# 3R – 090

# 2013 AGWMR

# 08 / 22 / 2014

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ConocoPhillips

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

August 22, 2014

**Re: NMOCD Case No. 3R-090, 2013 Annual Groundwater Monitoring Report**

Dear Mr. von Gonten:

Enclosed is the 2013 Annual Groundwater Monitoring Report for the Nell Hall No. 1 site. This report, prepared by Conestoga-Rovers & Associates (CRA), contains the results of groundwater monitoring from March, June, September, and December 2013.

Please let me know if you have any questions.

Sincerely,

David C. Hathaway

David C. Hathaway, P.E.

Enc

CONESTOGA-ROVERS & ASSOCIATES

www.CRAworld.com

Final Report

# 2013 Annual Groundwater Monitoring Report

ConocoPhillips Nell Hall No. 1
San Juan County, New Mexico
API# 30-045-09619
NMOCD# 3R-090

Prepared for: ConocoPhillips Company

**Conestoga-Rovers & Associates**
6121 Indian School Road, NE Suite 200
Albuquerque, New Mexico 87110

September 2014 • 074941 • Report No. 5

Partners in Sustainability

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# Section 1.0 Introduction

This report presents the results of quarterly groundwater monitoring events conducted by Conestoga-Rovers & Associates (CRA) on March 28, June 12, 2013, September 11, 2013, and December 13, 2013 at the ConocoPhillips Company (ConocoPhillips), Nell Hall No. 1 remediation site (Site), located on private land in Section 07, Township 30N, Range 11W of San Juan County, New Mexico, approximately 2 miles west of the city of Aztec. Geographical coordinates for the Site are 36.821659° North, 108.037319° West. The Site consists of a natural gas well and associated equipment. The location and Site layout are presented as **Figures 1** and **2**, respectively.

## 1.1 Background

The history of the Site is presented in **Table 1** and is summarized in the following paragraphs.

Environmental investigation at the Site began when closure of an unlined dehydrator discharge pit was attempted in the early 1990's. Soil impacts were discovered during earthmoving activities and groundwater Monitor Wells MW-1, MW-2, and MW-3 were subsequently installed to determine if hydrocarbons had impacted groundwater beneath the Site. An ongoing drought caused the water table to fall below the screened intervals of MW-1, MW-2, and MW-3. On February 17 and 18, 2004, Souder Miller and Associates (SMA) installed Monitor Wells MW-4, MW-5, and MW-6 at sufficient depths to intersect the water table and to account for the effects of further seasonal or drought-based water table fluctuations (Souder Miller and Associates, 2004). Boring log data from MW-4 and MW-6 were used to create a geologic cross-section for the Site (**Figure 3)**.

Tetra Tech, Inc. (Tetra Tech) began quarterly sampling of Monitor Wells MW-4, MW-5, and MW-6 in 2004, adjusting to a semi-annual sampling schedule in 2005, followed by annual sampling beginning in 2006. Semi-annual sampling was resumed in 2007 due to seasonal groundwater fluctuations.

It should be noted that the March 2004 groundwater sample was collected immediately following installation of MW-6 in February 2004, in which soil samples collected at 25 and 30 feet below ground surface each resulted in an exceedence of the 50 milligram per kilogram (mg/kg) regulatory limit for BTEX, and soil samples collected at 25, 30, and 35 feet bgs were found to contain total petroleum hydrocarbons (TPH) at levels greater than the 100 mg/kg regulatory limit (SMA, 2004).

On June 15, 2011, Site consulting responsibilities were transferred from Tetra Tech to CRA of Albuquerque, NM.

Currently, groundwater sampling is attempted quarterly, but is typically only possible semi-annually due to seasonal groundwater fluctuations which often render some monitor wells dry.

# Section 2.0 Groundwater Monitoring Methodology and Analytical Results

## 2.1 Groundwater Monitoring Methodology

***Groundwater Elevation Measurements***

Depth to groundwater was gauged at Monitor Wells MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6 using an oil/water interface probe prior to sampling. Groundwater potentiometric surface maps detailing groundwater elevations, groundwater flow direction, and gradient, using data collected during the 2013 quarterly sampling events are presented as **Figures 4, 5,** and **6**, respectively. In March 2013, all monitor wells were dry, therefore no maps for this event were generated.

Hydrographs illustrating groundwater level fluctuations since March 2004 in Monitor Wells MW-5 and MW-6 are presented as **Figure 7** and **Figure 8**, respectively. These data indicate that groundwater elevations are consistently lowest during the late winter and early spring months. Historically, the groundwater flow direction and gradient vary from season to season. These fluctuations are believed to be the result of changes in irrigation rates and/or baseflow conditions in the Animas River, which, at its closest point, lies approximately 0.6 mile to the south/southeast of the Site (**Figure 1**). Additionally, there is an irrigation ditch to the east of the site which may also influence groundwater gradient. Annual variation in groundwater elevation fluctuates as much as 18 feet over the course of a year. Groundwater flow direction at the site also varies in direction from south to southeast.

***Groundwater Sampling***

During the 2013 quarterly groundwater monitoring events, Site monitor wells were purged of at least 3 casing volumes of groundwater using 1.5-inch diameter, polyethylene, dedicated bailers. While bailing each well, groundwater parameter data, including temperature, pH, conductivity, dissolved oxygen, and oxidation-reduction potential were collected using a YSI 556 multi-parameter Sonde and recorded on CRA Well Sampling Field Information Forms (**Appendix A**).

Groundwater samples were collected from Monitor Wells MW-4, MW-5 and MW-6 during the 2013 sampling events (except in March when Site monitor wells were dry). Approximately three well volumes were purged from each monitor well with a dedicated, polyethylene, 1.5-inch, disposable bailer prior to sampling or monitor wells were bailed dry and sampled following recharge. Purge water generated during the event was disposed of in the on-site produced water tank (**Figure 2**). Groundwater 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.

The samples were analyzed for the presence of benzene, toluene, ethylbenzene and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8260 and for dissolved iron by EPA Method 6010.

## 2.2 Groundwater Monitoring Results

The New Mexico Water Quality Control Commission (NMWQCC) 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).

Results of 2013 groundwater sampling events are discussed below.

**June 2013**

**Benzene**

- The NMWQCC domestic water supply groundwater quality standard for benzene is 0.01 milligrams per liter (mg/L). The groundwater sample collected in June 2013 from Monitor Well MW-6 exceeded this standard with a concentration of 0.442 mg/L.

**Dissolved Iron**

- The groundwater quality standard for dissolved iron is 1.0 mg/L. The groundwater samples collected in June 2013 from Monitor Wells MW-4 and MW-6 contained dissolved iron at concentrations of 1.46 mg/L and 16.6 mg/L, respectively.

**September 2013**

**Benzene**

- The groundwater sample collected in September 2013 from Monitor Well MW-6 exceeded this standard with a concentration of 0.109 mg/L.

**Dissolved Iron**

- The groundwater sample collected in September 2013 from Monitor Well MW-6 contained dissolved iron at a concentration of 2.26 mg/L.

**December 2013**

**Benzene**

- The groundwater sample collected in December 2013 from Monitor Well MW-6 exceeded this standard with a concentration of 0.467 mg/L.

**Dissolved Iron**

- The groundwater sample collected in December 2013 from Monitor Well MW-6 contained dissolved iron at a concentration of 5.90 mg/L.

Benzene concentrations in MW-6 have fluctuated regularly since monitoring began in March 2004. An inverse correlation between water levels and benzene concentrations has been observed. A graph detailing this relationship is presented as **Figure 9**.

Benzene concentration maps for 2013 quarterly sampling events are presented as **Figures 10, 11** and **12**.

A summary of historical laboratory analytical results is presented as **Table 3**. Groundwater laboratory analytical reports can be found in **Appendix B**.

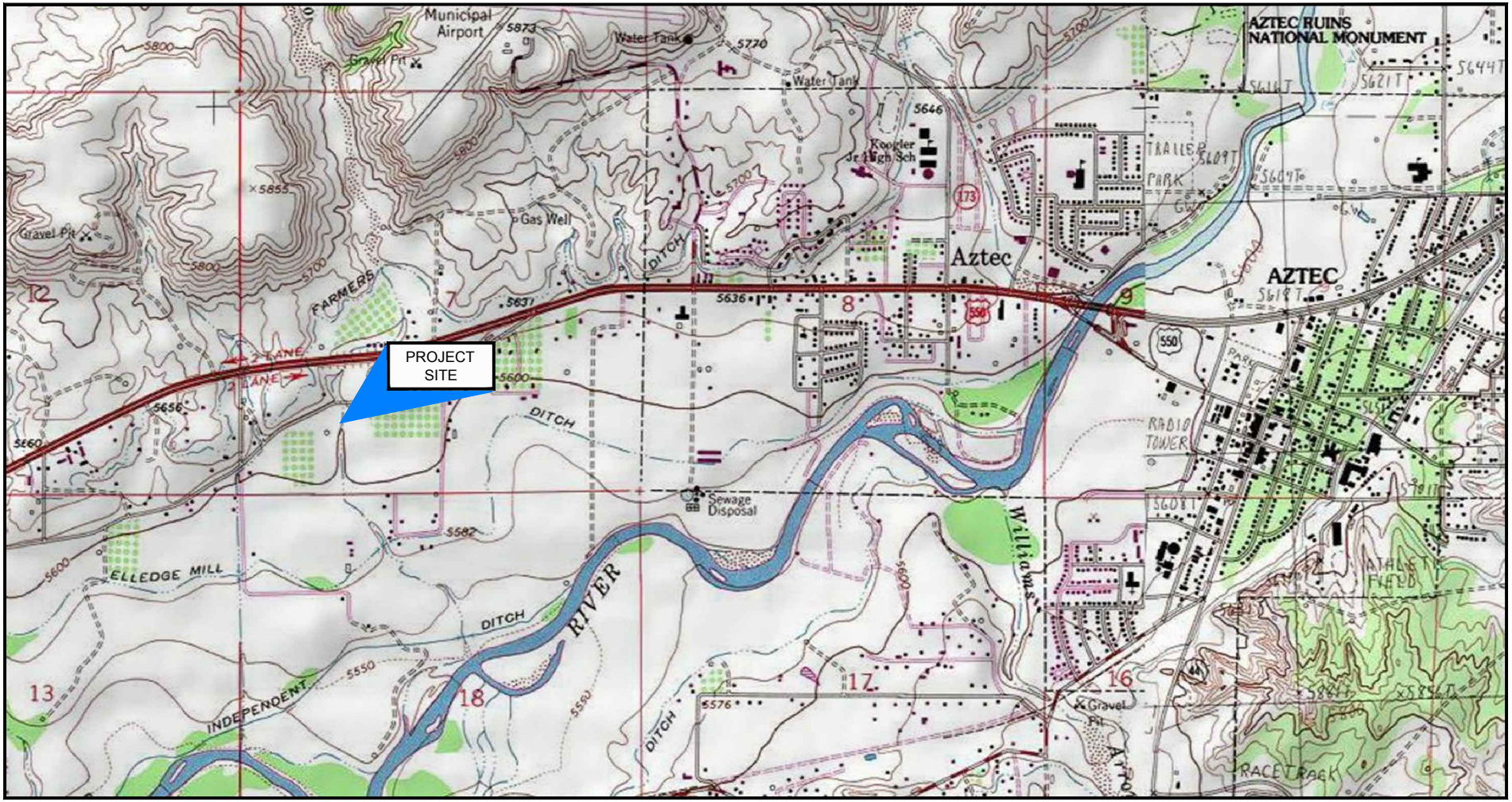
## Section 3.0 Conclusion and Recommendations

Based on the detection of BTEX and dissolved iron in MW-6 during 2013 quarterly sampling events, CRA recommends continued groundwater quality monitoring for BTEX and dissolved iron in order to move toward remediation Site closure with NMOCD. Remediation Site closure will be requested when all groundwater quality parameters are below NMWQCC groundwater quality standards, are stable, or are representative of background conditions at the Site.

