studies examining the effects of aerial poisoning on native non-target populations over the last 20 years. 24 species of native birds, particularly threatened species, have been monitored. None of the studies have identified population level mortality which threatened the viability of the species. It is possible deaths could occur in some bird species though population recovery is normally within one breeding season.

44 radio-tagged **great spotted kiwi** have been monitored through four 0.15% 1080 Pellet aerial operations and none died from 1080 poisoning.

A total of 243 **NI brown kiwi** have been monitored during aerial and handlaid 1080 pellet operations during 5 operations and none have died from poisoning.

A total of 42 **weka** has been exposed to this method and bait type over 5 operations and 1 has died from poisoning.

A total of 276 radio tagged **kea** have been exposed to this method and bait type over 25 operations and 33 have died from poisoning.

A total of 47 radio tagged **morepork/ruru** have been exposed to this method and bait type over 6 operations and none have died from poisoning.

Twenty-one colour banded and 5 unbanded **SI robins** monitored during 2 aerial 1080 pellet operations all survived.

A total of 60 radio tagged **Kaka** have been exposed to this method and bait type over 4 operations and none have died from poisoning.

21 marked (8 radio-tagged and 13 banded) adult **NZ falcon** were monitored through three 0.15% 1080 cereal pellet operations undertaken in Kaingaroa Forest during 2013-2014 by Horikoshi et al. (2018). All the marked falcon survived the operations.

Limited monitoring of short tailed bats and native frogs has not indicated detectable mortality due to aerial 1080 poisoning.

Invertebrate populations have been monitored in nine aerial poisoning operations and none have shown significant population effects on any species studied, nor is there evidence to suggest poisoned invertebrates are a significant factor in secondary poisoning of other animals. Long term monitoring of native land snails indicates substantial benefits to threatened populations in sites treated with aerial poisoning.

The risks 1080 operations pose to aquatic species is considered very low. Fish are very tolerant to 1080. Additionally, 1080 contamination of water is rarely found during 1080 operations and is at an extremely low level when it has occurred. No mortality of longfin

eels, kōaro or upland bullies was observed during experiments where high densities of cereal 1080 pellets were placed in water just upstream of them. Eels and koura have survived experimental feeding of cereal 1080 pellets, and eels have survived feeding on possum tissue containing 1080. There have also been no detectable effects on aquatic invertebrate communities in field studies where 1080 baits were placed at high densities in streams.

Results prove 1080 works: (from <https://www.doc.govt.nz/nature/pests-and-threats/methods-of-control/1080/why-we-use-1080/>)

Monitoring studies and peer-reviewed research over more than 20 years show that one aerial 1080 operation every few years is enough to keep the number of predators down so our native species can survive and breed.

For kiwi, only 5% of chicks make it to breeding age without predator control. With predator control (including 1080) up to 60% of the chicks survive to breeding age. Also, more than 583 kiwi have been monitored through 1080 operations since 1990 and not one has died from 1080 poisoning.

On-site monitoring has shown that predation pressure is not allowing recruitment within the kiwi population at the Wet Jacket site. This operation will control predators and particularly stoats for at least one and probably two kiwi breeding seasons. This will allow kiwi chicks to grow to maturity and increase the population health.

Performance standards and information needs

Ensuring 1080 bait meets all quality specifications is considered the best way to avoid adversely affecting birds and other native species

1. 1080 baits will be lured with cinnamon.
 2. If 20mm baits are being used - 1080 baits will have a mean size of 12g or more and 95% of baits will weigh more than 9g.

If 16mm baits are being used - 1080 baits will have a mean size of 6g or more and 95% of baits will weigh more than 2.5g.
 3. 1080 bait quality will be checked to ensure bait size complies with standards.
 4. 1080 baits will be dyed green or blue to deter birds.
 5. 1080 baits will be sown at a nominal sowing rate of 1.5kg/ha but not greater than 5 kg/ha.
 6. RS5 baits will be used.
-

7. DOC kea code of practice (kea COP) will be followed.

May 2020 update:

Ideally the operation will occur before August 31, however, a precautionary exemption from performance standard 6 of the kea COP is requested in case the operation is delayed past this date for unforeseeable reasons. This exemption will be based on DOC specialist advice.

