



01761352  
State of Colorado



#7368

RECEIVED  
OCT 23 2012  
COGCC

**Oil and Gas Conservation Commission**

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303) 894-2100 Fax 894-2109

**SITE INVESTIGATION AND REMEDIATION WORKPLAN**

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

OGCC Employee: \_\_\_\_\_

Spill                       Complaint

Inspection                 NOAV

Tracking No: \_\_\_\_\_

**CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED**

Spill or Release     Plug & Abandon     Central Facility Closure     Site/Facility Closure     Other (describe): Pit Closure

**GENERAL INFORMATION**

|   |   |
|---|---|
| <b>OGCC Operator Number:</b> <u>7800</u>                                      | <b>Contact Name and Telephone</b>                                     |
| <b>Name of Operator:</b> <u>Beren Corporation</u>                             | <b>Name:</b> <u>Rodney Reynolds</u>                                   |
| <b>Address:</b> <u>2020 North Bramblewood Street</u>                          | <b>No:</b> <u>(316) 337-8340</u>                                      |
| <b>City:</b> <u>Wichita</u> <b>State:</b> <u>KS</u> <b>Zip:</b> <u>67206</u>  | <b>Fax:</b> <u>(316) 681-4740</u>                                     |
| <b>API/Facility No:</b> <u>05-121-05259</u>                                   | <b>County:</b> <u>Washington</u>                                      |
| <b>Facility Name:</b> <u>Wright</u>   | <b>Facility Number:</b> <u>107607</u>                                 |
| <b>Well Name:</b> <u>Wright DM-1</u>  | <b>Well Number:</b> <u>NA</u>   |
| <b>Location (QtrQtr, Sec, Twp, Rng, Meridian):</b> <u>SWSW 31 3S 53W 6 PM</u> | <b>Latitude:</b> <u>39.742503</u> <b>Longitude:</b> <u>-103.36733</u> |

**TECHNICAL CONDITIONS**

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): crude oil

**Site Conditions:** Is location within a sensitive area (according to Rule 901e)?     Y     N    If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Open Pasture

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Stoneham loams, 6 to 9 percent slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Drainage located 1,200' southwest of the site and 2,000 northwest

**Description of Impact** (if previously provided, refer to that form or document):

|   |                                       |  |
|---|---------------------------------------|--|
| <b>Impacted Media (check):</b>            | <b>Extent of Impact:</b>              | <b>How Determined:</b>                           |
| <input checked="" type="checkbox"/> Soils | <u>20 feet X 20 feet (pit bottom)</u> | <u>Excavation, sampling, laboratory analysis</u> |
| <input type="checkbox"/> Vegetation       | _____                                 | _____  |
| <input type="checkbox"/> Groundwater      | _____                                 | _____  |
| <input type="checkbox"/> Surface water    | _____                                 | _____  |

**REMEDIATION WORKPLAN**

Describe initial action taken (if previously provided, refer to that form or document):

NA

Describe how source is to be removed:

See Attached Letter

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

Approximately 600 yards of impacted soil was stockpiled and sampled to determine an effective and efficient remediation plan. A waste management plan will be submitted via Form 4 to lay out the plan for remediation of the remaining onsite stockpiled soil.



Tracking Number: 1761352 Name of Operator: Beren Corporation OGCC Operator No: 7800 Received Date: 10/23/12 Well Name & No: Facility Name & No.: Wright

REMEDIATION WORKPLAN (CONT.)

OGCC Employee: John Axelson

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.): Groundwater was not encountered during excavation and sampling activities.

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required. The pit will be backfilled with clean soil. The ground surface will be contoured to match the existing grade and reseeded.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing. Is further site investigation required? [ ] Y [X] N If yes, describe: Analytical results for the oil skim pit bottom indicate benzene, toluene, ethylbenzene, and total xylenes (BTEX) as well as total petroleum hydrocarbons (TPH) as gasoline range organics and diesel range organics were in compliance with Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 concentration levels. As the oil skim pit has been remediated to meet cleanup levels specified in COGCC Table 910-1, Beren is requesting a No Further Action determination for the pit closure.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.): Approximately 600 yards of impacted soil was stockpiled and sampled to determine an effective and efficient remediation plan. A waste management plan will be submitted via Form 4 to lay out the plan for remediation of the remaining onsite stockpiled soil.

IMPLEMENTATION SCHEDULE

Table with 4 columns: Date Site Investigation Began, Date Site Investigation Completed, Remediation Plan Submitted, Remediation Start Date, Anticipated Completion Date, Actual Completion Date. Values include 10/3/2012, NA, 10/23/2012, 10/3/2012, 10/1/2012.