All Site monitor wells will be gauged quarterly. Monitor Wells MW-4, MW-5, and MW-6 will be sampled when possible due to the fluctuating groundwater levels at the Site.

In addition to future groundwater sampling at the site, CRA recommends the installation of additional monitor wells to further delineate groundwater impacts associated with Monitor Well MW-6. A total of three additional monitor wells are being recommended with location of the wells to the west, south, and southeast of MW-6. Proposed boring locations for additional monitor well installation are presented on **Figure 13**.

# Figures




SOURCE: USGS 7.5 MINUTE QUADS
"FLORA VISTA AND AZTEC, NEW MEXICO"

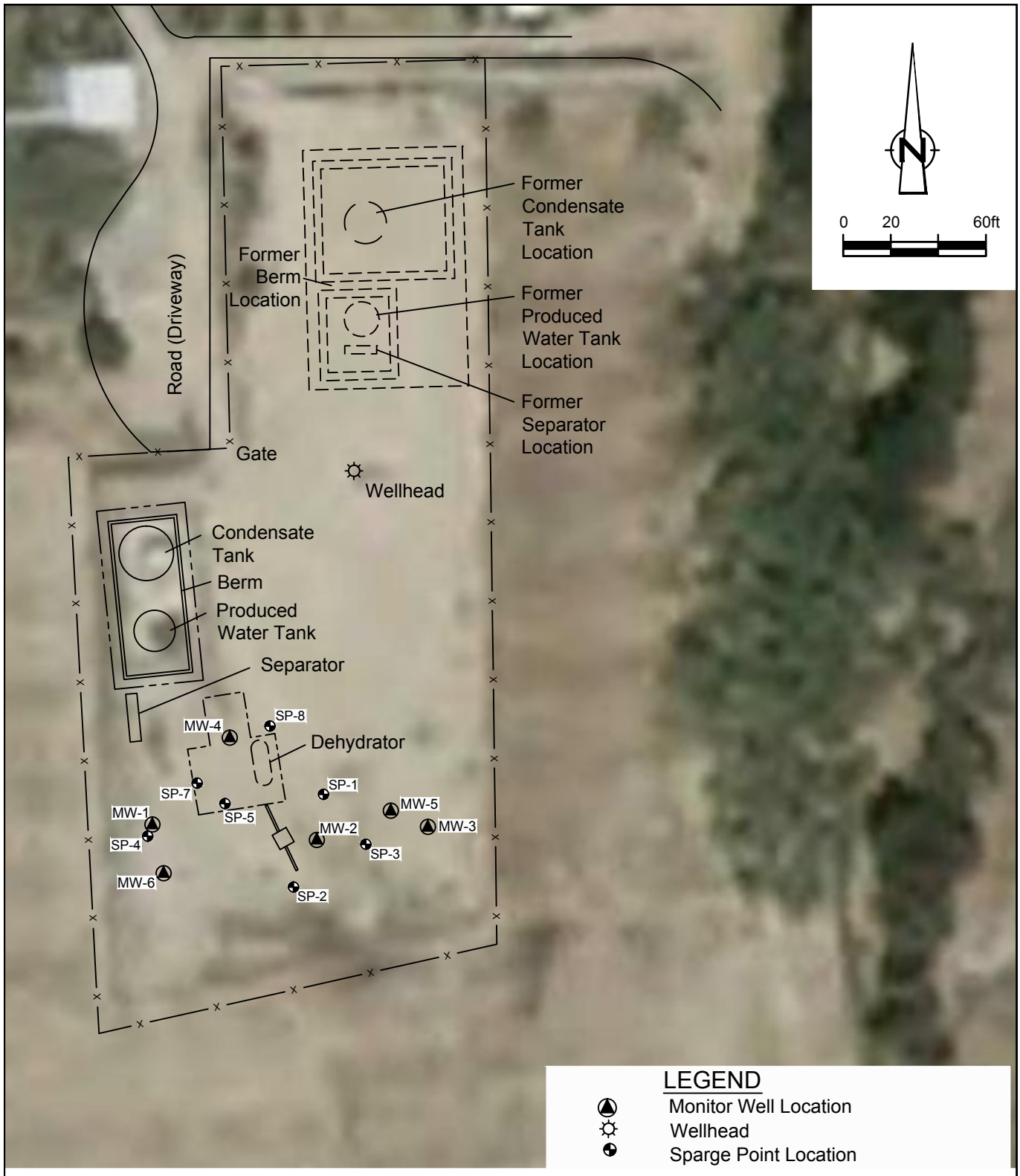
N

0 1000 2000ft

Figure 1

SITE VICINITY MAP
NELL HALL No. 1 NATURAL GAS WELL SITE
SECTION 07, T30N-R11W, SAN JUAN COUNTY, NEW MEXICO
*ConocoPhillips Company*

074941-95(005)GN-DL003_TOPO APR 2/2014




ConocoPhillips high resolution aerial imagery 2008.

Figure 2

SITE PLAN
NELL HALL No. 1 NATURAL GAS WELL SITE
SECTION 07, T30N-R11W, SAN JUAN COUNTY, NEW MEXICO
*ConocoPhillips Company*

074941-95(005)GN-DL004 APR 2/2014

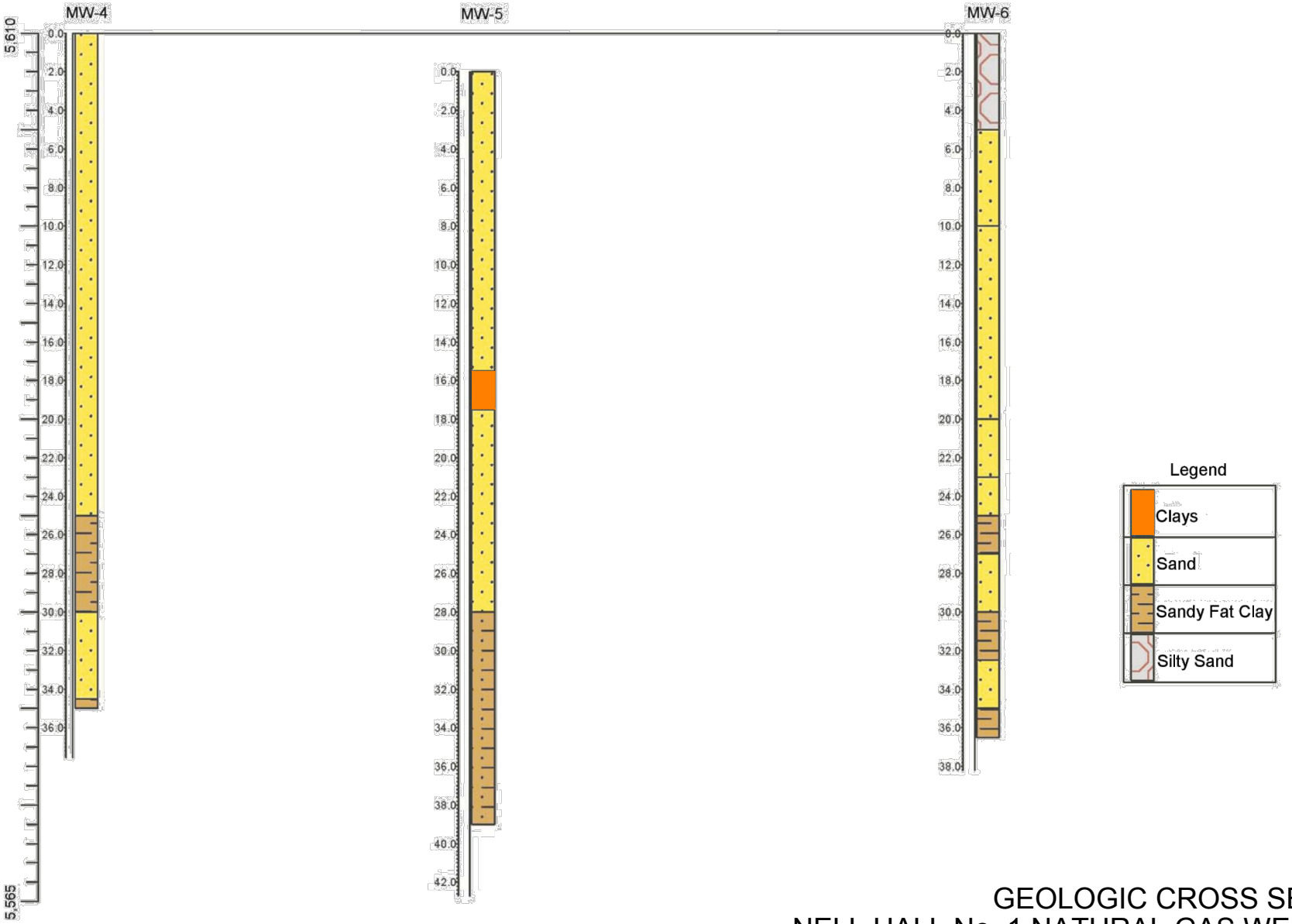



Figure 3

GEOLOGIC CROSS SECTION
NELL HALL No. 1 NATURAL GAS WELL SITE
SECTION 07, T30N-R11W, SAN JUAN COUNTY, NEW MEXICO
*ConocoPhillips Company*

