BEFORE THE TARANAKI REGIONAL COUNCIL

4ª .*

| IN THE MATTER | of an application by Remediation (NZ) Limited for resource consents under Part 5 of the Resource Management Act 1991 |
|---------------|---|
| AND | |
| IN THE MATTER | applications to obtain replacement consents for Consent Numbers 5838-2.2 and 5839-2 as summarised below: |
| | Consent 5838-2.2 – to discharge of a) waste material to land for composting; and b) treated stormwater and leachate, from composting operations; onto and into land in circumstances where contaminants may enter water in Haehanga Stream catchment and directly into an unnamed tributary of the Haehanga Stream at Grid Reference (NZTM) 1731656E-5686190N, 1733127E-5684809N, 1732277E-568510N, 1732658E-5684545N and 1732056E-5684927N Consent 5839-2 – to discharge emissions into the air, namely odour and dust, from composting operations between (NZTM) 1731704E- 5685796N, 1733127E-5684809N, 1732277E-5685101N, 1732451E- 5684624N and 1732056E-5684927N |

SUPPLEMENTARY STATEMENT OF EVIDENCE OF DAVID PAUL GIBSON DATED 19 MARCH 2021

Environmental Consultancy:

Landpro Limited 57 Vivian Street New Plymouth 9342 Attention: Kathryn Hooper Tel: 027 759 2044 Email: kathryn@landpro.co.nz Counsel acting:



- john@johnmaassen.com
- johnmaassen.com
- **6** 04 914 1050
- 🖶 04 473 3179

- 1 The purpose of this supplementary statement is to provide the Panel with further evidence concerning Remediation (NZ) Limited's ("RNZs") investigation of a new strategy for bioremediation of the product on Pad 3 comprising drilling waste.
- In February 2021, RNZ contacted Mr Dan McNair, who is the technical advisor for Greenleaf Environmental Services (LLC). That company is based in Colorado and it has experience in neutralising hydrocarbon in composting operations. Greenleaf Environmental Services LLC uses a method of treatment involving enzymes followed by bioaugmentation. Greenleaf Environmental Services LLC currently treats in excess of 90,000m³/yr of product containing Total Petroleum Hydrocarbons (TPHs) with starting concentrations of more than 50,000ppm. Environmental Services LLC achieve final concentrations of <500ppm. They obtain those levels of reduction in periods of less than 60 days.
- 3 RNZ took a sample of 4,000m³ of product from Pad 3 and treated this with an enzyme and then bioremediated the sample. The trial was over a three week period in February of 2021.
- 4 Attachment 1 shows the Hills Laboratory test results for Pad 3 product prior to remediation as at 10 July 2020.
- 5 The results from the trial are in Attachment 2 and show that TPH levels have dropped significantly through that three week period. This trial result provides RNZ with confidence that the product in Pad 3 can be bioremediated to a standard appropriate for application to the site as part of its wider site remediation programme.
- 6 RNZ will actively bioremediate the product on Pad 3 over the next three years using bioremediation.

