



Australian Laboratory Services Pty. Ltd.

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ALS Perth is a NATA Accredited Testing Laboratory. Corporate Accreditation
No: 825, Corporate Site No: 23001.

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Plus Appendix Pages
Finalized Date: 16-JAN-2019
Account: ACCELE

CERTIFICATE AD18313753

Project: Thomas Creek

This report is for 17 Rock samples submitted to our lab in Adelaide, SA, Australia on 28-NOV-2018.

The following have access to data associated with this certificate:

ROBERT REID

ANDY RUST

SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|----------|--------------------------------|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| PUL-QC | Pulverizing QC Test |
| CRU-21 | Crush entire sample |
| LEV-01 | Waste Disposal Levy |
| PUL-23 | Pulv Sample - Split/Retain |

ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION |
|----------|----------------------------------|
| ME-MS61 | 48 element four acid ICP-MS |
| Au-ICP21 | Au 30g FA ICP-AES Finish ICP-AES |

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Cameron Brosnan, Laboratory Manager, Perth



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CERTIFICATE OF ANALYSIS AD18313753

| Sample Description | Method Analyte Units LOD | WEI-21 Recvd Wt. kg 0.02 | Au-ICP21 Au ppm 0.001 | ME-MS61 Ag ppm 0.01 | ME-MS61 Al % 0.01 | ME-MS61 As ppm 0.2 | ME-MS61 Ba ppm 10 | ME-MS61 Be ppm 0.05 | ME-MS61 Bi ppm 0.01 | ME-MS61 Ca % 0.01 | ME-MS61 Cd ppm 0.02 | ME-MS61 Ce ppm 0.01 | ME-MS61 Co ppm 0.1 | ME-MS61 Cr ppm 1 | ME-MS61 Cs ppm 0.05 | ME-MS61 Cu ppm 0.2 |
|--------------------|-----------------------------------|-----------------------------------|--------------------------------|------------------------------|----------------------------|-----------------------------|----------------------------|------------------------------|------------------------------|----------------------------|------------------------------|------------------------------|-----------------------------|---------------------------|------------------------------|-----------------------------|
| TCR013 | | 1.11 | 0.002 | 0.01 | 8.68 | 6.3 | 290 | 0.71 | 0.06 | 5.99 | <0.02 | 24.4 | 20.7 | 108 | 2.06 | 9.2 |
| TCR014 | | 0.89 | 0.010 | 0.01 | 7.93 | 5.7 | 20 | 1.16 | 0.08 | 3.26 | 0.07 | 38.1 | 17.3 | 66 | 0.93 | 6.9 |
| TCR015 | | 0.80 | 0.002 | 0.01 | 7.96 | 4.1 | 120 | 1.16 | 0.08 | 2.38 | 0.04 | 21.1 | 9.4 | 29 | 0.89 | 24.0 |
| TCR016 | | 0.51 | 0.001 | 0.01 | 10.20 | 8.0 | 480 | 0.88 | 0.06 | 5.01 | 0.03 | 32.7 | 19.3 | 20 | 1.33 | 8.6 |
| TCR017 | | 1.10 | 0.003 | <0.01 | 2.97 | 3.8 | 30 | 0.73 | 0.03 | 0.36 | <0.02 | 94.6 | 10.8 | 81 | 0.09 | 12.7 |
| TCR018 | | 0.69 | 0.003 | 0.01 | 5.34 | 16.5 | 50 | 1.58 | 0.09 | 0.21 | <0.02 | 50.3 | 12.6 | 126 | 0.28 | 33.1 |
| TCR019 | | 0.75 | 0.001 | 0.02 | 8.94 | 8.0 | 320 | 1.18 | 0.03 | 2.45 | <0.02 | 33.3 | 21.0 | 177 | 0.87 | 46.9 |
| TCR020 | | 1.12 | 0.001 | 0.03 | 7.82 | 6.2 | 1090 | 1.96 | 0.12 | 0.87 | <0.02 | 60.7 | 14.5 | 39 | 1.35 | 11.3 |
| TCR021 | | 1.46 | 0.001 | 0.01 | 1.24 | 16.6 | 20 | 1.47 | 0.03 | 0.05 | <0.02 | 3.38 | 10.4 | 33 | 0.27 | 14.2 |
| TCR022 | | 1.32 | 0.004 | 0.01 | 4.76 | 9.0 | 40 | 0.82 | 0.06 | 0.62 | <0.02 | 5.11 | 8.6 | 29 | 0.25 | 64.1 |
| TCR023 | | 1.35 | 0.013 | 0.11 | 8.14 | 6.7 | 240 | 1.43 | 0.17 | 2.05 | 0.03 | 72.7 | 45.3 | 46 | 0.85 | 45.9 |
| TCR024 | | 0.97 | 0.006 | 0.03 | 7.02 | 5.7 | 200 | 1.18 | 0.08 | 1.47 | 0.02 | 15.15 | 7.4 | 21 | 0.50 | 27.3 |
| TCR025 | | 1.27 | 0.012 | 0.06 | 7.59 | 6.4 | 960 | 2.05 | 0.16 | 1.57 | 0.02 | 48.2 | 16.2 | 38 | 0.99 | 106.5 |
| TCR026 | | 1.70 | 0.003 | 0.04 | 7.66 | 7.9 | 860 | 1.78 | 0.10 | 1.21 | <0.02 | 105.5 | 14.0 | 37 | 1.57 | 77.1 |
| TCR027 | | 0.79 | 0.002 | 0.07 | 8.12 | 10.8 | 1650 | 1.25 | 0.09 | 1.52 | <0.02 | 106.5 | 25.4 | 16 | 1.15 | 143.0 |
| TCR028 | | 1.19 | 0.046 | 0.15 | 7.29 | 9.0 | 150 | 1.65 | 0.31 | 3.17 | 0.08 | 60.1 | 136.5 | 204 | 0.43 | 420 |
| TCR029 | | 0.92 | 0.004 | 0.02 | 7.14 | 5.3 | 960 | 1.86 | 0.14 | 1.82 | 0.04 | 29.2 | 9.8 | 41 | 1.59 | 21.3 |