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete. Print Name: Rodney Reynolds

Signed: [Signature] Title: Division Engineer Date: 10/23/2012

OGCC Approved: [Signature] Title: EPS Date: 10/24/12

See conditions of approval. [Signature]

Beren Corporation - #7800  
Scott Skim Pit Facility #107607  
Wright DM1, API #121-05259  
Form 27 – Document #1761352

#### Skim Pit Closure – Conditions of Approval

The Form 27 documenting skim pit closure and remediation at the referenced facility is approved with the following conditions:

- Based on the confirmation sample results, the skim pits can be backfilled with clean fill material and the surface restored. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if ground water is found to be impacted, then further investigation and/or remediation may be required.
- Based on the confirmation sample results, the material from stockpile SP-02 can be used to backfill the pit.
- Provide a detailed remediation plan no later than December 31, 2012, to properly treat or dispose the estimated 600 cubic yards of impacted material excavated from the skim pits and remaining on site in stockpile SP-01.
- Until such time that remediation of the 600 cubic yards of impacted material begins, the stockpile shall be properly maintained to prevent contamination of stormwater runoff, ground water or surface water.
- The Form 27 (document #1761352) shall remain open until the 600 cubic yards of impacted material is properly treated or disposed and sufficient documentation is provided to verify completion.



October 23, 2012

Mr. John Axelson  
Northeast Region Environmental Protection Specialist  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, Colorado 80203

**RE: No Further Action Request  
Beren Corporation  
Wright Oil Skim Pit Closure  
Facility ID: 256227  
SWSW Sec. 31 3S 53W, 6th Principal Meridian  
Washington County, Colorado**

Dear Mr. Axelson:

LT Environmental, Inc. (LTE), under the direction of Beren Corporation (Beren), conducted environmental remediation and sampling activities following the identification of petroleum hydrocarbon impacted soil during oil skim pit closure activities at the Wright Tank Battery (Site). The Site is located 0.2 miles north of the intersection of County Road U and U.S. Highway 36 in Washington County, Colorado (Figure 1).

On October 3, 2012, LTE personnel were on site to oversee excavation activities, field screen soil, document site activities, conduct health and safety monitoring, and collect confirmation samples for laboratory analysis. Composite soil samples were collected from the excavation and were field screened for volatile organic compounds and total petroleum hydrocarbons (TPH) with a photo-ionization detector and a PetroFLAG TPH screening kit to evaluate if additional excavation was required. Once field screening indicated all the impacted soil had been removed from the oil skim pit, confirmation sample OS-01 was collected from the pit as illustrated in Figure 2. Samples were submitted to Summit Scientific (Summit) of Golden, Colorado, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), and TPH as gasoline range organics (GRO) by United States Environmental Protection Agency (EPA) Method 8260B, and TPH as diesel range organics (DRO) by United States Environmental Protection Agency (EPA) Modified Method 8015. Samples were also analyzed for pH by EPA Method 9045, specific conductance (EC) by Standard Method 2510B, and sodium adsorption ratio (SAR) by the United States Department of Agriculture Handbook 60 Method.

Soil analytical results from the pit bottom indicated OS-01 was in compliance with the Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 Concentration Levels, with the exception of pH. Sample OS-01 slightly exceeds the required pH range of 6-9 at 9.2. However, the sample was collected at a depth of 15 feet below ground surface, which is well below the root zone. A slight exceedance of pH at this depth will not affect surface reclamation. Analytical results are summarized in Table 1. The laboratory analytical report is attached. As soil has now



been remediated to achieve COGCC cleanup goals, Beren is requesting a No Further Action determination for the pit closure activities.

LTE personnel also collected composite samples (SP-01 and SP-02) from the two onsite impacted soil stockpiles depicted on Figure 2. There are approximately 600 cubic yards of impacted soil currently stockpiled at the Site. The stockpile samples were collected to characterize the impacted soil removed from the excavation and determine which on site remediation options best fit the stockpiled soil. Samples were submitted to Summit for analysis of BTEX, TPH-GRO, TPH-DRO, pH, EC, and SAR. Analytical results indicated TPH concentrations exceeded the COGCC Table 910-1 Concentration Level for the stockpile characterized by sample SP-01. The TPH concentration exhibited by sample SP-01 was 2,400 milligrams per kilogram.

LTE is currently designing the best fit remedial option for the stockpile characterized by sample SP-01. A waste management plan will be prepared and submitted with a Form 4 to layout the stockpile remediation plan and future confirmation data submittals.

The second smaller stockpile characterized by sample SP-02 exhibited BTEX and TPH concentrations compliant with COGCC Table 910-1 Concentration Levels. As a result of the compliant status of the stockpile, this soil will be used during backfilling of the pit at the Site.

Please call LTE at 303-433-9788 if you have any questions or comments regarding this report.

Sincerely,

LT ENVIRONMENTAL, INC.