DiGibson

David Gibson General Manager for Remediation (NZ) Limited

Attachment 1

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E mail@hill-labs.co.nz

| Certi | ficate of | Analy | sis | | | | Page 1 of 2 |
|--|---|---------------------------------|-----------------------------------|--|---|--|---------------------------------------|
| Client: Contact: | Revital Fertilise D Gibson C/- Revital Ferti PO Box 8045 New Plymouth 4 | rs ilisers 4342 | | | Lab No: Date Received: Date Reported: Quote No: Order No: Client Reference Submitted By: | 2395777 03-Jul-2020 10-Jul-2020 95130 31629 : Compost D Gibson | SPv |
| Sample Ty | pe: Mature Com | post | | | | | and a second |
| | San | nple Name: | Pad 3 Compost 02-Jul-2020 1:00 | | | | |
| | La | ab Number: | 2395777.1 | 44 8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | | | |
| ndividual Te | sts | | | | | | 1 |
| ry Matter | g | /100g as rcvd | 56 | - | - | - | - |
| otal Recove | rable Barium | mg/kg dry wt | 3,000 | - | a (an internet and a second | - | · · · · · · · · · · · · · · · · · · · |
| TEX in Soli | ds by Headspace GC | -MS | | | | | |
| enzene | | mg/kg dry wt | < 0.09 | - | - | - | - |
| oluene | | mg/kg dry wt | < 0.09 | | - | 1.1.2 Annual a thread the life and the life of the lif | - |
| thylbenzene |) | mg/kg dry wt | 0.16 | - | • | - | - |
| &p-Xylene | | mg/kg dry wt | 1.21 | | - | - | - |
| -Xylene | | mg/kg dry wt | 0.36 | - | - | - | - |
| otal Petrole | um Hydrocarbons in S | Solids | | | | | |
| 7 - C9 | | mg/kg dry wt | 21 | - | (4) | - | - |
| 10 - C14 | | mg/kg dry wt | 4,700 | - | ÷ | - | - |
| 15 - C36 | | mg/kg dry wt | 11,100 | | | - | - |
| otal hydroca | arbons (C7 - C36) | mg/kg dry wt | 15,800 | - | - | - | - |
| 2395777.1 Pad 3 Com Client Chron | post 02-Jul-2020 1:0 matogram for TPH by | 00 pm 7 FID (manually int | egrated] 01514 | 016-20 | C21-25 | C28-29 5 | 130-34 |
| 160 140 120 100 80 60 | | | | | Mu. | | |



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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 Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

| Sample Type: Mature Compost | | | | | | |
|--|---|-------------------------|-----------|--|--|--|
| Test | Method Description | Default Detection Limit | Sample No | | | |
| Individual Tests | | | | | | |
| Environmental Solids Sample Drying* | Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. | - | 1 | | | |
| Environmental Solids Sample Preparation | Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation May contain a residual moisture content of 2-5%. | | 1 | | | |
| Dry Matter (Env) | 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 | 1 | | | |
| Total Recoverable digestion | Nitric / hydrochloric acid digestion. US EPA 200.2. | - | 1 | | | |
| Total Recoverable Barium | Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2. | 0.4 mg/kg dry wt | 1 | | | |
| Total Petroleum Hydrocarbons in Solids | | | | | | |
| Client Chromatogram for TPH by FID | Small peaks associated with QC compounds may be visible in chromatograms with low TPH concentrations. QC peaks are as follows: one peak in the C12 - 14 band, the C21 - 25 band and the C30 - 36 band. All QC peaks are corrected for in the reported TPH concentrations. | | 1 | | | |
| C7 - C9 | Solvent extraction, GC-FID analysis. In-house based on US EPA 8015. | 8 mg/kg dry wt | 1 | | | |
| C10 - C14 | Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015. | 20 mg/kg dry wt | 1 | | | |
| C15 - C36 | Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015. | 40 mg/kg dry wt | 1 | | | |
| Total hydrocarbons (C7 - C36) | Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015. | 70 mg/kg dry wt | 1 | | | |

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

Dates of testing are available on request. Please contact the laboratory for more information.

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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Ara Heron BSc (Tech) Client Services Manager - Environmental

