3372 Lime Road, Pueblo, CO 81004
(719) 647 6861
dfurman@gcc.com

April 25, 2019

Mr. Patrick Lennberg
Environmental Protection Specialist
Division of Reclamation, Mining and Safety
1313 Sherman St., Room 215
Denver, CO 80203

*Electronically submitted to Patrick.lennberg@state.co.us*

Reference: Pueblo Cement Plant and Limestone Quarry. DRMS Permit No. M-2002-004

Subject: March 2019 Preliminary Groundwater Monitoring Report

Dear Mr. Lennberg,

Pursuant to TR-03 and TR-06 of our above-referenced permit, on March 7, 2019 GCC completed semi-annual monitoring of its groundwater monitoring well MW-5 and quarterly monitoring of its monitoring wells MW-6 and MW-7. Samples were not collected from MW-5 because the well was found to be dry when checked on March 7 at 11:35 AM.

Well MW-6 was bailed dry after approximately 2 casing volumes were removed. The well was checked again 3.8 hours later. Minimal recovery had occurred and the well was bailed dry again prior to being able to collect sufficient volume for analysis. MW-6 was checked again approximately 24 hours later and the level was approximately the same as that observed after 3.8 hours. No samples were collected due to lack of a sufficient or representative volume for sampling. Enclosed is the Groundwater Sampling Record documenting those measurements.

Well MW-7 was purged and sampled normally on March 7. The Groundwater Sampling Record and the preliminary laboratory report are attached. Data are very much in line with prior analytical results.

GCC plans to perform its next quarterly monitoring of MW-6 and MW-7 in June 2019, and the next semi-annual monitoring of MW-5 in September 2019. Should you have any questions/comments about this submission, please contact me at 719-647-6861 or dfurman@gcc.com.

Sincerely,

Diana Furman
Environmental Engineer

Enclosures

# GROUNDWATER SAMPLING RECORD

SAMPLE No. MW-6

Project No: 06-001 | Location: GCC Pueblo Plant | Page 1 of 1

Date: 3/7/19 | Weather Conditions: Cloudy 40°F | Personnel: B. Close / D. Furman / D. Bemis

Comments: 1st Quarter 2019

## INSTRUMENTS USED

| Instrument | Manufacturer/Model | Serial No. | Calibration |
|---|---|---|---|
| Water Level Probe | Geotech ET | 6757 | |
| pH Meter | YSI Pro 1030 | 18J103866 | Std: 4 (7) 10 @ 18.8 °C Reading 7.0 — Slope: |
| pH Meter | | | Std: (4) 7 10 @ 18.8 °C Reading 4.0 |
| Specific Conductance Meter | YSI Pro 1030 | 18J103866 | Std: 1413 uS @ 25 °C Reading 1413 |
| Specific Conductance Meter | | | Std: _____ uS @ 25 °C Reading _____ |
| Temperature | YSI Pro 1030 | 18J103866 | |
| Other: | | | |

Filtration: 0.45 micron in-line high capacity disposable filter.

## WELL PURGING INFORMATION

Casing Diameter (inches): 2 | Borehole Diameter (inches): 6 | Screened Interval (ft. BGL): 31.1' - 56.1'

Depth to Water (ft below MP): 56.03 | Total Depth (ft): 59.55 | Casing Volume (gal): 0.56 (gal/ft: 1.5" = 0.09; 2" = 0.16; 4" = 0.65)

Purging Method: Bailer, poly

Comments: Monitoring point (MP) is the top of the PVC well casing. black mark

| 3/7 Date/ Time | Vol. Purged (gal) | Depth to Water (feet below MP) | pH | Specific Conductance (uS @ 25 deg C) | Temp (deg C) | Appearance (color, sediment, etc.) | Comments |
|---|---|---|---|---|---|---|---|
| 0925 | | 56.03 | | | | | |
| 0938 | 0.5 | | 7.12 | 5487 | 13.2 | Sl. cloudy | |
| 0945 | 0.5 | 58.52 | 7.07 | 5636 | 12.7 | cloudy | |
| 1000 | 0.2 | | | | | cloudy | ~ Dry |
| 1350 | | 59.26 | | | | | |
| 1400 | trace | 59.49 | | | | | ~ Dry, No sample |
| 3/8 1237 | | 59.22 | | | | | Inadequate to sample |
| Cummulative Volume Purged: | 1.2 | | (gallons) | 2.1 | | (casing vol) | |

## WELL SAMPLING INFORMATION

Sampling Equipment: NA

Comments:

SAMPLING MEASUREMENTS: NA

| Date/ Time | Depth to Water (feet below MP) | Depth Sampled (feet below MP) | pH | Specific Conductance (uS @ 25 deg C) | Temp (deg C) | Other | Other | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |

SAMPLE HANDLING: NA

| Date/ Time | Aliquots: Volume (ml) | Aliquots: Bottle Composition | Aliquots: Quantity | Filtered (Y/N) | Preserved (type) | Comments |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Field QA/QC Samples Collected (type, Sample No.):

Equipment Decontamination: DI water

Waste Disposal: Purge water to ground surface

Signature of Field Personnel: Brenna Close

GCC RIO GRANDE, INC. Pueblo, CO

# GROUNDWATER SAMPLING RECORD

**SAMPLE No.** MW-7

| Project No: | Location: | Page 1 of 1 |
|---|---|---|
| 06-001 | GCC Pueblo Plant | |

| Date: | Weather Conditions: | Personnel: |
|---|---|---|
| 3/7/19 | Cloudy 40°F | B. Close / D. Furman / D. Bemis |

