

3R - 426

2012 AGWMR

02/19/2013



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& ASSOCIATES**

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February 19, 2013

Reference No. 074925, 074927, 074928
074929, 074932, 074934
075038

Mr. Glenn von Gonten
New Mexico Oil Conservation Division
1220 South Saint Francis Dr.
Santa Fe, NM 87505

Dear Mr. von Gonten:

Re: Groundwater Monitoring Reports - 2012

Enclosed, please find a copy of the reports listed below compiled by Conestoga-Rovers and Associates, Inc.

- ✓ 3R434 1. Farmington B Com No. 1E Annual Groundwater Monitoring Report - September 2012
- ✓ 3R434 2. Faye Burdette No. 1 Annual Groundwater Monitoring Report - September 2012
- ✓ 3R469 3. Hampton No. 4M Annual Groundwater Monitoring Report - September 2012
- ✓ 3R431 4. Howell K No. 1 Annual Groundwater Monitoring Report - September 2012
- ✓ 3R471 5. Johnston Federal No. 4 Metering Station Annual Groundwater Monitoring Report - September 2012
- ✓ 3R426 6. San Juan 27-5 No. 34A Annual Groundwater Monitoring Report - September 2012
- 3R428 7. Sategna No. 2E Quarterly Groundwater Monitoring Report - September 2012

If you have any questions or require additional information, please contact me at (505) 884-0672 or keblanchard@craworld.com.

Sincerely,
CONESTOGA-ROVERS & ASSOCIATES

Kelly E. Blanchard
Project Manager

JP/cjg/1
Encl.

cc: Brandon Powell, NMOCD
Terry Lauck, ConocoPhillips (electronic only)

Equal
Employment Opportunity
Employer



SEPTEMBER 2012 ANNUAL GROUNDWATER MONITORING REPORT

CONOCOPHILLIPS SAN JUAN 27-5 No. 34A
RIO ARriba COUNTY, NEW MEXICO
API# 30-039-23739
NMOCD# 3R-426

Prepared For:

CONOCOPHILLIPS COMPANY
Risk Management and Remediation
420 South Keeler Avenue
Bartlesville, OK, 74004

JANUARY 2012
REF. NO. 074934 (3)
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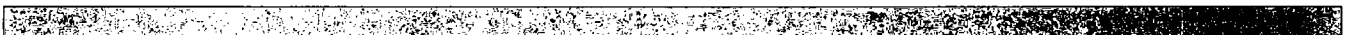


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1.0 INTRODUCTION

This report details the results of annual groundwater monitoring completed by Conestoga-Rovers & Associates (CRA) on September 24, 2012 at the ConocoPhillips Company (ConocoPhillips), San Juan 27-5 No. 34A natural gas well site located on BLM land in Unit Letter E, Section 30, Township 27N, Range 05W, of Rio Arriba County, New Mexico (Site).

The location and general features of the Site are presented as **Figures 1 and 2**, respectively. A generalized geologic cross section is presented as **Figure 3**.

1.1 BACKGROUND

Hydrocarbon impacts were discovered beneath an aboveground storage tank (AST) during tank removal at the Site on January 30, 2009. Envirotech Inc. of Farmington, NM (Envirotech) was contacted for spill assessment services following the discovery. Envirotech collected a 5-point composite soil sample from beneath the AST, 4 grab soil samples from test holes advanced around the AST, and an additional 5-point composite soil sample collected from a small excavation approximately 17 feet deep (Envirotech, 2009). All soil samples collected were field analyzed for total petroleum hydrocarbons (TPH) using Environmental Protection Agency (EPA) method 418.1, and for organic vapors using a photoionization detector (PID). The 5-point composite soil samples were also sent for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021, and for TPH analysis by EPA Method 8015. Soil sample results from both 5-point composite samples and from one of the test holes were above recommended action levels, all other samples were below.

On March 3, 2009, Envirotech returned to the Site to continue sampling activities. A 49 feet by 49 feet by 20 feet deep area had been excavated prior to Envirotech's arrival on Site. Groundwater was encountered at 20 ft below ground surface (bgs). Envirotech sampled the groundwater for analysis of volatile organic compounds (VOCs) using EPA method 8260B (Envirotech, 2009). Laboratory results for benzene were found at a concentration above the New Mexico Water Quality Control Commission (NMWQCC) standard at 96 micrograms per liter ($\mu\text{g/L}$) in the groundwater sample. Composite soil samples were collected from the bottom of the excavation and from each of the 4 walls, then field analyzed for organic vapors and TPH. All results were below recommended action levels for organic vapors. TPH concentrations were below recommended action levels in all samples excluding one taken from the south wall of the excavation. Subsequently, the excavation was continued in the south wall 4 additional feet.

Field TPH analysis on an additional sample was below recommended action levels and excavation activities stopped. Final excavation dimensions were reported at 53 feet by 49 feet by 20 feet deep. Personal communication on July 13, 2009 between Tetra Tech and Wade Hack, ConocoPhillips field manager, revealed that the area of the excavation was within the current term location of the produced water and condensate tanks at the Site (Figure 2). A total of 1,900 cubic yards of impacted soil were removed from the Site and transported to an NMOCD permitted facility located in Farmington, New Mexico. Envirotech recommended the installation of groundwater monitor wells to determine "groundwater gradient and the extent of groundwater contamination" (Envirotech, 2009).

Between July 15, 2009 and July 16, 2009, EnviroDrill of Albuquerque, New Mexico installed 4 groundwater monitor wells at the Site under the supervision of Tetra Tech: MW-1, MW-2, MW-3, and MW-4. All wells were drilled using a CME-75 drill rig, hollow stem augers, and split-spoon sampling techniques; 15 feet of 0.010 polyvinylchloride (PVC) slotted screen was placed in each well.

Tetra Tech began quarterly groundwater quality monitoring of the Site on July 28, 2009. In March of 2011, after eight consecutive quarters of compliance with NMWQCC standards for BTEX, Tetra Tech recommended discontinuation of monitoring for BTEX. Monitoring of dissolved manganese was recommended to continue on an annual basis.

On June 15, 2011, Site consulting responsibilities were transferred from Tetra Tech to CRA of Albuquerque, NM. CRA began annual monitoring for dissolved manganese in September 2011.

Site history is outlined in Table 1.

2.0 GROUNDWATER MONITORING SUMMARY, SAMPLING METHODOLOGY AND ANALYTICAL RESULTS

2.1 GROUNDWATER MONITORING SUMMARY

On September 24, 2012 groundwater elevation measurements were obtained for Monitor Wells MW-1, MW-2, MW-3 and MW-4 using an oil/water interface probe. **Table 2** presents the monitor well specifications and groundwater elevation data. A groundwater potentiometric surface map is presented as **Figure 4**, and illustrates that groundwater at the Site flows north-northwest.

2.2 GROUNDWATER SAMPLING METHODOLOGY

Groundwater quality samples were collected from Monitor Wells MW-1, MW-2, MW-3 and MW-4 during the September 24, 2012 groundwater sampling event. Approximately three well volumes were purged from each monitor well prior to sampling. A 1.5-inch polyethylene, dedicated bailer was used in each well to purge and collect groundwater samples. The purged water was disposed of in the on-site produced water tank (**Figure 2**). Samples were placed in laboratory prepared bottles, packed on ice, and shipped under chain of custody documentation to Pace Analytical Services, Inc. of Lenexa, KS. Groundwater samples were analyzed for the presence dissolved manganese by EPA Method 6010. Field sampling forms are included as **Appendix A**.