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CERTIFICATE OF ANALYSIS AD18313753

| Sample Description | Method Analyte Units LOD | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 |
|--------------------|-----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | Fe | Ga | Ge | Hf | In | K | La | Li | Mg | Mn | Mo | Na | Nb | Ni | P |
| | | % | ppm | ppm | ppm | ppm | % | ppm | ppm | % | ppm | ppm | % | ppm | ppm | ppm |
| | | 0.01 | 0.05 | 0.05 | 0.1 | 0.005 | 0.01 | 0.5 | 0.2 | 0.01 | 5 | 0.05 | 0.01 | 0.1 | 0.2 | 10 |
| TCR013 | | 4.67 | 16.45 | 0.15 | 0.8 | 0.062 | 1.22 | 9.3 | 18.1 | 3.75 | 659 | 0.15 | 2.42 | 2.3 | 44.5 | 100 |
| TCR014 | | 4.61 | 19.65 | 0.12 | 3.3 | 0.050 | 0.29 | 13.6 | 20.7 | 2.06 | 503 | 0.29 | 3.01 | 7.2 | 41.4 | 330 |
| TCR015 | | 4.96 | 19.30 | 0.12 | 3.3 | 0.060 | 0.83 | 8.9 | 16.4 | 1.63 | 313 | 0.12 | 3.29 | 6.6 | 34.5 | 120 |
| TCR016 | | 6.04 | 19.10 | 0.12 | 1.3 | 0.041 | 1.45 | 16.2 | 11.7 | 1.68 | 589 | 0.36 | 3.19 | 3.7 | 22.7 | 300 |
| TCR017 | | 7.08 | 14.10 | 0.16 | 1.7 | 0.065 | 0.04 | 60.4 | 13.7 | 1.12 | 182 | 1.19 | 0.31 | 3.7 | 28.4 | 190 |
| TCR018 | | 1.89 | 12.65 | 0.05 | 3.0 | 0.019 | 0.22 | 24.1 | 11.5 | 1.84 | 98 | 2.80 | 0.56 | 6.0 | 52.3 | 160 |
| TCR019 | | 4.35 | 16.45 | 0.09 | 2.1 | 0.049 | 2.18 | 14.9 | 24.5 | 4.31 | 382 | 0.40 | 1.72 | 11.4 | 73.3 | 520 |
| TCR020 | | 5.11 | 16.00 | 0.09 | 4.0 | 0.011 | 3.45 | 32.6 | 27.3 | 1.44 | 318 | 0.79 | 2.34 | 9.3 | 30.2 | 570 |
| TCR021 | | >50 | 3.33 | 1.59 | 0.2 | 0.017 | 0.04 | 1.4 | 1.6 | 0.04 | 413 | 1.27 | 0.26 | 0.5 | 16.2 | 130 |
| TCR022 | | 25.3 | 11.75 | 0.36 | 1.7 | 0.034 | 0.25 | 2.5 | 3.3 | 0.40 | 425 | 1.03 | 2.53 | 0.9 | 19.6 | 60 |
| TCR023 | | 7.47 | 17.35 | 0.08 | 1.7 | 0.026 | 1.16 | 42.7 | 6.9 | 0.77 | 277 | 4.21 | 3.91 | 1.8 | 36.1 | 90 |
| TCR024 | | 6.78 | 15.65 | <0.05 | 3.1 | 0.031 | 0.84 | 7.9 | 5.7 | 0.85 | 321 | 0.30 | 3.80 | 3.6 | 38.8 | 80 |
| TCR025 | | 5.30 | 15.90 | 0.08 | 3.8 | 0.021 | 3.61 | 25.7 | 28.4 | 1.38 | 280 | 1.52 | 1.63 | 9.4 | 24.3 | 400 |
| TCR026 | | 5.42 | 17.85 | 0.13 | 3.1 | 0.031 | 3.32 | 71.2 | 26.4 | 1.40 | 356 | 0.27 | 2.00 | 10.1 | 25.0 | 460 |
| TCR027 | | 6.29 | 17.25 | 0.11 | 4.0 | 0.038 | 5.08 | 56.3 | 21.2 | 1.33 | 416 | 0.17 | 1.60 | 7.6 | 28.2 | 480 |
| TCR028 | | 7.85 | 11.90 | 0.07 | 2.2 | 0.088 | 0.36 | 23.9 | 21.3 | 4.02 | 3360 | 0.14 | 3.85 | 3.8 | 157.5 | 310 |
| TCR029 | | 4.69 | 17.55 | 0.08 | 4.0 | 0.020 | 3.65 | 13.6 | 22.4 | 1.32 | 290 | 1.44 | 1.59 | 9.5 | 20.6 | 360 |