Michael Wicker  
Staff Geologist

Brian Dodek, P.G.  
Client Manager/Senior Geologist

#### Attachments

- Figure 1 Site Location Map
- Figure 2 Site Map
- Table 1 Soil Analytical Results
- Attachment 1 Laboratory Analytical Reports

**FIGURE**



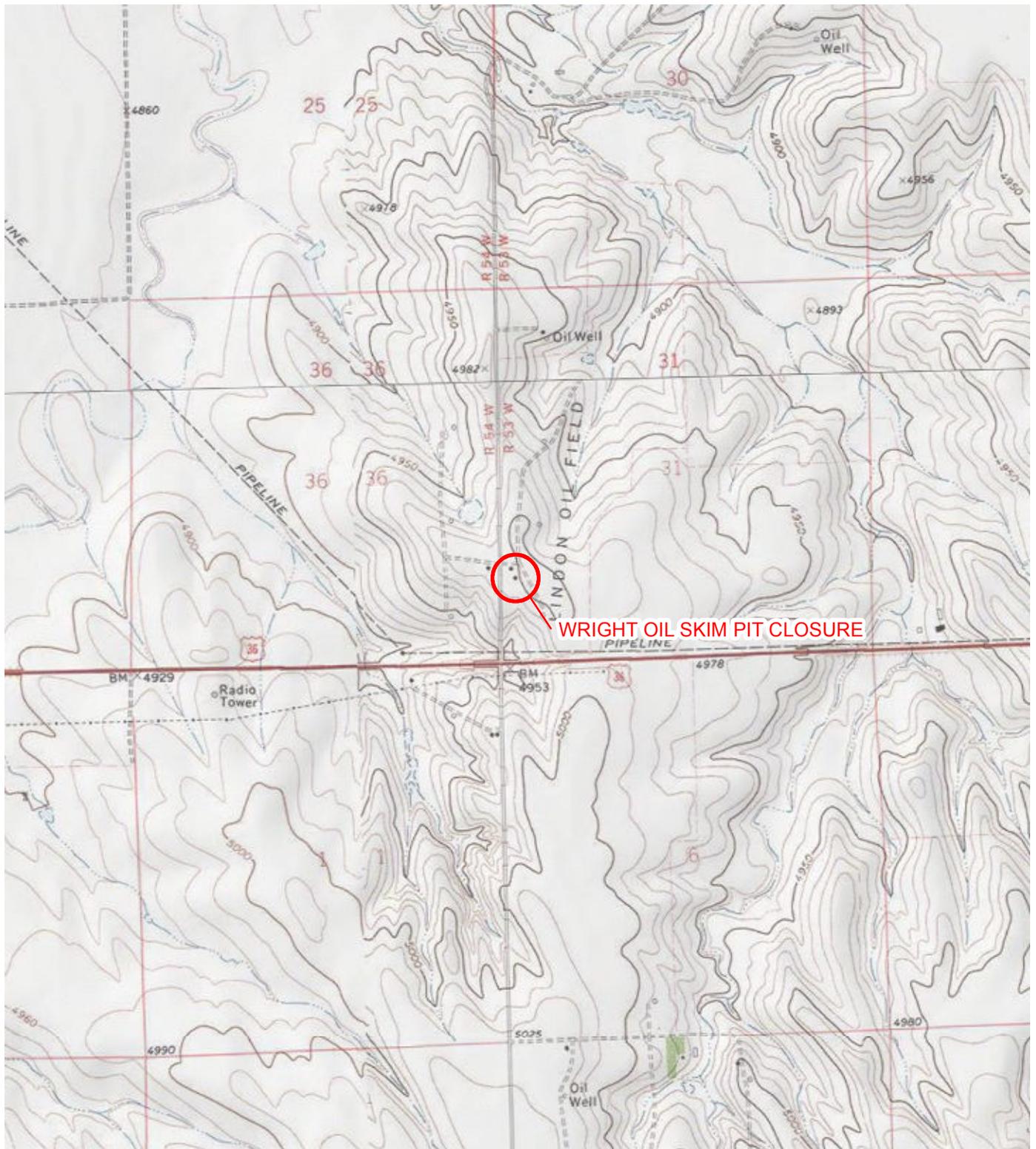
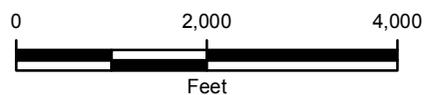


IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SITE LOCATION



**FIGURE 1**  
**SITE LOCATION MAP**  
**WRIGHT OIL SKIM PIT CLOSURE**  
**WASHINGTON COUNTY, COLORADO**



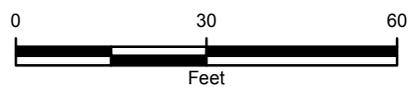
**BEREN CORPORATION**



IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

- OIL SKIM SAMPLE
- STOCK PILE SAMPLE
- OIL SKIM PIT
- STOCK PILE



**FIGURE 2**  
**SITE MAP**  
WRIGHT OIL SKIM PIT CLOSURE  
WASHINGTON COUNTY, COLORADO

**BEREN CORPORATION**



**TABLE**



**TABLE 1**  
**SOIL ANALYTICAL RESULTS**  
**WRIGHT OIL SKIM PIT CLOSURE**  
**WASHINGTON COUNTY, COLORADO**  
**BEREN CORPORATION**