Attachment 2

• • •



Hill Laboratories

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

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Page 1 of 2

Certificate of Analysis

| Client: Contact: | Revital Fertilisers Scott Gordon C/- Revital Fertilisers PO Box 986 Cambridge 3450 | | Lab N Date Date Quote Order Client Subr | lo: Received: Reported: No: No: t Reference: nitted By: | 2534877 22-Feb-20 26-Feb-20 38809 Uruti Com Scott Gor |)21)21 npost don | SSP-1v1 |
|--|--|--------|---|---|--|----------------------------|---------|
| Sample Ty | pe: Mature Compost | | | | | | - |
| | Sample Nam | ie: | Uruti C | Compost Trial 0 1 | 6-Feb-2021 | | |
| | Lab Numb | er: | | 2534877.1 | | | |
| Individual Te | sts | | | | | | |
| Dry Matter | g/100g as ro | vd | | 66 | | | |
| Total Petrole | um Hydrocarbons in Solids | | | | | | |
| C7 - C9 | C7 - C9 mg/kg dry wt | | | < 9 | | | |
| C10 - C14 | C10 - C14 mg/kg dry wt | | 170 | | | | |
| C15 - C36 | mg/kg dry | wt | 2,200 | | | | |
| Total hydroca | arbons (C7 - C36) mg/kg dry | wt | | 2,400 | | | |
| 2534877.1 Uruti Comp Client Chro | bost Trial 0 16-Feb-2021 matogram for TPH by FID | ated] | | | | | |
| 50.0 | C7-8 C10-11 | C12-14 | C15-20 | C21-25 | C26-29 | 030-36 | |
| 45.0 | | | | | | | |
| 40.0 | | | | | | | |
| 35.0 | | | | | | | |
| | | | | | | | |
| 30.0 | | | | | | | |
| 25.0 | | | | | | | |
| 20.0 | | | | | | | |
| 15.0 | | | | | | | |

 $\begin{bmatrix} 10.0 \\ 5.0 \\ -0.5 \\ 2.32 \\ 3.00 \\ 4.00 \\ 5.00 \\ 6.00 \\ 7.00 \\ 8.00 \\ 9.00 \\ 9.00 \\ 9.52 \\ 9.52 \\ 8.00 \\ 9.00 \\ 9.52 \\$

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 Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

| Sample Type: Mature Compost | | | |
|-----------------------------|--------------------|-------------------------|-----------|
| Test | Method Description | Default Detection Limit | Sample No |
| Individual Tests | | | |



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| Sample Type: Mature Compost | | | |
|--|---|-------------------------|-----------|
| Test | Method Description | Default Detection Limit | Sample No |
| Dry Matter (Env) | 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 | 1 |
| Total Petroleum Hydrocarbons in Solids | | | |
| Client Chromatogram for TPH by FID | Small peaks associated with QC compounds may be visible in chromatograms with low TPH concentrations. QC peaks are as follows: one peak in the C12 - 14 band, the C21 - 25 band and the C30 - 36 band. All QC peaks are corrected for in the reported TPH concentrations. | | 1 |
| C7 - C9 | Solvent extraction, GC-FID analysis. In-house based on US EPA 8015. | 8 mg/kg dry wt | 1 |
| C10 - C14 | Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015. | 20 mg/kg dry wt | 1 |
| C15 - C36 | Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015. | 40 mg/kg dry wt | 1 |
| Total hydrocarbons (C7 - C36) | Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015. | 70 mg/kg dry wt | 1 |

Testing was completed between 23-Feb-2021 and 24-Feb-2021. 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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Martin Cowell - BSc Client Services Manager - Environmental

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Page 1 of 2

Certificate of Analysis

| Client: Contact: | Revital Fertilisers Scott Gordon C/- Revital Fertilis PO Box 986 Cambridge 3450 | ers | | | Lab No: Date Received: Date Reported: Quote No: Order No: Client Reference: | 2534877 22-Feb-2021 26-Feb-2021 38809 Uruti Compost | SSP-2v1 |
|---------------------|---|------------------|------|--------|--|---|--|
| | | | | | Submitted By: | Scott Gordon | |
| Sample Ty | pe: Mature Compo | ost | | | | | |
| | | Sample Name | | | Uruti Compost Trial 1 | 16-Feb-2021 | and the second |
| | | Lab Number | : | | 2534877.2 | 2 | |
| ndividual Te | ests | | | | | | |
| Dry Matter | | g/100g as rcv | d | | 49 | | |
| Total Petrole | eum Hydrocarbons in So | ids | | | | | |
| C7 - C9 | | mg/kg dry v | rt | | < 12 | | |
| C10 - C14 | | mg/kg dry v | /t | | 125 | | |
| C15 - C36 | | mg/kg dry v | /t | | 1,570 | | |
| Total hydroca | arbons (C7 - C36) | mg/kg dry v | /t | | 1,700 | | |
| Client Chro | matogram for TPH by F | nanually integra | ted] | C15-30 | 031-25 | <u> </u> |] |
| 45.0 | | | | | | | |
| 40.0 | | | | | | | |
| 35.0 | | | | | | | |
| 30.0 | | | | | | | |
| 25.0 | | | | | | | |
| 20.0 | | | | | | | |
| 15.0 | | | | | | | |
| 10.0 | | | | | | | |
| 5.0 | | | | mmmm | manne | | |
| -0.5 | 33 3 00 | 4.00 | 5.00 | | 7.00 | 8.00 9.00 | min 9.52 |