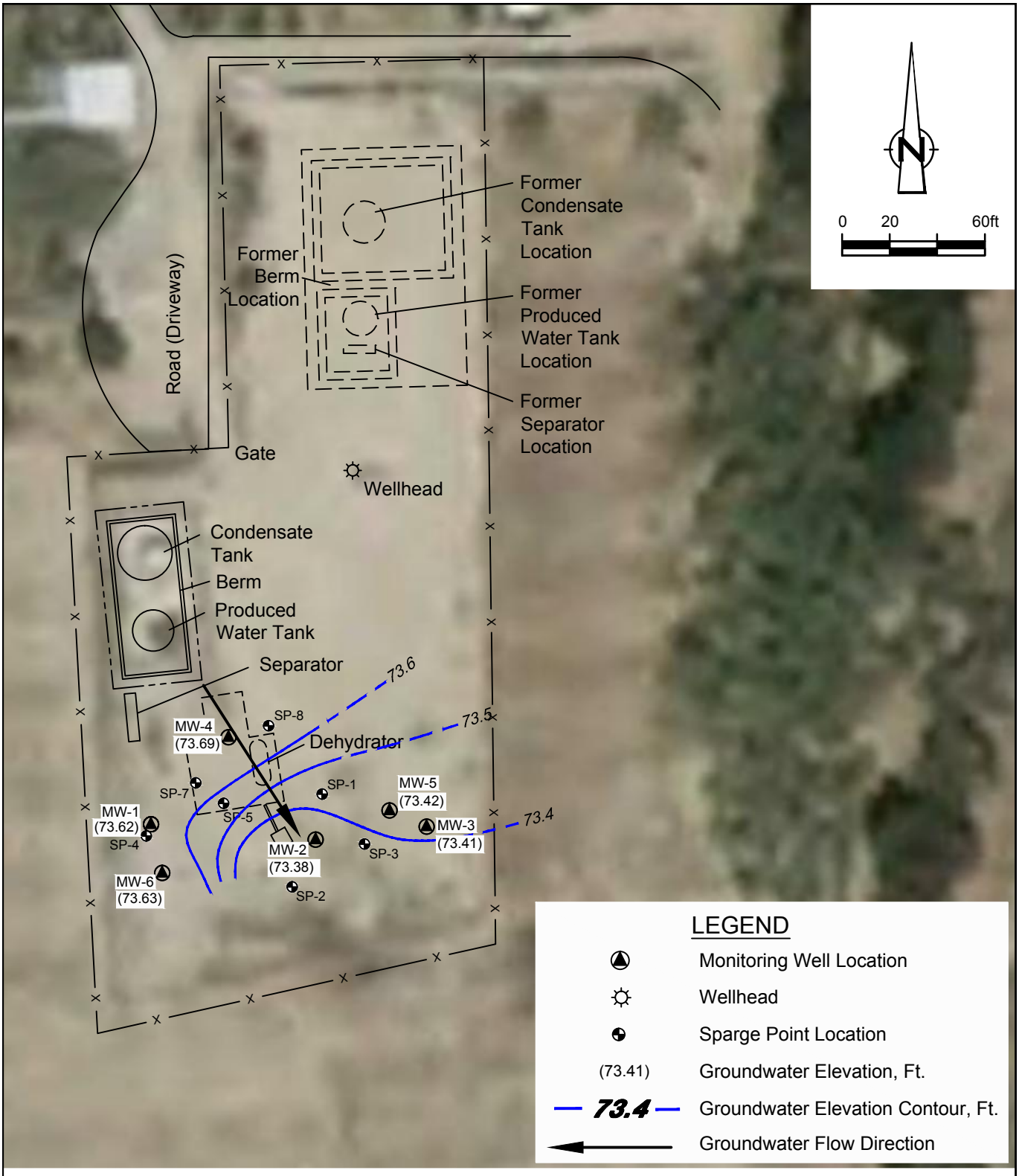



Figure 4

JUNE 2013 GROUNDWATER POTENTIOMETRIC SURFACE MAP
NELL HALL No. 1 NATURAL GAS WELL SITE
SECTION 07, T30N-R11W, SAN JUAN COUNTY, NEW MEXICO
*ConocoPhillips Company*

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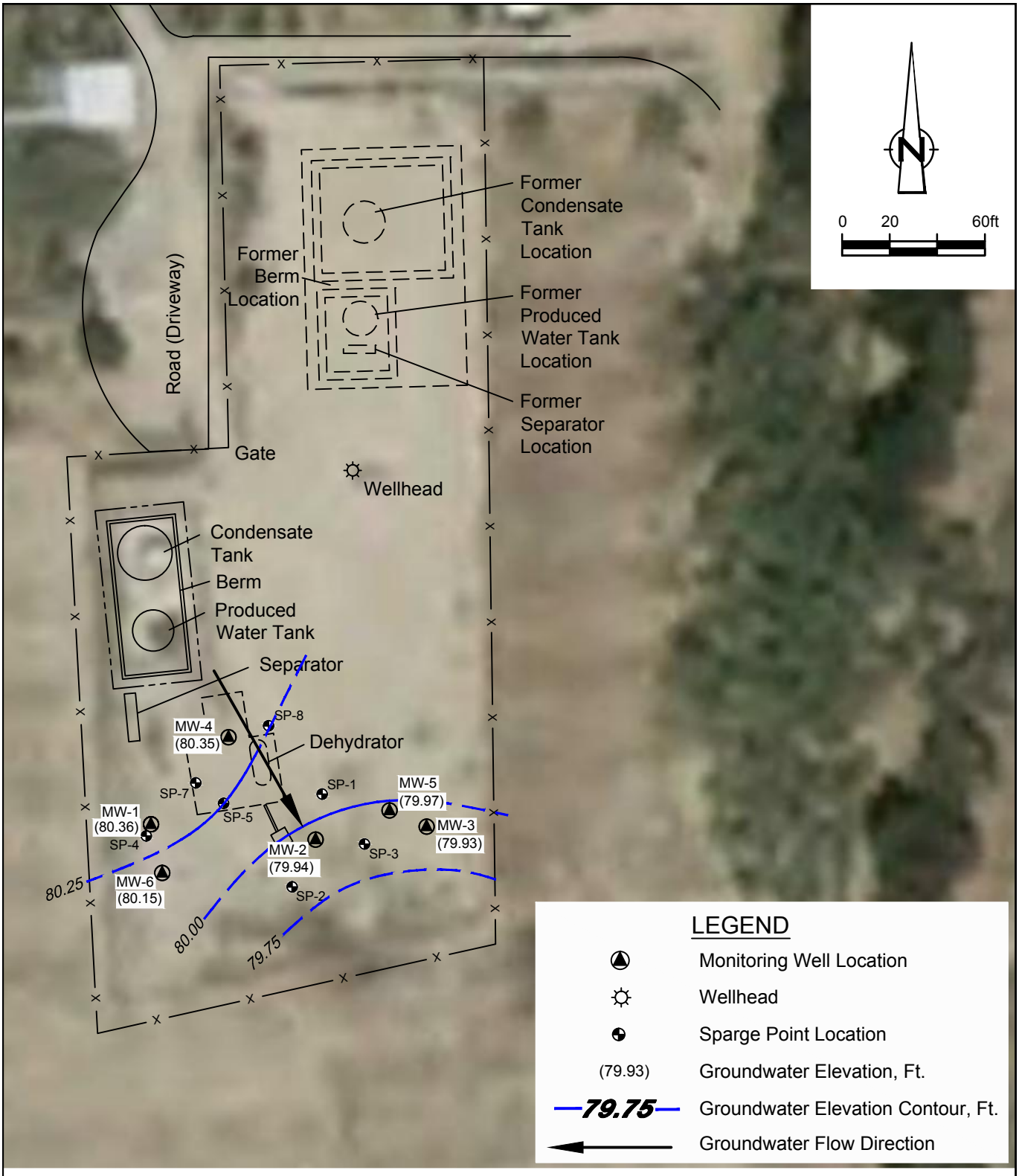


Figure 5

SEPTEMBER 2013 GROUNDWATER POTENTIOMETRIC SURFACE MAP
NELL HALL No. 1 NATURAL GAS WELL SITE
SECTION 07, T30N-R11W, SAN JUAN COUNTY, NEW MEXICO
*ConocoPhillips Company*

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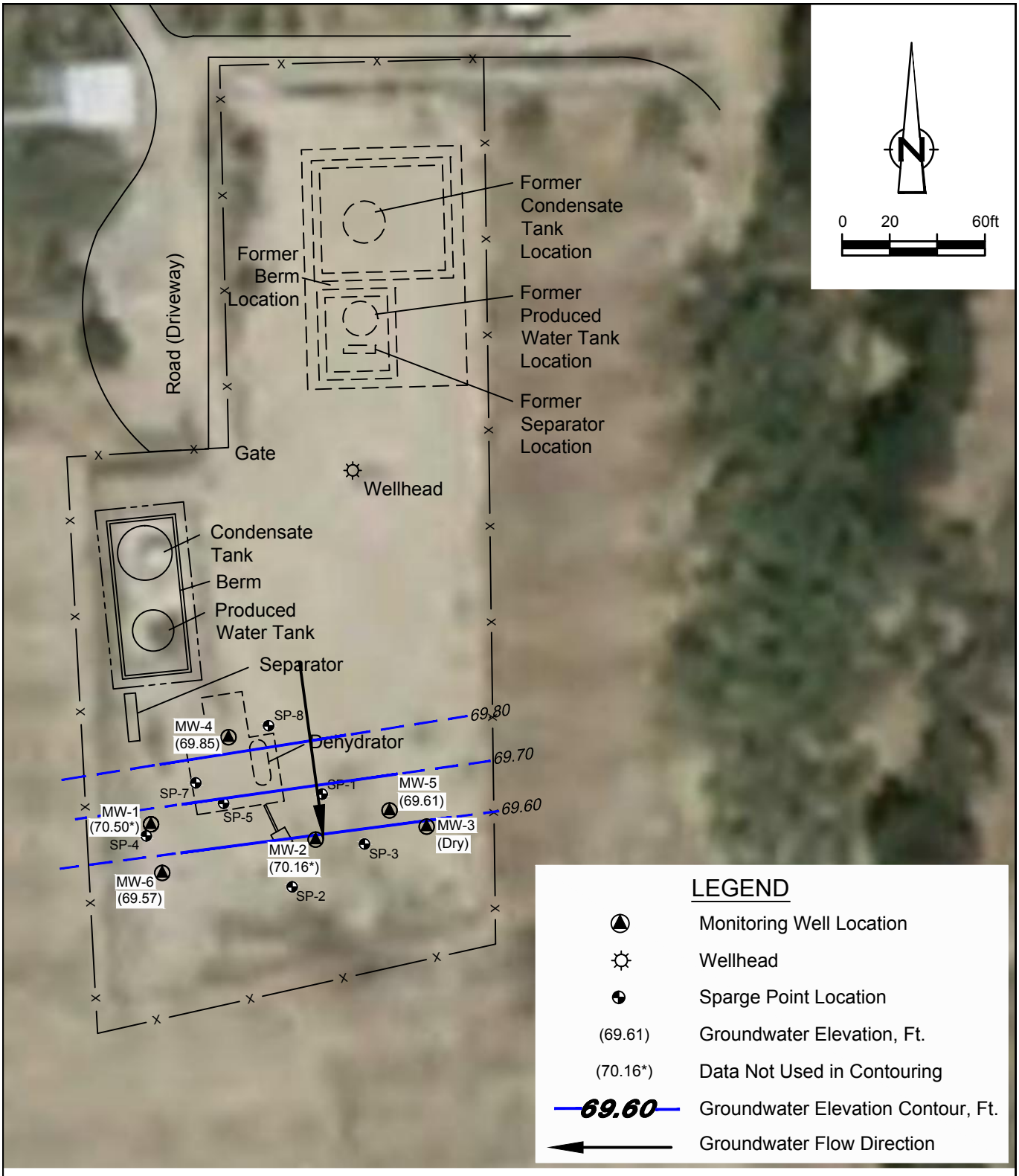


Figure 6

DECEMBER 2013 GROUNDWATER POTENTIOMETRIC SURFACE MAP
NELL HALL No. 1 NATURAL GAS WELL SITE
SECTION 07, T30N-R11W, SAN JUAN COUNTY, NEW MEXICO
*ConocoPhillips Company*

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**Figure 7**
**MW-5 Hydrograph (March 2004 - December 2013)**
**ConocoPhillips Company Nell Hall No. 1 Site**