| Parameter     | COGCC Table 910-1<br>Concentration Level | Units    | OS-01      | SP-01        | SP-02     |
|---------------|--|----------|------------|--------------|-----------|
| Sample Date   |  |          | 10/3/2012  | 10/3/2012    | 10/3/2012 |
| TPH-GRO       |  | mg/kg    | <0.50      | 500          | 22        |
| TPH-DRO       |  | mg/kg    | <50        | 1,900        | 320       |
| Total TPH     | 500                                      | mg/kg    | <50.5      | <b>2,400</b> | 342       |
| Benzene       | 0.17                                     | mg/kg    | <0.0050    | 0.0054       | <0.0050   |
| Toluene       | 85                                       | mg/kg    | <0.0050    | <0.0050      | <0.0050   |
| Ethylbenzene  | 100                                      | mg/kg    | <0.0050    | 0.015        | <0.0050   |
| Total Xylenes | 175                                      | mg/kg    | <0.0050    | 0.034        | <0.0050   |
| EC            | 4  | mmhos/cm | 1.16       | 1.29         |           |
| SAR           | 12                                       | unitless | 3.79       | 10.0         |           |
| pH            | 6-9                                      | SU       | <b>9.2</b> | <b>9.2</b>   |           |

**NOTES:**

COGCC - Colorado Oil and Gas Conservation Commission

TPH-GRO - Total Petroleum Hydrocarbons-Gasoline Range Organics

TPH-DRO - Total Petroleum Hydrocarbons-Diesel Range Organics

mg/kg - milligrams per kilograms

mmhos/cm - millimhos per centimeter

< - less than the stated laboratory method reporting limit

SU - standard units



**ATTACHMENT 1**  
**LABORATORY ANALYTICAL REPORTS**



# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 10, 2012

Brian Dodek  
LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada, CO 80003  
RE: BNC - Wright

Enclosed are the results of analyses for samples received by Summit Scientific on 10/04/12 16:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV  
Laboratory Director



LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO, 80003

Project: BNC - Wright

Project Number: 0415-12004

Project Manager: Brian Dodek

**Reported:**  
10/10/12 10:13

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| OS-01     | R210043-01    | Soil   | 10/03/12 08:50 | 10/04/12 16:55 |
| SP-01     | R210043-02    | Soil   | 10/03/12 13:00 | 10/04/12 16:55 |
| SP-02     | R210043-03    | Soil   | 10/03/12 13:05 | 10/04/12 16:55 |

Summit Scientific

*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.*





LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO, 80003

Project: BNC - Wright

Project Number: 0415-12004  
Project Manager: Brian Dodek

Reported:  
10/10/12 10:13

**OS-01**  
**R210043-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 10/03/12 08:50

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method                 | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|------------------------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 2100511 | 10/05/12 | 10/06/12 | 8015 Full Carbon Chain |       |

Date Sampled: 10/03/12 08:50

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 82.9 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 10/03/12 08:50

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene                     | ND     | 0.0050          | mg/kg | 1        | 2100603 | 10/06/12 | 10/06/12 | EPA 8260B |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 10/03/12 08:50

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 92.8 %          | 30-150 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 95.8 %          | 30-150 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 93.4 %          | 30-150 |          | "     | "        | "        | "      |       |

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: 10/03/12 08:50

| Analyte                   | Result | Reporting Limit | Units    | Dilution | Batch   | Prepared | Analyzed | Method   | Notes |
|---------------------------|--------|-----------------|----------|----------|---------|----------|----------|----------|-------|
| Specific Conductance (EC) | 1.16   | 0.00100         | mmhos/cm | 1        | 2100803 | 10/08/12 | 10/08/12 | SM 2510B |       |

Summit Scientific

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.



LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO, 80003

Project: BNC - Wright

Project Number: 0415-12004  
 Project Manager: Brian Dodek

**Reported:**  
 10/10/12 10:13

**OS-01**  
**R210043-01 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/03/12 08:50**

| Analyte   | Result     | Reporting Limit | Units    | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------|------------|-----------------|----------|----------|---------|----------|----------|-----------|-------|
| <b>pH</b> | <b>9.2</b> |                 | pH Units | 1        | 2100804 | 10/08/12 | 10/08/12 | EPA 9045B |       |

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: **10/03/12 08:50**

| Analyte          | Result      | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method                        | Notes |
|------------------|-------------|-----------------|-------|----------|---------|----------|----------|-------------------------------|-------|
| <b>Calcium</b>   | <b>2590</b> | 2.50            | mg/kg | 1        | 2100505 | 10/06/12 | 10/06/12 | EPA 6020/Mod. USDA60 6(2, 3A) |       |
| <b>Magnesium</b> | <b>152</b>  | 1.00            | "     | "        | "       | "        | "        | "                             |       |
| <b>Sodium</b>    | <b>733</b>  | 5.00            | "     | "        | "       | "        | "        | "                             |       |

