BAY OF PLENTY REGIONAL COUNCIL
TOI MOANA

Monitoring plan report for use of herbicides over water – Spartina *(Spartina spp.)*

Bay of Plenty Regional Council
Environmental Publication 2024/03

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Contents

Definitions

Operational area	An area that encompasses the possible incursion of a target pest plant in an area where there is a target pest plant already present in that body of water. And an area that is inclusive of where a substance might end up in the water after a spray application.
Treatment area	An area where the pest plant is present, and a substance is applied
Spray application	An event in which a substance is applied to inhibit a target pest plants presence at a specific location within an operational area. One spray application may occur over multiple days.
Spray operation	A series of spray applications over the course of the season

1 Risk Assessment

Compliance with an RMA permitted rule.

In order for Bay of Plenty Regional Council (BOPRC) to undertake control operations under permission STRG-06-06-2018-021, it is required to undertake a risk assessment as detailed in the letter provided from the Environmental Protection Agency dated 15 July 2020.

There are two policies developed under the Resource Management Act that are relevant to this requirement, the Bay of Plenty Regional Coastal Environment Plan and the Operative Bay of Plenty Regional Air Plan. The control of aquatics weeds using herbicide is permitted in both plans under the rules listed below:

Bay of Plenty Regional Coastal Environment Plan

Rule CD1: Permitted – Discharge of aquatic herbicide over coastal water for weed control

The discharge of herbicides over coastal water for the purpose of spraying emergent aquatic plants, is a permitted activity, subject to the following conditions;

a) The application of herbicide shall only be for the purpose of controlling:
   i) Plant pest species listed in the Regional Pest Management Plan for the Bay of Plenty or the National Pest Plant Accord; or
   ii) Exotic vegetation for the purpose of maintaining or enhancing indigenous biodiversity.

b) Only herbicides that have been approved for use over water shall be used. Herbicides are approved under the Hazardous Substances and New Organisms Act 1996.

c) The herbicide shall be discharged in a manner that is consistent with the manufacturer's instructions.

d) The discharge shall not result in any fish kills.

e) The discharge shall not contaminate any authorised water take.

f) The discharge shall not result in any harmful concentration of herbicide beyond target area.

g) There shall be no discharge of herbicide in the tidal reach of any surface water body between 1 March and 31 May.

h) The discharge of herbicide shall comply with the requirements of the Operative Bay of Plenty Regional Air Plan.

Bay of Plenty Regional Air Plan

Rule 10: Permitted Activity – Use of agrichemicals for the eradication or management of organisms declared unwanted under Sections 143 and 144 of the Biosecurity Act 1993.

The discharge of agrichemical into air for the eradication or management of organisms declared unwanted under Sections 143 and 144 of the Biosecurity Act 1993 is a permitted activity provided the following conditions are complied with:

a) Any contractor using or applying any agrichemical by ground based application methods shall hold a minimum of a current GROWSAFE® Registered Chemical Applicators Certificate or equivalent.

b) Any person, other than any contractor provided for in (a) above, using or applying an agrichemical identified either on its product label, or in the First or Second Schedule of the Toxic Substances Regulations 1983 as containing a compound rated as either a:

"DANGEROUS POISON"; or

"DEADLY POISON",

shall hold a minimum of a current GROWSAFE® Introductory Certificate or equivalent.

c) Any person, other than any contractor provided for in (a) above, using or applying an agrichemical identified on its product label as containing a compound rated as either a:

"POISON"; or

"CAUTION",

or is listed in the Third or Fourth Schedules to the Toxic Substances Regulations 1983 as a:

"STANDARD POISON"; or

a "HARMFUL SUBSTANCE",

shall hold a minimum of a current GROWSAFE® Introductory Certificate or equivalent or be under the direct supervision of a person holding a current GROWSAFE® Applied Certificate or equivalent.

d) The agrichemical must be used under the direction of the Department whose responsibilities are adversely affected by the unwanted organism or Environment Bay of Plenty where unwanted organisms are managed.

e) There must be no harmful concentrations of agrichemical beyond the boundary of the subject property or into water.

f) When ground based application methods are used the occupier of any adjoining properties must be notified of the agrichemical use. Notification must be no earlier than 20 days and no later than 12 hours before the agrichemical use unless agreement on an alternative manner of notification can be reached with the adjoining occupier.

g) Agrichemical use from aircraft must be publicly notified not earlier than 20 days and no later than 12 hours before the agrichemical use.

h) Notwithstanding the requirements of this rule any person applying agrichemicals from an aircraft shall comply with Rule 13 of this plan.

Rule 11: Permitted Activity – Use of Agrichemicals – Non-Motorised Hand-held Application

The discharge of contaminants into air from the non-motorised hand-held application of agrichemical is a permitted activity provided the following conditions are complied with:

a)

i) Any contractor using or applying any agrichemical by ground based application methods shall, within twelve months of this plan becoming operative (15 December 2003), hold a current GROWSAFE® Registered Chemical Applicators Certificate or equivalent.

ii) Any person using or applying agrichemicals for commercial purposes (other than a contractor provided for in (a)(i) above) when using or applying an agrichemical identified on its product label, or in the First or Second Schedule of the Toxic Substances Regulations 1983 as containing a compound rated as either a:

"DANGEROUS POISON"; or

"DEADLY POISON",

shall within twelve months of this plan becoming operative (15 December 2003), hold a minimum of a current GROWSAFE® Introductory Certificate or equivalent or be under the direct supervision of a person holding a current GROWSAFE® Introductory Certificate or equivalent.

b) All persons discharging agrichemicals under this rule shall ensure that:

iii) The agrichemical is discharged in a manner that does not contravene any requirement specified in the manufacturer's instructions.

iv) The commercial application of agrichemicals, complies with NZS 8409: 1999 Code of Practice For The Management of Agrichemicals.

c) The agrichemical use must not result in any harmful concentration of agrichemical beyond the boundary of the subject property or into water.

Note: Extra care should be exercised when applying any phenoxy based herbicide. In particular, 2, 4-D butyl ester herbicide sprays have the potential to travel long distances through the air. Although butyl ester herbicide has not been manufactured since 1997, existing stocks can still legally be applied. Further information on spray drift hazard is included in Appendix Y of NZS 8409: 1999 Code of Practice for the Management of Agrichemicals.

d) Where agrichemical is applied on public land, public roads or railways, notification of that agrichemical use must comply with the requirements of Schedule 2.

Rule 13 Permitted Activity – Use of Agrichemicals – Other Application Techniques (Excluding Non-Motorised Hand-held and Aerial Application)

The discharge of contaminants into air from the use of agrichemicals, excluding non-motorised hand-held or aerial application, is a permitted activity provided the following conditions are complied with:

a) The discharge must not result in any harmful concentration of agrichemical beyond the boundary of the subject property or into water.

i) Any contractor using or applying any agrichemical by ground based application methods shall, within twelve months of this plan becoming operative (15 December 2003) hold a current GROWSAFE® Registered Chemical Applicators Certificate or equivalent.

ii) Any person using or applying agrichemicals for commercial purposes (other than a contractor provided for in (b)(i) above) when using or applying an agrichemical identified on its product label, or in the First or Second Schedule of the Toxic Substances Regulations 1983 as containing a compound rated as either a:

"DANGEROUS POISON" or

"DEADLY POISON",

shall within twelve months of this plan becoming operative (15 December 2003) hold a minimum of a current GROWSAFE® Introductory Certificate or equivalent or, be under the direct supervision of a person holding a current GROWSAFE® Applied Certificate or equivalent.

c) All persons discharging agrichemicals under this rule shall ensure that the agrichemical is used in a manner that complies with NZS 8409:1999 Code of Practice for the Management of Agrichemicals.

d) The owner/occupier or agent must notify the occupier of any adjoining properties within 50 m of that agrichemical use. Except that where agrichemicals are applied using a motorised boom, which meets the following design conditions, notification is only required when the agrichemical application occurs within 10 m of an adjoining property. The design conditions are:

i) the liquid pressure through the boom is less than 3 bar;

ii) the height of the discharge point on the boom is less than 1 metre from the ground;

iii) the nozzles point down;

iv) the nozzles are designed to create coarse droplets of greater than 250 microns in diameter.

If an agreed form of notification has not been reached, such as an annual spray or application plan and individual notification of certain chemicals to be used, notification must be no earlier than 20 days and no later than 12 hours before the agrichemical use. This condition does not apply to agrichemical use on public land, or land used for road or rail purposes (see Rule 13 condition (e)). Notification must include the following:

v) the site of proposed application;

vi) the date of proposed application;

vii) name and type of agrichemical to be applied;

viii) name, address and phone number of applicator.

Note: Extra care should be exercised when applying any phenoxy based herbicide. In particular, 2, 4-D butyl ester herbicide sprays have the potential to travel long distances through the air. Although butyl ester herbicide has not been manufactured since 1997, existing stocks can still legally be applied. Further

information on spray drift hazard is included in Appendix Y of NZS 8409: 1999 Code of Practice for the Management of Agrichemicals.

e) Where agrichemical is applied on public land, public roads, or railways, notification of that agrichemical use must comply with the requirements of Schedule 2.

f) Where agrichemicals are applied to land adjoining public roads and places, signs must be placed on the road boundary 24 hours before the time of application and removed by the applicator when the land is safe for re-entry. Where agrichemicals are applied using a boom the signs are only required when the application occurs within 6m of a public road or place, or if the boom does not meet the following design features:

(i) the liquid pressure through the boom is less than 3 bar;

(ii) the height of the discharge point on the boom is less than 1 metre from the ground;

(iii) the nozzles point down;

(iv) the nozzles are designed to create coarse droplets of greater than 250 microns in diameter.

The signs must include the following information:

(v) The agrichemical used;

(vi) The time of application;

(vii) The time for safe re-entry;

(viii) The name and contact details of the applicator.