Effects on non-target domestic and feral animals

Non-target species

In 1909, ten moose were brought from Canada for liberation at Supper Cove. The harsh environment and competition from red deer have made it unlikely that any moose still survive today although unconfirmed reports of moose sightings have been made over the years.

Other introduced animal pests recorded within the treatment area include:

Dusky Sound Conservation and Restoration Plan (2015).

Common Name	Scientific Name	Extent
Kiore	<i>Rattus exulans</i>	Low on mainland, absent on islands
Red deer	<i>Cervus elaphus scoticus</i>	Widespread on mainland, low on islands
Stoat	<i>Mustela ermine</i>	Widespread on mainland, low on islands
Weasel	<i>Mustela nivalis vulgaris</i>	Uncertain on mainland, none on islands
Brushtail possum	<i>Trichosurus vulpecula</i>	Low on mainland, absent on islands
Mouse	<i>Mus musculus</i>	Present on mainland and some islands
Norway rat	<i>Rattus norvegicus</i>	Present on mainland and some islands
Ship rat	<i>Rattus rattus</i>	Present on some islands, widespread on mainland

Effects of operation on domestic and feral animals

There is no domestic livestock within or adjacent to the treatment area.

Dogs are highly susceptible to 1080 and must not be exposed to the opportunity to directly eat toxic baits or scavenge from poisoned possum carcasses. Carcasses can remain toxic after 1080 poisoning until completely decomposed which can take between 1-12 months, depending on weather conditions and micro-site factors.

Under the National Parks Act 1980 (Part VA) dogs are not permitted in a national park without a permit. In line with the Fiordland National Park by-laws and management plan, no

permit will be issued for any part of the treatment area. Any dogs illegally brought into the Fiordland control areas by the visiting public will be at risk from the operation.

Performance standards and information needs

Signs will be erected at normal public entry points to the treatment area and maintained until the caution period has expired. Signs at public entry points will clearly state “poison baits or carcasses are deadly to dogs”.

No permits to take dogs into the treatment areas will be issued until the operational all-clear is given i.e. caution period has ended and warning signs have been removed by DOC staff.

Further information

Further information

There is an RMA AEE saved to the DOCDM for this site:

Dusky – DOCDM 2694342

There is also a DOC TNM Operational Plan available.

References

The following references were used in developing this AEE:

- Fairweather, A.A.C.; Broome, K.G. 2018: Sodium Fluoroacetate Pesticide Information Review. Version 2020/1. Unpublished report docdm-25427, Department of Conservation, Hamilton, NZ. 134p.
- <https://www.doc.govt.nz/nature/pests-and-threats/methods-of-control/1080/why-we-use-1080/>

Application for DOC permission to use VTAs: assessment report

Applicant name:	s9(2)(g)(ii) Contract Wild Animal Control New Zealand Ltd (CWAC NZL)
Operation name:	Wet Jacket Peninsula
Approving manager:	s9(2)(g)(ii) Director National Operations
Assessor:	s9(2)(g)(ii) TNM Operational Support
Date received:	Initial application received 11/12/2019. Amended application received 12/5/2020 due to covid-19 delays.
Overview:	The primary focus of this operation is to reverse the decline of the Southern Fiordland tokoeka species of kiwi by controlling introduced predators. This operation was initially planned for 2019 but due to an early snow event and lower than expected rodent tracking results in 2019 this operation was postponed until autumn 2020. It is proposed that the following pesticide uses will be applied to control possums, rodents and stoats. Target species are rodents and possums with an expected by-kill of stoats in the operational area: • Pesticide Use #1 - sodium fluoroacetate 1.5g/kg cereal pellet aerial (Pestoff) • Pesticide Use #2 - sodium fluoroacetate 1.5g/kg cereal pellet hand-laid (Pestoff) • Pesticide Use #140 - sodium fluoroacetate 1.5g/kg cereal pellet aerial (Pestex) • Pesticide Use #141 - sodium fluoroacetate 1.5g/kg cereal pellet hand-laid (Pestex) Permission is sought for toxic application starting on or after 1 June 2020 and ending on or before 30 April 2021. Non-toxic prefeed will be applied no earlier than 1 June 2020. Primary method to be employed is aerial 1080 with hand laid 1080 to be used within buffer areas if/as required.