Date Sampled: **10/03/12 08:50**

| Analyte                        | Result      | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|--------------------------------|-------------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| <b>Sodium Adsorption Ratio</b> | <b>3.79</b> |                 | units | "        | 2100701 | 10/07/12 | 10/07/12 | "      |       |

Summit Scientific

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LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO, 80003

Project: BNC - Wright  
Project Number: 0415-12004  
Project Manager: Brian Dodek

Reported:  
10/10/12 10:13

**SP-01**  
**R210043-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/03/12 13:00**

| Analyte              | Result      | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method                 | Notes |
|----------------------|-------------|-----------------|-------|----------|---------|----------|----------|------------------------|-------|
| <b>C10-C28 (DRO)</b> | <b>1900</b> | 50              | mg/kg | 1        | 2100511 | 10/05/12 | 10/06/12 | 8015 Full Carbon Chain |       |

Date Sampled: **10/03/12 13:00**

| Analyte                       | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: o-Terphenyl</i> |        | 95.9 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **10/03/12 13:00**

| Analyte                            | Result        | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------------------|---------------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| <b>Benzene</b>                     | <b>0.0054</b> | 0.0050          | mg/kg | 1        | 2100603 | 10/06/12 | 10/07/12 | EPA 8260B |       |
| Toluene                            | ND            | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| <b>Ethylbenzene</b>                | <b>0.015</b>  | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b>             | <b>0.034</b>  | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| <b>Gasoline Range Hydrocarbons</b> | <b>500</b>    | 50              | "     | 100      | "       | "        | "        | "         |       |

Date Sampled: **10/03/12 13:00**

| Analyte                                 | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> |        | 114 %           | 30-150 |          | "     | "        | "        | "      |       |
| <i>Surrogate: Toluene-d8</i>            |        | 83.6 %          | 30-150 |          | "     | "        | "        | "      |       |
| <i>Surrogate: 4-Bromofluorobenzene</i>  |        | 191 %           | 30-150 |          | "     | "        | "        | "      | S-02  |

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/03/12 13:00**

| Analyte                          | Result      | Reporting Limit | Units    | Dilution | Batch   | Prepared | Analyzed | Method   | Notes |
|----------------------------------|-------------|-----------------|----------|----------|---------|----------|----------|----------|-------|
| <b>Specific Conductance (EC)</b> | <b>1.29</b> | 0.00100         | mmhos/cm | 1        | 2100803 | 10/08/12 | 10/08/12 | SM 2510B |       |

Summit Scientific

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LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO, 80003

Project: BNC - Wright

Project Number: 0415-12004  
 Project Manager: Brian Dodek

**Reported:**  
 10/10/12 10:13

**SP-01**  
**R210043-02 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **10/03/12 13:00**

| Analyte   | Result     | Reporting Limit | Units    | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------|------------|-----------------|----------|----------|---------|----------|----------|-----------|-------|
| <b>pH</b> | <b>9.2</b> |                 | pH Units | 1        | 2100804 | 10/08/12 | 10/08/12 | EPA 9045B |       |

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: **10/03/12 13:00**

| Analyte          | Result      | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method                                 | Notes |
|------------------|-------------|-----------------|-------|----------|---------|----------|----------|--|-------|
| <b>Calcium</b>   | <b>353</b>  | 2.50            | mg/kg | 1        | 2100505 | 10/06/12 | 10/06/12 | EPA<br>6020/Mod.<br>USDA60 6(2,<br>3A) |       |
| <b>Magnesium</b> | <b>83.4</b> | 1.00            | "     | "        | "       | "        | "        | "                                      |       |
| <b>Sodium</b>    | <b>808</b>  | 5.00            | "     | "        | "       | "        | "        | "                                      |       |

Date Sampled: **10/03/12 13:00**

| Analyte                        | Result      | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|--------------------------------|-------------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| <b>Sodium Adsorption Ratio</b> | <b>10.0</b> |                 | units | "        | 2100701 | 10/07/12 | 10/07/12 | "      |       |

Summit Scientific

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LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO, 80003

Project: BNC - Wright

Project Number: 0415-12004  
Project Manager: Brian Dodek

Reported:  
10/10/12 10:13

**SP-02**  
**R210043-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 10/03/12 13:05

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method                 | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|------------------------|-------|
| C10-C28 (DRO) | 320    | 50              | mg/kg | 1        | 2100511 | 10/05/12 | 10/06/12 | 8015 Full Carbon Chain |       |

Date Sampled: 10/03/12 13:05

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 88.2 %          | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 10/03/12 13:05

| Analyte                            | Result    | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------------------|-----------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene                            | ND        | 0.0050          | mg/kg | 1        | 2100603 | 10/06/12 | 10/06/12 | EPA 8260B |       |
| Toluene                            | ND        | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                       | ND        | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)                    | ND        | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| <b>Gasoline Range Hydrocarbons</b> | <b>22</b> | <b>0.50</b>     | "     | "        | "       | "        | "        | "         |       |