Note: There are statutes that must be complied with when considering the use of agrichemicals. Compliance with the rules for the use of agrichemicals in the Bay of Plenty Regional Air Plan should not be construed as absolving users from complying with relevant statutes.

Environment Bay of Plenty strongly recommends that any person using or applying any agrichemical under this Rule, other than either a “dangerous poison” or a “deadly poison”, should hold a minimum of a current GROWSAFE® Introductory Certificate or equivalent or be under the direct supervision of a person holding a current GROWSAFE® Introductory Certificate or equivalent. Any person using or applying either a “dangerous poison” or a “deadly poison” must comply with the certification requirements of Rule 13(b).

2 Details of operations

2.1 Map of all locations where the substance has been applied

Find attached as Appendix 1, a map outlining where all sites where haloxyfop, under this permission, have been applied during the 2023/24 financial year.

2.2 Details of the spray operation by location, including application method, quantity if the substance applied, rates of application, frequency of application and the dates of application

Excepting the Maketu site, all control work was undertaken by BoPRC staff; Maketu control works were sub-contracted to the Maketū Ōngātoro Wetland Society (MOWS).

Knapsack (motorised) and gun and hose unit (via use of a punt for access) were the application methods used by MOWS within the Maketu saltmarsh, as provided and approved in the EPA monitoring plan. All other control was undertaken via non-motorised knapsack and/or hand-sprayer; we note that monitoring is not explicitly required for non-motorised application as per the permission, however we monitored all sites due to this being the first season of BoPRC control at these sites.

At Maketu, Hamilton Street and Pahoia sites, a follow up round of control was undertaken after the monitored event; a further two follow up rounds (four total) were undertaken at Maketu. Monitoring of the follow-up control was not undertaken, in accordance with previous years.

A summary of control operations undertaken in the 2023/24 financial year is provided below.

Spray operation location:	**Maketū Estuary – Saltmarsh (initial)**
Application method:	Gun and hose unit
Herbicide used:	Haloxyfop 100 (HSR100054)
Quantity of substance applied:	24 litres – 1.44 g ai
Rates of application:	0.06 grams per litre
Date/s or application:	8/2/2024
Map:	**Appendix 2**

Spray operation location:	**Maketū Estuary – Saltmarsh (second)**
Application method:	Knapsack (motorised)
Herbicide used:	Haloxyfop 100 (HSR100054)
Quantity of substance applied:	45 litres – 2.7 g ai
Rates of application:	0.06 grams per litre
Date/s or application:	12/2/2024
Map:	**Appendix 2**

Spray operation location:	**Maketū Estuary – Saltmarsh (third)**
Application method:	Gun and hose
Herbicide used:	Haloxyfop 100 (HSR100054)
Quantity of substance applied:	57 litres – 3.42 g ai
Rates of application:	0.06 grams per litre
Date/s or application:	28/2/2024
Map:	**Appendix 2**

Spray operation location:	**Maketū Estuary – Saltmarsh (fourth)**
Application method:	Gun and hose
Herbicide used:	Haloxyfop 100 (HSR100054)
Quantity of substance applied:	24 litres – 1.44 g ai
Rates of application:	0.06 grams per litre
Date/s or application:	18/3/2024
Map:	**Appendix 2**

Spray operation location:	**Waimapu**
Application method:	Knapsack
Herbicide used:	Haloxyfop 100 (HSR000373)
Quantity of substance applied:	15 litres – 0.9 g ai
Rates of application:	0.06 grams per litre
Date/s or application:	7/3/2024
Map:	**Appendix 3**

Spray operation location:	**Hamilton Street (Waikareao Estuary; intial)**
Application method:	Knapsack
Herbicide used:	Haloxyfop 100 (HSR000373)
Quantity of substance applied:	2 litres – 0.12 g ai
Rates of application:	0.06 grams per litre
Date/s or application:	6/3/2024
Map:	**Appendix 4**

Spray operation location:	**Hamilton Street (Waikareao Estuary; secondary)**
Application method:	Knapsack
Herbicide used:	Haloxyfop 100 (HSR000373)
Quantity of substance applied:	3 litres – 0.18 g ai
Rates of application:	0.06 grams per litre
Date/s or application:	18/4/2024
Map:	Appendix 4

Spray operation location:	**Pahoia (Initial)**
Application method:	Knapsack
Herbicide used:	Haloxyfop 100 (HSR000373)
Quantity of substance applied:	2.5 litres – 0.15 g ai
Rates of application:	0.06 grams per litre
Date/s or application:	6/3/2024
Map:	**Appendix 5**

Spray operation location:	**Pahoia (Secondary)**
Application method:	Knapsack
Herbicide used:	Haloxyfop 100 (HSR000373)
Quantity of substance applied:	1 litre – 0.06 g ai
Rates of application:	0.06 grams per litre
Date/s or application:	18/4/2024
Map:	**Appendix 5**

Spray operation location:	**Athenree**
Application method:	Knapsack
Herbicide used:	Haloxyfop 100 (HSR000373)
Quantity of substance applied:	2.5 litres – 0.15 g ai
Rates of application:	0.06 grams per litre
Date/s or application:	6/3/2024
Map:	**Appendix 6**

Spray operation location:	**Uretara**
Application method:	Knapsack
Herbicide used:	Haloxyfop 100 (HSR000373)
Quantity of substance applied:	10 litres – 0.6 g ai
Rates of application:	0.06 grams per litre
Date/s or application:	7/3/2024
Map:	**Appendix 7**

3 Monitoring

Monitoring was completed at a total of nine (9) sites; density of sampling locations was dictated by scale of infestation, hence:

- Three sites monitoring points at Maketū,
- Two sites at Uretara, and
- One site each for Athenree, Pahoia, Hamilton Street and Waimapu.

Control sites (well outside the area of herbicide application) were also sampled at each site. Samples were held by the laboratory, for further analyses in the event of any Haloxyfop detections within the application site areas; no control samples were analysed, and these are not discussed further.

Maps of individual sites are provided in Appendix 1-5; details of the monitoring sites are provided in Appendix 8.

3.1 Details (including results) of water sampling conducted to confirm compliance with EEL values

Methods: Water samples were collected within three hours of high tide, and within 24 hour of the spray application for post-spray samples. Water samples were collected within 100 m of the application and downstream of any tidal movement at the time of collection. Samples were collected directly into laboratory prepared glass containers, using a sampling pole as required, with care taken to ensure the sampler was positioned downstream of the sampled water to avoid disturbance/contamination of the sample. The samples were chilled and sent to (IANZ accredited) Hill laboratories under chain of custody documentation for analysis of Organonitro & phosphorus Pesticides (including haloxyfop), with a methodology detection limit of 0.004 g/m^3 (less than half the EEL)

Results: Haloxyfop herbicide concentrations in water samples were below detection levels at all sampling sites before and after spraying and therefore did not exceed the EEL. Results are summarised in Tables 1-5 below, with full laboratory reports provided in Appendix 8. A summary of field parameters measured during monitoring events is provided in Appendix 9. Field parameters were unable to be measured during post-spray sampling undertaken by MOWS at Maketu, due to unavailability of instruments at that time; this is considered to be *de minimis* in the context of no detectable Haloxyfop at any location sampled.

Table 1 Haloxyfop in water samples from Maketū Estuary 2024 (in g/m^3). The EEL is 0.000884 g/m^3.

Monitoring Event	Pre-Spray				Post-Spray			
Sample ID	**240131.MAK2**	**240131.MAK3**	**240131.MAK4**	**240131.MAK.CON**	**MAK2**	**MAK3**	**MAK4**	**MAK.CON**
Lab Reference	3456279.1	3456279.2	3456279.3	3456279.4	3465996.1	3465996.2	3465996.3	3465996.4
Date Sampled	31/01/2024	31/01/2024	31/01/2024	31/01/2024	9/02/2024	9/02/2024	9/02/2024	9/02/2024
Haloxyfop-methyl (g/m3)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004

Table 2 Haloxyfop in water samples from Waimapu Estuary 2024 (in g/m³). The EEL is 0.000884 g/m³.

Monitoring Event	Pre-spray	Post-spray
Sample ID	**24 0229 WMP**	**240308.WMP**
Lab Reference	3482613.2	3491874.6
Date Sampled	29/02/2024	8/03/2024
Haloxyfop-methyl (g/m3)	<0.0004	<0.0004

Table 3 Haloxyfop in water samples from Waikareao Estuary (Hamilton Street) 2024 (in g/m³). The EEL is 0.000884 g/m³.

Monitoring Event	Pre-spray	Post-spray
Sample ID	**240207.WKR**	**240307.WKR**
Lab Reference	3464555.1	3491874.3
Date Sampled	7/02/2024	7/03/2024
Haloxyfop-methyl (g/m3)	< 0.0004	< 0.0004

Table 4 Haloxyfop in water samples from Pahoia 2024 (in g/m³). The EEL is 0.000884 g/m³.

Monitoring Event	Pre-spray	Post-spray
Sample ID	**240208.PAH**	**240307.PAH**
Lab Reference	3464555.3	3491874.2
Date Sampled	8/02/2024	7/03/2024
Haloxyfop-methyl (g/m3)	< 0.0004	< 0.0004

Table 5 Haloxyfop in water samples from Athenree 2024 (in g/m³). The EEL is 0.000884 g/m³.

Monitoring Event	Pre-spray	Post-spray
Sample ID	**240208.ATH**	**240307.ATH**
Lab Reference	3464555.5	3491874.1
Date Sampled	8/02/2024	7/03/2024
Haloxyfop-methyl (g/m3)	< 0.0004	< 0.0004

Table 5 Haloxyfop in water samples from Uretara 2024 (in g/m^3). The EEL is 0.000884 g/m^3.

Monitoring Event	Pre-spray		Post-spray	
Sample ID	**24 0229 URT 1**	**24 0229 URT 2**	**240308.UTR1**	**240308.UTR2**
Lab Reference	3482613.1	3482613.3	3491874.4	3491874.5
Date Sampled	29/02/2024	29/02/2024	8/03/2024	8/03/2024
Haloxyfop-methyl (g/m3)	< 0.0004	< 0.0004	< 0.0004	< 0.0004

3.2 Conclusions from monitoring results.

Haloxyfop herbicide was not detected in water samples from any site or any date.