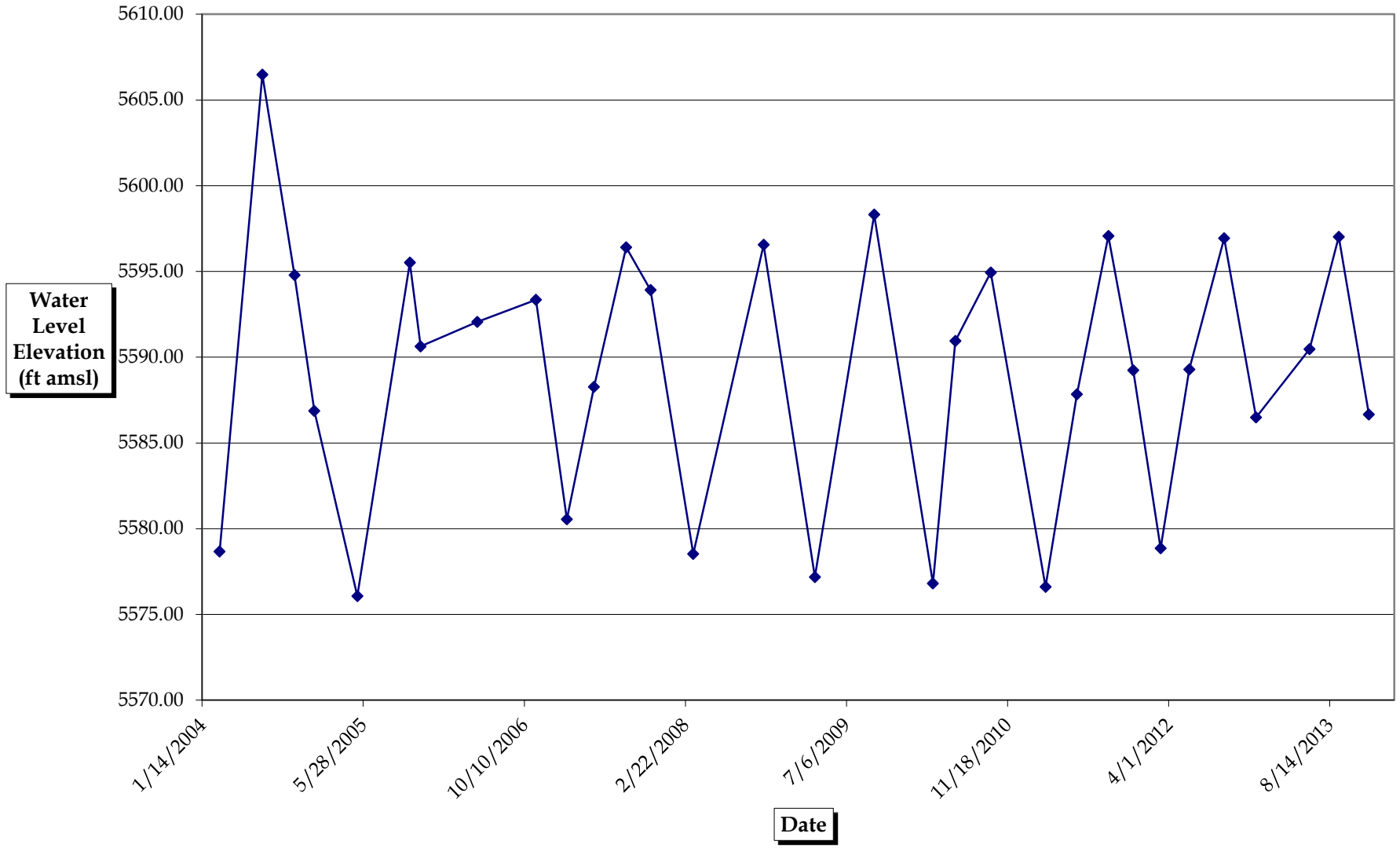


**Figure 8**
**MW-6 Hydrograph (March 2004 - December 2013)**
**ConocoPhillips Company Nell Hall No. 1 Site**

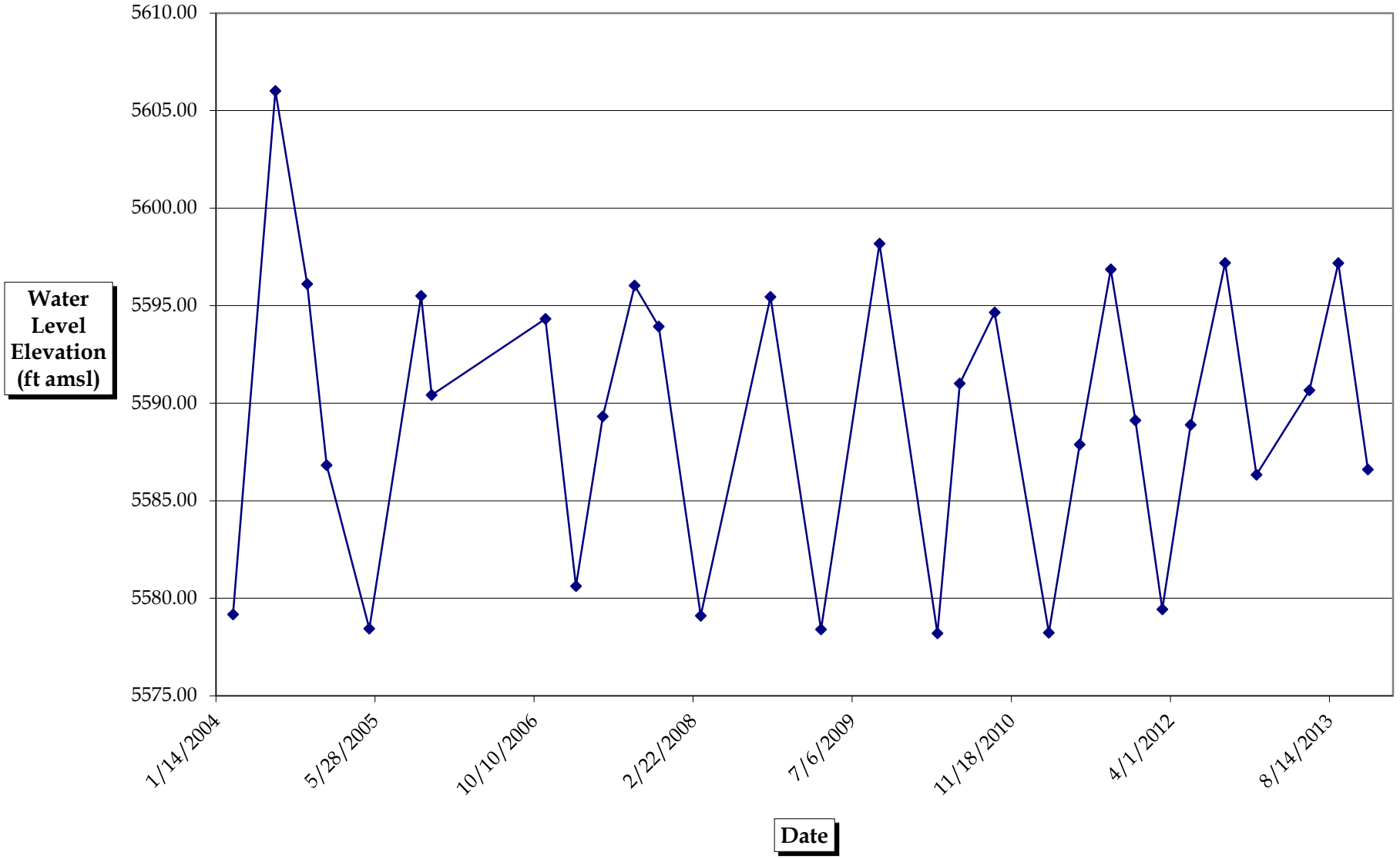
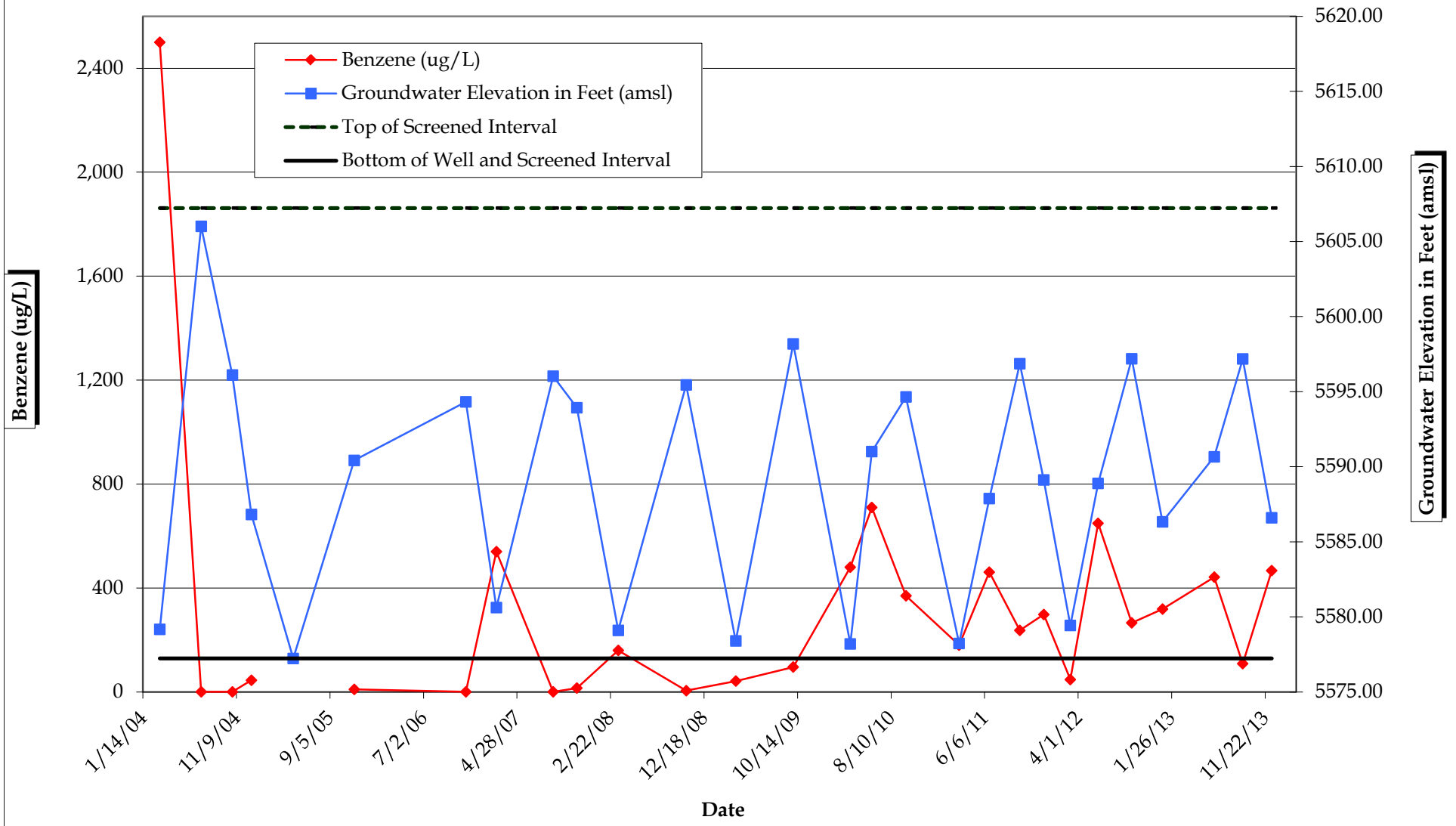


**Figure 9**
**Graph of Benzene Concentrations and Groundwater Elevations in MW-6**
**ConocoPhillips Company Nell Hall No. 1 Site**