Date Sampled: 10/03/12 13:05

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 97.3 %          | 30-150 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 91.3 %          | 30-150 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 38.0 %          | 30-150 |          | "     | "        | "        | "      |       |

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LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO, 80003

Project: BNC - Wright

Project Number: 0415-12004  
Project Manager: Brian Dodek

**Reported:**  
10/10/12 10:13

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

| Analyte | Result | Reporting |       | Spike Level | Source |      | %REC   |     | RPD   |  | Notes |
|---------|--------|-----------|-------|-------------|--------|------|--------|-----|-------|--|-------|
|         |        | Limit     | Units |             | Result | %REC | Limits | RPD | Limit |  |       |

**Batch 2100511 - EPA 3550A**

|  |     |    |       |                               |      |                               |        |      |    |  |  |
|--|-----|----|-------|-------------------------------|------|-------------------------------|--------|------|----|--|--|
| <b>Blank (2100511-BLK1)</b>            |     |    |       | Prepared & Analyzed: 10/05/12 |      |                               |        |      |    |  |  |
| C10-C28 (DRO)                          | ND  | 50 | mg/kg |                               |      |                               |        |      |    |  |  |
| <b>LCS (2100511-BS1)</b>               |     |    |       | Prepared & Analyzed: 10/05/12 |      |                               |        |      |    |  |  |
| C10-C28 (DRO)                          | 522 | 50 | mg/kg | 501                           | 104  | 73-134                        |        |      |    |  |  |
| <b>LCS Dup (2100511-BSD1)</b>          |     |    |       | Prepared & Analyzed: 10/05/12 |      |                               |        |      |    |  |  |
| C10-C28 (DRO)                          | 511 | 50 | mg/kg | 501                           | 102  | 73-134                        | 1.99   | 11   |    |  |  |
| <b>Matrix Spike (2100511-MS1)</b>      |     |    |       | <b>Source: R210047-01</b>     |      | Prepared & Analyzed: 10/05/12 |        |      |    |  |  |
| C10-C28 (DRO)                          | 489 | 50 | mg/kg | 473                           | 43.5 | 94.2                          | 50-148 |      |    |  |  |
| <b>Matrix Spike Dup (2100511-MSD1)</b> |     |    |       | <b>Source: R210047-01</b>     |      | Prepared & Analyzed: 10/05/12 |        |      |    |  |  |
| C10-C28 (DRO)                          | 452 | 50 | mg/kg | 476                           | 43.5 | 85.9                          | 50-148 | 7.68 | 13 |  |  |

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Arvada CO, 80003

Project: BNC - Wright

Project Number: 0415-12004  
Project Manager: Brian Dodek

Reported:  
10/10/12 10:13

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source | %REC |        | RPD |       | Notes |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit |       |

**Batch 2100603 - EPA 5030 Soil MS**

**Blank (2100603-BLK1)**

Prepared & Analyzed: 10/06/12

|   |               |        |          |               |  |             |               |  |  |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|--|--|--|
| Benzene                                 | ND            | 0.0050 | mg/kg    |               |  |             |               |  |  |  |
| Toluene                                 | ND            | 0.0050 | "        |               |  |             |               |  |  |  |
| Ethylbenzene                            | ND            | 0.0050 | "        |               |  |             |               |  |  |  |
| Xylenes (total)                         | ND            | 0.0050 | "        |               |  |             |               |  |  |  |
| Gasoline Range Hydrocarbons             | ND            | 0.50   | "        |               |  |             |               |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0344</i> |        | <i>"</i> | <i>0.0397</i> |  | <i>86.7</i> | <i>30-150</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0382</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>95.6</i> | <i>30-150</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0372</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>93.0</i> | <i>30-150</i> |  |  |  |

**LCS (2100603-BS1)**

Prepared & Analyzed: 10/06/12

|   |               |        |          |               |  |             |               |  |  |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|--|--|--|
| Benzene                                 | 0.106         | 0.0050 | mg/kg    | 0.100         |  | 106         | 58-130        |  |  |  |
| Toluene                                 | 0.115         | 0.0050 | "        | 0.100         |  | 115         | 61-134        |  |  |  |
| Ethylbenzene                            | 0.122         | 0.0050 | "        | 0.100         |  | 122         | 74-139        |  |  |  |
| m,p-Xylene                              | 0.251         | 0.010  | "        | 0.200         |  | 125         | 73-137        |  |  |  |
| o-Xylene                                | 0.119         | 0.0050 | "        | 0.100         |  | 119         | 73-141        |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0269</i> |        | <i>"</i> | <i>0.0397</i> |  | <i>67.7</i> | <i>30-150</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0389</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>97.2</i> | <i>30-150</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0357</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>89.2</i> | <i>30-150</i> |  |  |  |