Overall, there was no evidence of adverse effects of the spraying operation over water. We note that this is an eradication programme, and herbicide application amounts are decreasing year-on-year as we near our eradication target; 190 L of spray was used in the Maketu Saltmarsh in the 2022/23 financial year, compared to 150 L total in 2023/24 (a 21% reduction of total spray applied).

3.3 Details of pest plants targeted

The table below summarises current state of pest plant infestations prior to control and the amount of herbicide used during control operations:

Site name	Maketū saltmarsh				*Total*
Date	**8/02/2024**	**12/02/2024**	**28/02/2024**	**18/03/2024**	**-**
Site Area (ha)	13.20	13.20	13.20	13.20	-
Amount of pest plant present (m^2)	380	380	380	380	-
Herbicide used during control & rate	6ml/l Haloxyfop (HSR100054)				-
Herbicide mixed volume used (l)	24	45	57	24	*150*
Quantity applied (kg of ai)	0.00144	0.0027	0.00342	0.00144	*0.009*
Rate of application (kg ai/ha)	1.09E-04	2.05E-04	2.59E-04	1.09E-04	*6.82E-04*

Site name	Waimapu
Date	8/02/2024
Site Area (ha)	1.10
Amount of pest plant present (m^2)	50
Herbicide used during control & rate	6ml/l Haloxyfop (HSR000373)
Herbicide mixed volume used (l)	15
Quantity applied (kg of ai)	0.0009
Rate of application (kg ai/ha)	8.18E-04

Site name	Hamilton Street (Waikareao Estuary)		*Total*
Date	6/03/2024	18/04/2024	-
Site Area (ha)	1.34	1.34	-
Amount of pest plant present (m^2)	6	6	-
Herbicide used during control & rate	6ml/l Haloxyfop (HSR000373)		-
Herbicide mixed volume used (l)	2	3	*5*
Quantity applied (kg of ai)	0.00012	0.00018	*0.0003*
Rate of application (kg ai/ha)	8.96E-05	1.34E-04	*2.24E-04*

Site name	Pahoia		*Total*
Date	6/03/2024	18/04/2024	-
Site Area (ha)	1.66	1.66	-
Amount of pest plant present (m^2)	8	8	-
Herbicide used during control & rate	6ml/l Haloxyfop (HSR000373)		-
Herbicide mixed volume used (l)	2.5	1	*3.5*
Quantity applied (kg of ai)	0.00015	0.00006	*0.00021*
Rate of application (kg ai/ha)	9.04E-05	3.61E-05	*1.27E-04*

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Site name	Athenree
Date	6/03/2024
Site Area (ha)	0.02
Amount of pest plant present (m^2)	2
Herbicide used during control & rate	6ml/l Haloxyfop (HSR000373)
Herbicide mixed volume used (l)	2.5
Quantity applied (kg of ai)	0.00015
Rate of application (kg ai/ha)	7.50E-03

Site name	Uretara
Date	7/03/2024
Site Area (ha)	1.92
Amount of pest plant present (m^2)	170
Herbicide used during control & rate	6ml/l Haloxyfop (HSR000373)
Herbicide mixed volume used (l)	10
Quantity applied (kg of ai)	0.0006
Rate of application (kg ai/ha)	3.13E-04

4 Engagement/Consultation

Council reviewed the notification list to ensure that all the appropriate stakeholders were accounted for and notified.

Emails were sent to all parties on the notification list with the request for a reply to show they are still requiring the notifications and the best mode of contact for future notifications. Additional information on the progress of the control program was included to update stakeholders that infestation sizes were reducing steadily.

Feedback from the notifications were supportive of the programme.

The table below documents parties that were formally consulted with prior to control in 2024:

EPA NOTIFICATION TABLE				
MAKETU				
Name	**Organisation**	**1st Notification**	**2nd Notification**	**Comments**
Maketu Surf Club	Maketu Surf Club	31/01/2024		
Karl McCarthy	DOC	31/01/2024	5/03/2024	Replied, supportive of program
Brad Angus	DOC	31/01/2024	5/03/2024	
John Meikle	F&G	31/01/2024	5/03/2024	Replied, supportive of program
Sue Hammond	WBOPDC	31/01/2024	5/03/2024	Replied, supportive of program
Pim DeMonchey	LMO Manager	31/01/2024	5/03/2024	Replied, sent through new contact for Papahikahawai Trust
Clester Eru	Mai Maketu contact - Clester Eru	31/01/2024	5/03/2024	Replied, added notification to local community Facebook pages
Anaru Timutimu		31/01/2024	5/03/2024	

Rangimiria Ihakara	Papahikahawai Trust - delegated decision-making authority	31/01/2024	5/03/2024	
Bobby and Anna Dean	C/O B & Dean, 1465 State Highway 33, RD 4, Rotorua 3074	31/01/2024	5/03/2024	Replied, happy with the notification
Elaine Tapsell		31/01/2024	5/03/2024	
Olive Jonas	Te Tumu Paeroa Papahikahawai	31/01/2024	5/03/2024	
Raewyn Bennet	Ngāti Pikiao Ki Maketū	31/01/2024	5/03/2024	Runs school programmes in the estuary. Consult dates early in the planning stage to avoid cross over.
Red Barker (son Mike)	J P Barker, 539 Maketu Road, RD 9, Te Puke 3189	31/01/2024	5/03/2024	
Ross and Melanie McKenzie	1096 No. 2 Road, Te Puke 3182	31/01/2024	5/03/2024	
Terre Tapsell		31/01/2024	5/03/2024	Replied, supportive of program
Wharekonehu te Moni		31/01/2024	5/03/2024	
William Anaru	Te Arawa Lakes Trust	31/01/2024	5/03/2024	Replied, supportive of program
Rewi Corbett		31/01/2024	5/03/2024	
TAURANGA MOANA				
Name	Organisation	1st Notification	Comments	
Kylie Willison	Ngāi Tamarawaho (Waikareao Estuary)	28/02/2024		
Anthony Ruanui	Ngāti He (Waimapu)	28/02/2024		
Buddy Mikaere	Ngāi Tamarawaho / Ngāi Te Rangi	28/02/2024		
Hone Winder-Murray	Chairman of Te Rereatukahia	28/02/2024	Uretara and Pahoia sites	

Reon Kowaiau	Ōtāwhiwhi marae	28/02/2024	Athenree site
Karne Roberston	Tauranga City Council	28/02/2024	
Emma Woods	Western BOP District Council	28/02/2024	replied, checked on notification details and supported them
Karl McCarthy	Department of Conservation	28/02/2024	Replied, supportive of the control
Sarah-Lyn Wilson	Department of Conservation	28/02/2024	
John Meikle	Fish and Game	28/02/2024	Replied, supportive of the control
Jeanie Allport	LINZ (Portfolio Manager Biosec and Biodiv crown Property)	28/02/2024	
Alison Conroy and John Pickering	172B SH2, Katikati 3170	29/02/2024	Meet and greet on their property to gain site access
Sharon Strong	Uretara estuary care group	27/02/2024	
Brodie Davis	Uretara estuary care group	27/02/2024	
Anne Marie	Athenree care group	27/02/2024	
Ross Steele	Waikareao Estuary care group	27/02/2024	
Gordon Golem	Waikareao Estuary care group	29/02/2024	
Peter Church	WBOPDC own the land, but holiday park leases it	28/02/2024	Site visit and email conversations, supportive of program
Joy Howe	33a Waione Avenue	28/02/2024	Personal discussion followed by email same day

5 Incidents

No operational incidents were recorded during the 2023/24 spray season.

6 Overall assessment and proposed follow up spraying for next year

No detectable concentrations of Haloxyfop residues were reported in water either prior, to or 24 hours after any, spray operation monitored; we note that the detection limit of the laboratory method is less than half the EEL.

BOPRC will plan to continue the control operation at Maketū Estuary and Tauranga moana sites for the 2024/25 financial year under the EPA permission STRG-06-06-2022-003.

BOPRC will provide an updated Monitoring Plan to the EPA before the end of September 2024 detailing all sites marked for control and incorporating mitigation methods outlined in the permission.

7 Potential the new incursions requiring the use of herbicides outside of the operations outlined in this plan

No additional operations were undertaken using this permission in 2023/24.