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| Sample Description | Method Analyte Units LOD | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 | ME-MS61 |
|--------------------|-----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | Pb | Rb | Re | S | Sb | Sc | Se | Sn | Sr | Ta | Te | Th | Ti | U |
| | | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | % | ppm |
| | | 0.5 | 0.1 | 0.002 | 0.01 | 0.05 | 0.1 | 1 | 0.2 | 0.2 | 0.05 | 0.05 | 0.01 | 0.005 | 0.1 |
| TCR013 | | 2.1 | 43.4 | <0.002 | 0.01 | 0.46 | 28.7 | <1 | 1.5 | 373 | 0.17 | <0.05 | 3.04 | 0.218 | 0.8 |
| TCR014 | | 21.1 | 14.7 | <0.002 | 0.01 | 1.39 | 15.5 | <1 | 3.0 | 527 | 0.74 | <0.05 | 13.50 | 0.323 | 3.0 |
| TCR015 | | 13.9 | 35.1 | <0.002 | <0.01 | 0.47 | 17.7 | <1 | 3.5 | 346 | 0.68 | <0.05 | 13.30 | 0.338 | 1.9 |
| TCR016 | | 3.5 | 59.3 | <0.002 | 0.04 | 0.27 | 19.8 | <1 | 1.1 | 482 | 0.24 | <0.05 | 5.30 | 0.442 | 1.6 |
| TCR017 | | 2.7 | 1.4 | <0.002 | 0.01 | 0.62 | 9.4 | <1 | 79.7 | 73.5 | 0.25 | <0.05 | 4.91 | 0.152 | 1.3 |
| TCR018 | | 2.6 | 10.2 | 0.002 | 0.10 | 1.16 | 25.7 | 1 | 7.4 | 38.1 | 0.54 | <0.05 | 6.01 | 0.265 | 2.3 |
| TCR019 | | 3.8 | 128.0 | <0.002 | 0.03 | 0.56 | 29.7 | 1 | 1.9 | 169.5 | 0.56 | <0.05 | 7.22 | 0.408 | 2.7 |
| TCR020 | | 3.8 | 138.5 | <0.002 | 0.02 | 0.36 | 15.6 | <1 | 1.9 | 175.5 | 0.79 | <0.05 | 15.20 | 0.307 | 4.1 |
| TCR021 | | 11.7 | 2.3 | <0.002 | 0.07 | 0.13 | 2.7 | <1 | 0.3 | 6.6 | <0.05 | <0.05 | 1.95 | 0.039 | 0.3 |
| TCR022 | | 19.1 | 15.0 | <0.002 | 0.05 | 0.51 | 5.7 | 1 | 1.1 | 57.4 | 0.07 | 0.05 | 4.48 | 0.165 | 1.2 |
| TCR023 | | 19.3 | 54.2 | <0.002 | 0.19 | 0.51 | 8.0 | <1 | 1.0 | 220 | 0.17 | 0.13 | 6.55 | 0.204 | 1.3 |
| TCR024 | | 6.3 | 36.5 | <0.002 | 0.01 | 0.60 | 9.3 | <1 | 1.4 | 170.0 | 0.40 | <0.05 | 26.9 | 0.294 | 2.6 |
| TCR025 | | 3.1 | 131.0 | <0.002 | 0.01 | 0.23 | 14.7 | <1 | 1.5 | 144.5 | 0.84 | <0.05 | 15.15 | 0.317 | 8.5 |
| TCR026 | | 3.3 | 140.0 | <0.002 | 0.01 | 0.33 | 14.9 | <1 | 1.6 | 180.5 | 0.81 | <0.05 | 14.15 | 0.317 | 4.9 |
| TCR027 | | 6.6 | 152.0 | <0.002 | 0.01 | 0.39 | 16.6 | <1 | 1.6 | 115.0 | 0.59 | <0.05 | 10.85 | 0.348 | 17.3 |
| TCR028 | | 4.7 | 12.2 | <0.002 | <0.01 | 0.63 | 40.6 | <1 | 5.4 | 97.1 | 0.33 | <0.05 | 5.81 | 0.295 | 3.2 |
| TCR029 | | 6.8 | 136.0 | <0.002 | 0.02 | 0.29 | 15.5 | <1 | 1.5 | 217 | 0.86 | <0.05 | 13.85 | 0.335 | 3.6 |