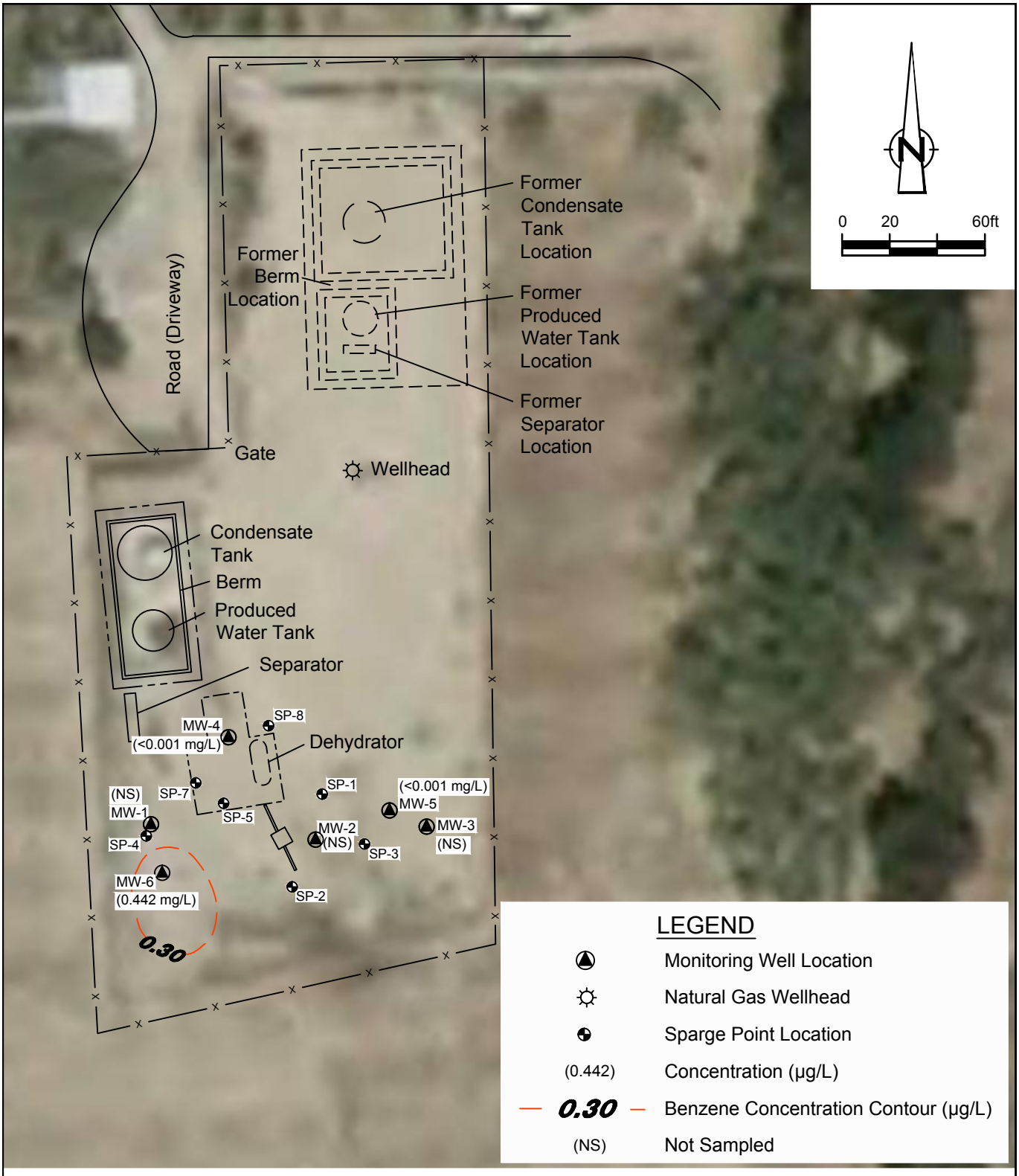



Figure 10

JUNE 2013 BENZENE CONCENTRATION MAP
NELL HALL No. 1 NATURAL GAS WELL SITE
SECTION 07, T30N-R11W, SAN JUAN COUNTY, NEW MEXICO
*ConocoPhillips Company*

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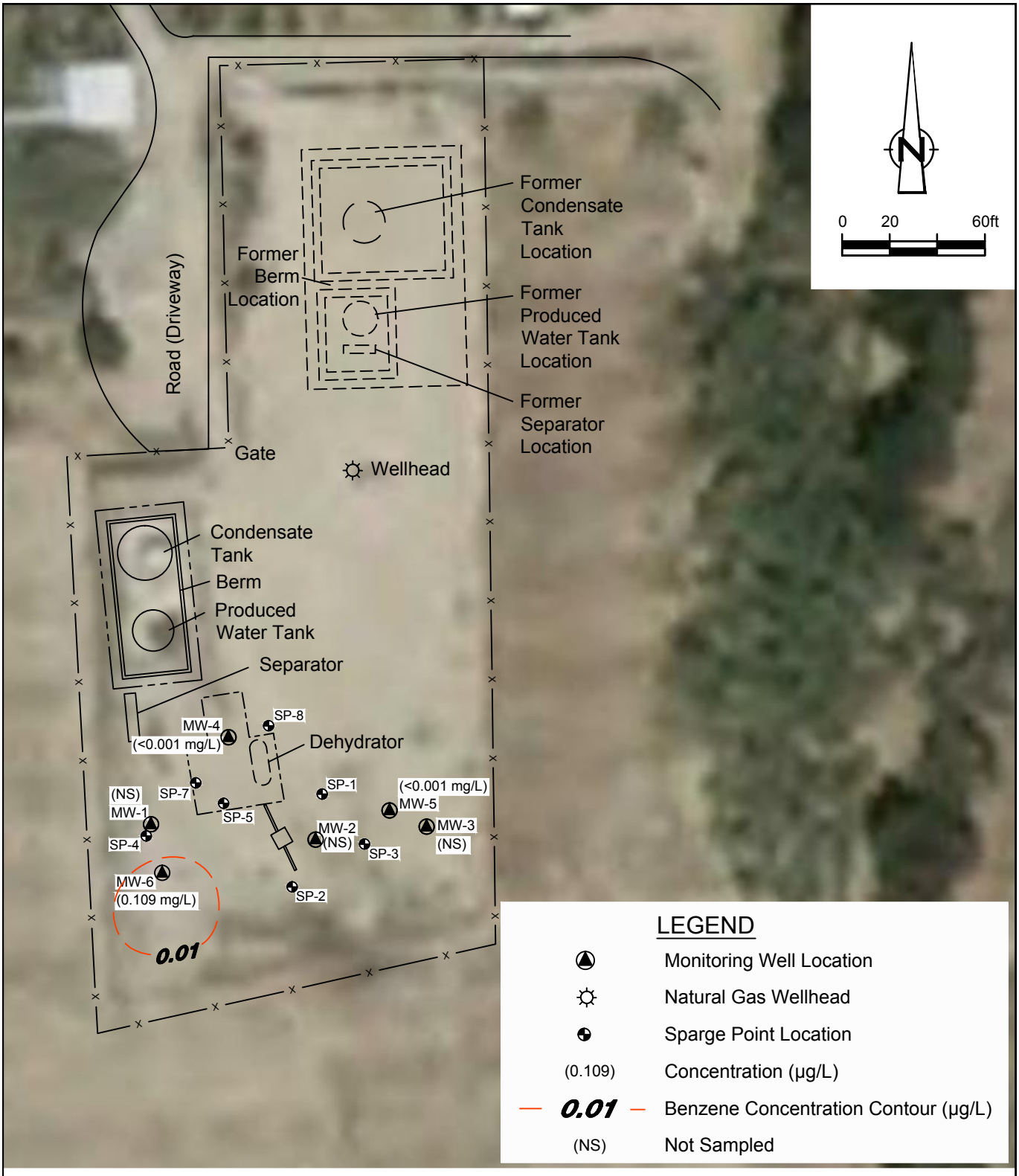


Figure 11

SEPTEMBER 2013 BENZENE CONCENTRATION MAP
NELL HALL No. 1 NATURAL GAS WELL SITE
SECTION 07, T30N-R11W, SAN JUAN COUNTY, NEW MEXICO
*ConocoPhillips Company*

074941-95(005)GN-DL002 APR 2/2014

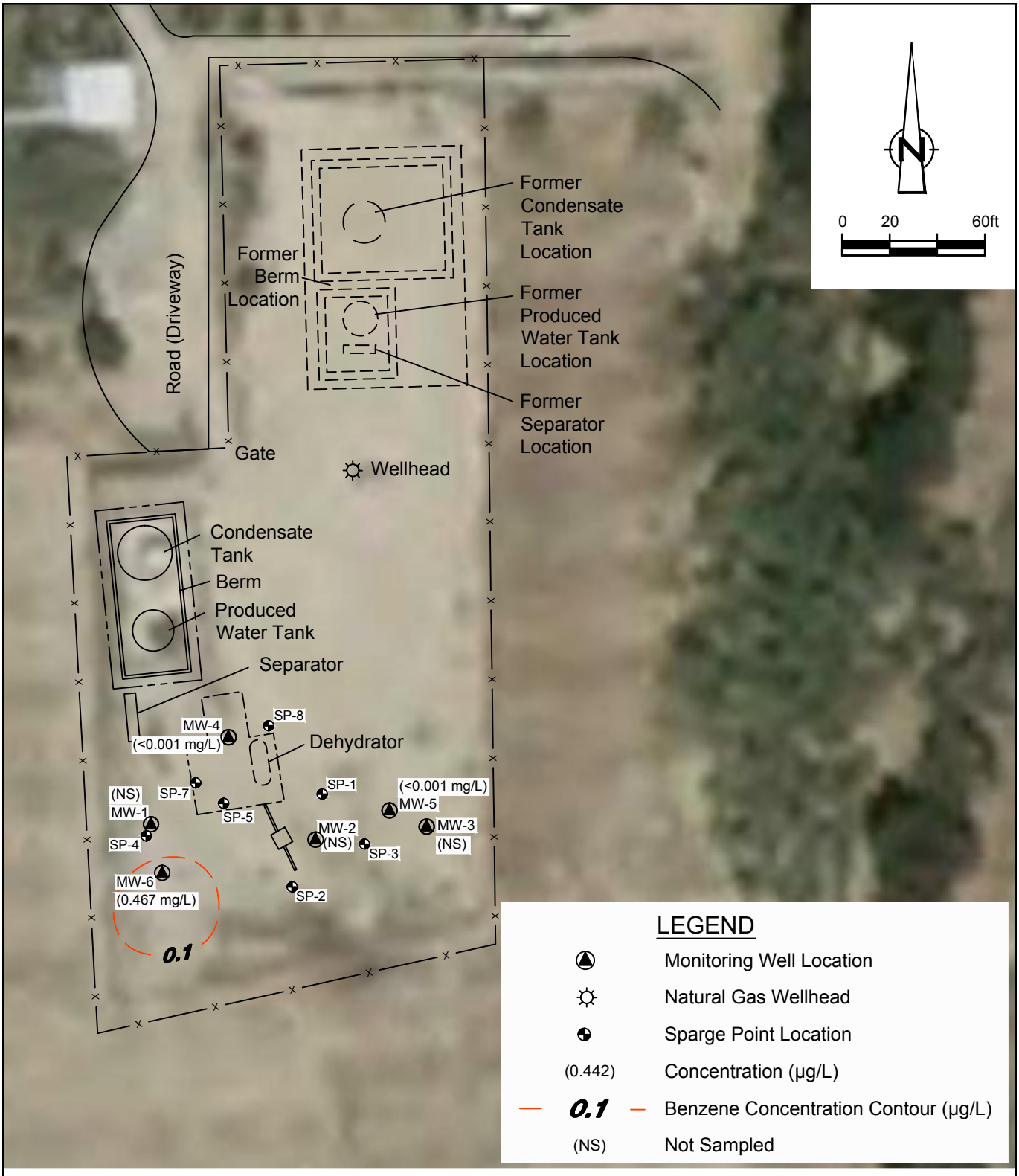


Figure 12

DECEMBER 2013 BENZENE CONCENTRATION MAP
NELL HALL No. 1 NATURAL GAS WELL SITE
SECTION 07, T30N-R11W, SAN JUAN COUNTY, NEW MEXICO
*ConocoPhillips Company*