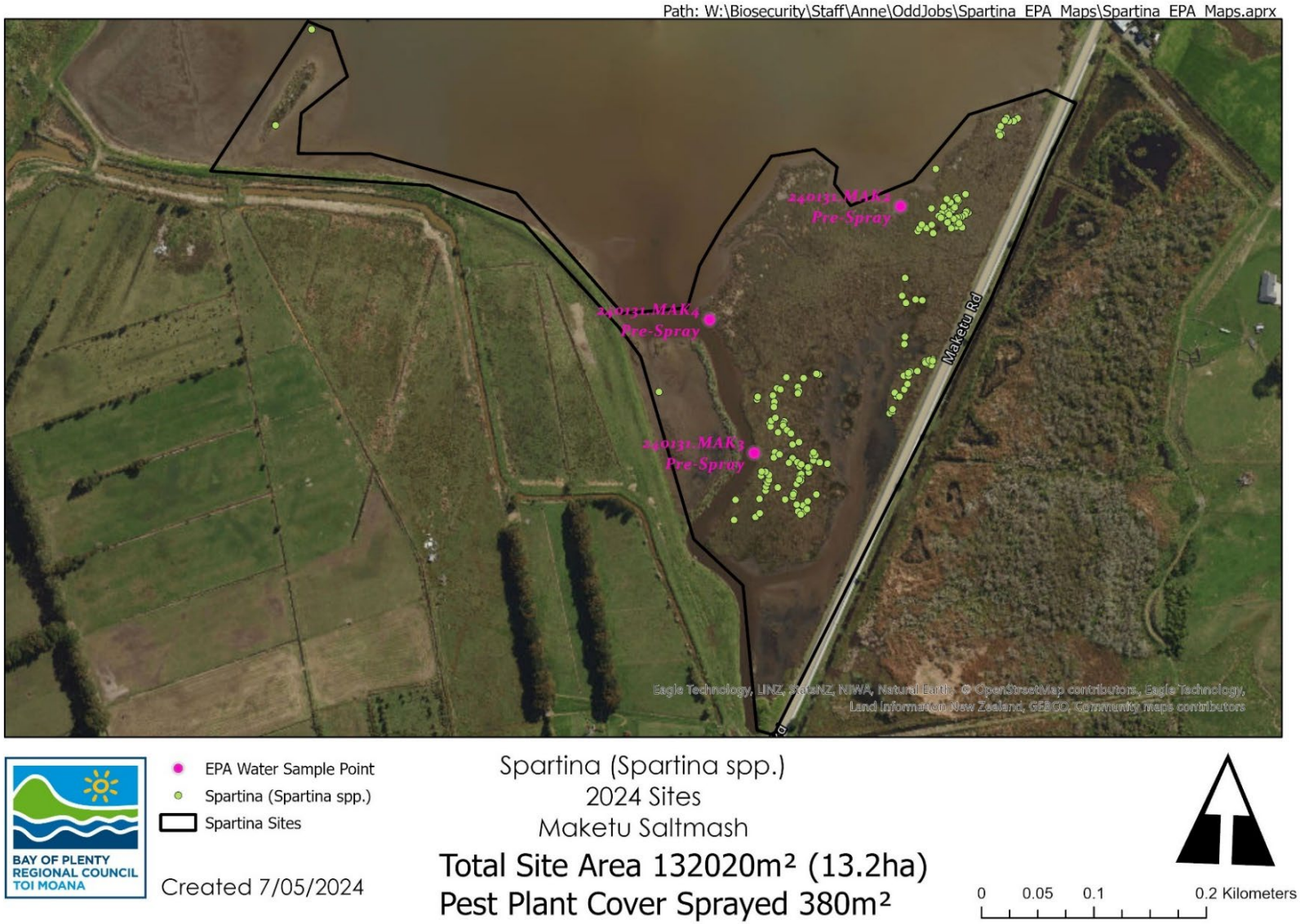
8 Spray operations for 2024/25 financial year

The Bay of Plenty Regional Council will plan to undertake the following spray operations in 2023/24 financial year:

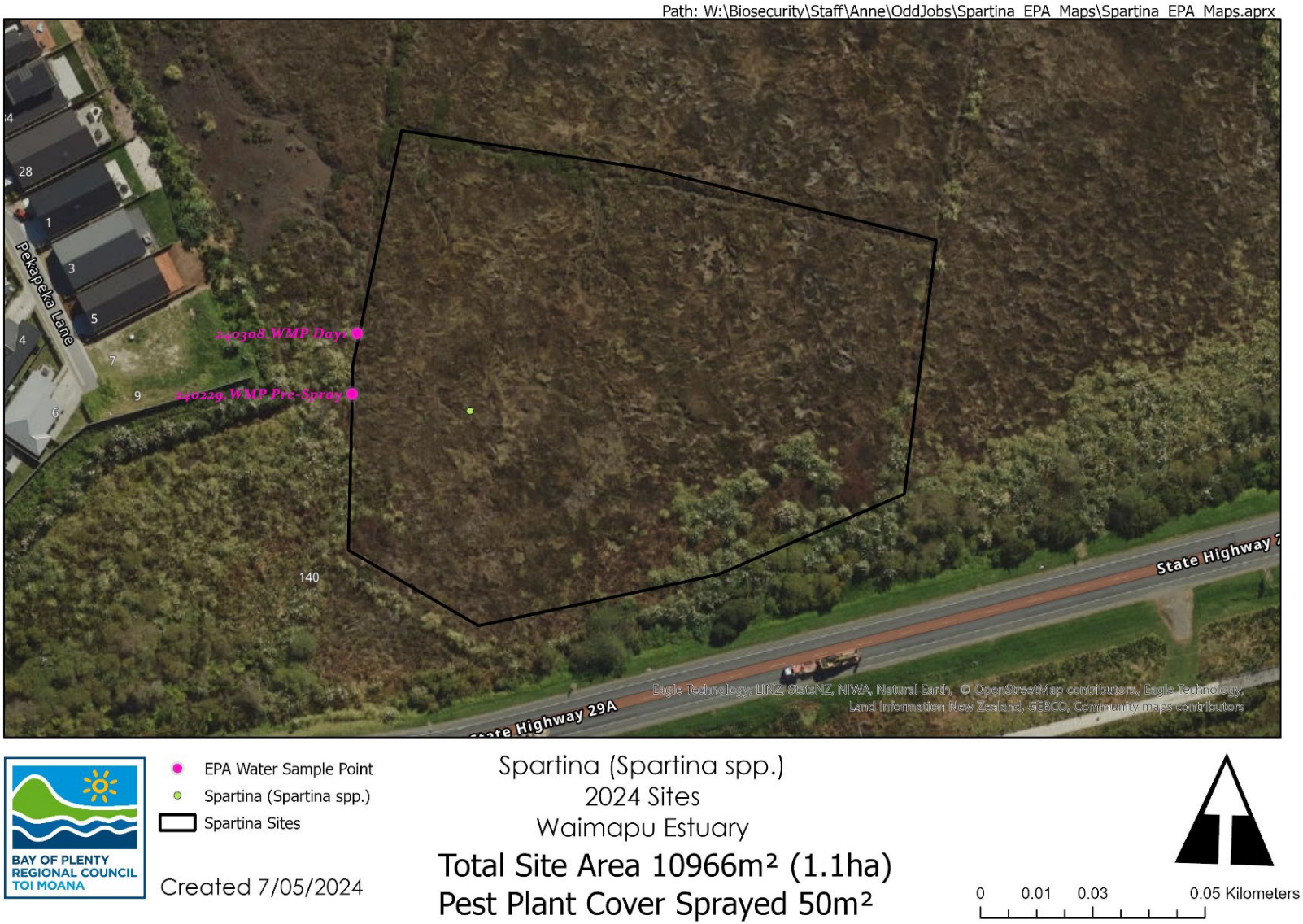
Site name:	Maketū Estuary
Target species:	Spartina (*Spartina spp.*)
Herbicide used:	Steed (HSR100054) Haloxyfop-R-methyl
Application method:	Knapsack (motorised) and gun and hose unit
Application dates:	Proposed for January 2025 through to April 2025

Site name:	Tauranga Harbour – multiple sites
Target species:	Spartina (*Spartina spp.*)
Herbicide used:	Agpro Haloxyfop 100 (HSR000373) Haloxyfop-R-methyl
Application method:	Knapsack (non-motorised)
Application dates:	Proposed for January 2025 through to April 2025

Appendix 1 –Maketū Estuary – control and water sampling sites – 2024



Appendix 2 – Waimapu – control and water sampling sites – 2024



Appendix 3 – Hamilton Street, Tauranga – control and water sampling sites – 2024

BAY OF PLENTY REGIONAL COUNCIL TOI MOANA

- EPA Water Sample Point
- Spartina (Spartina spp.)
- Spartina Sites

Created 7/05/2024

Spartina (Spartina spp.)
2024 Sites
Elizabeth Street

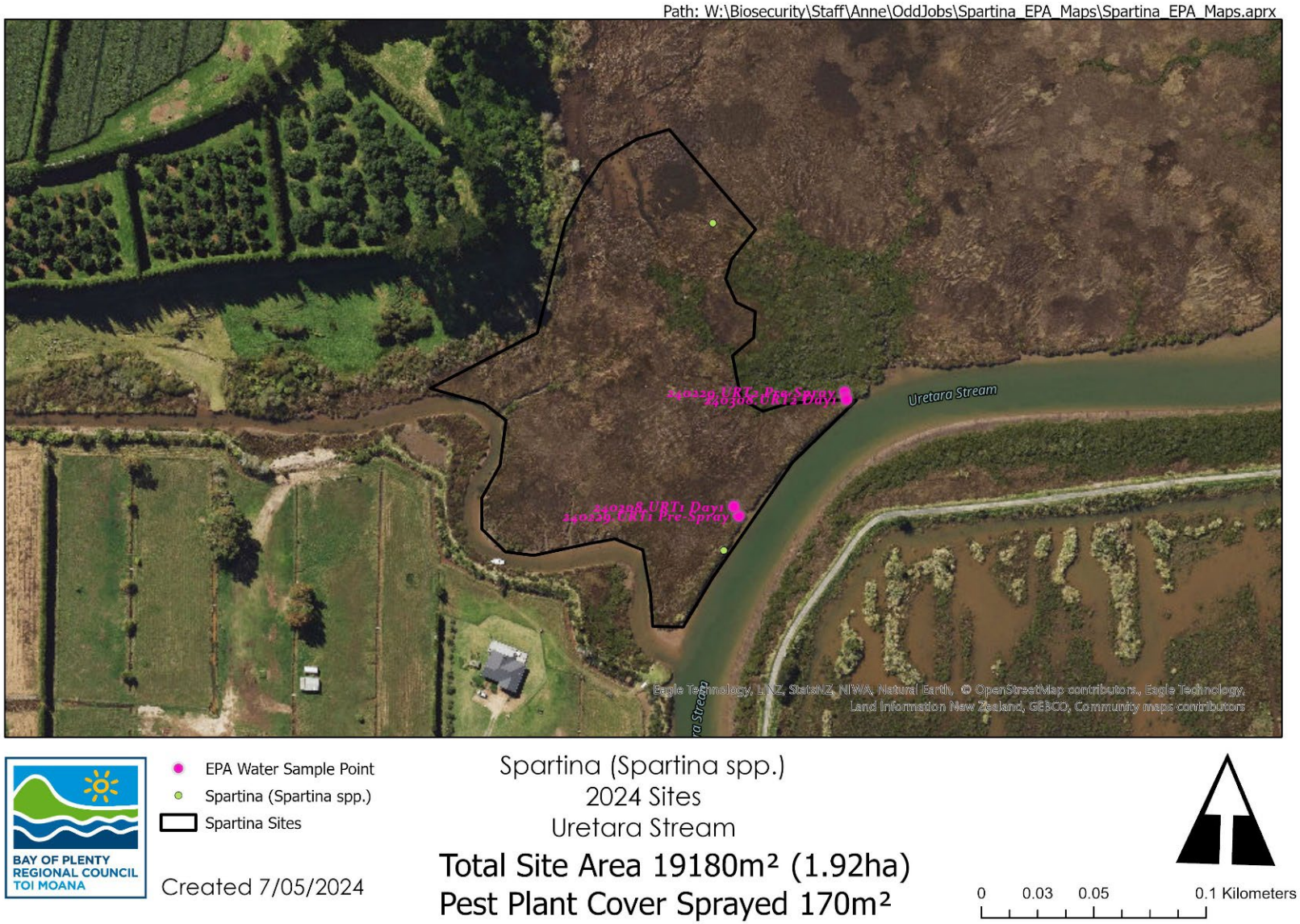
Total Site Area 13420m² (1.34ha)
Pest Plant Cover Sprayed 6m²