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 Detection minutes that be built and the second state of an and the second s

| Sample Type: Mature Compost | | | |
|-----------------------------|--------------------|-------------------------|-----------|
| Test | Method Description | Default Detection Limit | Sample No |
| Individual Tests | | | |



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| Sample Type: Mature Compost | | | |
|--|---|-------------------------|-----------|
| Test | Method Description | Default Detection Limit | Sample No |
| Dry Matter (Env) | 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 | 2 |
| Total Petroleum Hydrocarbons in Solids | | | |
| Client Chromatogram for TPH by FID | Small peaks associated with QC compounds may be visible in chromatograms with low TPH concentrations. QC peaks are as follows: one peak in the C12 - 14 band, the C21 - 25 band and the C30 - 36 band. All QC peaks are corrected for in the reported TPH concentrations. | - | 2 |
| C7 - C9 | Solvent extraction, GC-FID analysis. In-house based on US EPA 8015. | 8 mg/kg dry wt | 2 |
| C10 - C14 | Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015. | 20 mg/kg dry wt | 2 |
| C15 - C36 | Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015. | 40 mg/kg dry wt | 2 |
| Total hydrocarbons (C7 - C36) | Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015. | 70 mg/kg dry wt | 2 |

Testing was completed between 23-Feb-2021 and 24-Feb-2021. 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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Martin Cowell - BSc Client Services Manager - Environmental

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Page 1 of 2

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Certificate of Analysis

| Revital Fertilisers Scott Gordon C/- Revital Fertilisers PO Box 986 Cambridge 3450 | Lab No: Date Received: Date Reported: Quote No: Order No: Client Reference: Submitted By: | 2534877SSP-3v122-Feb-202126-Feb-202138809Uruti CompostScott GordonScott Gordon | | |
|--|--|--|--|--|
| Sample Name: | Uruti Compost Trial 2 1 | 6-Feb-2021 | | |
| Lab Number: | 2534877.3 | an and a subset of a second state of the second state of the second second second second second second second s | | |
| ests | | | | |
| g/100g as rcvd | 68 | | | |
| eum Hydrocarbons in Solids | | | | |
| mg/kg dry wt | < 9 | | | |
| mg/kg dry wt | 360 | | | |
| mg/kg dry wt | 3,400 | | | |
| arbons (C7 - C36) mg/kg dry wt | 3,700 | | | |
| 2334877.3 n.m. (manually integrated) | 018-86 | 036-29 | | |
| | Revital Fertilisers Scott Gordon C/- Revital Fertilisers PO Box 986 Cambridge 3450 ype: Mature Compost Lab Number: ests g/100g as rcvd eum Hydrocarbons in Solids mg/kg dry wt mg/kg dry wt mg/kg dry wt arbons (C7 - C36) mg/kg dry wt for a control of the second s | Revital Fertilisers Lab No: Scott Gordon Date Received: C/- Revital Fertilisers Date Reported: PO Box 986 Quote No: Cambridge 3450 Order No: Client Reference: Submitted By: ype: Mature Compost Uruti Compost Trial 2 1 Lab Number: 2534877.3 asts g/100g as rovd 68 aum Hydrocarbons in Solids mg/kg dry wt g/g gry wt 360 mg/kg dry wt 3400 arbons (C7 - C36) mg/kg dry wt aues aues aues | | |