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# Tables

**TABLE 1**

**SITE HISTORY TIMELINE**
**CONOCO PHILLIPS COMPANY**
**NELL HALL NO. 1**
**SAN JUAN COUNTY**

| *Date/Time Period* | *Event/Action* | *Description/Comments* |
|---|---|---|
| February 20, 1961 | Well Spudded | Southwest Production Company spudded the Nell Hall No. 1 natural gas production well. |
| September 1, 1963 | Operator Change | Beta Development Company acquired the Nell Hall No. 1 site from Southwest Production Company. |
| September 15, 1988 | Operator Change | Mesa Operating Limited Partnership acquired the Nell Hall No. 1 site from Beta Development Company. |
| July 1, 1991 | Operator Change | Conoco Inc. acquired the Nell Hall No. 1 from Mesa Operating Limited Partnership. |
| May 3, 1994 | Pit Remediation | Conoco stopped flow to the dehydrator, sampled the soil in the unlined dehydrator pit and encountered hydrocarbon-impacted soil. |
| August 31 through September 1, 1994 | Pit Remediation | Conoco removed the dehydrator and Flint Engineering & Construction Co. excavated soil in the vicinity of the former dehydrator pit to a depth of 16 feet. A soil sample at the bottom of the excavation revealed TPH of 380 ppm. |
| September 21 through October 7, 1994 | Pit Remediation | Flint Engineering & Construction Co. landfarmed the excavated soil on site. |
| June 1 and 2, 1995 | Soil Borings and Groundwater Sampling | Phillip Environmental Services Corp. completed initial subsurface assesment (3 temporary monitor wells and 3 additional borings). |
| June 15, 1995 | Soil Borings and Groundwater Sampling | Phillip Environmental Services Corp. completed an additional soil boring. |
| March 27, 1997 | Monitor Well Sampling | On Site Technologies, LTD found insufficient water in the 3 monitor wells for sampling. |
| June 19, 2002 | Groundwater sampling | Souder Miller and Associates (SMA) conducted groundwater sampling at the Site. Samples were collected from MW-1, and sparge points SP-6, SP-7 and SP-8. The only constituent over the NMWQCC standard was benzene in SP-7 at a concentration of 0.018 milligrams per liter (mg/L). |
| September 17, 2002 | Groundwater sampling | SMA conducted groundwater sampling at the Site. Samples were collected from MW-1, and sparge points SP-6, SP-7 and SP-8. The only constituent over the NMWQCC standard was benzene in SP-7 at a concentration of 0.021 mg/L. |
| January 1, 2003 | Operator Name Change | Conoco Inc. and Phillips Petroleum Company merged to form ConocoPhillips Company. |
| February 17 and 18, 2004 | Monitor Well Installation | Monitor Wells MW-4, MW-5, and MW-6 were installed at deeper depths (35 to 39 feet BGS) to adequately intersect the water table, since previously installed groundwater monitoring wells continually went dry. The lowest water levels at the site are found to occur in early spring and late winter. 30 to 35 feet of screen was installed in each well to allow for seasonal groundwater fluctuations of up to 25 feet. |
| March 8 through December 27, 2004 | Monitor Well Sampling | Quarterly groundwater sampling of Monitor Wells MW-4, MW-5, and MW-6; benzene spike in March (MW-6) coincides with MW-6 well installation and discovery of BTEX and TPH impacts to soil at 25-35 feet bgs in MW-6 soil samples collected during drilling. |
| May 11 through November 22, 2005 | Monitor Well Sampling | Semi-annual sampling of monitor wells MW-4, MW-5, and MW-6. |
| November 15, 2006 | Monitor Well Sampling | Annual sampling of monitor wells MW-4, MW-5, and MW-6. |
| February 21, 2007 through October 22, 2008 | Monitor Well Sampling | Resumption of semi-annual sampling of Monitor Wells MW-4, MW-5, and MW-6 during summer and fall months when water is most likely to be present in wells. |
| February 6, 2009 | BTEX vs. depth to water plotted for MW-6 | BTEX concentrations show inverse relationship to water column thickness in MW-6; plotted from 2/21/07 to 10/22/08. |
| March 30, 2009 | Monitor Well sampling | Monitor Wells MW-5 and MW-6 were sampled. MW-4 was found to be dry during the sampling event. Benzene was reported at a concentration above the groundwater quality standard in MW-6 with a concentration of 0.042 mg/L. |
| September 30, 2009 | Monitor Well Sampling | Groundwater samples were collected from MW-4, MW-5 and MW-6. MW-6 indicated a benzene concentration of 0.096 mg/L and a dissolved iron concentration of 1.06 mg/L. |
| March 31 and April 1, 2010 | Monitor Well Sampling | Groundwater samples collected from MW-5 and MW-6; MW-4 was dry. MW-6 indicated a benzene concentration of 0.480 mg/L and a sample for dissolved iron was not obtained due to low water levels in MW-6. |

**TABLE 1**

**SITE HISTORY TIMELINE**
**CONOCO PHILLIPS COMPANY**
**NELL HALL NO. 1**
**SAN JUAN COUNTY**

| *Date/Time Period* | *Event/Action* | *Description/Comments* |
|---|---|---|
| June 9, 2010 | Monitor Well Sampling | Groundwater samples collected from MW-4, MW-5 and MW-6 as a continuation of semi-annual sampling event. MW-6 indicated a benzene concentration of 0.710 mg/L and a dissolved iron concentration of 11.4 mg/L. |
| September 27, 2010 | Monitor Well Sampling | Groundwater samples collected from MW-4, MW-5 and MW-6. MW-6 indicated a benzene concentration of 0.30 mg/L and a dissolved iron concentration of 0.676 mg/L. |
| March 16, 2011 | Monitor Well Sampling | Groundwater samples collected from MW-5 and MW-6. MW-4 was observed to be dry during this monitoring event. Laboratory analysis of the groundwater sample from MW-6 indicated a benzene concentration of 0.18 mg/L and a dissolved iron concentration of 8.66 mg/L; however, during the March 2011 sampling event MW-6 contained a very low volume of water and the sample collected may not be representative of actual aquifer conditions. |
| June 15, 2011 | Transfer of Consulting Responsibilities to CRA | On June 15, 2011, Site consulting responsibilities were transferred from Tetra Tech of Albuquerque, NM to CRA of Albuquerque, NM. |
| June 21, 2011 | Monitor Well Sampling | Groundwater samples collected from MW-4, MW-5 and MW-6. Groundwater sampled from MW-6 indicated a benzene concentration of 0.461 mg/L, a xylenes concentration of 0.677 mg/L, and a dissolved iron concentration of 9.45 mg/L. |
| September 27, 2011 | Monitor Well Sampling | Groundwater samples collected from MW-4, MW-5 and MW-6. Groundwater sampled from MW-6 indicated a benzene concentration of 0.237 mg/L, and a dissolved iron concentration of 19.6 mg/L. |
| December 13, 2011 | Monitor Well Sampling | Groundwater samples collected from MW-4, MW-5 and MW-6. Groundwater sampled from MW-6 indicated a benzene concentration of 0.298 mg/L, and a dissolved iron concentration of 11.6 mg/L. |
| March 7, 2012 | Monitor Well Sampling | Groundwater samples collected from MW-4, MW-5 and MW-6. Groundwater sampled from MW-6 indicated a benzene concentration of 0.0477 mg/L, and a dissolved iron concentration of 22.50 mg/L. |
| June 4, 2012 | Monitor Well Sampling | Groundwater samples collected from MW-4, MW-5 and MW-6. Groundwater sampled from MW-6 indicated a benzene concentration of 0.649 mg/L, and a dissolved iron concentration of 19.2 mg/L. The sample from MW-4 indicated a dissolved iron concentration of 1.17 mg/L. |
| September 20, 2012 | Monitor Well Sampling | Groundwater samples collected from MW-4, MW-5 and MW-6. Groundwater sampled from MW-6 indicated a benzene concentration of 0.266 mg/L, and a dissolved iron concentration of 9.53 mg/L. |
| December 28, 2012 | Monitor Well Sampling | Groundwater samples collected from MW-4, MW-5 and MW-6. Groundwater sampled from MW-6 indicated a benzene concentration of 0.319 mg/L, and a dissolved iron concentration of 8.06 mg/L. |
| March 28, 2013 | Groundwater Monitoring | All site wells gauged were dry; no samples collected. |
| June 12, 2013 | Monitor Well Sampling | Groundwater samples collected from MW-4, MW-5 and MW-6. Groundwater sampled from MW-6 indicated a benzene concentration of 0.442 mg/L, and a dissolved iron concentration of 16.6 mg/L. Groundwater sampled from MW-4 indicated a dissolved iron concentration of 1.46 mg/L. |
| September 11, 2013 | Monitor Well Sampling | Groundwater samples collected from MW-4, MW-5 and MW-6. Groundwater sampled from MW-6 indicated a benzene concentration of 0.442 mg/L, and a dissolved iron concentration of 16.6 mg/L. Groundwater sampled from MW-4 indicated a dissolved iron concentration of 1.46 mg/L. |
| December 13, 2013 | Monitor Well Sampling | Groundwater samples collected from MW-4, MW-5 and MW-6. Groundwater sampled from MW-6 indicated a benzene concentration of 0.442 mg/L, and a dissolved iron concentration of 16.6 mg/L. Groundwater sampled from MW-4 indicated a dissolved iron concentration of 1.46 mg/L. |