2.3 GROUNDWATER ANALYTICAL RESULTS

The New Mexico Water Quality Control Commission mandates that groundwater quality in New Mexico be protected, and has issued groundwater quality standards in Title 20, Chapter 6, Part 2, Section 3103 of the New Mexico Administrative Code (20.6.2.3103 NMAC). Groundwater quality standards have been set for the protection of human health, domestic water supply, and irrigation use. Exceedences of NMWQCC groundwater quality standards in Site monitor wells are discussed below.

- **Dissolved Manganese**
 - The NMQCC standard for dissolved manganese is 0.2 mg/L. Groundwater collected from Monitor Wells MW-1 and MW-3 contained dissolved manganese concentrations of 0.76 mg/L, and 1.2 mg/L, respectively.

The corresponding laboratory analytical report for the September 2012 groundwater sampling event is included as **Appendix B**.

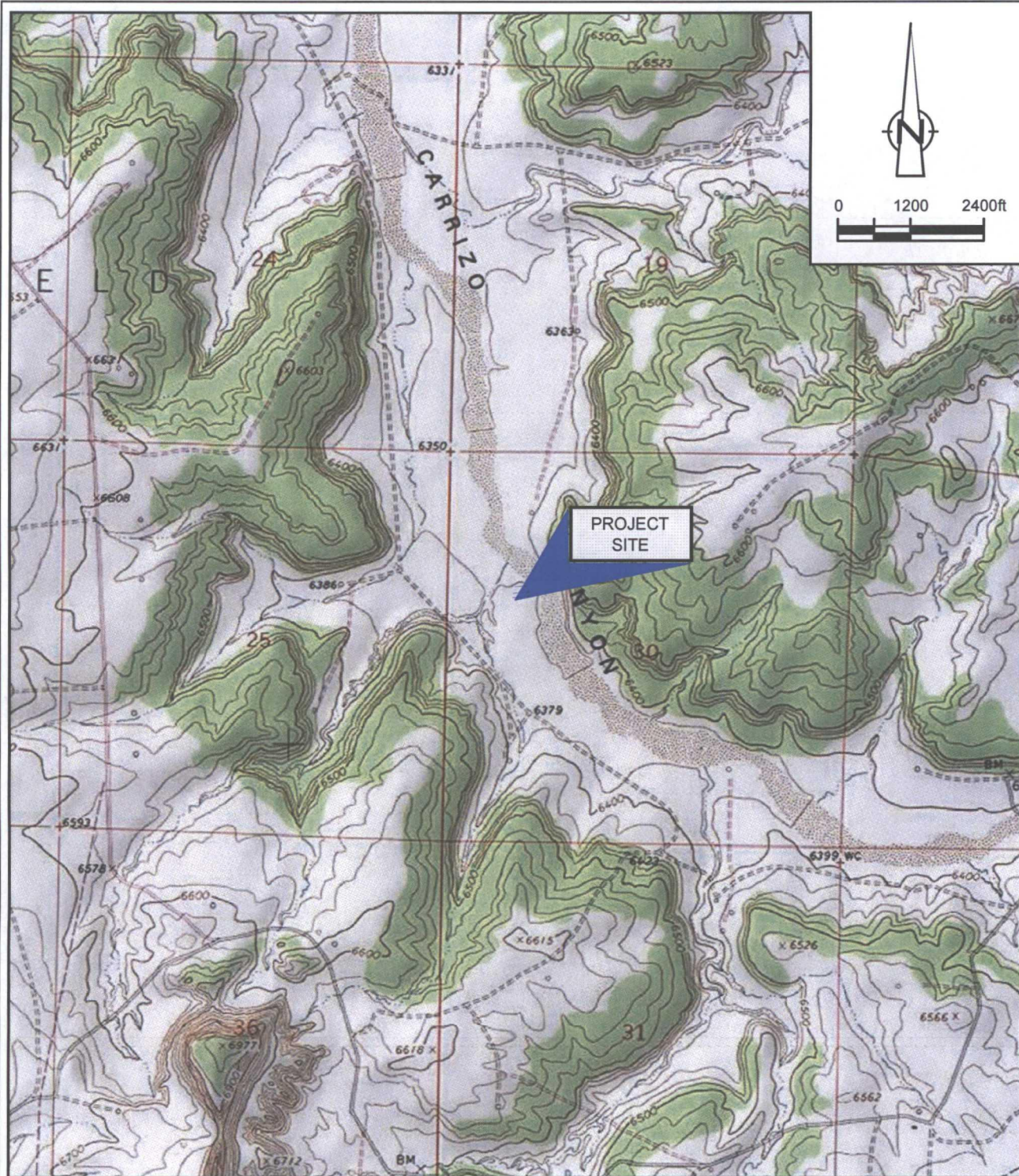
3.0 CONCLUSIONS AND RECOMMENDATIONS

In March of 2011, after eight consecutive quarters of compliance with NMWQCC standards for BTEX, Tetra Tech recommended discontinuation of monitoring for BTEX. Monitoring of dissolved manganese continues to be conducted on an annual basis. Remediation Site closure will be requested when groundwater quality results indicate that all monitored groundwater quality parameters are consistently below NMWQCC groundwater quality standards, are stable, or are representative of background conditions at the Site.

4.0 REFERENCES

Envirotech Incorporated. March 20, 2009. *Burlington Resources Spill Closure Report Located at San Juan 27-5 #34A, Section 30, Township 27N, Range 5W, Rio Arriba County, New Mexico*. Prepared for ConocoPhillips Company. p2.

FIGURES



SOURCE: USGS 7.5 MINUTE QUAD
"SANTOS PEAK, NEW MEXICO"

LAT/LONG: 36.5471° NORTH, 107.4066° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO CENTRAL



Figure 1

SITE LOCATION MAP
SAN JUAN 27-5 No. 34A
COUNTY, NEW MEXICO
ConocoPhillips Company