Comments: 1st Quarter 2019

## INSTRUMENTS USED

| Instrument | Manufacturer/Model | Serial No. | Calibration |
|---|---|---|---|
| Water Level Probe | Geotech ET | 6757 | |
| pH Meter | YSI Pro 1030 | 18J103866 | Std: 4 (7) 10 @ 18.8 °C Reading 7.0 — Slope: |
| pH Meter | | | Std: (4) 7 10 @ 18.8 °C Reading 4.0 |
| Specific Conductance Meter | YSI Pro 1030 | 18J103866 | Std: 1413 uS @ 25 °C Reading 1413 |
| Specific Conductance Meter | | | Std: _____ uS @ 25 °C Reading _____ |
| Temperature | YSI Pro 1030 | 18J103866 | |
| Other: | | | |

Filtration: 0.45 micron in-line high capacity disposable filter.

## WELL PURGING INFORMATION

| Casing Diameter (inches): 2 | Borehole Diameter (inches): 6 | Screened Interval (ft. BGL): 30.4' - 55.4' |
|---|---|---|
| Depth to Water (ft below MP): 40.79 | Total Depth (ft): 59.37 | Casing Volume (gal): 2.97 (gal/ft: 1.5" = 0.09; 2" = 0.16; 4" = 0.65) |

Purging Method: Bailer, poly

Comments: Monitoring point (MP) is the top of the PVC well casing. black mark

| 3/7 Date/ Time | Vol. Purged (gal) | Depth to Water (feet below MP) | pH | Specific Conductance (uS @ 25 deg C) | Temp (deg C) | Appearance (color, sediment, etc.) | Comments |
|---|---|---|---|---|---|---|---|
| 930 | — | 40.79 | | | | | |
| 1020 | 3.0 | 41.85 | 6.88 | 5730 | 13.3 | Sl. cloudy gray | |
| 1040 | 3.0 | 42.26 | 6.86 | 5975 | 13.8 | Sl. cloudy gray | |
| 1100 | 3.0 | 42.35 | 6.88 | 6045 | 13.9 | Sl. cloudy gray | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Cummulative Volume Purged: 9 (gallons) 3 (casing vol)

## WELL SAMPLING INFORMATION

Sampling Equipment: Bailer, poly

Comments:

SAMPLING MEASUREMENTS:

| 3/7 Date/ Time | Depth to Water (feet below MP) | Depth Sampled (feet below MP) | pH | Specific Conductance (uS @ 25 deg C) | Temp (deg C) | Other | Other | Comments |
|---|---|---|---|---|---|---|---|---|
| 1105 | 42.35 | 55 | 6.95 | 6020 | 13.7 | | | |
| | | | | | | | | |

SAMPLE HANDLING:

| 3/7 Date/ Time | Aliquots | | | Filtered (Y/N) | Preserved (type) | Comments |
|---|---|---|---|---|---|---|
| | Volume (ml) | Bottle Composition | Quantity | | | |
| 1105 | 250 | LDPE | 1 | Y | $HNO_3$ | |
| 1105 | 250 | LDPE | 1 | N | $H_2SO_4$ | |
| 1105 | 250 | LDPE | 2 | N | None | |
| 1105 | 500 | LDPE | 1 | N | None | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Field QA/QC Samples Collected (type, Sample No.):

Equipment Decontamination: DI water

Waste Disposal: Ground surface - purge water

Signature of Field Personnel: Bernie Close

**GCC RIO GRANDE, INC.**
Pueblo, CO

ORIGINS LABORATORY, INC

March 18, 2019

GCC Pueblo

David Bemis

3372 Lime Road

Pueblo CO 81004

**Project Name - Groundwater Monitoring** **Project Number - [none]**

Attached are your analytical results for Groundwater Monitoring received by Origins Laboratory, Inc. March 07, 2019. This project is associated with Origins project number Y903087-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com

THE NELAC INSTITUTE

ACCREDITED
TESTING CERT # 3494.01

ORIGINS LABORATORY, INC

GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

## CROSS REFERENCE REPORT

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| MW-7 | Y903087-01 | Water | March 7, 2019 11:05 | 03/07/2019 17:30 |

Origins Laboratory, Inc.