	Location: The treatment area is approximately 38 000 ha contained within Fiordland National Park. It consists of a remote, back-country stretch of Fiordland coastline and includes two mainland peninsulas between Breaksea Sound and Dusky Sound plus a section of the mainland south of Dusky Sound. Included in the treatment area are several uninhabited, inshore islands. The treatment area is remote. The main divide separates all the closest townships from the treatment area. Manapouri – 43km / West Arm – 18km / Deep Cove – 11km/ Clifden – 63km / Tuatapere – 67km / Te Anau – 55km
Applicant type:	DOC operation contracted to CWAC NZL to deliver—DOC SOPs will apply.

Step 1 Confirm application is complete <i>Are all documents (listed below) provided?</i>	
DOC Application form complete:	The DOC application is completed to a standard that allows assessment - DOC-6158336 Document homepage - DOC-5609808 The operational area will be treated as one treatment block. The AEE section has been completed within the application.
Are all the proposed pesticide use(s) accepted for use?	Proposed pesticide uses are accepted for use on the Status List
Performance standards sheets	The correct Performance Standards sheet templates were supplied by the applicant.
DOC permission map(s) (image file or files)	An acceptable standard of maps were provided by the applicant, including showing the proposed location of warning signs.

	N.B. the Public Health Unit (PHU) permission boundary shown on the map is much larger than the treatment area. Bait will only be applied within the DOC treatment area boundary. Map - DOC-6158354
DOC Pesticide Summary shapefiles (independent groups or individuals only)	DOC operation – already captured in the pest app.
Consultation record including conditions of landowner consents	Consultation record supplied by applicant and is being continually updated. DOC has identified and initially approached key-stakeholders to consult on the proposed operation. The role of CWAC NZL is operational delivery and to inform and notify interested and affected parties. Consultation has included the following: • Information on this operation has been provided to all rūnanga who have been identified as having an interest in this area through the recent, formal Kaitiaki Roopu forum • All adjoining landowners/occupiers adjacent to the proposed operational boundary • Commercial fishing operators • Vessels that use the area • Commercial hunters • Concessionaires Communication plan: DOC-5610668 N.B. Due to uncertainty during the Covid19 lockdown public notification of the upcoming operation is on hold as at 12/5/2020 and will depend on government announcements about lifting restrictions. All appropriate notifications will occur and be documented in the comm plan once the operation is able to go ahead. A readiness check will occur to ensure this.

Public health permission/ proof of application	PHU application and permission have been supplied by applicant (see below).
Other (specify, e.g. RMA consent)	N/A
Your confirmation email and subsequent correspondence	11/12/2019 - emailed applicant on to confirm application received and processing was underway (email - DOC-6158364) 24/4/20 - received amended Public Health Permission (PHP) from applicant with end date extended to April 2021. 12/5/20 – DOC application amended to include a request for a precautionary exemption to Performance Standard 6 of the Aerial 1080 in kea habitat Code of Practice (kea COP). This is required if the operation is delayed until after 31 August as per DOC specialist advice (see details below). 28/5/2020 – updated maps received from contractor identifying Wet Jacket Arm Marine Reserve adjacent to the operational area as a no-fly zone.
Step 2 Capture treatment blocks in the Pesticide Application	
Your publication of the proposed operation on the DOC Pesticide Summary (independent groups or individuals only)	DOC operation, already captured in the pesticide app.
Step 3 Evaluate control method <i>Is the proposed method suited to the pest problem, treatment area and consultation outcomes?</i>	
Your assessment of the control method	The method proposed (aerial application of 1080 cereal pellets) has proven to be effective in reducing possum, rodent and stoat numbers when utilised by experienced operators and is suitable for the proposed control area.