LEGEND

-  Monitor Well Location
-  Wellhead

LAT/LONG: 36.8089° NORTH, 107.9463° WEST
 COORDINATE: NAD83 DATUM, U.S. FOOT
 STATE PLANE ZONE - NEW MEXICO WEST

Figure 2

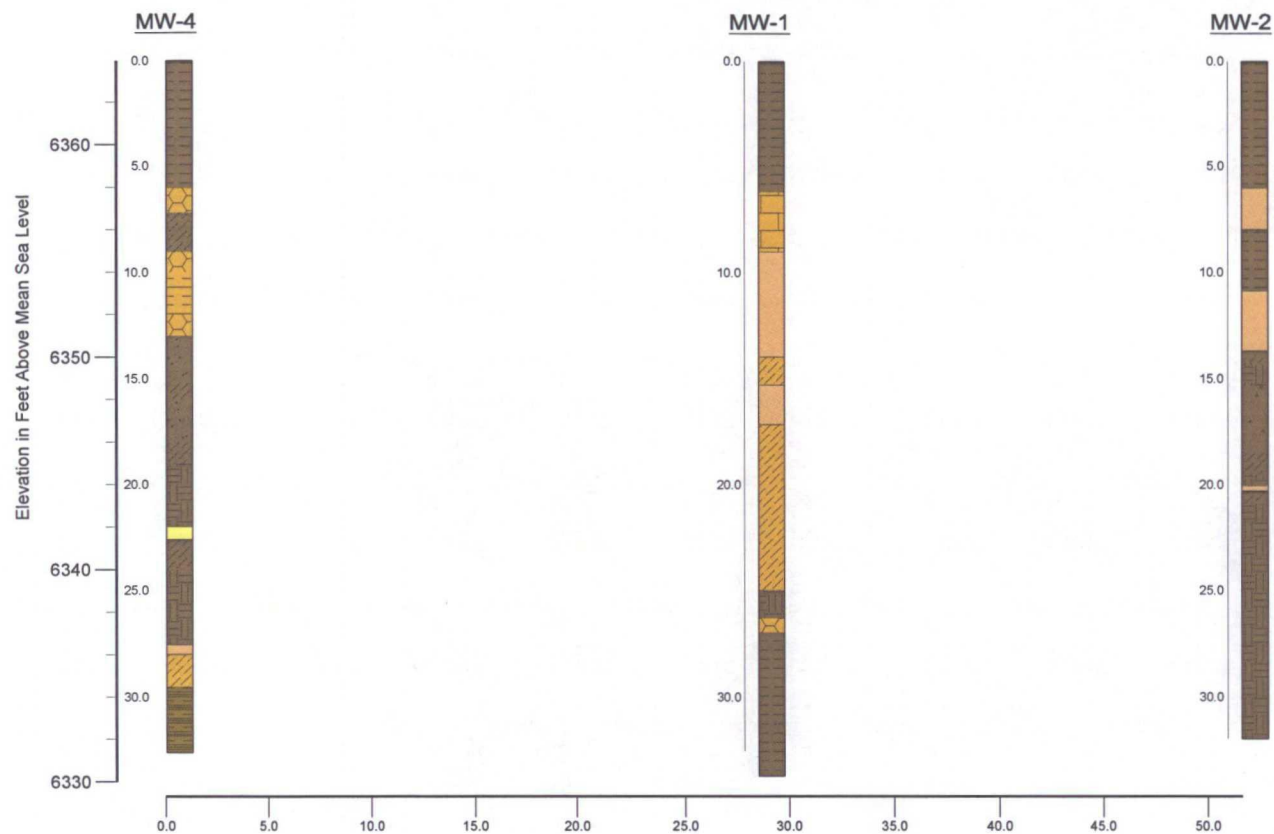
SITE MAP

SAN JUAN 27-5 No. 34A

SECTION 30, T27N, R5W, RIO ARRIBA COUNTY, NEW MEXICO

ConocoPhillips Company





Lithology Index

| | | | |
|--|-----------------------------------|--|------------------------|
| | Clayey Sand | | Poor Recovery |
| | Clayey Silt | | Sandy Silt |
| | Clays | | Silty Clay |
| | Fine Grained Sand | | Silty Sand |
| | Fine to Medium Grained Silty Sand | | Very Fine Grained Sand |
| | Medium Grained Sand | | |






Figure 3

GEOLOGICAL CROSS SECTION
 SAN JUAN 27-5 No. 34A
 SECTION 30, T27N, R5W, RIO ARRIBA COUNTY, NEW MEXICO
ConocoPhillips Company





LEGEND

-  Monitor Well Location
-  Wellhead
-  (72.61) Groundwater Elevation, Ft
-  — 72.50 — Groundwater Elevation Contour, Ft
-  — Groundwater Flow Direction



LAT/LONG: 36.8089° NORTH, 107.9463° WEST
 COORDINATE: NAD83 DATUM, U.S. FOOT
 STATE PLANE ZONE - NEW MEXICO WEST

Figure 4

SEPTEMBER 2012 GROUNDWATER POTENTIOMETRIC SURFACE MAP
 SAN JUAN 27-5 No. 34A
 SECTION 30, T27N, R5W, RIO ARriba COUNTY, NEW MEXICO
 ConocoPhillips Company

TABLES

TABLE 1

**SITE HISTORY TIMELINE
CONOCOPHILLIPS COMPANY
SAN JUAN 27-5 No. 34A
RIO ARriba COUNTY, NM**

| <i>Date/Time Period</i> | <i>Event/Action</i> | <i>Description/Comments</i> |
|-------------------------------|--|--|
| January 30, 2009 | Site Assessment | Hydrocarbon impacts are visually confirmed during tank removal at the Site. Envirotech Inc. of Farmington, New Mexico (Envirotech) conducted spill assessment and initial soil sampling. |
| March 3, 2009 | Soil Excavation | Envirotech oversees soil excavation at the Site. Final dimensions of excavated area are 53'x49'x20' deep. Groundwater is encountered at 20' bgs and sampled. Laboratory results for benzene were found at a concentration of 95.6 micrograms per liter (ug/L), above the NMWQCC standard. |
| March 20, 2009 | Excavation Report | Envirotech excavation report states that a total of 1,900 cubic yards of soil was removed from the Site and transported to an OCD-permitted facility in Farmington, NM. Envirotech recommended the installation of groundwater monitor wells at the Site (Envirotech, 2009). |
| April 2, 2009 | Site Assessment | Tetra Tech visits the Site visit to determine placement of proposed groundwater monitor wells. |
| July 15, 2009 & July 16, 2009 | Monitor Well Installation | Four groundwater monitor wells are installed by EnviroDrill under the supervision of Tetra Tech (MW-1, MW-2, MW-3, MW-4). |
| July 28, 2009 | Groundwater Monitoring | Baseline quarterly groundwater monitoring event was conducted at the Site by Tetra Tech. |
| September 29, 2009 | Groundwater Monitoring | Quarterly groundwater monitoring event conducted at the Site by Tetra Tech. |
| December 15, 2009 | Groundwater Monitoring | Quarterly groundwater monitoring event conducted at the Site by Tetra Tech. |
| April 8, 2010 | Groundwater Monitoring | Quarterly groundwater monitoring event conducted at the Site by Tetra Tech. |
| June 8, 2010 | Groundwater Monitoring | Quarterly groundwater monitoring event conducted at the Site by Tetra Tech. |
| September 21, 2010 | Groundwater Monitoring | Quarterly groundwater monitoring event conducted at the Site by Tetra Tech. |
| December 15, 2010 | Groundwater Monitoring | Seventh quarterly groundwater monitoring event conducted at the Site by Tetra Tech. Manganese concentrations exceed NMWQCC standards in monitor wells MW-1, MW-2, and MW-3. |
| March 15, 2011 | Groundwater Monitoring | Eighth quarterly groundwater monitoring event conducted at the Site by Tetra Tech. Manganese concentrations exceed NMWQCC standards in monitor wells MW-1, MW-2, and MW-3. After eight consecutive quarters of compliance with BTEX standards, the monitoring schedule is changed to annual sampling for dissolved manganese only. |
| June 15, 2011 | Transfer of Site Consulting Responsibilities | Site consulting responsibilities are transferred from Tetra Tech to Conestoga-Rovers & Associates, Inc. of Albuquerque, NM (CRA). |
| September 28, 2011 | Groundwater Monitoring | Annual monitoring event for dissolved manganese only completed by CRA. |
| September 24, 2012 | Groundwater Monitoring | Annual monitoring event for dissolved manganese only completed by CRA. |