**TABLE 2**

**MONITOR WELL SPECIFICATIONS AND GROUNDWATER ELEVATIONS**
**CONOCOPHILLIPS COMPANY**
**NELL HALL NO. 1**
**SAN JUAN COUNTY, NM**

| *Well ID* | *Total Depth (ft below TOC)* | *Surface Elevation (amsl)* | *Screen Interval (ft bgs)* | *Date Measured* | *Depth to Groundwater (ft below TOC)* | *Relative Water Level* |
|---|---|---|---|---|---|---|
| MW-1 | 28.55 | 5615.72 | Unknown | 5/10/2005 | DRY | NA |
| | | | | 10/20/2005 | 19.25 | 5596.47 |
| | | | | 11/22/2005 | 24.15 | 5591.57 |
| | | | | 5/17/2006 | NM | NM |
| | | | | 11/15/2006 | 21.40 | 5594.32 |
| | | | | 2/19/2007 | DRY | NA |
| | | | | 5/14/2007 | 24.85 | 5590.87 |
| | | | | 8/22/2007 | 24.61 | 5591.11 |
| | | | | 11/6/2007 | 20.87 | 5594.85 |
| | | | | 3/17/2008 | DRY | NA |
| | | | | 10/22/2008 | 19.38 | 5596.34 |
| | | | | 3/30/2009 | 28.25 | 5587.47 |
| | | | | 9/30/2009 | 16.56 | 5599.16 |
| | | | | 3/31/2010 | DRY | NA |
| | | | | 6/9/2010 | 24.16 | 5591.56 |
| | | 97.95 | | 9/27/2010 | 20.00 | 77.95 |
| | | | | 3/16/2011 | DRY | NA |
| | | | | 6/21/2011 | 26.80 | 71.15 |
| | | | | 9/27/2011 | 17.85 | 80.10 |
| | | | | 12/13/2011 | 25.39 | 72.56 |
| | | | | 3/7/2012 | DRY | NA |
| | | | | 6/4/2012 | 26.40 | 71.55 |
| | | | | 9/20/2012 | 17.57 | 80.38 |
| | | | | 12/28/2012 | DRY | NA |
| | | | | 3/28/2013 | DRY | NA |
| | | | | 6/12/2013 | 24.33 | 73.62 |
| | | | | 9/11/2013 | 17.59 | 80.36 |
| | | | | 12/13/2013 | 27.45 | 70.50 |
| MW-2 | 27.32 | 5614.94 | Unknown | 5/10/2005 | DRY | NA |
| | | | | 10/20/2005 | 18.81 | 5596.13 |
| | | | | 11/22/2005 | 23.74 | 5591.20 |
| | | | | 5/17/2006 | 22.06 | 5592.88 |
| | | | | 11/15/2006 | 21.01 | 5593.93 |
| | | | | 2/19/2007 | DRY | NA |
| | | | | 5/14/2007 | DRY | NA |
| | | | | 8/22/2007 | 18.03 | 5596.91 |
| | | | | 11/6/2007 | 20.43 | 5594.51 |
| | | | | 3/17/2008 | DRY | NA |
| | | | | 10/22/2008 | 18.83 | 5596.11 |
| | | | | 3/30/2009 | 27.15 | 5587.79 |
| | | | | 9/30/2009 | 16.01 | 5598.93 |
| | | | | 3/31/2010 | DRY | NA |
| | | | | 6/9/2010 | 23.36 | 5591.58 |
| | | 97.16 | | 9/27/2010 | 19.42 | 77.74 |
| | | | | 3/16/2011 | DRY | NA |
| | | | | 6/21/2011 | 26.43 | 70.73 |
| | | | | 9/27/2011 | 17.28 | 79.88 |
| | | | | 12/13/2011 | 25.10 | 72.06 |
| | | | | 3/7/2012 | DRY | NA |
| | | | | 6/4/2012 | 25.17 | 71.99 |
| | | | | 9/20/2012 | 17.30 | 79.86 |
| | | | | 12/28/2012 | DRY | NA |
| | | | | 3/28/2013 | DRY | NA |
| | | | | 6/12/2013 | 23.78 | 73.38 |
| | | | | 9/11/2013 | 17.22 | 79.94 |
| | | | | 12/13/2013 | 27.00 | 70.16 |
| MW-3 | 27.45 | 5615.53 | Unknown | 5/10/2005 | DRY | NA |
| | | | | 10/20/2005 | 19.36 | 5596.17 |
| | | | | 11/22/2005 | 24.24 | 5591.29 |
| | | | | 5/17/2006 | 22.82 | 5592.71 |
| | | | | 11/15/2006 | 21.53 | 5594.00 |
| | | | | 2/19/2007 | DRY | NA |
| | | | | 5/14/2007 | DRY | NA |
| | | | | 8/22/2007 | 18.36 | 5597.17 |
| | | | | 11/6/2007 | 20.95 | 5594.58 |
| | | | | 3/17/2008 | DRY | NA |
| | | | | 10/22/2008 | 19.34 | 5596.19 |
| | | | | 3/30/2009 | DRY | NA |
| | | | | 9/30/2009 | NM | NM |
| | | | | 3/31/2010 | DRY | NA |
| | | | | 6/9/2010 | 23.87 | 5591.66 |
| | | 97.77 | | 9/27/2010 | 19.93 | 77.84 |
| | | | | 3/16/2011 | DRY | NA |
| | | | | 6/21/2011 | 27.06 | 70.71 |
| | | | | 9/27/2011 | 17.82 | 79.95 |
| | | | | 12/13/2011 | 25.66 | 72.11 |
| | | | | 3/7/2012 | DRY | NA |
| | | | | 6/4/2012 | 25.53 | 72.24 |
| | | | | 9/20/2012 | 17.97 | 79.80 |
| | | | | 12/28/2012 | DRY | NA |
| | | | | 3/28/2013 | DRY | NA |
| | | | | 6/12/2013 | 24.36 | 73.41 |
| | | | | 9/11/2013 | 17.84 | 79.93 |
| | | | | 12/13/2013 | DRY | NA |

**TABLE 2**

**MONITOR WELL SPECIFICATIONS AND GROUNDWATER ELEVATIONS**
**CONOCOPHILLIPS COMPANY**
**NELL HALL NO. 1**
**SAN JUAN COUNTY, NM**

| *Well ID* | *Total Depth (ft below TOC)* | *Surface Elevation (amsl)* | *Screen Interval (ft bgs)* | *Date Measured* | *Depth to Groundwater (ft below TOC)* | *Relative Water Level* |
|---|---|---|---|---|---|---|
| MW-4 | 37.57 | 5614.87 | 7.57 - 37.57 | 3/8/2004 | 36.04 | 5578.83 |
| | | | | 7/19/2004 | 8.44 | 5606.43 |
| | | | | 10/27/2004 | 19.69 | 5595.18 |
| | | | | 12/27/2004 | 27.58 | 5587.29 |
| | | | | 5/10/2005 | DRY | NA |
| | | | | 10/20/2005 | 18.87 | 5596.00 |
| | | | | 11/22/2005 | 23.93 | 5590.94 |
| | | | | 5/17/2006 | NM | NM |
| | | | | 11/15/2006 | 21.02 | 5593.85 |
| | | | | 2/19/2007 | 34.40 | 5580.47 |
| | | | | 5/14/2007 | 27.56 | 5587.31 |
| | | | | 8/22/2007 | 18.18 | 5596.69 |
| | | | | 11/6/2007 | 20.48 | 5594.39 |
| | | | | 3/17/2008 | 36.08 | 5578.79 |
| | | | | 10/22/2008 | 18.96 | 5595.91 |
| | | | | 3/30/2009 | 37.36 | 5577.51 |
| | | | | 9/30/2009 | 16.15 | 5598.72 |
| | | | | 3/31/2010 | DRY | NA |
| | | | | 6/9/2010 | 23.61 | 5591.26 |
| | | 97.75 | | 9/27/2010 | 19.61 | 78.14 |
| | | | | 3/16/2011 | DRY | NA |
| | | | | 6/21/2011 | 26.79 | 70.96 |
| | | | | 9/27/2011 | 17.47 | 80.28 |
| | | | | 12/13/2011 | 25.35 | 72.40 |
| | | | | 3/7/2012 | 35.73 | 62.02 |
| | | | | 6/4/2012 | 25.39 | 72.36 |
| | | | | 9/20/2012 | 17.43 | 80.32 |
| | | | | 12/28/2012 | 28.02 | 69.73 |
| | | | | 3/28/2013 | DRY | NA |
| | | | | 6/12/2013 | 24.06 | 73.69 |
| | | | | 9/11/2013 | 17.40 | 80.35 |
| | | | | 12/13/2013 | 27.90 | 69.85 |
| MW-5 | 42.7 | 5615.86 | 7.7 - 42.7 | 3/8/2004 | 37.19 | 5578.67 |
| | | | | 7/19/2004 | 9.38 | 5606.48 |
| | | | | 10/27/2004 | 21.07 | 5594.79 |
| | | | | 12/27/2004 | 28.99 | 5586.87 |
| | | | | 5/10/2005 | 39.79 | 5576.07 |
| | | | | 10/20/2005 | 20.34 | 5595.52 |
| | | | | 11/22/2005 | 25.23 | 5590.63 |
| | | | | 5/17/2006 | 23.80 | 5592.06 |
| | | | | 11/15/2006 | 22.51 | 5593.35 |
| | | | | 2/19/2007 | 35.31 | 5580.55 |
| | | | | 5/14/2007 | 27.59 | 5588.27 |
| | | | | 8/22/2007 | 19.45 | 5596.41 |
| | | | | 11/6/2007 | 21.94 | 5593.92 |
| | | | | 3/17/2008 | 37.33 | 5578.53 |
| | | | | 10/22/2008 | 19.30 | 5596.56 |
| | | | | 3/30/2009 | 38.68 | 5577.18 |
| | | | | 9/30/2009 | 17.54 | 5598.32 |
| | | | | 3/31/2010 | 39.05 | 5576.81 |
| | | | | 6/9/2010 | 24.91 | 5590.95 |
| | | 98.81 | | 9/27/2010 | 20.92 | 77.89 |
| | | | | 3/16/2011 | 39.25 | 59.56 |
| | | | | 6/21/2011 | 28.02 | 70.79 |
| | | | | 9/27/2011 | 18.79 | 80.02 |
| | | | | 12/13/2011 | 26.62 | 72.19 |
| | | | | 3/7/2012 | 37.00 | 61.81 |
| | | | | 6/4/2012 | 26.57 | 72.24 |
| | | | | 9/20/2012 | 18.92 | 79.89 |
| | | | | 12/28/2012 | 29.37 | 69.44 |
| | | | | 3/28/2013 | DRY | NA |
| | | | | 6/12/2013 | 25.39 | 73.42 |
| | | | | 9/11/2013 | 18.84 | 79.97 |
| | | | | 12/13/2013 | 29.20 | 69.61 |

**TABLE 2**

**MONITOR WELL SPECIFICATIONS AND GROUNDWATER ELEVATIONS**
**CONOCOPHILLIPS COMPANY**
**NELL HALL NO. 1**
**SAN JUAN COUNTY, NM**

| *Well ID* | *Total Depth (ft below TOC)* | *Surface Elevation (amsl)* | *Screen Interval (ft bgs)* | *Date Measured* | *Depth to Groundwater (ft below TOC)* | *Relative Water Level* |
|---|---|---|---|---|---|---|
| MW-6 | 38.21 | 5615.44 | 8.21 - 38.21 | 3/8/2004 | 36.27 | 5579.17 |
| | | | | 7/19/2004 | 9.43 | 5606.01 |
| | | | | 10/27/2004 | 19.33 | 5596.11 |
| | | | | 12/27/2004 | 28.62 | 5586.82 |
| | | | | 5/10/2005 | DRY | NA |
| | | | | 10/20/2005 | 19.94 | 5595.50 |
| | | | | 11/22/2005 | 25.02 | 5590.42 |
| | | | | 5/17/2006 | NM | NM |
| | | | | 11/15/2006 | 21.12 | 5594.32 |
| | | | | 2/19/2007 | 34.82 | 5580.62 |
| | | | | 5/14/2007 | 26.12 | 5589.32 |
| | | | | 8/22/2007 | 19.41 | 5596.03 |
| | | | | 11/6/2007 | 21.51 | 5593.93 |
| | | | | 3/17/2008 | 36.34 | 5579.10 |
| | | | | 10/22/2008 | 19.99 | 5595.45 |
| | | | | 3/30/2009 | 37.04 | 5578.40 |
| | | | | 9/30/2009 | 17.26 | 5598.18 |
| | | | | 3/31/2010 | 37.24 | 5578.20 |
| | | | | 6/9/2010 | 24.43 | 5591.01 |
| | | 98.41 | | 9/27/2010 | 20.79 | 77.62 |
| | | | | 3/16/2011 | DRY | NA |
| | | | | 6/21/2011 | 27.56 | 70.85 |
| | | | | 9/27/2011 | 18.58 | 79.83 |
| | | | | 12/13/2011 | 26.32 | 72.09 |
| | | | | 3/7/2012 | 36.01 | 62.40 |
| | | | | 6/4/2012 | 26.55 | 71.86 |
| | | | | 9/20/2012 | 18.25 | 80.16 |
| | | | | 12/28/2012 | 29.11 | 69.30 |
| | | | | 3/28/2013 | DRY | NA |
| | | | | 6/12/2013 | 24.78 | 73.63 |
| | | | | 9/11/2013 | 18.26 | 80.15 |
| | | | | 12/13/2013 | 28.84 | 69.57 |