**LCS Dup (2100603-BSD1)**

Prepared & Analyzed: 10/06/12

|   |               |        |          |               |  |             |               |      |    |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|------|----|--|
| Benzene                                 | 0.101         | 0.0050 | mg/kg    | 0.100         |  | 101         | 58-130        | 5.37 | 13 |  |
| Toluene                                 | 0.108         | 0.0050 | "        | 0.100         |  | 108         | 61-134        | 6.20 | 16 |  |
| Ethylbenzene                            | 0.113         | 0.0050 | "        | 0.100         |  | 113         | 74-139        | 7.85 | 12 |  |
| m,p-Xylene                              | 0.232         | 0.010  | "        | 0.200         |  | 116         | 73-137        | 8.01 | 14 |  |
| o-Xylene                                | 0.113         | 0.0050 | "        | 0.100         |  | 113         | 73-141        | 5.04 | 12 |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0349</i> |        | <i>"</i> | <i>0.0397</i> |  | <i>87.8</i> | <i>30-150</i> |      |    |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0388</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>97.1</i> | <i>30-150</i> |      |    |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0376</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>94.0</i> | <i>30-150</i> |      |    |  |

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LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO, 80003

Project: BNC - Wright  
Project Number: 0415-12004  
Project Manager: Brian Dodek

Reported:  
10/10/12 10:13

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source | %REC |        | RPD |       | Notes |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit |       |

**Batch 2100603 - EPA 5030 Soil MS**

| <b>Matrix Spike (2100603-MS1)</b> | <b>Source: R210043-01</b> |        |       | <b>Prepared &amp; Analyzed: 10/06/12</b> |    |      |        |  |  |  |
|-----------------------------------|---------------------------|--------|-------|--|----|------|--------|--|--|--|
| Benzene                           | 0.101                     | 0.0050 | mg/kg | 0.0996                                   | ND | 101  | 30-131 |  |  |  |
| Toluene                           | 0.109                     | 0.0050 | "     | 0.0996                                   | ND | 109  | 30-134 |  |  |  |
| Ethylbenzene                      | 0.112                     | 0.0050 | "     | 0.0996                                   | ND | 113  | 22-153 |  |  |  |
| m,p-Xylene                        | 0.229                     | 0.010  | "     | 0.199                                    | ND | 115  | 10-159 |  |  |  |
| o-Xylene                          | 0.112                     | 0.0050 | "     | 0.0996                                   | ND | 113  | 31-151 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4  | 0.0373                    |        | "     | 0.0395                                   |    | 94.3 | 30-150 |  |  |  |
| Surrogate: Toluene-d8             | 0.0380                    |        | "     | 0.0398                                   |    | 95.4 | 30-150 |  |  |  |
| Surrogate: 4-Bromofluorobenzene   | 0.0380                    |        | "     | 0.0398                                   |    | 95.5 | 30-150 |  |  |  |

| <b>Matrix Spike Dup (2100603-MSD1)</b> | <b>Source: R210043-01</b> |        |       | <b>Prepared &amp; Analyzed: 10/06/12</b> |    |      |        |      |    |  |
|--|---------------------------|--------|-------|--|----|------|--------|------|----|--|
| Benzene                                | 0.0931                    | 0.0050 | mg/kg | 0.0969                                   | ND | 96.1 | 30-131 | 8.12 | 34 |  |
| Toluene                                | 0.101                     | 0.0050 | "     | 0.0969                                   | ND | 104  | 30-134 | 7.22 | 30 |  |
| Ethylbenzene                           | 0.103                     | 0.0050 | "     | 0.0969                                   | ND | 106  | 22-153 | 8.53 | 24 |  |
| m,p-Xylene                             | 0.210                     | 0.010  | "     | 0.194                                    | ND | 108  | 10-159 | 8.84 | 68 |  |
| o-Xylene                               | 0.103                     | 0.0050 | "     | 0.0969                                   | ND | 107  | 31-151 | 8.27 | 38 |  |
| Surrogate: 1,2-Dichloroethane-d4       | 0.0366                    |        | "     | 0.0385                                   |    | 95.2 | 30-150 |      |    |  |
| Surrogate: Toluene-d8                  | 0.0377                    |        | "     | 0.0388                                   |    | 97.4 | 30-150 |      |    |  |
| Surrogate: 4-Bromofluorobenzene        | 0.0359                    |        | "     | 0.0388                                   |    | 92.6 | 30-150 |      |    |  |

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 Arvada CO, 80003

Project: BNC - Wright

Project Number: 0415-12004  
 Project Manager: Brian Dodek

**Reported:**  
 10/10/12 10:13

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**  
**Summit Scientific**

| Analyte | Result | Reporting |       | Spike | Source | %REC |        | RPD |       | Notes |
|---------|--------|-----------|-------|-------|--------|------|--------|-----|-------|-------|
|         |        | Limit     | Units | Level | Result | %REC | Limits | RPD | Limit |       |