TABLE 2

**MONITOR WELL SPECIFICATIONS AND GROUNDWATER ELEVATIONS
CONOCOPHILLIPS COMPANY
SAN JUAN 27-5 No. 34A
RIO ARriba COUNTY, NM**

| Well ID | Total Depth (ft bgs) | Screen Interval (ft) | * TOC Elevation (ft) | Date Measured | Depth to Groundwater (ft below TOC) | Relative Groundwater Elevation |
|---------|-------------------------|-------------------------|----------------------------|---------------|--|--------------------------------|
| MW-1 | 33.13 | 18.73 - 33.73 | 97.44 | 7/28/2009 | 23.21 | 74.23 |
| | | | | 9/29/2009 | 23.88 | 73.56 |
| | | | | 12/15/2009 | 24.15 | 73.29 |
| | | | | 4/8/2010 | 21.76 | 75.68 |
| | | | | 6/8/2010 | 22.26 | 75.18 |
| | | | | 9/21/2010 | 23.24 | 74.20 |
| | | | | 12/15/2010 | 23.60 | 73.84 |
| | | | | 3/15/2011 | 22.92 | 74.52 |
| | | | | 9/28/2011 | 24.10 | 73.34 |
| | | | | 9/24/2012 | 25.20 | 72.24 |
| MW-2 | 34.29 | 15 - 30 | 96.78 | 7/28/2009 | 22.72 | 74.06 |
| | | | | 9/29/2009 | 23.40 | 73.38 |
| | | | | 12/15/2009 | 23.66 | 73.12 |
| | | | | 4/8/2010 | 21.21 | 75.57 |
| | | | | 6/8/2010 | 21.81 | 74.97 |
| | | | | 9/21/2010 | 22.78 | 74.00 |
| | | | | 12/15/2010 | 23.13 | 73.65 |
| | | | | 3/15/2011 | 22.44 | 74.34 |
| | | | | 9/28/2011 | 23.62 | 73.16 |
| | | | | 9/24/2012 | 24.72 | 72.06 |
| MW-3 | 33.11 | 17.55 - 32.55 | 97.24 | 7/28/2009 | 22.84 | 74.40 |
| | | | | 9/29/2009 | 23.54 | 73.70 |
| | | | | 12/15/2009 | 23.80 | 73.44 |
| | | | | 4/8/2010 | 21.22 | 76.02 |
| | | | | 6/8/2010 | 21.90 | 75.34 |
| | | | | 9/21/2010 | 22.90 | 74.34 |
| | | | | 12/15/2010 | 23.27 | 73.97 |
| | | | | 3/15/2011 | 22.55 | 74.69 |
| | | | | 9/28/2011 | 23.73 | 73.51 |
| | | | | 9/24/2012 | 24.89 | 72.35 |
| MW-4 | 33.47 | 17.6 - 32.6 | 97.23 | 7/28/2009 | 22.62 | 74.61 |
| | | | | 9/29/2009 | 23.31 | 73.92 |
| | | | | 12/15/2009 | 23.57 | 73.66 |
| | | | | 4/8/2010 | 21.25 | 75.98 |
| | | | | 6/8/2010 | 21.75 | 75.48 |
| | | | | 9/21/2010 | 22.67 | 74.56 |
| | | | | 12/15/2010 | 23.03 | 74.20 |
| | | | | 3/15/2011 | 22.35 | 74.88 |
| | | | | 9/28/2011 | 23.50 | 73.73 |
| | | | | 9/24/2012 | 24.62 | 72.61 |

Notes:

ft = Feet

TOC = Top of casing

bgs = below ground surface

*Groundwater elevation is relative to an arbitrary 100 feet

TABLE 3

GROUNDWATER LABORATORY ANALYTICAL RESULTS SUMMARY
 CONOCOPHILLIPS COMPANY
 SAN JUAN 27-5 No. 34A
 RIO ARRIBA COUNTY

| Well ID | Sample ID | Date | Sample Type | Benzene (mg/L) | Toluene (mg/L) | Ethylbenzene (mg/L) | Xylenes (total) (mg/L) | Manganese (dissolved) (mg/L) | Total Dissolved Solids (TDS) (mg/L) |
|---------|--------------------------|------------|-------------|----------------|----------------|---------------------|------------------------|------------------------------|-------------------------------------|
| MW-1 | MW-1 | 7/28/2009 | (orig) | < 0.005 | < 0.005 | < 0.005 | < 0.005 | -- | -- |
| | MW-1 | 9/29/2009 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.694 | -- |
| | MW-1 | 12/15/2009 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.576 | -- |
| | MW-1 | 4/8/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.896 | 640 |
| | MW-1 | 6/8/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.612 | -- |
| | MW-1 | 9/21/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.784 | -- |
| | MW-1 | 12/15/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.933 | -- |
| | MW-1 | 3/15/2011 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.732 | -- |
| | GW-074934-092811-CM-001 | 9/28/2011 | (orig) | -- | -- | -- | -- | 0.789 | -- |
| MW-2 | GW-074934-092412-CM-MW-1 | 9/24/2012 | (orig) | -- | -- | -- | -- | 0.76 | -- |
| | MW-2 | 7/28/2009 | (orig) | < 0.005 | < 0.005 | < 0.005 | < 0.005 | -- | -- |
| | MW-2 | 9/29/2009 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 1.38 | -- |
| | MW-2 | 12/15/2009 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 1.92 | -- |
| | MW-2 | 4/8/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 2.43 | 700 |
| | MW-2 | 6/8/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 2.12 | -- |
| | MW-2 | 9/21/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 2.25 | -- |
| | MW-2 | 12/15/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 2.17 | -- |
| | MW-2 | 3/15/2011 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 2.01 | -- |
| MW-3 | GW-074934-092811-CM-003 | 9/28/2011 | (orig) | -- | -- | -- | -- | 0.592 | -- |
| | GW-074934-092412-CM-MW-2 | 9/24/2012 | (orig) | -- | -- | -- | -- | 0.12 | -- |
| | GW-074934-092412-CM-DUP | 9/24/2012 | (orig) | -- | -- | -- | -- | 0.13 | -- |
| | MW-3 | 7/28/2009 | (orig) | < 0.005 | < 0.005 | < 0.005 | < 0.005 | -- | -- |
| | MW-3 | 9/29/2009 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 1.7 | -- |
| | MW-3 | 12/15/2009 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 2.04 | -- |
| | MW-3 | 4/8/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 2.51 | 525 |
| | MW-3 | 6/8/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 2.51 | -- |
| | MW-3 | 9/21/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 2.87 | -- |
| MW-3 | MW-3 | 12/15/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 2.69 | -- |
| | MW-3 | 3/15/2011 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 2.01 | -- |
| | GW-074934-092811-JP-002 | 9/28/2011 | (orig) | -- | -- | -- | -- | 2.03 | -- |
| MW-3 | GW-074934-092412-CM-MW-3 | 9/24/2012 | (orig) | -- | -- | -- | -- | 1.2 | -- |