0 0.04 0.07 0.15 Kilometers

Appendix 4 – Pahoia – control and water sampling sites – 2024

Appendix 5 – Athenree– control and water sampling sites – 2024

Appendix 6 – Uretara – control and water sampling sites – 2024



Appendix 7 – Laboratory reports

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Bay of Plenty Regional Council	**Lab No:**	3456279	SPv1
Contact:	Adrian Spence	**Date Received:**	01-Feb-2024	
	C/- Bay of Plenty Regional Council	**Date Reported:**	07-Feb-2024	
	PO Box 364	**Quote No:**	126326	
	Whakatane 3158	**Order No:**	PUR043351	
		Client Reference:	MAK	
		Submitted By:	Josh Scarrow	

Sample Type: Soil

		Sample Name:	240131.MAK2 31-Jan-2024	240131.MAK3 31-Jan-2024	240131.MAK4 31-Jan-2024	240131.MAK.CON 31-Jan-2024
		Lab Number:	3456279.5	3456279.6	3456279.7	3456279.8
Individual Tests						
Dry Matter	g/100g as rcvd		58	35	40	68
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Alachlor	mg/kg dry wt		< 0.05	< 0.08	< 0.07	< 0.05
Atrazine	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Atrazine-desethyl	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Atrazine-desisopropyl	mg/kg dry wt		< 0.18	< 0.3	< 0.3	< 0.16
Azaconazole	mg/kg dry wt		< 0.05	< 0.08	< 0.07	< 0.04
Azinphos-methyl	mg/kg dry wt		< 0.18	< 0.3	< 0.3	< 0.16
Benalaxyl	mg/kg dry wt		< 0.05	< 0.08	< 0.07	< 0.04
Bitertanol	mg/kg dry wt		< 0.18	< 0.3	< 0.3	< 0.16
Bromacil	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Bromopropylate	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Butachlor	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Captan	mg/kg dry wt		< 0.18	< 0.3	< 0.3	< 0.16
Carbaryl	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Carbofuran	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Chlorfluazuron	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Chlorothalonil	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Chlorpyrifos	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Chlorpyrifos-methyl	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Chlortoluron	mg/kg dry wt		< 0.18	< 0.3	< 0.3	< 0.16
Cyanazine	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Cyfluthrin	mg/kg dry wt		< 0.11	< 0.18	< 0.16	< 0.10
Cyhalothrin	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Cypermethrin	mg/kg dry wt		< 0.3	< 0.4	< 0.4	< 0.19
Deltamethrin (including Tralomethrin)	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Diazinon	mg/kg dry wt		< 0.05	< 0.08	< 0.07	< 0.04
Dichlofluanid	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Dichloran	mg/kg dry wt		< 0.3	< 0.4	< 0.4	< 0.2
Dichlorvos	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.09
Difenoconazole	mg/kg dry wt		< 0.13	< 0.3	< 0.19	< 0.11
Dimethoate	mg/kg dry wt		< 0.18	< 0.3	< 0.3	< 0.16
Diphenylamine	mg/kg dry wt		< 0.18	< 0.3	< 0.3	< 0.16
Diuron	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Fenpropimorph	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08
Fluazifop-butyl	mg/kg dry wt		< 0.09	< 0.15	< 0.13	< 0.08

Sample Type: Soil					
Sample Name:		240131.MAK2 31-Jan-2024	240131.MAK3 31-Jan-2024	240131.MAK4 31-Jan-2024	240131.MAK.CON 31-Jan-2024
Lab Number:		3456279.5	3456279.6	3456279.7	3456279.8
Organonitro&phosphorus Pesticides Screen in Soil by GCMS					
Fluometuron	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Flusilazole	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Fluvalinate	mg/kg dry wt	< 0.07	< 0.11	< 0.10	< 0.06
Furalaxyl	mg/kg dry wt	< 0.05	< 0.08	< 0.07	< 0.04
Haloxyfop-methyl	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Hexaconazole	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Hexazinone	mg/kg dry wt	< 0.05	< 0.08	< 0.07	< 0.04
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.5	< 0.8	< 0.7	< 0.4
Kresoxim-methyl	mg/kg dry wt	< 0.05	< 0.08	< 0.07	< 0.04
Linuron	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Malathion	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Metalaxyl	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Methamidophos	mg/kg dry wt	< 0.5	< 0.8	< 0.7	< 0.4
Metolachlor	mg/kg dry wt	< 0.05	< 0.08	< 0.07	< 0.05
Metribuzin	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Molinate	mg/kg dry wt	< 0.18	< 0.3	< 0.3	< 0.16
Myclobutanil	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Naled	mg/kg dry wt	< 0.5	< 0.8	< 0.7	< 0.4
Norflurazon	mg/kg dry wt	< 0.18	< 0.3	< 0.3	< 0.16
Oxadiazon	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Oxyfluorfen	mg/kg dry wt	< 0.05	< 0.08	< 0.07	< 0.04
Paclobutrazol	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Parathion-ethyl	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Parathion-methyl	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Pendimethalin	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Permethrin	mg/kg dry wt	< 0.03	< 0.05	< 0.04	< 0.03
Pirimicarb	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Pirimiphos-methyl	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Prochloraz	mg/kg dry wt	< 0.5	< 0.8	< 0.7	< 0.4
Procymidone	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Prometryn	mg/kg dry wt	< 0.05	< 0.08	< 0.07	< 0.04
Propachlor	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Propanil	mg/kg dry wt	< 0.2	< 0.3	< 0.3	< 0.2
Propazine	mg/kg dry wt	< 0.05	< 0.08	< 0.07	< 0.04
Propiconazole	mg/kg dry wt	< 0.07	< 0.11	< 0.10	< 0.06
Pyriproxyfen	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Quizalofop-ethyl	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Simazine	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Simetryn	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Sulfentrazone	mg/kg dry wt	< 0.5	< 0.8	< 0.7	< 0.4
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	mg/kg dry wt	< 0.18	< 0.3	< 0.3	< 0.16
Tebuconazole	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Terbacil	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Terbumeton	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Terbuthylazine	mg/kg dry wt	< 0.05	< 0.08	< 0.07	< 0.04
Terbuthylazine-desethyl	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Terbutryn	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Thiabendazole	mg/kg dry wt	< 0.5	< 0.8	< 0.7	< 0.4
Thiobencarb	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Tolylfluanid	mg/kg dry wt	< 0.05	< 0.08	< 0.07	< 0.04
Triazophos	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Trifluralin	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08
Vinclozolin	mg/kg dry wt	< 0.09	< 0.15	< 0.13	< 0.08

Sample Type: Aqueous					
Sample Name:		240131.MAK2 31-Jan-2024	240131.MAK3 31-Jan-2024	240131.MAK4 31-Jan-2024	240131.MAK.CON 31-Jan-2024
Lab Number:		3456279.1	3456279.2	3456279.3	3456279.4
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq					
Acetochlor	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Alachlor	g/m³	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Atrazine	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Atrazine-desethyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Atrazine-desisopropyl	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Azaconazole	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Azinphos-methyl	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Benalaxyl	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bitertanol	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Bromacil	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Bromopropylate	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Butachlor	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Captan	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Carbaryl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Carbofuran	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlorfluazuron	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlorothalonil	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlorpyrifos	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlorpyrifos-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlortoluron	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Cyanazine	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Cyfluthrin	g/m³	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cyhalothrin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Cypermethrin	g/m³	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Deltamethrin (including Tralomethrin)	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Diazinon	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dichlofluanid	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Dichloran	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Difenoconazole	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Dimethoate	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Diphenylamine	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Diuron	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Fenpropimorph	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Fluazifop-butyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Fluometuron	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Flusilazole	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Fluvalinate	g/m³	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Furalaxyl	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Haloxyfop-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Hexaconazole	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Hexazinone	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
Kresoxim-methyl	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Linuron	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Malathion	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Metalaxyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Metolachlor	g/m³	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Metribuzin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Molinate	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Myclobutanil	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Naled	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
Norflurazon	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Oxadiazon	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004