	Section 4 of the application clearly describes the proposed control method and justifies its use for this operation. From application: <i>Stoats are the primary agent of decline in Southern Fiordland tokoeka (SFT) kiwi. Monitoring of juvenile kiwi at the study site showed no monitored kiwi chicks survived in either the 2017 or 2018 seasons. Possums were also recorded visiting nests and it is possible they would target kiwi chicks. Possums also present a general threat to ecosystem health. Rats, mice and possums are a listed threat for many of the forest species listed.</i> <i>Current best practice uses 1080 to target stoats via secondary poisoning, in years with high rodent numbers following beech and podocarp masting (mass seeding) events. Heavy beech and rimu seeding have occurred in 2019. Rodent numbers have been slow to respond but are increasing. The ideal timing for a 1080 operation to protect SFT would be:</i> <i>A) Once abundance of rodent vectors is believed sufficient to ensure by-kill of stoats: the sufficient rodent vector required to achieve good stoat knockdown is currently unknown. Rodent monitoring using tracking tunnels is a coarse measure. The Tiakina Ngā Manu Technical Advisory Group (TAG) advise that providing rodent tracking is widespread i.e. some tracking in most habitats there should be sufficient vector for stoats which have a significantly greater home range than rodents.</i> <i>B) Before stoat kits emerge from maternal dens: from early November.</i> <i>C) Before SFT chicks emerge from burrows and become independent of the parent birds: The Median emergence date for the first clutch of SFT over first 2 seasons at shy lake</i>
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	<i>is October 21st. Based on this data, an operation before October 13 would precede >80 % of SFT chick emergence.</i>
Label directions	The proposed use complies with label directions.
Summary of any technical advice received on the proposed control methods.	See DOC TAG advice below
Summary of any Community relations and Pou Tairangahau advice received.	Not sought
Step 4 Identify and assess risks and adverse effects <i>Are you satisfied that all risks and adverse effects have been identified?</i>	
Are there any gaps in the applicant's assessment of these (where the AEE section was supplied)?	The AEE shows a good awareness of possible risks and adverse effects to non-target species using the proposed methodology.
Relevant points from the DOC Pesticide Information Reviews	The AEE section contains information from the DOC 1080 pesticide information review (DOCDM-25427) relating to studies of the native species found within the operational area including kiwi, weka, kea, morepork, SI robins, kaka, NZ falcon, short/long tailed bats, invertebrates, reptiles, fish and eels. None of these studies have identified population level mortality which threatened the viability of the species. It is possible deaths could occur in some bird species though population recovery is normally within one breeding season. The risks 1080 operations pose to aquatic species is considered very low. Fish are very tolerant to 1080. Additionally, 1080 contamination of water is rarely found during 1080 operations and is at an extremely low level when it has occurred. In extreme cold and drought, 1080 residues could persist in baits for several months. There is wide variation between species in their susceptibility to 1080 poisoning. Dogs are especially vulnerable and highly likely to die if they eat 1080 baits or scavenge animals killed by 1080.