TABLE 3

GROUNDWATER LABORATORY ANALYTICAL RESULTS SUMMARY
 CONOCOPHILLIPS COMPANY
 SAN JUAN 27-5 No. 34A
 RIO ARRIBA COUNTY

| Well ID | Sample ID | Date | Sample Type | Benzene (mg/L) | Toluene (mg/L) | Ethylbenzene (mg/L) | Xylenes (total) (mg/L) | Manganese (dissolved) (mg/L) | Total Dissolved Solids (TDS) (mg/L) |
|--------------------------------------|--------------------------|------------|-------------|----------------|----------------|---------------------|------------------------|------------------------------|-------------------------------------|
| MW-4 | MW-4 | 7/28/2009 | (orig) | < 0.005 | < 0.005 | < 0.005 | < 0.005 | -- | -- |
| | MW-4 | 9/29/2009 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.269 | -- |
| | MW-4 | 12/15/2009 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.0579 | -- |
| | MW-4 | 4/8/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.121 | 684 |
| | MW-4 | 6/8/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.0384 | -- |
| | MW-4 | 9/21/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.0301 | -- |
| | MW-4 | 12/15/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.0088 | -- |
| | MW-4 | 3/15/2011 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.008 | -- |
| | GW-074934-092811-CM-005 | 9/28/2011 | (orig) | -- | -- | -- | -- | 0.0461 | -- |
| | GW-074934-092412-CM-MW-4 | 9/24/2012 | (orig) | -- | -- | -- | -- | 0.026 | -- |
| NMWQCC Groundwater Quality Standards | | | | 0.01 | 0.75 | 0.75 | 0.62 | 0.2 | 1000 |

Notes:

NMWQCC = New Mexico Water Quality Control Commission

mg/L = milligrams per liter (parts per million)

< 0.001 = Below laboratory detection limit of 0.001 mg/L

Bold = concentrations that exceed the NMWQCC limits

-- = not analyzed

APPENDIX A

SEPTEMBER 2012 ANNUAL GROUNDWATER SAMPLING FIELD FORMS

WELL SAMPLING FIELD INFORMATION FORM

TE/PROJECT NAME:

SJ 27-5 24A

JOB#

074934

SAMPLE ID:

3W-074934-092412CM-MW-1 WELL# MW-1

9.24.12

PURGE DATE
(MM DD YY)

9.24.12

SAMPLE DATE
(MM DD YY)

WELL PURGING INFORMATION

1345

SAMPLE TIME
(24 HOUR)

1.26

WATER VOL. IN CASING
(GALLONS)

3.75

ACTUAL VOL. PURGED
(GALLONS)

PURGING EQUIPMENT: DEDICATED ☒ Y ☐ N
(CIRCLE ONE)

SAMPLING EQUIPMENT: DEDICATED ☒ Y ☐ N
(CIRCLE ONE)

PURGING DEVICE

☒ G

A - SUBMERSIBLE PUMP

D - GAS LIFT PUMP

G - BAILER

X=

PURGING DEVICE OTHER (SPECIFY)

SAMPLING DEVICE

☒ G

B - PERISTALTIC PUMP

E - PURGE PUMP

H - WATERA®

X=

SAMPLING DEVICE OTHER (SPECIFY)

PURGING MATERIAL

☒ E

A - TEFLON

D - PVC

X=

PURGING MATERIAL OTHER (SPECIFY)

SAMPLING MATERIAL

☒ E

B - STAINLESS STEEL

E - POLYETHYLENE

X=

SAMPLING MATERIAL OTHER (SPECIFY)

PURGE TUBING

☒ C

A - TEFLON

D - POLYPROPYLENE

G - COMBINATION

X=

PURGE TUBING OTHER (SPECIFY)

SAMPLING TUBING

☒ C

B - TYGON

E - POLYETHYLENE

TEFLON/POLYPROPYLENE

X=

SAMPLING TUBING OTHER (SPECIFY)

FILTERING DEVICES 0.45

☒ A

A - IN-LINE DISPOSABLE

B - PRESSURE

C - VACUUM

45 Per metals only

FIELD MEASUREMENTS

DEPTH TO WATER

25.20

(feet)

WELL ELEVATION

97.44

(feet)

WELL DEPTH

33.05

(feet)

GROUNDWATER ELEVATION

72.24

(feet)

TEMPERATURE

pH

TDS

CONDUCTIVITY

ORP

VOLUME

13.21 (°C)

6.05 (std)

0.519 (g/L)

618 (µS/cm)

113.8 (mV)

3.25 (gal)

13.13 (°C)

6.17 (std)

0.516 (g/L)

615 (µS/cm)

110.7 (mV)

3.50 (gal)

13.20 (°C)

6.22 (std)

0.519 (g/L)

619 (µS/cm)

109.3 (mV)

3.75 (gal)

(°C)

(std)

(g/L)

(µS/cm)

(mV)

(gal)

(°C)

(std)

(g/L)

(µS/cm)

(mV)

(gal)

SAMPLE APPEARANCE:

clear

ODOR:

none

COLOR:

light brown to clear

SHEEN ☒ Y ☐ N

WEATHER CONDITIONS:

TEMPERATURE

70°

WIND ☒ Y ☐ N

PRECIPITATION ☒ Y ☐ N (IF Y TYPE)

SPECIFIC COMMENTS:

1.26 x 3 = 3.768

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

9/24/12

DATE

PRINT

Christine Matthews

SIGNATURE

[Signature]

WELL SAMPLING FIELD INFORMATION FORM

TE/PROJECT NAME:

SS 27-5 34A

JOB#

074934

SAMPLE ID

GHO 74934-092412-01-MW-2

WELL# MW-2

9.24.12

PURGE DATE
(MM DD YY)

9.24.12

SAMPLE DATE
(MM DD YY)

WELL PURGING INFORMATION

1435

SAMPLE TIME
(24 HOUR)

1.530

WATER VOL. IN CASING
(GALLONS)

3.0

ACTUAL VOL. PURGED
(GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.....DEDICATED

Y

N

(CIRCLE ONE)

SAMPLING EQUIPMENT.....DEDICATED

Y

N

(CIRCLE ONE)

PURGING DEVICE

G

A - SUBMERSIBLE PUMP

D - GAS LIFT PUMP

G - BAILER

X=

SAMPLING DEVICE

G

B - PERISTALTIC PUMP

E - PURGE PUMP

H - WATERRA®

PURGING DEVICE OTHER (SPECIFY)

C - BLADDER PUMP

F - DIPPER BOTTLE

X - OTHER

X=

SAMPLING DEVICE OTHER (SPECIFY)

PURGING MATERIAL

E

A - TEFLON

D - PVC

X=

B - STAINLESS STEEL

E - POLYETHYLENE

PURGING MATERIAL OTHER (SPECIFY)

SAMPLING MATERIAL

E

C - POLYPROPYLENE

X - OTHER

X=

SAMPLING MATERIAL OTHER (SPECIFY)

PURGE TUBING

C

A - TEFLON

D - POLYPROPYLENE

G - COMBINATION

X=

B - TYGON

E - POLYETHYLENE

TEFLON/POLYPROPYLENE

PURGE TUBING OTHER (SPECIFY)

SAMPLING TUBING

C

C - ROPE

F - SILICONE

X - OTHER

X=

SAMPLING TUBING OTHER (SPECIFY)

FILTERING DEVICES 0.45

LA

A - IN-LINE DISPOSABLE

B - PRESSURE

C - VACUUM

.45 for metals on ly

FIELD MEASUREMENTS

DEPTH TO WATER

24.22

(feet)