**Batch 2100803 - General Preparation**

|                                 |                           |         |  |  |       |  |  |      |      |  |
|---------------------------------|---------------------------|---------|--|--|-------|--|--|------|------|--|
| <b>Duplicate (2100803-DUP1)</b> | <b>Source: R210041-01</b> |         | <b>Prepared &amp; Analyzed: 10/08/12</b> |  |       |  |  |      |      |  |
| Specific Conductance (EC)       | 0.628                     | 0.00100 | mmhos/cm                                 |  | 0.605 |  |  | 3.65 | 15.5 |  |

**Batch 2100804 - General Preparation**

|                                 |                           |  |  |  |     |  |  |       |      |  |
|---------------------------------|---------------------------|--|--|--|-----|--|--|-------|------|--|
| <b>Duplicate (2100804-DUP1)</b> | <b>Source: R210041-01</b> |  | <b>Prepared &amp; Analyzed: 10/08/12</b> |  |     |  |  |       |      |  |
| pH                              | 8.7                       |  | pH Units                                 |  | 8.7 |  |  | 0.459 | 4.95 |  |

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Arvada CO, 80003

Project: BNC - Wright  
Project Number: 0415-12004  
Project Manager: Brian Dodek

Reported:  
10/10/12 10:13

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis - Quality Control**  
**Summit Scientific**

| Analyte | Reporting |       |       | Spike | Source | %REC |        | RPD |       | Notes |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
|         | Result    | Limit | Units | Level | Result | %REC | Limits | RPD | Limit |       |

**Batch 2100505 - General Preparation**

**Blank (2100505-BLK1)**

Prepared & Analyzed: 10/06/12

|           |    |      |       |  |  |  |  |  |  |  |
|-----------|----|------|-------|--|--|--|--|--|--|--|
| Calcium   | ND | 2.50 | mg/kg |  |  |  |  |  |  |  |
| Magnesium | ND | 1.00 | "     |  |  |  |  |  |  |  |
| Sodium    | ND | 5.00 | "     |  |  |  |  |  |  |  |

**LCS (2100505-BS1)**

Prepared & Analyzed: 10/06/12

|           |     |      |       |     |  |      |        |  |  |  |
|-----------|-----|------|-------|-----|--|------|--------|--|--|--|
| Calcium   | 382 | 2.50 | mg/kg | 400 |  | 95.5 | 77-118 |  |  |  |
| Magnesium | 194 | 1.00 | "     | 200 |  | 97.2 | 77-117 |  |  |  |
| Sodium    | 650 | 5.00 | "     | 700 |  | 92.8 | 80-119 |  |  |  |

**LCS Dup (2100505-BSD1)**

Prepared & Analyzed: 10/06/12

|           |     |      |       |     |      |      |        |       |    |  |
|-----------|-----|------|-------|-----|------|------|--------|-------|----|--|
| Calcium   | 381 | 2.50 | mg/kg | 400 | 763  | 95.3 | 77-118 | 0.269 | 14 |  |
| Magnesium | 193 | 1.00 | "     | 200 | 250  | 96.7 | 77-117 | 0.498 | 12 |  |
| Sodium    | 648 | 5.00 | "     | 700 | 35.8 | 92.6 | 80-119 | 0.243 | 14 |  |

**Matrix Spike (2100505-MS1)**

Source: R210030-01

Prepared & Analyzed: 10/06/12

|           |      |      |       |     |      |      |        |  |  |  |
|-----------|------|------|-------|-----|------|------|--------|--|--|--|
| Calcium   | 1170 | 2.50 | mg/kg | 253 | 763  | 160  | 13-170 |  |  |  |
| Magnesium | 379  | 1.00 | "     | 126 | 250  | 102  | 34-152 |  |  |  |
| Sodium    | 400  | 5.00 | "     | 442 | 35.8 | 82.4 | 43-155 |  |  |  |

**Matrix Spike Dup (2100505-MSD1)**

Source: R210030-01

Prepared & Analyzed: 10/06/12

|           |      |      |       |     |      |      |        |      |    |       |
|-----------|------|------|-------|-----|------|------|--------|------|----|-------|
| Calcium   | 1410 | 2.50 | mg/kg | 282 | 763  | 229  | 13-170 | 18.8 | 37 | QM-07 |
| Magnesium | 451  | 1.00 | "     | 141 | 250  | 142  | 34-152 | 17.3 | 33 |       |
| Sodium    | 469  | 5.00 | "     | 494 | 35.8 | 87.7 | 43-155 | 15.8 | 25 |       |

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Arvada CO, 80003

Project: BNC - Wright

Project Number: 0415-12004  
Project Manager: Brian Dodek

**Reported:**  
10/10/12 10:13

### Notes and Definitions

- S-02      The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
- QM-07    The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- DET      Analyte DETECTED
- ND      Analyte NOT DETECTED at or above the reporting limit
- NR      Not Reported
- dry      Sample results reported on a dry weight basis
- RPD      Relative Percent Difference