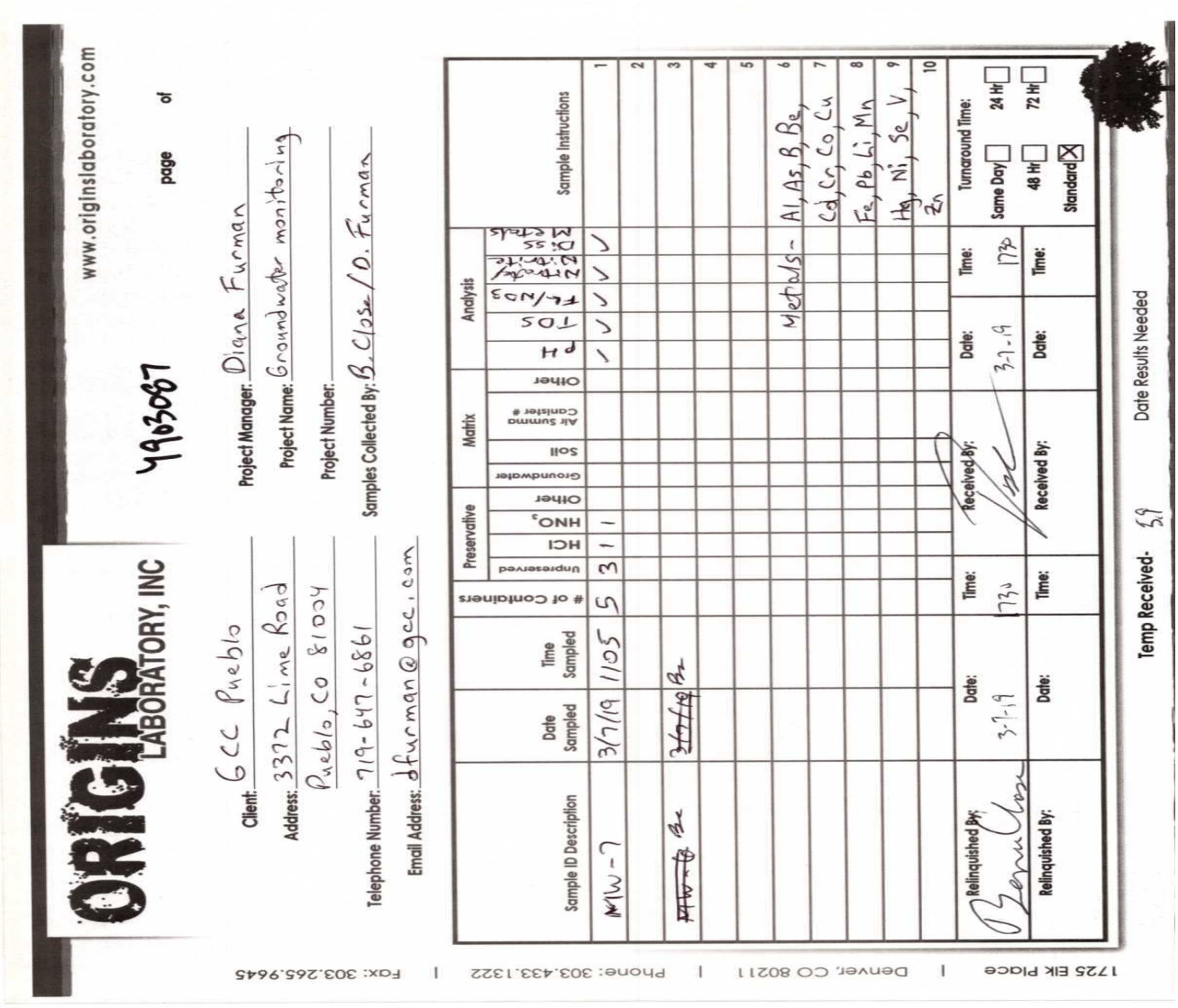
Jen Pellegrini, Project Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

ORIGINS LABORATORY, INC

GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring



ORIGINS LABORATORY, INC
www.originslaboratory.com
4903087
page of

Client: GCC Pueblo
Address: 3372 Lime Road, Pueblo, CO 81004
Telephone Number: 719-647-6861
Email Address: dfurman@gcc.com

Project Manager: Diana Furman
Project Name: Groundwater monitoring
Project Number:
Samples Collected By: B. Close / D. Furman

| Sample ID Description | Date Sampled | Time Sampled | # of Containers | Preservative: Unpreserved | HCl | $HNO_3$ | Other | Matrix: Groundwater | Soil | Air Summa Canister # | Other | Analysis: pH | TDS | $F^-/NO_3$ | Alkalinity | Metals | Sample Instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 MW-7 | 3/7/19 | 1105 | 5 | 3 | 1 | 1 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| 2 | | | | | | | | | | | | | | | | | |
| 3 ~~MW-8~~ Br | ~~3/7/19~~ | Br | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | Metals - | Al, As, B, Be, |
| 7 | | | | | | | | | | | | | | | | | Cd, Cr, Co, Cu |
| 8 | | | | | | | | | | | | | | | | | Fe, Pb, Li, Mn |
| 9 | | | | | | | | | | | | | | | | | Hg, Ni, Se, V, |
| 10 | | | | | | | | | | | | | | | | | Zn |

Relinquished By: Ben Close — Date: 3-1-19 — Time: 1730 — Received By: — Date: 3-1-19 — Time: 1730
Relinquished By: — Date: — Time: — Received By: — Date: — Time:

Turnaround Time: Same Day ☐ 24 Hr ☐ 48 Hr ☐ 72 Hr ☐ Standard ☒

Temp Received- 5.9 Date Results Needed

1725 Elk Place | Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Origins Laboratory, Inc.

Jen Pellegrini

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Jen Pellegrini, Project Manager

GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

Origins Laboratory

F-012207-01-R1
Effective Date: 01/09/12

**Sample Receipt Checklist**

Origins Work Order: 1903087
Client: GCC Pueblo
Client Project ID: GW Monitoring
Checklist Completed by: [signature]
Shipped Via: HD (UPS, FedEx, Hand Delivered, Pick-up, etc.)
Date/time completed: 3-7-19
Airbill #: NA
Matrix(s) Received: (Check all that apply): ____Soil/Solid __✓__Water ____Other:____
Cooler Number/Temperature: 1 / 5.9 °C ____/____ °C ____/____ °C ____/____ °C (Describe)
Thermometer ID: C003

| Requirement Description | Yes | No | N/A | Comments (if any) |
|---|---|---|---|---|
| If samples require cooling, was the temperature between 0°C to ≤ 6°C[1]? | ✓ | | | |
| Is there ice present (document if blue ice is used) | ✓ | | | |
| Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact) | | ✓ | | |
| Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact) | | ✓ | | |
| Were all samples received intact[1]? | ✓ | | | |
| Was adequate sample volume provided[1]? | ✓ | | | |
| Are short holding time analytes or samples with HTs due within 48 hours present[1]? | ✓ | | | pH, Anions |
| Is a chain-of-custody (COC) present and filled out completely[1]? | ✓ | | | |
| Does the COC agree with the number and type of sample bottles received[1]? | ✓ | | | |
| Do the sample IDs on the bottle labels match the COC[1]? | ✓ | | | |
| Is the COC properly relinquished by the client with date and time recorded[1]? | ✓ | | | |
| For volatiles in water – is there headspace (> ¼ inch bubble) present? **If yes, contact client and note in narrative.** | | | ✓ | |
| Are samples preserved that require preservation and was it checked[1]? *(note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCL, H2SO4) / ( pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)* | ✓ | ✓ | | F.F. metals preserved in HNO3, Nitrate/Nitrite preserved in H2SO4. preservation was not confirmed |
| Additional Comments (if any): | | | | |

[1]*If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.*

[signature] Reviewed by (Project Manager)
3/8/19 Date/Time Reviewed

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

**MW-7**
**3/7/2019 11:05:00AM**

| Analyte | Result | Min Detection Limit | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **GEL Laboratories, LLC** | | | | | | | | | |
| **Y903087-01 (Water)** | | | | | | | | | |
| **Dissolved Metals by 6010C** | | | | | | | | | |
| Aluminum | ND | 68.0 | 200 | ug/L | 1 | 1856645 | 03/12/2019 | 03/13/2019 | U |
| Arsenic | ND | 5.00 | 30.0 | " | " | " | " | " | U |
| Beryllium | ND | 1.00 | 5.00 | " | " | " | " | " | U |
| Boron | **427** | **15.0** | 50.0 | " | " | " | " | " | |
| Cadmium | ND | 1.00 | 5.00 | " | " | " | " | " | U |
| Chromium | ND | 1.00 | 5.00 | " | " | " | " | " | U |
| Cobalt | **1.97** | **1.00** | 5.00 | " | " | " | " | " | J |
| Copper | ND | 3.00 | 10.0 | " | " | " | " | " | U |
| Iron | **297** | **30.0** | 100 | " | " | " | " | " | |
| Lead | ND | 3.30 | 10.0 | " | " | " | " | " | U |
| Manganese | **152** | **2.00** | 10.0 | " | " | " | " | " | |
| Nickel | **8.00** | **1.50** | 5.00 | " | " | " | " | " | |
| Selenium | ND | 6.00 | 30.0 | " | " | " | " | " | U |
| Vanadium | ND | 1.00 | 5.00 | " | " | " | " | " | U |
| Zinc | **9.56** | **3.30** | 10.0 | " | " | " | " | " | J |
| **Dissolved Metals by 6020A** | | | | | | | | | |
| Lithium | **557** | **3.00** | 10.0 | ug/L | 1 | 1856509 | 03/11/2019 | 03/12/2019 | |
| **Dissolved Metals by 7470A** | | | | | | | | | |
| Mercury | ND | 0.067 | 0.200 | ug/L | 1 | 1856741 | 03/12/2019 | 03/13/2019 | U |

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

**MW-7**
**3/7/2019 11:05:00AM**

| Analyte | Result | Min Detection Limit | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **GEL Laboratories, LLC** | | | | | | | | | |
| **Y903087-01 (Water)** | | | | | | | | | |
| **Nitrate/Nitrite by EPA 353.2** | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | **0.0144** | **0.007** | 0.020 | mg/L | 1 | 1856432 | 03/07/2019 | 03/11/2019 | J |
| **pH in Water by EPA 9040C** | | | | | | | | | |
| pH | **7.67** | | | pH Units | 1 | B9C1301 | 03/13/2019 | 03/14/2019 | |
| **TDS by EPA 160.1** | | | | | | | | | |
| Total Dissolved Solids | **5640** | **3.40** | 14.3 | mg/L | 1 | 1856659 | 03/07/2019 | 03/12/2019 | |

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

## Classical Chemistry Parameters - Quality Control
## Origins Laboratory, Inc.

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B9C1301 - NO PREP** | | | | | | | | | | |
| **Duplicate (B9C1301-DUP1)** | | **Source: Y903087-01** | | | Prepared: 03/13/2019 Analyzed: 03/14/2019 | | | | | |
| pH | 7.59 | | pH Units | | 7.67 | | | 1.05 | 200 | |