Sample Type: Aqueous					
Sample Name:		240131.MAK2 31-Jan-2024	240131.MAK3 31-Jan-2024	240131.MAK4 31-Jan-2024	240131.MAK.CON 31-Jan-2024
Lab Number:		3456279.1	3456279.2	3456279.3	3456279.4
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq					
Oxyfluorfen	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Paclobutrazol	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Parathion-ethyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Parathion-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Pendimethalin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Permethrin	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Pirimicarb	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Pirimiphos-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Prochloraz	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
Procymidone	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Prometryn	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Propachlor	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Propanil	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
Propazine	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Propiconazole	g/m³	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Pyriproxyfen	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Quizalofop-ethyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Simazine	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Simetryn	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Sulfentrazone	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Tebuconazole	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Terbacil	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Terbumeton	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Terbuthylazine	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Terbuthylazine-desethyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Terbutryn	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Thiabendazole	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
Thiobencarb	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Tolylfluanid	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Triazophos	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Trifluralin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Vinclozolin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Organonitro&phosphorus Pesticides Screen in Soil by GCMS	Sonication extraction, GC-MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.02 - 0.2 mg/kg dry wt	5-8
Dry Matter	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	5-8

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.0002 - 0.002 g/m³	1-4

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 02-Feb-2024 and 07-Feb-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Kim Harrison MSc
Client Services Manager - Environmental

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Certificate of Analysis

Client:	Bay of Plenty Regional Council	**Lab No:**	3464555 SPv1
Contact:	Josh Scarrow	**Date Received:**	13-Feb-2024
	C/- Bay of Plenty Regional Council	**Date Reported:**	20-Feb-2024
	1 Elizabeth Street	**Quote No:**	126326
	Tauranga 3110	**Order No:**	PUR043351
		Client Reference:	Spartina
		Submitted By:	Josh Scarrow

Sample Type: Aqueous

Sample Name:		240207.WKR 07-Feb-2024	240208.PAH 08-Feb-2024	240208.ATH 08-Feb-2024
Lab Number:		3464555.1	3464555.3	3464555.5
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq				
Acetochlor	g/m³	< 0.0004	< 0.0004	< 0.0004
Alachlor	g/m³	< 0.0003	< 0.0003	< 0.0003
Atrazine	g/m³	< 0.0004	< 0.0004	< 0.0004
Atrazine-desethyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Atrazine-desisopropyl	g/m³	< 0.0007	< 0.0007	< 0.0007
Azaconazole	g/m³	< 0.0002	< 0.0002	< 0.0002
Azinphos-methyl	g/m³	< 0.0007	< 0.0007	< 0.0007
Benalaxyl	g/m³	< 0.0002	< 0.0002	< 0.0002
Bitertanol	g/m³	< 0.0007	< 0.0007	< 0.0007
Bromacil	g/m³	< 0.0004	< 0.0004	< 0.0004
Bromopropylate	g/m³	< 0.0004	< 0.0004	< 0.0004
Butachlor	g/m³	< 0.0004	< 0.0004	< 0.0004
Captan	g/m³	< 0.0007	< 0.0007	< 0.0007
Carbaryl	g/m³	< 0.0004	< 0.0004	< 0.0004
Carbofuran	g/m³	< 0.0004	< 0.0004	< 0.0004
Chlorfluazuron	g/m³	< 0.0004	< 0.0004	< 0.0004
Chlorothalonil	g/m³	< 0.0004	< 0.0004	< 0.0004
Chlorpyrifos	g/m³	< 0.0004	< 0.0004	< 0.0004
Chlorpyrifos-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Chlortoluron	g/m³	< 0.0007	< 0.0007	< 0.0007
Cyanazine	g/m³	< 0.0004	< 0.0004	< 0.0004
Cyfluthrin	g/m³	< 0.0005	< 0.0005	< 0.0005
Cyhalothrin	g/m³	< 0.0004	< 0.0004	< 0.0004
Cypermethrin	g/m³	< 0.0009	< 0.0009	< 0.0009
Deltamethrin (including Tralomethrin)	g/m³	< 0.0004	< 0.0004	< 0.0004
Diazinon	g/m³	< 0.0002	< 0.0002	< 0.0002
Dichlofluanid	g/m³	< 0.0004	< 0.0004	< 0.0004
Dichloran	g/m³	< 0.002	< 0.002	< 0.002
Dichlorvos	g/m³	< 0.0007	< 0.0007	< 0.0007
Difenoconazole	g/m³	< 0.0007	< 0.0007	< 0.0007
Dimethoate	g/m³	< 0.0007	< 0.0007	< 0.0007
Diphenylamine	g/m³	< 0.0007	< 0.0007	< 0.0007
Diuron	g/m³	< 0.0004	< 0.0004	< 0.0004
Fenpropimorph	g/m³	< 0.0004	< 0.0004	< 0.0004
Fluazifop-butyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Fluometuron	g/m³	< 0.0004	< 0.0004	< 0.0004
Flusilazole	g/m³	< 0.0004	< 0.0004	< 0.0004
Fluvalinate	g/m³	< 0.0003	< 0.0003	< 0.0003

Sample Type: Aqueous				
Sample Name:		240207.WKR 07-Feb-2024	240208.PAH 08-Feb-2024	240208.ATH 08-Feb-2024
Lab Number:		3464555.1	3464555.3	3464555.5
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq				
Furalaxyl	g/m³	< 0.0002	< 0.0002	< 0.0002
Haloxyfop-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Hexaconazole	g/m³	< 0.0004	< 0.0004	< 0.0004
Hexazinone	g/m³	< 0.0002	< 0.0002	< 0.0002
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	g/m³	< 0.002	< 0.002	< 0.002
Kresoxim-methyl	g/m³	< 0.0002	< 0.0002	< 0.0002
Linuron	g/m³	< 0.0004	< 0.0004	< 0.0004
Malathion	g/m³	< 0.0004	< 0.0004	< 0.0004
Metalaxyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Metolachlor	g/m³	< 0.0003	< 0.0003	< 0.0003
Metribuzin	g/m³	< 0.0004	< 0.0004	< 0.0004
Molinate	g/m³	< 0.0007	< 0.0007	< 0.0007
Myclobutanil	g/m³	< 0.0004	< 0.0004	< 0.0004
Naled	g/m³	< 0.002	< 0.002	< 0.002
Norflurazon	g/m³	< 0.0007	< 0.0007	< 0.0007
Oxadiazon	g/m³	< 0.0004	< 0.0004	< 0.0004
Oxyfluorfen	g/m³	< 0.0002	< 0.0002	< 0.0002
Paclobutrazol	g/m³	< 0.0004	< 0.0004	< 0.0004
Parathion-ethyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Parathion-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Pendimethalin	g/m³	< 0.0004	< 0.0004	< 0.0004
Permethrin	g/m³	< 0.0002	< 0.0002	< 0.0002
Pirimicarb	g/m³	< 0.0004	< 0.0004	< 0.0004
Pirimiphos-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Prochloraz	g/m³	< 0.002	< 0.002	< 0.002
Procymidone	g/m³	< 0.0004	< 0.0004	< 0.0004
Prometryn	g/m³	< 0.0002	< 0.0002	< 0.0002
Propachlor	g/m³	< 0.0004	< 0.0004	< 0.0004
Propanil	g/m³	< 0.002	< 0.002	< 0.002
Propazine	g/m³	< 0.0002	< 0.0002	< 0.0002
Propiconazole	g/m³	< 0.0003	< 0.0003	< 0.0003
Pyriproxyfen	g/m³	< 0.0004	< 0.0004	< 0.0004
Quizalofop-ethyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Simazine	g/m³	< 0.0004	< 0.0004	< 0.0004
Simetryn	g/m³	< 0.0004	< 0.0004	< 0.0004
Sulfentrazone	g/m³	< 0.002	< 0.002	< 0.002
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	g/m³	< 0.0007	< 0.0007	< 0.0007
Tebuconazole	g/m³	< 0.0004	< 0.0004	< 0.0004
Terbacil	g/m³	< 0.0004	< 0.0004	< 0.0004
Terbumeton	g/m³	< 0.0004	< 0.0004	< 0.0004
Terbuthylazine	g/m³	< 0.0002	< 0.0002	< 0.0002
Terbuthylazine-desethyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Terbutryn	g/m³	< 0.0004	< 0.0004	< 0.0004
Thiabendazole	g/m³	< 0.002	< 0.002	< 0.002
Thiobencarb	g/m³	< 0.0004	< 0.0004	< 0.0004
Tolylfluanid	g/m³	< 0.0002	< 0.0002	< 0.0002
Triazophos	g/m³	< 0.0004	< 0.0004	< 0.0004
Trifluralin	g/m³	< 0.0004	< 0.0004	< 0.0004
Vinclozolin	g/m³	< 0.0004	< 0.0004	< 0.0004

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.0002 - 0.002 g/m^3	1, 3, 5

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed on 19-Feb-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Client Services Manager - Environmental

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Certificate of Analysis

Client:	Bay of Plenty Regional Council	**Lab No:**	3465996	SPv1
Contact:	Josh Scarrow	**Date Received:**	14-Feb-2024	
	C/- Bay of Plenty Regional Council	**Date Reported:**	21-Feb-2024	
	1 Elizabeth Street	**Quote No:**	126326	
	Tauranga 3110	**Order No:**	PUR043351	
		Client Reference:	Spartina	
		Submitted By:	Josh Scarrow	

Sample Type: Aqueous

Sample Name:		MAK2 09-Feb-2024 10:00 am	MAK3 09-Feb-2024 10:07 am	MAK4 09-Feb-2024 10:28 am	MAK.CON 09-Feb-2024 10:34 am
Lab Number:		3465996.1	3465996.2	3465996.3	3465996.4
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq					
Acetochlor	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Alachlor	g/m³	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Atrazine	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Atrazine-desethyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Atrazine-desisopropyl	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Azaconazole	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Azinphos-methyl	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Benalaxyl	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bitertanol	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Bromacil	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Bromopropylate	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Butachlor	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Captan	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Carbaryl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Carbofuran	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlorfluazuron	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlorothalonil	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlorpyrifos	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlorpyrifos-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlortoluron	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Cyanazine	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Cyfluthrin	g/m³	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cyhalothrin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Cypermethrin	g/m³	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Deltamethrin (including Tralomethrin)	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Diazinon	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dichlofluanid	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Dichloran	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Difenoconazole	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Dimethoate	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Diphenylamine	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Diuron	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Fenpropimorph	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Fluazifop-butyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Fluometuron	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Flusilazole	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Fluvalinate	g/m³	< 0.0003	< 0.0003	< 0.0003	< 0.0003