maywand -0.5 4.00 5.00 6.00 7.00 8.00 9.00 9.52 3.00

Summary of Methods

15.0 10.0 5.0

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 Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

| Sample Type: Mature Compost | | | |
|-----------------------------|--------------------|-------------------------|-----------|
| Test | Method Description | Default Detection Limit | Sample No |
| Individual Tests | | | |



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| Sample Type: Mature Compost | | And Pringer and Pringer | |
|--|---|-------------------------|-----------|
| Test | Method Description | Default Detection Limit | Sample No |
| Dry Matter (Env) | 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 | 3 |
| Total Petroleum Hydrocarbons in Solids | | | |
| Client Chromatogram for TPH by FID | Small peaks associated with QC compounds may be visible in chromatograms with low TPH concentrations. QC peaks are as follows: one peak in the C12 - 14 band, the C21 - 25 band and the C30 - 36 band. All QC peaks are corrected for in the reported TPH concentrations. | * | 3 |
| C7 - C9 | Solvent extraction, GC-FID analysis. In-house based on US EPA 8015. | 8 mg/kg dry wt | 3 |
| C10 - C14 | Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015. | 20 mg/kg dry wt | 3 |
| C15 - C36 | Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015. | 40 mg/kg dry wt | 3 |
| Total hydrocarbons (C7 - C36) | Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015. | 70 mg/kg dry wt | 3 |

Testing was completed between 23-Feb-2021 and 24-Feb-2021. For completion dates of individual analyses please contact the laboratory.

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Martin Cowell - BSc Client Services Manager - Environmental

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- E mail@hill-labs.co.nz W www.hill-laboratories.com
- www.niii-laboratories.com

Certificate of Analysis

| Client: Contact: | Revital Fertilisers Scott Gordon C/- Revital Fertilisers PO Box 986 Cambridge 3450 | Lab No: Date Received: Date Reported: Quote No: Order No: Client Reference: Submitted By: | 2534877 SSP-4v1 22-Feb-2021 26-Feb-2021 38809 Uruti Compost Scott Gordon |
|---------------------------|--|---|---|
| Sample Ty | /pe: Mature Compost | | |
| | Sample Name: | Uruti Compost Trial 3 1 | 6-Feb-2021 |
| | Lab Number: | 2534877.4 | |
| Individual Te | ests | | |
| Dry Matter | g/100g as rcvd | 65 | |
| Total Petrole | um Hydrocarbons in Solids | | |
| C7 - C9 | mg/kg dry wt | < 9 | |
| C10 - C14 | mg/kg dry wt | 320 | |
| C15 - C36 | mg/kg dry wt | 2,900 | |
| Total hydroca | arbons (C7 - C36) mg/kg dry wt | 3,300 | |
| Uruti Comp Client Chro | matogram for TPH by FID | 018-36 031-35 | G36-36 030-36 |
| | PA | | |
| 45.0 | | | |
| 40.0 | | | |
| 35.0 | | | |
| 30.0 | | | |
| 25.0 | | | |
| 20.0 | | | |
| 15.0 | | Mum | |

5.0 -0.5 2.32 3.00 4.00 5.00 6.00 7.00 8.00 9.00 9.52

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 Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

| Sample Type: Mature Compost | | | |
|-----------------------------|--------------------|-------------------------|-----------|
| Test | Method Description | Default Detection Limit | Sample No |
| Individual Tests | | | |