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

## Dissolved Metals by 6010C - Quality Control
## GEL Laboratories, LLC

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1856645 - SW846 3005A** | | | | | | | | | | |
| **BLANK (1204235989-BLK)** | | | | | Prepared: 03/12/2019 Analyzed: 03/13/2019 | | | | | |
| Vanadium | ND | 5.00 | ug/L | | | | - | | | U |
| Zinc | ND | 10.0 | " | | | | - | | | U |
| Selenium | ND | 30.0 | " | | | | - | | | U |
| Nickel | ND | 5.00 | " | | | | - | | | U |
| Manganese | ND | 10.0 | " | | | | - | | | U |
| Lead | ND | 10.0 | " | | | | - | | | U |
| Iron | ND | 100 | " | | | | - | | | U |
| Cobalt | ND | 5.00 | " | | | | - | | | U |
| Chromium | ND | 5.00 | " | | | | - | | | U |
| Cadmium | ND | 5.00 | " | | | | - | | | U |
| Boron | ND | 50.0 | " | | | | - | | | U |
| Beryllium | ND | 5.00 | " | | | | - | | | U |
| Aluminum | ND | 200 | " | | | | - | | | U |
| Arsenic | ND | 30.0 | " | | | | - | | | U |
| Copper | ND | 10.0 | " | | | | - | | | U |
| **LCS (1204235990-BKS)** | | | | | Prepared: 03/12/2019 Analyzed: 03/13/2019 | | | | | |
| Beryllium | 471 | 5.00 | ug/L | 500 | | 94.3 | 80-120 | | | |
| Nickel | 473 | 5.00 | " | 500 | | 94.6 | 80-120 | | | |
| Manganese | 472 | 10.0 | " | 500 | | 94.3 | 80-120 | | | |
| Lead | 466 | 10.0 | " | 500 | | 93.2 | 80-120 | | | |
| Iron | 4800 | 100 | " | 5000 | | 96 | 80-120 | | | |
| Copper | 476 | 10.0 | " | 500 | | 95.1 | 80-120 | | | |
| Cobalt | 473 | 5.00 | " | 500 | | 94.7 | 80-120 | | | |
| Chromium | 476 | 5.00 | " | 500 | | 95.2 | 80-120 | | | |
| Aluminum | 4830 | 200 | " | 5000 | | 96.5 | 80-120 | | | |
| Boron | 463 | 50.0 | " | 500 | | 92.6 | 80-120 | | | |

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

## Dissolved Metals by 6010C - Quality Control
## GEL Laboratories, LLC

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1856645 - SW846 3005A** | | | | | | | | | | |
| **LCS (1204235990-BKS)** | | | | | Prepared: 03/12/2019 Analyzed: 03/13/2019 | | | | | |
| Arsenic | 454 | 30.0 | ug/L | 500 | | 90.9 | 80-120 | | | |
| Vanadium | 478 | 5.00 | " | 500 | | 95.6 | 80-120 | | | |
| Zinc | 468 | 10.0 | " | 500 | | 93.5 | 80-120 | | | |
| Cadmium | 461 | 5.00 | " | 500 | | 92.1 | 80-120 | | | |
| Selenium | 447 | 30.0 | " | 500 | | 89.4 | 80-120 | | | |
| **DUP (1204235991 D)** | | **Source: 473208004** | | | Prepared: 03/12/2019 Analyzed: 03/13/2019 | | | | | |
| Lead | ND | 10.0 | ug/L | | <3.30 | | 0-20 | 44.3 | 20 | U |
| Zinc | 3.90 | 10.0 | " | | 3.95 | | 0-20 | 1.27 | 20 | J |
| Vanadium | 8.33 | 5.00 | " | | 8.39 | | 0-20 | 0.769 | 20 | |
| Selenium | 13.3 | 30.0 | " | | 16.2 | | 0-20 | 19.7 | 20 | J |
| Cobalt | ND | 5.00 | " | | <1.00 | | 0-20 | 113 | 20 | U |
| Manganese | 33.6 | 10.0 | " | | 34.9 | | 0-20 | 3.72 | 20 | |
| Iron | ND | 100 | " | | <30.0 | | 0-20 | 1.24 | 20 | U |
| Copper | 5.78 | 10.0 | " | | 6.59 | | 0-20 | 13.2 | 20 | J |
| Aluminum | ND | 200 | " | | <68.0 | | 0-20 | 150 | 20 | U |
| Arsenic | ND | 30.0 | " | | <5.00 | | 0-20 | 89.9 | 20 | U |
| Beryllium | ND | 5.00 | " | | <1.00 | | 0-20 | 17.8 | 20 | U |
| Boron | 167 | 50.0 | " | | 172 | | 0-20 | 3.05 | 20 | |
| Cadmium | ND | 5.00 | " | | <1.00 | | 0-20 | 24 | 20 | U |
| Chromium | 6.01 | 5.00 | " | | 6.23 | | 0-20 | 3.55 | 20 | |
| Nickel | 2.28 | 5.00 | " | | 2.46 | | 0-20 | 7.41 | 20 | J |
| **MS (1204235992 S)** | | **Source: 473208004** | | | Prepared: 03/12/2019 Analyzed: 03/13/2019 | | | | | |
| Zinc | 462 | 10.0 | ug/L | 500 | 3.95 | 91.6 | 75-125 | | | |
| Cobalt | 470 | 5.00 | " | 500 | <1.00 | 94 | 75-125 | | | |
| Vanadium | 468 | 5.00 | " | 500 | 8.39 | 92 | 75-125 | | | |