WELL ELEVATION

96.78

(feet)

WELL DEPTH

34.28

(feet)

GROUNDWATER ELEVATION

72.06

(feet)

TEMPERATURE

12.84 (°C)

pH

6.85 (std)

TDS

.560 (g/L)

CONDUCTIVITY

661 (µS/cm)

ORP

128.3 (mV)

VOLUME

3.0 (gal)

DO% 629

FIELD COMMENTS

SAMPLE APPEARANCE:

clear

ODOR:

none

COLOR:

light brown

SHEEN: Y

WEATHER CONDITIONS:

TEMPERATURE

70°

WIND: Y

PRECIPITATION: Y (TYPE)

SPECIFIC COMMENTS:

1.530 x 3 = 4.589

Duplicate @ 1440

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

DATE

9/24/12

PRINT

Christine Matthews

SIGNATURE

[Signature]

WELL SAMPLING FIELD INFORMATION FORM

TE/PROJECT NAME: SJ 27-5 34A JOB# 074934
 SAMPLE ID: GW-074934-092412-CM-MW-3 WELL# MW-3

9.24.12 9.24.12 1400 1.3136 4.0
 PURGE DATE (MM DD YY) SAMPLE DATE (MM DD YY) SAMPLE TIME (24 HOUR) WATER VOL. IN CASING (GALLONS) ACTUAL VOL. PURGED (GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.....DEDICATED ☒ N (CIRCLE ONE) SAMPLING EQUIPMENT.....DEDICATED ☒ N (CIRCLE ONE)

| | | | | | | |
|-------------------|-----|----------------------|-------------------|----------------------|----|-----------------------------------|
| PURGING DEVICE | [G] | A - SUBMERSIBLE PUMP | D - GAS LIFT PUMP | G - BAILER | X= | PURGING DEVICE OTHER (SPECIFY) |
| | | B - PERISTALTIC PUMP | E - PURGE PUMP | H - WATERRA® | | |
| SAMPLING DEVICE | [G] | C - BLADDER PUMP | F - DIPPER BOTTLE | X - OTHER | X= | SAMPLING DEVICE OTHER (SPECIFY) |
| PURGING MATERIAL | [E] | A - TEFLON | D - PVC | | X= | PURGING MATERIAL OTHER (SPECIFY) |
| | | B - STAINLESS STEEL | E - POLYETHYLENE | | | |
| SAMPLING MATERIAL | [E] | C - POLYPROPYLENE | X - OTHER | | X= | SAMPLING MATERIAL OTHER (SPECIFY) |
| PURGE TUBING | [C] | A - TEFLON | D - POLYPROPYLENE | G - COMBINATION | X= | PURGE TUBING OTHER (SPECIFY) |
| | | B - TYGON | E - POLYETHYLENE | TEFLON/POLYPROPYLENE | | |
| SAMPLING TUBING | [C] | C - ROPE | F - SILICONE | X - OTHER | X= | SAMPLING TUBING OTHER (SPECIFY) |

FILTERING DEVICES 0.45 1A A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM .45 for metals only

FIELD MEASUREMENTS

| | | | | | |
|----------------|--------------|--------|-----------------------|--------------|--------|
| DEPTH TO WATER | <u>24.89</u> | (feet) | WELL ELEVATION | <u>97.24</u> | (feet) |
| WELL DEPTH | <u>33.10</u> | (feet) | GROUNDWATER ELEVATION | <u>72.35</u> | (feet) |

| | | | | | |
|-------------------|-------------------|--------------------|--------------------|-------------------|-------------------|
| TEMPERATURE | pH | TDS | CONDUCTIVITY | ORP | VOLUME |
| <u>12.75</u> (°C) | <u>6.41</u> (std) | <u>0.451</u> (g/L) | <u>531</u> (µS/cm) | <u>108.4</u> (mV) | <u>3.5</u> (gal) |
| <u>12.61</u> (°C) | <u>6.39</u> (std) | <u>0.452</u> (g/L) | <u>531</u> (µS/cm) | <u>101.2</u> (mV) | <u>3.75</u> (gal) |
| <u>12.55</u> (°C) | <u>6.39</u> (std) | <u>0.454</u> (g/L) | <u>533</u> (µS/cm) | <u>95.7</u> (mV) | <u>4.0</u> (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mV) | (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mV) | (gal) |

SAMPLE APPEARANCE: clear ODOR: none COLOR: light brown to clear SHEEN Y/N ☒
 WEATHER CONDITIONS: TEMPERATURE 70° WINDY Y/N ☒ PRECIPITATION Y/N (IF Y-TYPE) ☒
 SPECIFIC COMMENTS: _____

1.3136 x 3 = 3.94

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS
 DATE 9/24/12 PRINT Christine Matthews SIGNATURE [Signature]

WELL SAMPLING FIELD INFORMATION FORM

TE/PROJECT NAME: SJ 27-5 34A

JOB# 074934

SAMPLE ID: GW-074934-092412-CM-MW-4

WELL# MW-4

WELL PURGING INFORMATION

9.24.12
PURGE DATE
(MM DD YY)

9.24.12
SAMPLE DATE
(MM DD YY)

1425
SAMPLE TIME
(24 HOUR)

1.432
WATER VOL. IN CASING
(GALLONS)

1425 2.5 gal
ACTUAL VOL. PURGED
(GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.....DEDICATED ☒ Y ☐ N
(CIRCLE ONE)

SAMPLING EQUIPMENT.....DEDICATED ☒ Y ☐ N
(CIRCLE ONE)

| | | | | | |
|-------------------|------------------------------------|----------------------|-------------------|----------------------|-----------------------------------|
| PURGING DEVICE | <input checked="" type="radio"/> B | A - SUBMERSIBLE PUMP | D - GAS LIFT PUMP | G - BAILER | X = |
| SAMPLING DEVICE | <input checked="" type="radio"/> G | B - PERISTALTIC PUMP | E - PURGE PUMP | H - WATERRA® | PURGING DEVICE OTHER (SPECIFY) |
| PURGING MATERIAL | <input checked="" type="radio"/> E | C - BLADDER PUMP | F - DIPPER BOTTLE | X - OTHER | X = |
| SAMPLING MATERIAL | <input checked="" type="radio"/> E | A - TEFLON | D - PVC | | SAMPLING DEVICE OTHER (SPECIFY) |
| PURGE TUBING | <input checked="" type="radio"/> C | B - STAINLESS STEEL | E - POLYETHYLENE | | X = |
| SAMPLING TUBING | <input checked="" type="radio"/> C | C - POLYPROPYLENE | X - OTHER | | PURGING MATERIAL OTHER (SPECIFY) |
| | | A - TEFLON | D - POLYPROPYLENE | G - COMBINATION | X = |
| | | B - TYGON | E - POLYETHYLENE | TEFLON/POLYPROPYLENE | PURGE TUBING OTHER (SPECIFY) |
| | | C - ROPE | F - SILICONE | X - OTHER | X = |
| | | | | | SAMPLING MATERIAL OTHER (SPECIFY) |
| | | | | | SAMPLING TUBING OTHER (SPECIFY) |

FILTERING DEVICES 0.45 ☒ A ☐ B ☐ C
A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM 45 for metals only