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Page 1 of 2

| Sample Type: Mature Compost | | | |
|--|---|-------------------------|-----------|
| Test | Method Description | Default Detection Limit | Sample No |
| Dry Matter (Env) | 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 | 4 |
| Total Petroleum Hydrocarbons in Solids | | | |
| Client Chromatogram for TPH by FID | Small peaks associated with QC compounds may be visible in chromatograms with low TPH concentrations. QC peaks are as follows: one peak in the C12 - 14 band, the C21 - 25 band and the C30 - 36 band. All QC peaks are corrected for in the reported TPH concentrations. | - | 4 |
| C7 - C9 | Solvent extraction, GC-FID analysis. In-house based on US EPA 8015. | 8 mg/kg dry wt | 4 |
| C10 - C14 | Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015. | 20 mg/kg dry wt | 4 |
| C15 - C36 | Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015. | 40 mg/kg dry wt | 4 |
| Total hydrocarbons (C7 - C36) | Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015. | 70 mg/kg dry wt | 4 |

Testing was completed between 23-Feb-2021 and 24-Feb-2021. For completion dates of individual analyses please contact the laboratory.

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Martin Cowell - BSc Client Services Manager - Environmental





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- E mail@hill-labs.co.nz
- W www.hill-laboratories.com

Certificate of Analysis

| Client: Contact: | Revital Fertilisers Scott Gordon C/- Revital Fertilisers PO Box 986 Cambridge 3450 | Lab No: Date Received: Date Reported: Quote No: Order No: Client Reference: Submitted By: | 2534877SSP-5v122-Feb-202126-Feb-202138809Uruti CompostScott Gordon2000000000000000000000000000000000000 |
|---|--|---|--|
| Sample Ty | /pe: Mature Compost | | |
| a (presidente a la constitución de | Sample Name: | Uruti Compost Trial 4 16 | 5-Feb-2021 |
| | Lab Number: | 2534877.5 | |
| Individual Te | ests | | |
| Dry Matter | g/100g as rcvd | 69 | |
| Total Petrole | eum Hydrocarbons in Solids | | |
| C7 - C9 | mg/kg dry wt | < 9 | |
| C10 - C14 | mg/kg dry wt | 75 | ana di kaci a manangi si ang i pang i mangan kaci na na ng ing ing pangangan na pangangan na na ng ing ing pan |
| C15 - C36 | mg/kg dry wt | 1,740 | |
| 2534877.5 Uruti Comp Client Chro | bost Trial 4 16-Feb-2021 matogram for TPH by FID | | |
| 50.0 | 2534877.5 n.a. [manually integrated] | C15-30 C31-35 | C35-29 C35-36 |
| 45.0 | | | |
| 40.0 | | | |
| 35.0 | | | |
| 30.0 | | | |
| 25.0 | | | |
| 20.0 | | | |
| 15.0 | | | |
| 10.0 | | , where | |
| 5.0 | | and when any and a | Mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm |

Summary of Methods

3.00

4.00

-0.5

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 Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

6.00

5.00

| Sample Type: Mature Compost | | | |
|-----------------------------|--------------------|-------------------------|-----------|
| Test | Method Description | Default Detection Limit | Sample No |
| Individual Tests | | | |



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Page 1 of 2

| Test | Method Description | Default Detection Limit | Sample No |
|--|---|-------------------------|-----------|
| Dry Matter (Env) | 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 |
| Total Petroleum Hydrocarbons in Solids | | | |
| Client Chromatogram for TPH by FID | Small peaks associated with QC compounds may be visible in chromatograms with low TPH concentrations. QC peaks are as follows: one peak in the C12 - 14 band, the C21 - 25 band and the C30 - 36 band. All QC peaks are corrected for in the reported TPH concentrations. | | 5 |
| C7 - C9 | Solvent extraction, GC-FID analysis. In-house based on US EPA 8015. | 8 mg/kg dry wt | 5 |
| C10 - C14 | Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015. | 20 mg/kg dry wt | 5 |
| C15 - C36 | Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015. | 40 mg/kg dry wt | 5 |
| Total hydrocarbons (C7 - C36) | Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015. | 70 mg/kg dry wt | 5 |
| | | | |

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