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| Sample Description | Method Analyte Units LOD | ME-MS61 V ppm 1 | ME-MS61 W ppm 0.1 | ME-MS61 Y ppm 0.1 | ME-MS61 Zn ppm 2 | ME-MS61 Zr ppm 0.5 | PUL-QC Pass75um % 0.01 |
|--------------------|-----------------------------------|--------------------------|----------------------------|----------------------------|---------------------------|-----------------------------|---------------------------------|
| TCR013 | | 170 | 0.6 | 15.1 | 22 | 25.5 | 89.4 |
| TCR014 | | 195 | 8.2 | 23.2 | 42 | 119.5 | |
| TCR015 | | 212 | 1.5 | 14.3 | 20 | 116.0 | |
| TCR016 | | 363 | 25.2 | 13.6 | 22 | 42.8 | |
| TCR017 | | 248 | 2.5 | 9.3 | 7 | 68.8 | |
| TCR018 | | 275 | 4.6 | 18.2 | 7 | 101.5 | |
| TCR019 | | 145 | 0.9 | 19.4 | 29 | 93.0 | |
| TCR020 | | 132 | 1.6 | 20.8 | 27 | 131.5 | |
| TCR021 | | 230 | 1.2 | 6.5 | 16 | 8.6 | |
| TCR022 | | 561 | 1.3 | 4.6 | 17 | 61.8 | |
| TCR023 | | 267 | 0.6 | 10.1 | 15 | 56.7 | |
| TCR024 | | 313 | 1.5 | 10.5 | 15 | 106.0 | |
| TCR025 | | 123 | 1.3 | 18.8 | 19 | 114.5 | |
| TCR026 | | 128 | 1.6 | 20.2 | 19 | 108.0 | |
| TCR027 | | 178 | 1.8 | 22.6 | 27 | 144.0 | |
| TCR028 | | 212 | 1.7 | 14.0 | 43 | 70.1 | |
| TCR029 | | 131 | 1.1 | 18.7 | 27 | 121.0 | |



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CERTIFICATE OF ANALYSIS AD18313753

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Applies to Method:

REE's may not be totally soluble in this method.
ME-MS61

ACCREDITATION COMMENTS

Applies to Method:

NATA Accreditation covers the performance of this service but does not cover the performance of ALS Perth Sample Preparation. Corporate Accreditation No: 825, Corporate Site No: 23001. The Technical Signatory is Wendy Wong, Senior QC Chemist
Au-ICP21 ME-MS61

LABORATORY ADDRESSES

Applies to Method:

Processed at ALS Perth located at 31 Denninup Way, Malaga, Australia. Processed at ALS Perth Sample Preparation at 79 Distinction Road, Wangara, WA, Australia
Au-ICP21 ME-MS61

Applies to Method:

Processed at ALS Adelaide located at Unit 1, 1 Burma Road, Pooraka, Adelaide, SA, Australia.
CRU-21 LEV-01 LOG-22 PUL-23
PUL-QC WEI-21