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

## Dissolved Metals by 6010C - Quality Control
## GEL Laboratories, LLC

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1856645 - SW846 3005A** | | | | | | | | | | |
| **MS (1204235992 S)** | | **Source: 473208004** | | | Prepared: 03/12/2019 Analyzed: 03/13/2019 | | | | | |
| Selenium | 455 | 30.0 | ug/L | 500 | 16.2 | 87.8 | 75-125 | | | |
| Nickel | 455 | 5.00 | " | 500 | 2.46 | 90.4 | 75-125 | | | |
| Manganese | 485 | 10.0 | " | 500 | 34.9 | 90 | 75-125 | | | |
| Lead | 466 | 10.0 | " | 500 | <3.30 | 92.9 | 75-125 | | | |
| Chromium | 460 | 5.00 | " | 500 | 6.23 | 90.8 | 75-125 | | | |
| Cadmium | 448 | 5.00 | " | 500 | <1.00 | 89.5 | 75-125 | | | |
| Boron | 645 | 50.0 | " | 500 | 172 | 94.6 | 75-125 | | | |
| Beryllium | 462 | 5.00 | " | 500 | <1.00 | 92.3 | 75-125 | | | |
| Arsenic | 465 | 30.0 | " | 500 | <5.00 | 93 | 75-125 | | | |
| Aluminum | 4750 | 200 | " | 5000 | <68.0 | 95.1 | 75-125 | | | |
| Copper | 510 | 10.0 | " | 500 | 6.59 | 101 | 75-125 | | | |
| Iron | 4690 | 100 | " | 5000 | <30.0 | 93.5 | 75-125 | | | |

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

## Dissolved Metals by 6020A - Quality Control
## GEL Laboratories, LLC

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1856509 - SW846 3010A** | | | | | | | | | | |
| **BLANK (1204235693-BLK)** | | | | | Prepared: 03/11/2019 Analyzed: 03/12/2019 | | | | | |
| Lithium | ND | 10.0 | ug/L | | | | - | | | U |
| **LCS (1204235694-BKS)** | | | | | Prepared: 03/11/2019 Analyzed: 03/12/2019 | | | | | |
| Lithium | 50.3 | 10.0 | ug/L | 50.0 | | 101 | 80-120 | | | |
| **DUP (1204235695 D)** | | **Source: Y903087-01** | | | Prepared: 03/11/2019 Analyzed: 03/12/2019 | | | | | |
| Lithium | 546 | 10.0 | ug/L | | 557 | | 0-20 | 1.91 | 20 | |
| **MS (1204235696 S)** | | **Source: Y903087-01** | | | Prepared: 03/11/2019 Analyzed: 03/12/2019 | | | | | |
| Lithium | 613 | 10.0 | ug/L | 50.0 | 557 | 113 | 75-125 | | | |

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

## Dissolved Metals by 7470A - Quality Control
## GEL Laboratories, LLC

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1856741 - SW846 7470A Prep** | | | | | | | | | | |
| **BLANK (1204236267-BLK)** | | | | | Prepared: 03/12/2019 Analyzed: 03/13/2019 | | | | | |
| Mercury | ND | 0.200 | ug/L | | | | - | | | U |
| **LCS (1204236268-BKS)** | | | | | Prepared: 03/12/2019 Analyzed: 03/13/2019 | | | | | |
| Mercury | 1.90 | 0.200 | ug/L | 2.00 | | 94.8 | 80-120 | | | |
| **DUP (1204236269 D)** | | **Source: 472533002** | | | Prepared: 03/12/2019 Analyzed: 03/13/2019 | | | | | |
| Mercury | 25.5 | 2.00 | ug/L | | 21.8 | | 0-20 | 15.8 | 20 | |
| **MS (1204236270 S)** | | **Source: 472533002** | | | Prepared: 03/12/2019 Analyzed: 03/13/2019 | | | | | |
| Mercury | 42.0 | 2.00 | ug/L | 20.0 | 21.8 | 101 | 75-125 | | | |

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

## Nitrate/Nitrite by EPA 353.2 - Quality Control
## GEL Laboratories, LLC

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1856432 -** | | | | | | | | | | |
| **BLANK (1204235546-BLK)** | | | | | Prepared: Analyzed: 03/11/2019 | | | | | |
| Nitrogen, Nitrate/Nitrite | ND | 0.020 | mg/L | | | | - | | | U |
| **LCS (1204235547-BKS)** | | | | | Prepared: Analyzed: 03/11/2019 | | | | | |
| Nitrogen, Nitrate/Nitrite | 0.989 | 0.020 | mg/L | 1.00 | | 98.9 | 90-110 | | | |
| **DUP (1204235548 D)** | | **Source: 473040004** | | | Prepared: Analyzed: 03/11/2019 | | | | | |
| Nitrogen, Nitrate/Nitrite | 2.40 | 0.100 | mg/L | | 2.45 | | 0-20 | 1.86 | 20 | |
| **PS (1204235549 S)** | | **Source: 473040004** | | | Prepared: Analyzed: 03/11/2019 | | | | | |
| Nitrogen, Nitrate/Nitrite | 7.45 | 0.100 | mg/L | 1.00 | | 100 | 90-110 | | | |

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

## TDS by EPA 160.1 - Quality Control
## GEL Laboratories, LLC

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 1856659 -** | | | | | | | | | | |
| **BLANK (1204236015-BLK)** | | | | | Prepared: Analyzed: 03/12/2019 | | | | | |
| Total Dissolved Solids | ND | 14.3 | mg/L | | | | - | | | U |
| **LCS (1204236016-BKS)** | | | | | Prepared: Analyzed: 03/12/2019 | | | | | |
| Total Dissolved Solids | 297 | 14.3 | mg/L | 300 | | 99 | 95-105 | | | |
| **DUP (1204236022 D)** | | **Source: 473167001** | | | Prepared: Analyzed: 03/12/2019 | | | | | |
| Total Dissolved Solids | 223 | 14.3 | mg/L | | 217 | | 0-5 | 2.6 | 5 | |

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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GCC Pueblo
3372 Lime Road
Pueblo CO 81004

David Bemis
Project Number: [none]
Project: Groundwater Monitoring

## Notes and Definitions

U Result not detected above the detection limit

J Greater than the detection limit but less than the reporting limit

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

Origins Laboratory, Inc.