FIELD MEASUREMENTS

DEPTH TO WATER 24.62 (feet) WELL ELEVATION 97.23 (feet)
WELL DEPTH 33.57 (feet) GROUNDWATER ELEVATION 72.61 (feet)

| | | | | | |
|-------------------|-------------------|-------------------|---------------------|-------------------|-------------------|
| TEMPERATURE | pH | TDS | CONDUCTIVITY | ORP | VOLUME |
| <u>12.73</u> (°C) | <u>7.03</u> (std) | <u>644</u> (g/L) | <u>159</u> (µS/cm) | <u>102.9</u> (mV) | <u>2.5</u> (gal) |
| <u> </u> (°C) | <u> </u> (std) | <u> </u> (g/L) | <u> </u> (µS/cm) | <u> </u> (mV) | <u> </u> (gal) |
| <u> </u> (°C) | <u> </u> (std) | <u> </u> (g/L) | <u> </u> (µS/cm) | <u> </u> (mV) | <u> </u> (gal) |
| <u> </u> (°C) | <u> </u> (std) | <u> </u> (g/L) | <u> </u> (µS/cm) | <u> </u> (mV) | <u> </u> (gal) |
| <u> </u> (°C) | <u> </u> (std) | <u> </u> (g/L) | <u> </u> (µS/cm) | <u> </u> (mV) | <u> </u> (gal) |

FIELD COMMENTS

SAMPLE APPEARANCE: clear ODOR: none COLOR: clear SHEEN ☒ Y ☐ N
WEATHER CONDITIONS: TEMPERATURE 70° WIND ☒ Y ☐ N PRECIPITATION ☒ Y ☐ N (IF Y TYPE)

SPECIFIC COMMENTS: well bailed dry @ 1.5 gallons, allowed to recharge, bailed
1.432 x 3 = 4.30 dry 2nd time @ 2.25 gallons total. Will
collect one set of parameters and sample.

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

DATE 9/24/12

PRINT Christine Matthews

SIGNATURE [Signature]

APPENDIX B

SEPTEMBER 2012 ANNUAL GROUNDWATER LABORATORY ANALYTICAL REPORT

October 08, 2012

Christine Matthews
CRA
6121 Indian School Rd NE
Suite 200
Albuquerque, NM 87110

RE: Project: SAN JUAN 27-5 NO 34A 074934
Pace Project No.: 60129928

Dear Christine Matthews:

Enclosed are the analytical results for sample(s) received by the laboratory on September 27, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Alice Flanagan

alice.flanagan@pacelabs.com
Project Manager

Enclosures

cc: Kelly Blanchard, COP Conestoga-Rovers & Associa
Angela Bown, COP Conestoga-Rovers & Associa
Cassie Brown, COP Conestoga-Rovers & Associa



REPORT OF LABORATORY ANALYSIS

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Page 1 of 13

Pace Package 1 of 15

CERTIFICATIONS

Project: SAN JUAN 27-5 NO 34A
Pace Project No.: 60129928

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456.01
Arkansas Certification #: 12-019-0
Illinois Certification #: 002885
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-12-3
Utah Certification #: KS000212012-2

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: SAN JUAN 27-5 NO 34A
Pace Project No.: 60129928

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|-------------|----------------------------|--------|----------------|----------------|
| 60129928001 | GW-074934-082412-CM-MW-1 | Water | 09/24/12 13:45 | 09/27/12 08:20 |
| 60129928002 | GW-074934-082412-CM-MW-2 | Water | 09/24/12 14:35 | 09/27/12 08:20 |
| 60129928003 | GW-074934-082412-CM-MW-3 | Water | 09/24/12 14:00 | 09/27/12 08:20 |
| 60129928004 | GW-074934-082412-CM-MW-4 | Water | 09/24/12 14:25 | 09/27/12 08:20 |
| 60129928005 | GW-074934-082412-CM-MW-DUP | Water | 09/24/12 14:40 | 09/27/12 08:20 |

REPORT OF LABORATORY ANALYSIS

Page 3 of 13

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SAMPLE ANALYTE COUNT

Project: SAN JUAN 27-5 NO 34A

Pace Project No.: 60129928

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|-------------|----------------------------|----------|----------|-------------------|
| 60129928001 | GW-074934-082412-CM-MW-1 | EPA 6010 | JGP | 1 |
| 60129928002 | GW-074934-082412-CM-MW-2 | EPA 6010 | JGP | 1 |
| 60129928003 | GW-074934-082412-CM-MW-3 | EPA 6010 | JGP | 1 |
| 60129928004 | GW-074934-082412-CM-MW-4 | EPA 6010 | JGP | 1 |
| 60129928005 | GW-074934-082412-CM-MW-DUP | EPA 6010 | JGP | 1 |

REPORT OF LABORATORY ANALYSIS

Page 4 of 13

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PROJECT NARRATIVE

Project: SAN JUAN 27-5 NO 34A
Pace Project No.: 60129928

Method: EPA 6010
Description: 6010 MET ICP, Dissolved
Client: COP Conestoga-Rovers & Associates, Inc. NM
Date: October 08, 2012

General Information:

5 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/19736

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60129930002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1071191)
 - Manganese, Dissolved
- MSD (Lab ID: 1071192)
 - Manganese, Dissolved

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SAN JUAN 27-5 NO 34A

Pace Project No.: 60129928

Sample: **GW-074934-082412-CM-MW-1** Lab ID: **60129928001** Collected: 09/24/12 13:45 Received: 09/27/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|--|---------|-------|-----------------|---------|----|----------------|----------------|-----------|------|
| 6010 MET ICP, Dissolved Analytical Method: EPA 6010 Preparation Method: EPA 3010 | | | | | | | | | |
| Manganese, Dissolved | 0.76 | mg/L | 0.0050 | 0.00060 | 1 | 10/02/12 10:45 | 10/05/12 12:45 | 7439-96-5 | |

ANALYTICAL RESULTS

Project: SAN JUAN 27-5 NO 34A

Pace Project No.: 60129928

Sample: **GW-074934-082412-CM-MW-2** Lab ID: **60129928002** Collected: 09/24/12 14:35 Received: 09/27/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|--|-------------|-------|-----------------|---------|----|----------------|----------------|-----------|------|
| 6010 MET ICP, Dissolved | | | | | | | | | |
| Analytical Method: EPA 6010 Preparation Method: EPA 3010 | | | | | | | | | |
| Manganese, Dissolved | 0.12 | mg/L | 0.0050 | 0.00060 | 1 | 10/02/12 10:45 | 10/05/12 12:47 | 7439-96-5 | |

ANALYTICAL RESULTS

Project: SAN JUAN 27-5 NO 34A

Pace Project No.: 60129928

Sample: **GW-074934-082412-CM-MW-3** Lab ID: **60129928003** Collected: 09/24/12 14:00 Received: 09/27/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|--|---------|-------|-----------------|---------|----|----------------|----------------|-----------|------|
| 6010 MET ICP, Dissolved | | | | | | | | | |
| Analytical Method: EPA 6010 Preparation Method: EPA 3010 | | | | | | | | | |
| Manganese, Dissolved | 1.2 | mg/L | 0.0050 | 0.00060 | 1 | 10/02/12 10:45 | 10/05/12 12:49 | 7439-96-5 | |