Sample Type: Aqueous					
Sample Name:		MAK2 09-Feb-2024 10:00 am	MAK3 09-Feb-2024 10:07 am	MAK4 09-Feb-2024 10:28 am	MAK.CON 09-Feb-2024 10:34 am
Lab Number:		3465996.1	3465996.2	3465996.3	3465996.4
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq					
Furalaxyl	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Haloxyfop-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Hexaconazole	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Hexazinone	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
Kresoxim-methyl	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Linuron	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Malathion	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Metalaxyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Metolachlor	g/m³	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Metribuzin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Molinate	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Myclobutanil	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Naled	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
Norflurazon	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Oxadiazon	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Oxyfluorfen	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Paclobutrazol	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Parathion-ethyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Parathion-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Pendimethalin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Permethrin	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Pirimicarb	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Pirimiphos-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Prochloraz	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
Procymidone	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Prometryn	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Propachlor	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Propanil	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
Propazine	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Propiconazole	g/m³	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Pyriproxyfen	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Quizalofop-ethyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Simazine	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Simetryn	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Sulfentrazone	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Tebuconazole	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Terbacil	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Terbumeton	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Terbuthylazine	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Terbuthylazine-desethyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Terbutryn	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Thiabendazole	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
Thiobencarb	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Tolylfluanid	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Triazophos	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Trifluralin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Vinclozolin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.0002 - 0.002 g/m^3	1-4

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 19-Feb-2024 and 21-Feb-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Graham Corban MSc Tech (Hons)
Client Services Manager - Environmental

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Certificate of Analysis

Client:	Bay of Plenty Regional Council	**Lab No:**	3482613	SPv1
Contact:	Adrian Spence	**Date Received:**	01-Mar-2024	
	C/- Bay of Plenty Regional Council	**Date Reported:**	08-Mar-2024	
	PO Box 364	**Quote No:**	126326	
	Whakatane 3158	**Order No:**	PUR043351	
		Client Reference:	Spartina - Tauranga	
		Submitted By:	Steph Bathgate	

Sample Type: Aqueous

Sample Name:		24 0229 URT 1 29-Feb-2024	24 0229 WMP 29-Feb-2024	24 0229 URT 2 29-Feb-2024
Lab Number:		3482613.1	3482613.2	3482613.3
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq				
Acetochlor	g/m³	< 0.0004	< 0.0004	< 0.0004
Alachlor	g/m³	< 0.0003	< 0.0003	< 0.0003
Atrazine	g/m³	< 0.0004	< 0.0004	< 0.0004
Atrazine-desethyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Atrazine-desisopropyl	g/m³	< 0.0007	< 0.0007	< 0.0007
Azaconazole	g/m³	< 0.0002	< 0.0002	< 0.0002
Azinphos-methyl	g/m³	< 0.0007	< 0.0007	< 0.0007
Benalaxyl	g/m³	< 0.0002	< 0.0002	< 0.0002
Bitertanol	g/m³	< 0.0007	< 0.0007	< 0.0007
Bromacil	g/m³	< 0.0004	< 0.0004	< 0.0004
Bromopropylate	g/m³	< 0.0004	< 0.0004	< 0.0004
Butachlor	g/m³	< 0.0004	< 0.0004	< 0.0004
Captan	g/m³	< 0.0007	< 0.0007	< 0.0007
Carbaryl	g/m³	< 0.0004	< 0.0004	< 0.0004
Carbofuran	g/m³	< 0.0004	< 0.0004	< 0.0004
Chlorfluazuron	g/m³	< 0.0004	< 0.0004	< 0.0004
Chlorothalonil	g/m³	< 0.0004	< 0.0004	< 0.0004
Chlorpyrifos	g/m³	< 0.0004	< 0.0004	< 0.0004
Chlorpyrifos-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Chlortoluron	g/m³	< 0.0007	< 0.0007	< 0.0007
Cyanazine	g/m³	< 0.0004	< 0.0004	< 0.0004
Cyfluthrin	g/m³	< 0.0005	< 0.0005	< 0.0005
Cyhalothrin	g/m³	< 0.0004	< 0.0004	< 0.0004
Cypermethrin	g/m³	< 0.0009	< 0.0009	< 0.0009
Deltamethrin (including Tralomethrin)	g/m³	< 0.0004	< 0.0004	< 0.0004
Diazinon	g/m³	< 0.0002	< 0.0002	< 0.0002
Dichlofluanid	g/m³	< 0.0004	< 0.0004	< 0.0004
Dichloran	g/m³	< 0.002	< 0.002	< 0.002
Dichlorvos	g/m³	< 0.0007	< 0.0007	< 0.0007
Difenoconazole	g/m³	< 0.0007	< 0.0007	< 0.0007
Dimethoate	g/m³	< 0.0007	< 0.0007	< 0.0007
Diphenylamine	g/m³	< 0.0007	< 0.0007	< 0.0007
Diuron	g/m³	< 0.0004	< 0.0004	< 0.0004
Fenpropimorph	g/m³	< 0.0004	< 0.0004	< 0.0004
Fluazifop-butyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Fluometuron	g/m³	< 0.0004	< 0.0004	< 0.0004
Flusilazole	g/m³	< 0.0004	< 0.0004	< 0.0004
Fluvalinate	g/m³	< 0.0003	< 0.0003	< 0.0003

Sample Type: Aqueous				
Sample Name:		24 0229 URT 1 29-Feb-2024	24 0229 WMP 29-Feb-2024	24 0229 URT 2 29-Feb-2024
Lab Number:		3482613.1	3482613.2	3482613.3
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq				
Furalaxyl	g/m³	< 0.0002	< 0.0002	< 0.0002
Haloxyfop-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Hexaconazole	g/m³	< 0.0004	< 0.0004	< 0.0004
Hexazinone	g/m³	< 0.0002	< 0.0002	< 0.0002
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	g/m³	< 0.002	< 0.002	< 0.002
Kresoxim-methyl	g/m³	< 0.0002	< 0.0002	< 0.0002
Linuron	g/m³	< 0.0004	< 0.0004	< 0.0004
Malathion	g/m³	< 0.0004	< 0.0004	< 0.0004
Metalaxyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Metolachlor	g/m³	< 0.0003	< 0.0003	< 0.0003
Metribuzin	g/m³	< 0.0004	< 0.0004	< 0.0004
Molinate	g/m³	< 0.0007	< 0.0007	< 0.0007
Myclobutanil	g/m³	< 0.0004	< 0.0004	< 0.0004
Naled	g/m³	< 0.002	< 0.002	< 0.002
Norflurazon	g/m³	< 0.0007	< 0.0007	< 0.0007
Oxadiazon	g/m³	< 0.0004	< 0.0004	< 0.0004
Oxyfluorfen	g/m³	< 0.0002	< 0.0002	< 0.0002
Paclobutrazol	g/m³	< 0.0004	< 0.0004	< 0.0004
Parathion-ethyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Parathion-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Pendimethalin	g/m³	< 0.0004	< 0.0004	< 0.0004
Permethrin	g/m³	< 0.0002	< 0.0002	< 0.0002
Pirimicarb	g/m³	< 0.0004	< 0.0004	< 0.0004
Pirimiphos-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Prochloraz	g/m³	< 0.002	< 0.002	< 0.002
Procymidone	g/m³	< 0.0004	< 0.0004	< 0.0004
Prometryn	g/m³	< 0.0002	< 0.0002	< 0.0002
Propachlor	g/m³	< 0.0004	< 0.0004	< 0.0004
Propanil	g/m³	< 0.002	< 0.002	< 0.002
Propazine	g/m³	< 0.0002	< 0.0002	< 0.0002
Propiconazole	g/m³	< 0.0003	< 0.0003	< 0.0003
Pyriproxyfen	g/m³	< 0.0004	< 0.0004	< 0.0004
Quizalofop-ethyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Simazine	g/m³	< 0.0004	< 0.0004	< 0.0004
Simetryn	g/m³	< 0.0004	< 0.0004	< 0.0004
Sulfentrazone	g/m³	< 0.002	< 0.002	< 0.002
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	g/m³	< 0.0007	< 0.0007	< 0.0007
Tebuconazole	g/m³	< 0.0004	< 0.0004	< 0.0004
Terbacil	g/m³	< 0.0004	< 0.0004	< 0.0004
Terbumeton	g/m³	< 0.0004	< 0.0004	< 0.0004
Terbuthylazine	g/m³	< 0.0002	< 0.0002	< 0.0002
Terbuthylazine-desethyl	g/m³	< 0.0004	< 0.0004	< 0.0004
Terbutryn	g/m³	< 0.0004	< 0.0004	< 0.0004
Thiabendazole	g/m³	< 0.002	< 0.002	< 0.002
Thiobencarb	g/m³	< 0.0004	< 0.0004	< 0.0004
Tolylfluanid	g/m³	< 0.0002	< 0.0002	< 0.0002
Triazophos	g/m³	< 0.0004	< 0.0004	< 0.0004
Trifluralin	g/m³	< 0.0004	< 0.0004	< 0.0004
Vinclozolin	g/m³	< 0.0004	< 0.0004	< 0.0004

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.0002 - 0.002 g/m^3	1-3

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed on 08-Mar-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Kim Harrison MSc
Client Services Manager - Environmental

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Private Bag 3205
Hamilton 3240 New Zealand

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Certificate of Analysis

Client:	Bay of Plenty Regional Council	**Lab No:**	3491874	SPv1
Contact:	Adrian Spence C/- Bay of Plenty Regional Council PO Box 364 Whakatane 3158	**Date Received:**	09-Mar-2024	
		Date Reported:	15-Mar-2024	
		Quote No:	126326	
		Order No:	PUR 043351	
		Client Reference:	EPA Spartina	
		Submitted By:	Josh Scarrow	