Jen Pellegrini, Project Manager

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The results set forth herein are provided by SGS North America Inc.

*e-Hardcopy 2.0*
*Automated Report*

# Technical Report for

## Origins Laboratory

Y903087

SGS Job Number: DA14068

Sampling Date: 03/07/19

Report to:

Origins Laboratory
1725 Elk Place
Denver, CO 80211
ndoyle@originslab.com; jpellegrini@originslab.com

ATTN: Noelle Doyle

Total number of pages in report: 14

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Carissa Cumine 303-425-6021

Certifications: CO (CO00049), ID (CO00049), NE (NE-OS-06-04), ND (R-027), NJ (CO007), OK (D9942) UT (NELAP CO00049), LA (LA150028), TX (T104704511), WY (8TMS-L)

Sections:

1 2 3 4 5 6

# Table of Contents

SGS North America Inc.

# Sample Summary

Origins Laboratory

Y903087

**Job No:** DA14068

| Sample Number | Collected Date | Time | By | Received | Matrix Code | Type | Client Sample ID |
|---|---|---|---|---|---|---|---|
| DA14068-1 | 03/07/19 | 11:05 | | 03/08/19 | AQ | Water | Y903087-01 |

# CASE NARRATIVE / CONFORMANCE SUMMARY

| | | | |
|---|---|---|---|
| **Client:** | Origins Laboratory | **Job No** | DA14068 |
| **Site:** | Y903087 | **Report Date** | 3/14/2019 5:35:21 PM |

On 03/08/2019, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 0 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of DA14068 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

## General Chemistry By Method EPA300.0/SW846 9056A

**Matrix:** AQ **Batch ID:** GP24699

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA14062-1MS, DA14062-1MSD were used as the QC samples for the Fluoride, Nitrogen, Nitrite, Fluoride analysis.
- DA14068-1 for Fluoride and Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

# Summary of Hits

**Job Number:** DA14068
**Account:** Origins Laboratory
**Project:** Y903087
**Collected:** 03/07/19



| Lab Sample ID / Analyte | Client Sample ID | Result/ Qual | RL | MDL | Units | Method |
|---|---|---|---|---|---|---|
| **DA14068-1** | **Y903087-01** | | | | | |
| Fluoride [a] | | 0.32 B | 0.50 | 0.25 | mg/l | EPA300.0/SW846 9056A |

(a) Elevated detection limit due to matrix interference.

## Sample Results

Report of Analysis

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | Y903087-01 | | |
| **Lab Sample ID:** | DA14068-1 | **Date Sampled:** | 03/07/19 |
| **Matrix:** | AQ - Water | **Date Received:** | 03/08/19 |
| | | **Percent Solids:** | n/a |
| **Project:** | Y903087 | | |

**General Chemistry**

| Analyte | Result | RL | MDL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|---|
| Fluoride [a] | 0.32 B | 0.50 | 0.25 | mg/l | 5 | 03/08/19 12:41 | JB | EPA300.0/SW846 9056A |
| Nitrogen, Nitrite [a] | 0.030 U | 0.040 | 0.030 | mg/l | 10 | 03/08/19 16:02 | JB | EPA300.0/SW846 9056A |

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

## Misc. Forms

### Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

*Your Lab's letterhead here...*
Address City, St. Zip Phone/Fax

# SUBCONTRACT ORDER

DA14068

**Sending Laboratory:**

Origins Laboratory, Inc.
1725 West Elk Place
Denver, CO 80211
Phone: 303.433.1322
Fax: 303.265.9645

Project Manager: Jen Pellegrini

**Subcontracted Laboratory:**

Accutest Laboratories
4036 Youngfield St.
Wheat Ridge, CO 80033
Phone: (303) 425-6021
Fax: (303) 425-6854

**Work Order: Y903087**

| Analysis | Due | Expires | Comments |
|---|---|---|---|
| **Sample ID: Y903087-01** *Water* *Sampled: 03/07/2019 11:05* | | | 01 |
| Nitrite by 300.0 | 03/15/2019 | 03/09/2019 11:05 | |
| Fluoride by 300.0 | 03/15/2019 | 03/09/2019 11:05 | |
| *Containers Supplied:* | | | |

3/8/19
JMP

0802

Released By — Date 030819 — Received By — Date 3/8/19 8:00

5.2
T1866
JD

Page 1 of 1

## SGS Accutest Sample Receipt Summary

**Job Number:** DA14068 **Client:** ORIGINS LABORATORY, INC. **Project:** Y903087

**Date / Time Received:** 3/8/2019 8:02:00 AM **Delivery Method:** **Airbill #'s:** HD

**Cooler Temps (Initial/Adjusted):** 0

| Cooler Security | Y | or | N | | Y | or | N |
|---|---|---|---|---|---|---|---|
| 1. Custody Seals Present: | ☑ | | ☐ | 3. COC Present: | ☑ | | ☐ |
| 2. Custody Seals Intact: | ☑ | | ☐ | 4. Smpl Dates/Time OK | ☑ | | ☐ |