	Feral deer population mortality from aerial poisoning operations targeting possums is highly variable and does not appear to be consistently influenced by toxic loading, sowing rate, prefeeding or bait type. Most estimates of deer kill fall between 30 and 60%. Nugent et al. (2001) quote productivity figures for red deer populations of around 30% so low to moderate by-kill of deer populations is probably negated within a couple of years. The majority of pest control operations using 1080 have target pest kills of greater than 80%.
Summary of any technical or community relations advice received	Due to an early snow event and lower than expected rodent tracking results in 2019 this operation was postponed until autumn 2020. Rodent tracking has remained at a similar level since then and stoat numbers have shown an increase. Data as at April 2020 • Rat tracking - 2.4% • Mouse tracking – 15.1% • Stoat tracking – 50% The Tiakina Ngā Manu Technical Advisory Group (TAG) advise that the spatial distribution of rodents rather than density will give a high probability of effecting satisfactory levels of stoat control. See also: • TAG advice email DOC-6211604 • Save our Iconic Kiwi (SOIK) endorsement memo DOC-6218450 Autumn 2020 is an appropriate time to carry out this operation. It coincides with the settling down of stoat dispersal and migration and precedes the breeding season for Southern Fiordland tokoeka. Rodent numbers and spatial distribution should remain high enough until mid-winter for effective stoat control. Increasing the survivorship of kiwi at this site is the primary driver for this operation, although the entire ecosystem will benefit from rat, possum, and stoat control.

	This operation is also part of research to assess the use of aerial 1080 as a tool for protecting kiwi at a landscape level in Fiordland. Outcomes from this operation and from the ongoing kiwi survivorship study at the site will benefit our understanding and drive methods for the future, in this and other areas. Kea monitoring is being undertaken in the Wet Jacket operational area: “The work is part of a research project coordinated by Josh Kemp from the Threats team in Nelson and is looking at the impacts of a 1080 operation on a naïve population of Kea. This work is being used to further understand of the risks posed to Kea by 1080 operations and is a rare opportunity to study animals that have had very low rates of human interaction and that have never had prefeed or 1080 presented to them.” (see email DOC-6287699) <u>Risk to kea</u> Advice from Nic Gorman (Threats TA): “The operation is expected to provide net benefit to kea if carried out before the end of August. Risk to kea is regarded as dependent on two factors: proximity to ‘scrounge sites’ and previous exposure to aerial 1080. The entire operational area is remote from any known established scrounge sites, however it has never had 1080 use. This means there may be an increased risk to kea of poisoning in the area. However, if the operation is completed before the end of the current mast period (defined as the end of August 2020) any losses to the kea population are expected to be compensated through increased nesting success due to stoat control. If external factors were to delay the operation beyond August 31st, an exemption to Performance Standard 6 of the Aerial 1080 in kea habitat Code of Practice (kea COP) would be required: From kea COP:
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	(PS#6) Timing between masts: Toxic bait application at any other time (i.e. prior to 1 May in the seedfall year or after 31 August in the post-seedfall year), is not compliant with this Code of Practice. It is recommended that this exemption is applied for in advance (as part of the current application) rather than only once it is known to be required, as this would otherwise risk further delay to the operation. I would recommend this exemption to be granted, conditional to evidence that rodents have persisted into winter throughout the block so that we can confidently expect the operation to deliver effective stoat control (through secondary poisoning via rodents that have eaten 1080 baits). The August 31st date used in the kea COP approximates the end of the period following a mast in which we're confident of achieving stoat control through secondary poisoning; if elevated populations of rodents persist beyond this date, then the conditions in which the kea COP allows 1080 use where there is some risk of kea poisoning, are still met. I note that the key conservation outcome of this operation is improved tokoeka chick survivorship, which is dependent on stoat control, so would expect that the operation would only proceed if this stoat control was expected to be delivered. Kea survivorship monitoring carried out in conjunction with this operation will help inform our knowledge of the poisoning risk to kea in remote locations where aerial 1080 has not been previously used, a scenario where there is currently little data available (which then may lead to further improvement in the kea COP). As there has already been significant resource investment in this monitoring, this should also be considered in the decision to allow the Performance Standard 6 exemption in case of operational delays." On the basis of the above specialist advice, a <i>precautionary</i> exemption to the kea COP Performance Standard 6 is requested. This exemption would only be triggered if the operation is delayed beyond August 31.
Other resources consulted (<i>specify</i>)	Fairweather, A.A.C.; Broome, K.G. 2018: Sodium Fluoroacetate Pesticide Information Review.

	Version 2020/1. Unpublished report docdm-25427, Department of Conservation, Hamilton, NZ. 134p. Method Best practice for Battle for our Birds Aerial 1080 baiting Version 1.5 July 2018 The Aerial 1080 in kea habitat Code of Practice (DOC-2612859) Kea survival during aerial poisoning for rat and possum control. s9(2)(g)(ii) [REDACTED] [REDACTED], June 05, 2018
Your assessment of technical risks and adverse effects	The proposed nominal sowing rate of 1.5 kg/ha for prefeed and toxic is in line with the method best practice (and TAG advice) for aerial 1080 cereal operations and should achieve the desired results. Risk to non-target species is considered low and native species and their associated ecosystem will be advantaged by a reduction in possum and rodent numbers (and subsequent by-kill of stoats). The treatment area is in kea habitat and, as outlined above, the kea COP will be followed.
Your assessment of non-technical risks (e.g. high public use, consultation outcomes)	The consultation record shows the operation has generally good support. Concern was expressed by a local commercial fisherman about the perception of the Chinese market for crayfish (which is very food safety conscious). Outcome – Large setbacks put in place around Sunday Cove catchment, where cray pots are held. In addition, a no-fly zone put in place over the Sunday Cove area, to include the moored vessels and water intake. Further, an additional buffer (to 100m) was put in place along the shore near Sunday Cove. Comprehensive advice was sought from DOC toxicologist and science staff regarding 1080 fate in seawater, to ensure accurate information is readily at hand as to the risk of 1080

	to crayfish, should this aspect receive any media attention. The loading sites are located on public conservation land (PCL) and flight paths with loaded buckets to the operational area will cross PCL. There is a comprehensive security plan in place for the transportation and loading of bait to ensure staff safety during the operation. Wet Jacket Arm Marine Reserve is adjacent to the operational area (see maps). This has a minimum 80m bait exclusion buffer around it and is designated a no-fly zone so helicopters will not fly over it. Oke Island within the Reserve will be treated with hand-laid methodology only, not aerial. From application: <i>Dusky Sound contains a number of inshore islands and the mainland terrain is remote and mountainous. Access to the area is generally via sea-going vessel or aircraft, with the only formed track into the site being the Dusky Track which connects the head of Lake Hauroko to West Arm (of Lake Manapouri) with an additional track leading to Supper Cove, at the head of Dusky Sound. Approximately 5kms of the sidetrack is within the treatment area.</i> <i>There is no domestic livestock within or adjacent to the treatment area.</i> <i>Signs will be erected at normal public entry points to the treatment area and maintained until the caution period has expired. Signs at public entry points will clearly state "poison baits or carcasses are deadly to dogs".</i> <i>No permits to take dogs into the treatment areas will be issued until the operational all-clear is given i.e. caution period has ended and warning signs have been removed by DOC staff.</i>
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Step 5 Calculate estimated caution period and evaluate if risks and adverse effects are at an acceptable level <i>Will risks be managed adequately with the performance standards proposed for this operation? Include dates and outcomes of any discussion with the applicant.</i>	
Estimated caution period for all the pesticide use(s)	PU#1, 2, 140, and 141 - Caution periods set at 8 months after bait application as recommended in the CP calculator (dry site 'No' (>600mm rainfall pa) and mean temp in the 6 months following the operation <10 degrees 'No'), bait and carcass monitoring is required for 1080 pellets. As per usual, if bait/carcass breakdown monitoring shows endpoints have not been met, the caution period will be extended accordingly.
How well does the proposed operation manage potential risks to native fauna?	Proposed control methods and performance standards are adequate to manage risk to native fauna. See specialist advice above from TAG and DOC Technical advisors. From AEE section of application: <i>Ensuring 1080 bait meets all quality specifications is considered the best way to avoid adversely affecting birds and other native species</i> <i>1. 1080 baits will be lured with cinnamon.</i> <i>2. If 20mm baits are being used - 1080 baits will have a mean size of 12g or more and 95% of baits will weigh more than 9g. If 16mm baits are being used - 1080 baits will have a mean size of 6g or more and 95% of baits will weigh more than 2.5g.</i> <i>3. 1080 bait quality will be checked to ensure bait size complies with standards.</i> <i>4. 1080 baits will be dyed green or blue to deter birds.</i> <i>5. 1080 baits will be sown at a nominal sowing rate of 1.5kg/ha but not greater than 5 kg/ha.</i> <i>6. RS5 baits will be used.</i> <i>7. DOC kea code of practice will be followed.</i>
How well are other potential risks managed?	Applicant is experienced with this methodology and local environment so potential risks are well managed.

	The performance standards contained in Pesticide Use sheets minimise risk and will be adhered to. The Public Health Consent contains conditions to mitigate risk to human health (e.g. water supplies, track clearances, bait exclusion distances from huts, tracks and roads etc) which must be adhered to. The communication plan is comprehensive, and the DOC pesticide summary and warning signs will also inform the public of the operation.
Are you satisfied with the proposed warning sign locations and normal points of entry?	Operational maps with all warning signs marked has been supplied. The DOC site lead (s9(2)(g)(ii)) is familiar with the area is satisfied with sign placement.
Summary of any technical or community relations advice received	Nil
Public health permission, including application form sighted (if not provided at time of application)	PHU application and permission supplied by applicant. See PHU permission for the full list of conditions that must be adhered to: Application - DOC-6050774 Permission – DOC-6289929 Map - DOC-6263880
Other resources consulted (<i>specify</i>)	Nil
Which additional performance standards should be applied and why?	No extra conditions required.
Step 6 Make a recommendation Should the application be approved or declined?	
What key points should the approving manager have drawn to their attention?	Applicant is experienced, potential risks are well managed. The operation (through a reduction in possum, rat and stoat numbers) should achieve the desired results. The operation will benefit Southern

	Fiordland tokoeka and provide learnings for an adaptive management programme for this species. Kea are present in the area but risk to them from the operation is considered low and is outweighed by the benefit of pest control. DOC specialist advice re kea has been received and considered (see section 4 above). On the basis of this advice, a <i>precautionary</i> exemption to the kea COP Performance Standard 6 is requested. This exemption would only be triggered if the operation is delayed beyond August 31. Consultation has been extensive, in general there is good support for the operation however protest action may occur and security measures are in place to ensure staff safety should this eventuate.
Is approval or decline recommended?	Approval recommended
Step 7 Prepare documents and advise manager	
For recommended approval: <i>Attached correct draft letter of permission, DOC Performance Standards sheet(s) and map(s) of operational boundaries.</i>	Letter: <u>DOC-6158130</u> Pesticide Use sheets: PU#1 <u>DOC-6158137</u> PU#2 <u>DOC-6158142</u> PU#140 <u>DOC-6158284</u> PU#141 <u>DOC-6158310</u> Maps: <u>DOC-6158354</u>
For recommended decline: <i>Attach draft letter of decline including a summary of reasons.</i>	

Record of permission decisions that differ from the assessor recommendation	
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Record of permission decision	
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<i>Only complete this section where the manager has made a decision that differs from the assessor's recommendation. For example, where the manager decides on different operational timing or warning sign locations or rejects a recommendation to approve or decline the application.</i>	
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<i>Where required, complete this in Section 7 (Approving or declining DOC permissions), Step 2. Record the difference between the decision and recommendation and summarise the reason(s) for the decision.</i>	
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