ANALYTICAL RESULTS

Project: SAN JUAN 27-5 NO 34A

Pace Project No.: 60129928

Sample: **GW-074934-082412-CM-MW-4** Lab ID: **60129928004** Collected: 09/24/12 14:25 Received: 09/27/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|--|--------------|-------|-----------------|---------|----|----------------|----------------|-----------|------|
| 6010 MET ICP, Dissolved | | | | | | | | | |
| Analytical Method: EPA 6010 Preparation Method: EPA 3010 | | | | | | | | | |
| Manganese, Dissolved | 0.026 | mg/L | 0.0050 | 0.00060 | 1 | 10/02/12 10:45 | 10/05/12 12:51 | 7439-96-5 | |

ANALYTICAL RESULTS

Project: SAN JUAN 27-5 NO 34A
Pace Project No.: 60129928

Sample: GW-074934-082412-CM-MW-DUP Lab ID: 60129928005 Collected: 09/24/12 14:40 Received: 09/27/12 08:20 Matrix: Water

| Parameters | Results | Units | Report Limit | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|--|---------|-------|--------------|---------|----|----------------|----------------|-----------|------|
| 6010 MET ICP, Dissolved Analytical Method: EPA 6010 Preparation Method: EPA 3010 | | | | | | | | | |
| Manganese, Dissolved | 0.13 | mg/L | 0.0050 | 0.00060 | 1 | 10/02/12 10:45 | 10/05/12 12:54 | 7439-96-5 | |

QUALITY CONTROL DATA

Project: SAN JUAN 27-5 NO 34A

Pace Project No.: 60129928

QC Batch: MPRP/19736 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60129928001, 60129928002, 60129928003, 60129928004, 60129928005

METHOD BLANK: 1071189

Matrix: Water

Associated Lab Samples: 60129928001, 60129928002, 60129928003, 60129928004, 60129928005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|----------------------|-------|--------------|-----------------|----------------|------------|
| Manganese, Dissolved | mg/L | ND | 0.0050 | 10/05/12 12:14 | |

LABORATORY CONTROL SAMPLE: 1071190

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|----------------------|-------|-------------|------------|-----------|--------------|------------|
| Manganese, Dissolved | mg/L | 1 | 0.98 | 98 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1071191 1071192

| Parameter | Units | 60129930002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | Max RPD | Max RPD | Qual |
|----------------------|-------|--------------------|----------------|-----------------|-----------|------------|----------|-----------|--------------|---------|---------|------|
| Manganese, Dissolved | mg/L | 2190 ug/L | 1 | 1 | 5.1 | 5.1 | 287 | 290 | 75-125 | 1 | 20 | M1 |

QUALIFIERS

Project: SAN JUAN 27-5 NO 34A
Pace Project No.: 60129928

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable..

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: SAN JUAN 27-5 NO 34A

Pace Project No.: 60129928

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|-------------|----------------------------|-----------------|------------|-------------------|------------------|
| 60129928001 | GW-074934-082412-CM-MW-1 | EPA 3010 | MPRP/19736 | EPA 6010 | ICP/16257 |
| 60129928002 | GW-074934-082412-CM-MW-2 | EPA 3010 | MPRP/19736 | EPA 6010 | ICP/16257 |
| 60129928003 | GW-074934-082412-CM-MW-3 | EPA 3010 | MPRP/19736 | EPA 6010 | ICP/16257 |
| 60129928004 | GW-074934-082412-CM-MW-4 | EPA 3010 | MPRP/19736 | EPA 6010 | ICP/16257 |
| 60129928005 | GW-074934-082412-CM-MW-DUP | EPA 3010 | MPRP/19736 | EPA 6010 | ICP/16257 |

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



Section A

Required Client Information

Company: COP CRA NM
Address: 6121 Indian School Rd NE, Ste 200
Albuquerque, NM 87110
Email To: cmathews@croworld.com
Phone: (505)884-0672 Fax: (505)884-4932
Requested Due Date/TAT: standard

Section B

Required Project Information

Report To: Christine Mathews
Copy To: Kelly Blanchard, Angela Bown
Purchase Order No.:
Project Name: San Juan 27-5 No. 34A
Project Number: 74934

Section C

Invoice Information

Attention: COP payables
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: Alice Flanagan
Pace Profile #: 5514, 18

Page:

of

REGULATORY AGENCY

☐ NPOES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

NM

STATE:

Requested Analysis Filtered (Y/N)

| ITEM # | Section D Required Client Information | Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED | | | | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives | | | | | | | | | | Y/N | Analysis Test↓ | 6010 Dissolved Mn | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ADDITIONAL COMMENTS | | | | REINQUISHED BY / AFFILIATION | | DATE | TIME | ACCEPTED BY / AFFILIATION | | DATE | TIME | SAMPLE CONDITIONS | | | |
|-----------------------|--|--|--|------------------------------|--|---------|------|---------------------------|--|---------|------|-------------------|---|---|---|
| Mg, Ca, B, K, Na | | | | Christine Mathews / CRA | | 9-26-12 | 0730 | Pace | | 9-27-12 | 0820 | 1.4 | Y | Y | Y |
| Pace Package 14 of 15 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

DATE Signed
(MM/DD/YY)

9-26-12

Temp in °C

Received on Ice (Y/N)

Custody Sealed Container (Y/N)

Sample Intact (Y/N)

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Sample Condition Upon Receipt – ESI Tech Specs

Client Name: COP - CRA

Project #: 60129978

Courier: Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: 7990 5200 0642 Pace Shipping Label Used? Yes ☐ No ☒

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☒ 2PK

Thermometer Used: T-191 / T-194

Type of Ice: Wet Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 1.4

Date and initials of person examining contents: 6/25/12

Temperature should be above freezing to 8°C

| | | |
|--|--|-----------------------------|
| Chain of Custody present: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 1. |
| Chain of Custody filled out: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 2. |
| Chain of Custody relinquished: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 3. |
| Sampler name & signature on COC: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 4. |
| Samples arrived within holding time: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 5. |
| Short Hold Time analyses (<72hr): <u>pr 4/27/12</u> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 6. |
| Rush Turn Around Time requested: | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | 7. |
| Sufficient volume: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 8. |
| Correct containers used: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 9. |
| -Pace containers used: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 9. |
| Containers intact: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 10. |
| Unpreserved 5035A soils frozen w/in 48hrs? | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 11. |
| Filtered volume received for dissolved tests? | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 12. |
| Sample labels match COC: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 13. |
| -Includes date/time/ID/analyses Matrix: <u>NT</u> | | 13. |
| All containers needing preservation have been checked. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 14. |
| All containers needing preservation are found to be in compliance with EPA recommendation. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 14. |
| Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Initial when completed |
| Trip Blank present: | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Lot # of added preservative |
| Pace Trip Blank lot # (if purchased): | | 15. |
| Headspace in VOA vials (>6mm): | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 16. |
| Project sampled in USDA Regulated Area: | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 17. List State: <u>NC</u> |

Client Notification/ Resolution: Copy COC to Client? Y ☒ N ☐ Field Data Required? Y ☐ N ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature] Date: 6/25/12

| | |
|--|--------|
| Temp Log: Record start and finish times when unpacking cooler, if >20 min, recheck sample temps. | |
| Start: <u>1647</u> | Start: |
| End: <u>1652</u> | End: |
| Temp: | Temp: |

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the NCDENR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).