| Cooler Temperature | Y | or | N |
|---|---|---|---|
| 1. Temp criteria achieved: | ☑ | | ☐ |
| 2. Cooler temp verification: | ; | | |
| 3. Cooler media: | Ice (Bag) | | |
| 4. No. Coolers: | 1 | | |

| Quality Control Preservation | Y | or | N | N/A |
|---|---|---|---|---|
| 1. Trip Blank present / cooler: | ☐ | | ☐ | ☑ |
| 2. Trip Blank listed on COC: | ☐ | | ☐ | ☑ |
| 3. Samples preserved properly: | ☑ | | ☐ | |
| 4. VOCs headspace free: | ☐ | | ☐ | ☑ |

| Sample Integrity - Documentation | Y | or | N |
|---|---|---|---|
| 1. Sample labels present on bottles: | ☑ | | ☐ |
| 2. Container labeling complete: | ☑ | | ☐ |
| 3. Sample container label / COC agree: | ☑ | | ☐ |

| Sample Integrity - Condition | Y | or | N |
|---|---|---|---|
| 1. Sample recvd within HT: | ☑ | | ☐ |
| 2. All containers accounted for: | ☑ | | ☐ |
| 3. Condition of sample: | Intact | | |

| Sample Integrity - Instructions | Y | or | N | N/A |
|---|---|---|---|---|
| 1. Analysis requested is clear: | ☑ | | ☐ | |
| 2. Bottles received for unspecified tests | ☐ | | ☑ | |
| 3. Sufficient volume recvd for analysis: | ☑ | | ☐ | |
| 4. Compositing instructions clear: | ☐ | | ☐ | ☑ |
| 5. Filtering instructions clear: | ☐ | | ☐ | ☑ |

Comments

**DA14068: Chain of Custody**
**Page 2 of 2**

General Chemistry

6

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA14068
Account: ORIGLCOD - Origins Laboratory
Project: Y903087

| Analyte | Batch ID | RL | MB Result | Units | Spike Amount | BSP Result | BSP %Recov | QC Limits |
|---|---|---|---|---|---|---|---|---|
| Bromide | GP24699/GN46301 | 0.050 | 0.0 | mg/l | 0.5 | 0.507 | 101.4 | 90-110% |
| Chloride | GP24699/GN46301 | 0.50 | 0.0 | mg/l | 5 | 5.08 | 101.6 | 90-110% |
| Fluoride | GP24699/GN46301 | 0.10 | 0.0 | mg/l | 1 | 1.03 | 103.0 | 90-110% |
| Nitrogen, Nitrate | GP24699/GN46301 | 0.010 | 0.0 | mg/l | 0.1 | 0.0958 | 95.8 | 90-110% |
| Nitrogen, Nitrite | GP24699/GN46301 | 0.0040 | 0.0 | mg/l | 0.05 | 0.0501 | 100.2 | 90-110% |
| Sulfate | GP24699/GN46301 | 0.50 | 0.0 | mg/l | 5 | 4.97 | 99.4 | 90-110% |

Associated Samples:
Batch GP24699: DA14068-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA14068
Account: ORIGLCOD - Origins Laboratory
Project: Y903087

| Analyte | Batch ID | QC Sample | Units | Original Result | Spike Amount | MS Result | %Rec | QC Limits |
|---|---|---|---|---|---|---|---|---|
| Bromide | GP24699/GN46301 | DA14062-1 | mg/l | 1.3 U | 25 | 25.5 | 102.0 | 80-120% |
| Chloride | GP24699/GN46301 | DA14062-1 | mg/l | 271 | 250 | 534 | 105.2 | 80-120% |
| Fluoride | GP24699/GN46301 | DA14062-1 | mg/l | 53.9 | 50 | 105 | 102.2 | 80-120% |
| Nitrogen, Nitrate | GP24699/GN46301 | DA14062-1 | mg/l | 0.30 U | 5 | 4.9 | 98.0 | 80-120% |
| Nitrogen, Nitrite | GP24699/GN46301 | DA14062-1 | mg/l | 0.27 | 2.5 | 2.8 | 101.2 | 80-120% |
| Sulfate | GP24699/GN46301 | DA14062-1 | mg/l | 102 | 250 | 352 | 100.0 | 80-120% |

Associated Samples:
Batch GP24699: DA14068-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA14068
Account: ORIGLCOD - Origins Laboratory
Project: Y903087

| Analyte | Batch ID | QC Sample | Units | Original Result | Spike Amount | MSD Result | RPD | QC Limit |
|---|---|---|---|---|---|---|---|---|
| Bromide | GP24699/GN46301 | DA14062-1 | mg/l | 1.3 U | 25 | 25.3 | 0.8 | 20% |
| Chloride | GP24699/GN46301 | DA14062-1 | mg/l | 271 | 250 | 531 | 0.6 | 20% |
| Fluoride | GP24699/GN46301 | DA14062-1 | mg/l | 53.9 | 50 | 104 | 1.0 | 20% |
| Nitrogen, Nitrate | GP24699/GN46301 | DA14062-1 | mg/l | 0.30 U | 5 | 4.9 | 0.0 | 20% |
| Nitrogen, Nitrite | GP24699/GN46301 | DA14062-1 | mg/l | 0.27 | 2.5 | 2.8 | 0.0 | 20% |
| Sulfate | GP24699/GN46301 | DA14062-1 | mg/l | 102 | 250 | 358 | 1.7 | 20% |

Associated Samples:
Batch GP24699: DA14068-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits