



Manaaki Whenua
Landcare Research

Toxicology Laboratory Analysis Report

54 Gerald Street
PO Box 69040
Lincoln, 7640
Ph: +64 3 321 9999
Fax: +64 3 321 9998

Report No: T6910

CLIENT: [REDACTED] Department of Conservation, 2 South End Ave, Raumanga Whangarei
0110

CLIENT REFERENCE No.: Russell State Forest **Telephone No:** 09 470 3300

SAMPLES: Four water samples

REQUIREMENT: Examine for fluoroacetate

RECEIVED: 02 October 2018

Sample/s were received for analysis. The details were entered into the laboratory sample system and the sample/s given a reference number. The sample details and results are as follows:

No. samples: 4

LabNo.	Description	Fluoroacetate, µg/mL
22166	Water sample, Catch 1. 28/9/18	<MDL
22167	Water sample, Catch 2. 28/9/18	<MDL
22168	Water sample, Catch 3. 28/9/18	<MDL
22169	Water sample, Catch 4. 28/9/18	<MDL

All results are reported to two significant figures.

The determination was carried out using TLM005, the assay of fluoroacetate in water, soil and biological materials by GLC. The method detection limit (MDL) is 0.0001µg/mL and the uncertainty (95% c.i.) is ± 12%.

TESTED BY: lhb **WORKBOOK REF:** 10/15
TEST PERIOD: 2-3/10/18

AUTHORISED BY:

[REDACTED]

Date: 3/10/2018



These results are confidential to the client and relate only to the samples as received and tested. This report may be reproduced in full only. The samples relating to this report will be disposed of after two months from the report date unless requested otherwise by the client. Where appropriate, the above results will be included in anonymised form in the National Vertebrate Pesticide Residue Database.



Toxicology Laboratory Analysis Report

54 Gerald Street
PO Box 69040
Lincoln, 7640
Ph: +64 3 321 9999
Fax: +64 3 321 9998

Report No: T6912

CLIENT: [REDACTED] Department of Conservation, 2 South End Ave, Raumanga Whangarei 0110
CLIENT REFERENCE No.: Russell State Forest **Telephone No:** 09 470 3300
SAMPLES: Twenty water samples
REQUIREMENT: Examine for fluoroacetate
RECEIVED: 02 October 2018

Sample/s were received for analysis. The details were entered into the laboratory sample system and the sample/s given a reference number. The sample details and results are as follows:

No. samples: 20

LabNo.	Description	Fluoroacetate, µg/mL
22170	Water sample, WT1, [REDACTED], 29/9/18	<MDL
22171	Water sample, WT2, [REDACTED], 29/9/18	<MDL
22172	Water sample, WT3, [REDACTED], 29/9/18	<MDL
22173	Water sample, WT4, [REDACTED], 29/9/18	0.0001
22174	Water sample, WT5, [REDACTED], 29/9/18	<MDL
22175	Water sample, WT6, [REDACTED], 29/9/18	<MDL
22176	Water sample, WT7, [REDACTED], 29/9/18	<MDL
22177	Water sample, WT8, [REDACTED], 29/9/18	<MDL
22178	Water sample, WT9, [REDACTED], 29/9/18	<MDL
22179	Water sample, WT10, [REDACTED], 29/9/18	<MDL
22180	Water sample, WT1, [REDACTED], 30/9/18	<MDL
22181	Water sample, WT2, [REDACTED], 30/9/18	<MDL
22182	Water sample, WT3, [REDACTED], 30/9/18	<MDL
22183	Water sample, WT4, [REDACTED], 30/9/18	<MDL
22184	Water sample, WT5, [REDACTED], 30/9/18	<MDL
22185	Water sample, WT6, [REDACTED], 30/9/18	<MDL
22186	Water sample, WT7, [REDACTED], 30/9/18	<MDL
22187	Water sample, WT8, [REDACTED], 30/9/18	<MDL
22188	Water sample, WT9, [REDACTED], 30/9/18	<MDL
22189	Water sample, WT10, [REDACTED], 30/9/18	<MDL

All results are reported to two significant figures.

The determination was carried out using TLM005, the assay of fluoroacetate in water, soil and biological materials by GLC. The method detection limit (MDL) is 0.0001 µg/mL and the uncertainty (95% c.i.) is ± 12%.

TESTED BY: lhb WORKBOOK REF: 10/15 and 10/16

TEST PERIOD: 2-4/10/18

AUTHORISED BY:

██████████



Date: 4/10/2018

These results are confidential to the client and relate only to the samples as received and tested. This report may be reproduced in full only. The samples relating to this report will be disposed of after two months from the report date unless requested otherwise by the client. Where appropriate, the above results will be included in anonymised form in the National Vertebrate Pesticide Residue Database.



Toxicology Laboratory Analysis Report

54 Gerald Street
PO Box 69040
Lincoln, 7640
Ph: +64 3 321 9999
Fax: +64 3 321 9998

Report No: T6926

CLIENT: [REDACTED] Department of Conservation, 2 South End Ave, Raumanga Whangarei 0110
CLIENT REFERENCE No.: Russell State Forest **Telephone No:** 09 470 3300
SAMPLES: Ten water samples
REQUIREMENT: Examine for fluoroacetate
RECEIVED: 17 October 2018

Sample/s were received for analysis. The details were entered into the laboratory sample system and the sample/s given a reference number. The sample details and results are as follows:

No. samples: 10

LabNo.	Description	Fluoroacetate, µg/mL
22234	Water sample, WT1, [REDACTED], 15/10/18	<MDL
22235	Water sample, WT2, [REDACTED], 15/10/18	<MDL
22236	Water sample, WT3, [REDACTED], 15/10/18	<MDL
22237	Water sample, WT4, [REDACTED], 15/10/18	<MDL
22238	Water sample, WT5, [REDACTED], 15/10/18	<MDL
22239	Water sample, WT6, [REDACTED], 15/10/18	<MDL
22240	Water sample, WT7, [REDACTED], 15/10/18	<MDL
22241	Water sample, WT8, [REDACTED], 15/10/18	<MDL
22242	Water sample, WT9, [REDACTED], 15/10/18	<MDL
22243	Water sample, WT10, [REDACTED], 15/10/18	<MDL

All results are reported to two significant figures.

The determination was carried out using TLM005, the assay of fluoroacetate in water, soil and biological materials by GLC. The method detection limit (MDL) is 0.0001µg/mL and the uncertainty (95% c.i.) is ± 12%.

TESTED BY: lhb **WORKBOOK REF:** 10/20
TEST PERIOD: 17-18/10/18

AUTHORISED BY:

[REDACTED]
Date: 18/10/2018



These results are confidential to the client and relate only to the samples as received and tested. This report may be reproduced in full only. The samples relating to this report will be disposed of after two months from the report date unless requested otherwise by the client. Where appropriate, the above results will be included in anonymised form in the National Vertebrate Pesticide Residue Database.



Manaaki Whenua
Landcare Research

Toxicology Laboratory Analysis Report

54 Gerald Street
PO Box 69040
Lincoln, 7640
Ph: +64 3 321 9999
Fax: +64 3 321 9998

Report No: T6925

CLIENT: ██████████ Department of Conservation, PO Box 128, 34 Landing Road Kerikeri
CLIENT REFERENCE No.: Cape Brett **Telephone No:** 09 407 0314
SAMPLES: Eight water samples
REQUIREMENT: Examine for fluoroacetate
RECEIVED: 02 October 2018

Sample/s were received for analysis. The details were entered into the laboratory sample system and the sample/s given a reference number. The sample details and results are as follows:

No. samples: 8

LabNo.	Description	Fluoroacetate, µg/mL
22200	Water sample, Waitui Stream, 30/9/18	<MDL
22201	Water sample, Waitui Stream, 1/10/18	<MDL
22202	Water sample, Ohututea Bay, 30/9/18	<MDL
22203	Water sample, Ohututea Bay, 1/10/18	<MDL
22204	Water sample, Tangatapu Stream, 30/9/18	<MDL
22205	Water sample, Tangatapu Stream, 1/10/18	<MDL
22206	Water sample, Ahitapu Road, 30/9/18	<MDL
22207	Water sample, Ahitapu Road, 1/10/18	<MDL

All results are reported to two significant figures.

The determination was carried out using TLM005, the assay of fluoroacetate in water, soil and biological materials by GLC. The method detection limit (MDL) is 0.0001µg/mL and the uncertainty (95% c.i.) is ± 12%.

TESTED BY: lhb **WORKBOOK REF:** 10/20
TEST PERIOD: 17-18/10/18

AUTHORISED BY:

██████████
Date: 24/10/2018



These results are confidential to the client and relate only to the samples as received and tested. This report may be reproduced in full only. The samples relating to this report will be disposed of after two months from the report date unless requested otherwise by the client. Where appropriate, the above results will be included in anonymised form in the National Vertebrate Pesticide Residue Database.



Manaaki Whenua
Landcare Research

Toxicology Laboratory Analysis Report

54 Gerald Street
PO Box 69040
Lincoln, 7640
Ph: +64 3 321 9999
Fax: +64 3 321 9998

Report No: T6943

CLIENT: [REDACTED] Department of Conservation, PO Box 128, 34 Landing Road Kerikeri
CLIENT REFERENCE No.: Cape Brett **Telephone No:** 09 407 0314
SAMPLES: Four water samples
REQUIREMENT: Examine for fluoroacetate
RECEIVED: 30 October 2018

Sample/s were received for analysis. The details were entered into the laboratory sample system and the sample/s given a reference number. The sample details and results are as follows:

No. samples: 4

LabNo.	Description	Fluoroacetate, µg/mL
22260	Water sample, Waitui Stream, 28/10/18	<MDL
22261	Water sample, Tangatapu, 28/10/18	<MDL
22263	Water sample, Ohutatea Bay, 28/10/18	<MDL
22264	Water sample, Ahitapu Road, 28/10/18	<MDL

All results are reported to two significant figures.

The determination was carried out using TLM005, the assay of fluoroacetate in water, soil and biological materials by GLC. The method detection limit (MDL) is 0.0001µg/mL and the uncertainty (95% c.i.) is ± 12%.

TESTED BY: amg **WORKBOOK REF:** 5/1
TEST PERIOD: 30/10-1/11/18

AUTHORISED BY:

[REDACTED]
 Date: 1/11/2018



These results are confidential to the client and relate only to the samples as received and tested. This report may be reproduced in full only. The samples relating to this report will be disposed of after two months from the report date unless requested otherwise by the client. Where appropriate, the above results will be included in anonymised form in the National Vertebrate Pesticide Residue Database.



Manaaki Whenua
Landcare Research

Toxicology Laboratory Analysis Report

54 Gerald Street
PO Box 69040
Lincoln, 7640
Ph: +64 3 321 9999
Fax: +64 3 321 9998

Report No: T6961

CLIENT: [REDACTED] Department of Conservation, P.O.Box 842, Whangarei 0140 .
CLIENT REFERENCE No.: [REDACTED] **Telephone No:** 09 438 0299
SAMPLES: Three tuna samples
REQUIREMENT: Examine for fluoroacetate
RECEIVED: 14 November 2018

Sample/s were received for analysis. The details were entered into the laboratory sample system and the sample/s given a reference number. The sample details and results are as follows:

No. samples: 3

LabNo.	Description	Fluoroacetate, µg/g
22307	Muscle tissue, Waiotu, 20/10/18	0.007
22308	Muscle tissue, Whangruru, 20/10/18	<MDL
22309	Muscle tissue, Waikare, 18/10/18	<MDL

All results are reported to two significant figures.

The determination was carried out using TLM005, the assay of fluoroacetate in water, soil and biological materials by GLC. The method detection limit (MDL) is 0.001µg/g and the uncertainty (95% c.i.) is ± 9%.

TESTED BY: lhb **WORKBOOK REF:** 11/11
TEST PERIOD: 19-21/11/18

AUTHORISED BY:

[REDACTED]
Date: 21/11/2018



These results are confidential to the client and relate only to the samples as received and tested. This report may be reproduced in full only. The samples relating to this report will be disposed of after two months from the report date unless requested otherwise by the client. Where appropriate, the above results will be included in anonymised form in the National Vertebrate Pesticide Residue Database.

Laboratory

79 Kioreroa Road, Private Bag 9023, Whangarei
 P: 09 4304 220
 W: www.wdc.govt.nz | E: wdc_laboratory@wdc.govt.nz



██████████
 Department of Conservation
 P O Box 842

Whangarei 0140

whangarei@doc.govt.nz

Laboratory Analysis Report

Sample Information

Batch 1810B002
 Site Name General Surface Water
 Customer Reference
 Sampled By .Customer
 Sample Received 1/10/2018 1:04 PM

Results

Sample Reference	Ecoli97	Ecoli97	Ecoli97
Secondary Reference	S1	S2	S3
Notes	Waiotu	Punaruaku	Waikare
Our Reference	18100002	18100003	18100004
Sample Collection	30/09/2018 12:30 PM	30/09/2018 1:27 PM	30/09/2018 12:35 PM
Escherichia coli (E. coli)	MPN/100mL 233	355	327
Total Coliforms	MPN/100mL 3873	6867	8664

Test Method Information

Method	Reference	Method Type
Escherichia coli (E. coli)	APHA Section 9223 B (Colilert)	IANZ
Total Coliforms	APHA Section 9223 B (Colilert)	IANZ

End of Report

Results are based on sample(s) as received, every effort is made to ensure these results are accurate. This report may not be reproduced except in full, without written consent of the signatory. Analysis is certified correct by the Key Technical Personnel.

Signed ██████████

Reported 13/11/2018 1:17 PM



This Laboratory is accredited by International Accreditation New Zealand.
 The tests specified in this report have been performed in accordance with IANZ terms of accreditation.

Relevant excerpts from Russell Forest and Cape Brett Assessment of Environmental Effects

Aquatic species

While the below species may not benefit directly from the operation, they are not considered to be at risk due to the very high tolerance most fish species have of 1080. Longfin eel (At Risk - Declining), lamprey (Nationally Vulnerable), giant bully (Not Threatened), bluegill bully (At Risk - Declining), banded kokopu (Not Threatened), redfin bully, shortfin eel, common bully, common smelt, inanga, and torrent fish.

Control measures:

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. 1080 baits will have a mean size of 12g or more and 95% of baits will weigh more than 9g.
3. 1080 bait quality will be checked to ensure bait size complies with standards (see Section 7.3 Bait monitoring).
4. 1080 baits will be dyed green to deter birds.

1080 baits will be sown at an effective average sowing rate of 4 kg/ha.

Aquatic Species

Aquatic species are not considered likely to be at risk of 1080 poisoning because fish are highly tolerant of 1080 (Bauermeister et al. 1977); and contamination of water by 1080 has rarely been detected and only at extremely low level when it has occurred.