Sample Type: Aqueous

Sample Name:	240307.ATH 07-Mar-2024	240307.PAH 07-Mar-2024	240307.WKR 07-Mar-2024	240308.UTR1 08-Mar-2024	240308.UTR2 08-Mar-2024
Lab Number:	3491874.1	3491874.2	3491874.3	3491874.4	3491874.5
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq					
Acetochlor g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Alachlor g/m³	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Atrazine g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Atrazine-desethyl g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Atrazine-desisopropyl g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Azaconazole g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Azinphos-methyl g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Benalaxyl g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bitertanol g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Bromacil g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Bromopropylate g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Butachlor g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Captan g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Carbaryl g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Carbofuran g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlorfluazuron g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlorothalonil g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlorpyrifos g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlorpyrifos-methyl g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Chlortoluron g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Cyanazine g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Cyfluthrin g/m³	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cyhalothrin g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Cypermethrin g/m³	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Deltamethrin (including Tralomethrin) g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Diazinon g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dichlofluanid g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Dichloran g/m³	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Difenoconazole g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Dimethoate g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Diphenylamine g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Diuron g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Fenpropimorph g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Fluazifop-butyl g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Fluometuron g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Flusilazole g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Fluvalinate g/m³	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003

Sample Type: Aqueous						
Sample Name:		240307.ATH 07-Mar-2024	240307.PAH 07-Mar-2024	240307.WKR 07-Mar-2024	240308.UTR1 08-Mar-2024	240308.UTR2 08-Mar-2024
Lab Number:		3491874.1	3491874.2	3491874.3	3491874.4	3491874.5
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq						
Furalaxyl	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Haloxyfop-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Hexaconazole	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Hexazinone	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	g/m³	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Kresoxim-methyl	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Linuron	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Malathion	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Metalaxyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Metolachlor	g/m³	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Metribuzin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Molinate	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Myclobutanil	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Naled	g/m³	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Norflurazon	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Oxadiazon	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Oxyfluorfen	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Paclobutrazol	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Parathion-ethyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Parathion-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Pendimethalin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Permethrin	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Pirimicarb	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Pirimiphos-methyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Prochloraz	g/m³	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Procymidone	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Prometryn	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Propachlor	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Propanil	g/m³	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Propazine	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Propiconazole	g/m³	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Pyriproxyfen	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Quizalofop-ethyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Simazine	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Simetryn	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Sulfentrazone	g/m³	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	g/m³	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
Tebuconazole	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Terbacil	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Terbumeton	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Terbuthylazine	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Terbuthylazine-desethyl	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Terbutryn	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Thiabendazole	g/m³	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Thiobencarb	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Tolylfluanid	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Triazophos	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Trifluralin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Vinclozolin	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004

Sample Name:	240308.WMP 08-Mar-2024
Lab Number:	3491874.6

Sample Type: Aqueous		
Sample Name:		240308.WMP 08-Mar-2024
Lab Number:		3491874.6
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq		
Acetochlor	g/m³	< 0.0004
Alachlor	g/m³	< 0.0003
Atrazine	g/m³	< 0.0004
Atrazine-desethyl	g/m³	< 0.0004
Atrazine-desisopropyl	g/m³	< 0.0007
Azaconazole	g/m³	< 0.0002
Azinphos-methyl	g/m³	< 0.0007
Benalaxyl	g/m³	< 0.0002
Bitertanol	g/m³	< 0.0007
Bromacil	g/m³	< 0.0004
Bromopropylate	g/m³	< 0.0004
Butachlor	g/m³	< 0.0004
Captan	g/m³	< 0.0007
Carbaryl	g/m³	< 0.0004
Carbofuran	g/m³	< 0.0004
Chlorfluazuron	g/m³	< 0.0004
Chlorothalonil	g/m³	< 0.0004
Chlorpyrifos	g/m³	< 0.0004
Chlorpyrifos-methyl	g/m³	< 0.0004
Chlortoluron	g/m³	< 0.0007
Cyanazine	g/m³	< 0.0004
Cyfluthrin	g/m³	< 0.0005
Cyhalothrin	g/m³	< 0.0004
Cypermethrin	g/m³	< 0.0009
Deltamethrin (including Tralomethrin)	g/m³	< 0.0004
Diazinon	g/m³	< 0.0002
Dichlofluanid	g/m³	< 0.0004
Dichloran	g/m³	< 0.002
Dichlorvos	g/m³	< 0.0007
Difenoconazole	g/m³	< 0.0007
Dimethoate	g/m³	< 0.0007
Diphenylamine	g/m³	< 0.0007
Diuron	g/m³	< 0.0004
Fenpropimorph	g/m³	< 0.0004
Fluazifop-butyl	g/m³	< 0.0004
Fluometuron	g/m³	< 0.0004
Flusilazole	g/m³	< 0.0004
Fluvalinate	g/m³	< 0.0003
Furalaxyl	g/m³	< 0.0002
Haloxyfop-methyl	g/m³	< 0.0004
Hexaconazole	g/m³	< 0.0004
Hexazinone	g/m³	< 0.0002
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	g/m³	< 0.002
Kresoxim-methyl	g/m³	< 0.0002
Linuron	g/m³	< 0.0004
Malathion	g/m³	< 0.0004
Metalaxyl	g/m³	< 0.0004
Metolachlor	g/m³	< 0.0003
Metribuzin	g/m³	< 0.0004
Molinate	g/m³	< 0.0007
Myclobutanil	g/m³	< 0.0004
Naled	g/m³	< 0.002
Norflurazon	g/m³	< 0.0007
Oxadiazon	g/m³	< 0.0004
Oxyfluorfen	g/m³	< 0.0002

Sample Type: Aqueous		
Sample Name:		240308.WMP 08-Mar-2024
Lab Number:		3491874.6
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq		
Paclobutrazol	g/m³	< 0.0004
Parathion-ethyl	g/m³	< 0.0004
Parathion-methyl	g/m³	< 0.0004
Pendimethalin	g/m³	< 0.0004
Permethrin	g/m³	< 0.0002
Pirimicarb	g/m³	< 0.0004
Pirimiphos-methyl	g/m³	< 0.0004
Prochloraz	g/m³	< 0.002
Procymidone	g/m³	< 0.0004
Prometryn	g/m³	< 0.0002
Propachlor	g/m³	< 0.0004
Propanil	g/m³	< 0.002
Propazine	g/m³	< 0.0002
Propiconazole	g/m³	< 0.0003
Pyriproxyfen	g/m³	< 0.0004
Quizalofop-ethyl	g/m³	< 0.0004
Simazine	g/m³	< 0.0004
Simetryn	g/m³	< 0.0004
Sulfentrazone	g/m³	< 0.002
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	g/m³	< 0.0007
Tebuconazole	g/m³	< 0.0004
Terbacil	g/m³	< 0.0004
Terbumeton	g/m³	< 0.0004
Terbuthylazine	g/m³	< 0.0002
Terbuthylazine-desethyl	g/m³	< 0.0004
Terbutryn	g/m³	< 0.0004
Thiabendazole	g/m³	< 0.002
Thiobencarb	g/m³	< 0.0004
Tolylfluanid	g/m³	< 0.0002
Triazophos	g/m³	< 0.0004
Trifluralin	g/m³	< 0.0004
Vinclozolin	g/m³	< 0.0004

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.0002 - 0.002 g/m³	1-6

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed on 15-Mar-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Martin Cowell - BSc
Client Services Manager - Environmental

Appendix 8 – Summary of monitored field parameters

Sample ID	Latitude	Longitude	Sample Taken	Sample Purpose	Water Temperature (°C)	Dissolved Oxygen (mg/L)	pH	Electrical Conductivity (µS/cm)
240131.MAK2	-37.76326746	176.4448814	2024-01-30 21:13:54	Pre-Spray	24.9	8.78	7.73	30,900
240131.MAK4	-37.76423224	176.4429973	2024-01-30 21:28:38	Pre-Spray	23.9	8.08	7.8	28,800
240131.MAK3	-37.76528421	176.4434979	2024-01-30 21:36:35	Pre-Spray	23.9	7.95	7.33	23,660
MAK2-MAK3 (9/2/24)	Locations as above		2024-02-09	Post-Spray	Field parameters were unable to be measured during post-spray sampling undertaken by MOWS at Maketu, due to unavailability of instruments at that time			
240207.WKR	-37.68264631	176.164012	2024-02-07 3:14:38	Pre-Spray	31.3	5.8	8.2	47,285
240307.WKR	-37.6828	176.1638	2024-03-06 21:30:18	Post-spray	21	7.39	7.6	10,817
240208.PAH	-37.63622823	175.9981679	2024-02-07 22:04:11	Pre-Spray	25.3	3.23	7.36	42,418
240307.PAH	-37.63614	175.99821	2024-03-06 20:44:43	Post-spray	18.8	3.91	7.59	33,840
240208.ATH	-37.44906941	175.9660188	2024-02-07 23:32:09	Pre-Spray	33.8	6.38	8.4	2,463
240307.ATH	-37.45030667	175.9668733	2024-03-06 19:29:21	Post-spray	16.1	8.65	8.2	31,076
240229.WMP	-37.7299	176.1589	2024-02-28 20:44:31	Pre-Spray	17.1	5.86	6.64	639
240308.WMP	-37.72981833	176.1588883	2024-03-07 22:56:28	Post-spray	18.6	8.23	7.19	422
240229.URT1	-37.54196	175.919055	2024-02-28 22:18:25	Pre-Spray	21.4	6.71	7.69	27,053
240229.URT2	-37.54145167	175.9195683	2024-02-28 22:28:28	Pre-Spray	21.4	7.18	7.77	27,565
240308.URT1	-37.54192333	175.9190283	2024-03-07 19:49:27	Post-spray	18	6.57	7.52	17,386
240308.URT2	-37.54148	175.9195783	2024-03-07 19:53:59	Post-spray	18.5	6.01	7.59	25,262