**Notes:**
amsl = Above mean sea level
bgs = Below ground surface
ft = Feet
NM = Not measured
NA = Not available
TOC = Top of casing
* = Top of casing elevation based on an arbitrary reference elevation of 100 feet

# TABLE 3

## GROUNDWATER ANALYTICAL RESULTS SUMMARY
## CONOCOPHILLIPS COMPANY
## NELL HALL NO. 1

| Well ID | Sample ID | Date | Sample Type | Benzene (mg/L) | Toluene (mg/L) | Ethylbenzene (mg/L) | Xylenes (total) (mg/L) | Sulfate (mg/L) | Iron (dissolved) (mg/L) | Nitrate (as N) (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| **NMWQCC Groundwater Quality Standards** | | | | **0.01** | **0.75** | **0.75** | **0.62** | **600** | **1** | **10** |
| MW-4 | MW-4 | 3/8/2004 | (orig) | **0.013** | 0.012 | 0.064 | **1.4** | -- | -- | -- |
| | MW-4 | 7/19/2004 | (orig) | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | -- | -- | -- |
| | MW-4 | 10/27/2004 | (orig) | **0.011** | 0.008 | 0.021 | 0.13 | -- | -- | -- |
| | MW-4 | 12/27/2004 | (orig) | < 0.0025 | < 0.0025 | < 0.0025 | < 0.0005 | -- | -- | -- |
| | MW-4 | 11/22/2005 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 105 | -- | < 0.40 |
| | MW-4 | 11/15/2006 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 110 | -- | < 0.25 |
| | MW-4 | 2/21/2007 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 59.6 | -- | < 0.25 |
| | MW-4 | 8/22/2007 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 96.5 | -- | < 0.25 |
| | MW-4 | 11/6/2007 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 111 | -- | 3.3 |
| | MW-4 | 3/17/2008 | (orig) | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 64.5 | -- | < 0.5 |
| | MW-4 | 10/22/2008 | (orig) | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 93.8 | -- | 1.9 |
| | MW-4 | 9/30/2009 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | -- | < 0.02 | -- |
| | MW-4 | 6/9/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | -- | < 0.02 | -- |
| | MW-4 | 9/27/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | -- | < 0.02 | -- |
| | GW-74941-062111-CMB-001 | 6/21/2011 | (orig) | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0030 | -- | **1.21** | -- |
| | GW-074941-092711-CM-007 | 9/27/2011 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | < 0.05 | -- |
| | GW-074941-121311-CB-MW-4 | 12/13/2011 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | 0.201 | -- |
| | GW-074941-3712-CB-MW-4 | 3/7/2012 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | < 0.25 | -- |
| | GW-074941-3712-CB-DUP | 3/7/2012 | (Duplicate) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | -- | -- |
| | GW-074941-060412-CB-MW-4 | 6/4/2012 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | **1.17** | -- |
| | GW-074941-092012-JP-MW-4 | 9/20/2012 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | < 0.25 | -- |
| | GW-074941-122812-JMK-MW4 | 12/28/2012 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | 0.748 | -- |
| | GW-074941-122812-JMK-DUP | 12/28/2012 | (Duplicate) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | -- | -- |
| | 074941-061213-JK-MW4 | 6/12/2013 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | **1.46** | -- |
| | 074941-061213-JK-DUP | 6/12/2013 | (Duplicate) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | **--** | -- |
| | GW-074941-091113-CM-MW-4 | 9/11/2013 | (orig) | <0.001 | <0.001 | <0.001 | <0.003 | -- | <0.050 | -- |
| | GW-074941-122323-CM-MW4 | 12/13/2013 | (orig) | <0.001 | <0.001 | <0.001 | <0.003 | -- | 0.758 | -- |

# TABLE 3

## GROUNDWATER ANALYTICAL RESULTS SUMMARY
## CONOCOPHILLIPS COMPANY
## NELL HALL NO. 1

| Well ID | Sample ID | Date | Sample Type | Benzene (mg/L) | Toluene (mg/L) | Ethylbenzene (mg/L) | Xylenes (total) (mg/L) | Sulfate (mg/L) | Iron (dissolved) (mg/L) | Nitrate (as N) (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-5 | MW-5 | 3/8/2004 | (orig) | 0.0011 | < 0.0005 | 0.001 | 0.017 | -- | -- | -- |
| | MW-5 | 7/19/2004 | (orig) | < 0.0005 | 0.00055 | < 0.0005 | 0.00072 | -- | -- | -- |
| | MW-5 | 10/27/2004 | (orig) | < 0.0005 | < 0.0005 | < 0.0005 | < 0.001 | -- | -- | -- |
| | MW-5 | 12/27/2004 | (orig) | < 0.0005 | < 0.0005 | < 0.0005 | < 0.001 | -- | -- | -- |
| | MW-5 | 5/11/2005 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 139 | -- | 2.3 |
| | MW-5 | 11/22/2005 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 38 | -- | < 0.40 |
| | MW-5 | 11/15/2006 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 77.9 | -- | 2.3 |
| | MW-5 | 2/21/2007 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 83.3 | -- | 1.3 |
| | MW-5 | 8/22/2007 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 125 | -- | 5.6 |
| | MW-5 | 11/6/2007 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 59 | -- | 4 |
| | MW-5 | 3/17/2008 | (orig) | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 69.7 | -- | 0.986 |
| | MW-5 | 10/22/2008 | (orig) | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 105 | -- | 0.532 |
| | MW-5 | 3/30/2009 | (orig) | < 0.005 | < 0.005 | < 0.005 | < 0.005 | -- | -- | -- |
| | MW-5 | 9/30/2009 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | -- | < 0.02 | -- |
| | MW-5 | 3/31/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | -- | < 0.02 | -- |
| | MW-5 | 6/9/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | -- | < 0.02 | -- |
| | MW-5 | 9/27/2010 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | -- | < 0.02 | -- |
| | MW-5 | 3/16/2011 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.001 | -- | < 0.02 | -- |
| | GW-74941-062111-CMB-002 | 6/21/2011 | (orig) | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0030 | -- | < 0.1 | -- |
| | GW-074941-092711-CM-005 | 9/27/2011 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | 0.0835 | -- |
| | GW-074941-121311-CB-MW-5 | 12/13/2011 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | < 0.05 | -- |
| | GW-074941-3712-CB-MW-5 | 3/7/2012 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | < 0.05 | -- |
| | GW-074941-060412-CB-MW-5 | 6/4/2012 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | < 0.05 | -- |
| | GW-074941-092012-JP-MW-5 | 9/20/2012 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | < 0.05 | -- |
| | GW-074941-122812-JMK-MW5 | 12/28/2012 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | < 0.05 | -- |
| | 074941-061213-JK-MW5 | 6/12/2013 | (orig) | < 0.001 | < 0.001 | < 0.001 | < 0.003 | -- | < 0.05 | -- |
| | GW-074941-091113-CM-MW-5 | 9/11/2013 | (orig) | <0.001 | <0.001 | <0.001 | <0.003 | -- | 0.0723 | -- |
| | GW-074941-122323-CM-MW5 | 12/13/2013 | (orig) | <0.001 | <0.001 | <0.001 | <0.003 | -- | 0.0760 | -- |

**TABLE 3**

**GROUNDWATER ANALYTICAL RESULTS SUMMARY**
**CONOCOPHILLIPS COMPANY**
**NELL HALL NO. 1**

| Well ID | Sample ID | Date | Sample Type | Benzene (mg/L) | Toluene (mg/L) | Ethylbenzene (mg/L) | Xylenes (total) (mg/L) | Sulfate (mg/L) | Iron (dissolved) (mg/L) | Nitrate (as N) (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-6 | MW-6 | 3/8/2004 | (orig) | **2.5** | 0.014 | **1.6** | **21.031** | -- | -- | -- |
| | MW-6 | 7/19/2004 | (orig) | < 0.0005 | < 0.0005 | 0.00098 | 0.0026 | -- | -- | -- |
| | MW-6 | 10/27/2004 | (orig) | 0.0004 | 0.0003 | 0.0005 | 0.0021 | -- | -- | -- |
| | MW-6 | 12/27/2004 | (orig) | **0.045** | 0.0068 | 0.014 | 0.0717 | -- | -- | -- |
| | MW-6 | 11/22/2005 | (orig) | 0.01 | 0.0007 | 0.016 | 0.15 | 3.4 | -- | < 0.40 |
| | MW-6 | 11/15/2006 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 41.3 | -- | < 0.25 |
| | MW-6 | 2/21/2007 | (orig) | **0.54** | < 0.001 | 0.076 | **0.81** | 1.8 | -- | < 0.25 |
| | MW-6 | 8/22/2007 | (orig) | < 0.0005 | < 0.0007 | < 0.0008 | < 0.0008 | 12.6 | -- | < 0.25 |
| | MW-6 | 11/6/2007 | (orig) | **0.015** | < 0.0007 | 0.047 | 0.39 | 5.6 | -- | < 0.25 |
| | MW-6 | 3/18/2008 | (orig) | **0.16** | < 0.005 | < 0.005 | 0.033 | -- | -- | -- |
| | MW-6 | 10/22/2008 | (orig) | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 5.15 | -- | < 1.0 |
| | MW-6 | 3/30/2009 | (orig) | **0.042** | < 0.005 | < 0.005 | 0.01 | -- | -- | -- |
| | MW-6 | 9/30/2009 | (orig) | **0.096** | 0.0047 | 0.062 | 0.12 | -- | **1.06** | -- |
| | MW-6 | 4/1/2010 | (orig) | **0.48** | < 0.001 | 0.078 | 0.2 | -- | -- | -- |
| | MW-6 | 6/9/2010 | (orig) | **0.71** | < 0.001 | 0.42 | 0.52 | -- | **11.4** | -- |
| | MW-6 | 9/27/2010 | (orig) | **0.3** | < 0.001 | 0.25 | 0.41 | -- | 0.676 | -- |
| | MW-6 | 3/16/2011 | (orig) | **0.18** | < 0.001 | 0.044 | 0.072 | -- | **8.66** | -- |
| | GW-74941-062111-CMB-003 | 6/21/2011 | (orig) | **0.461** | 0.00048 | 0.454 | **0.677** | -- | **9.45** | -- |
| | GW-74941-062111-CMB-DUP | 6/21/2011 | (Duplicate) | **0.383** | 0.00057 | 0.407 | 0.607 | -- | -- | -- |
| | GW-074941-092711-CM-006 | 9/27/2011 | (orig) | **0.237** | < 0.005 | 0.197 | 0.225 | -- | **19.6** | -- |
| | GW-074941-092711-CM-008 | 9/27/2011 | (Duplicate) | **0.249** | < 0.005 | 0.216 | 0.248 | -- | -- | -- |
| | GW-074941-121311-CB-MW-6 | 12/13/2011 | (orig) | **0.298** | 0.0083 | 0.154 | 0.141 | -- | **11.6** | -- |
| | GW-074941-121311-CB-DUP | 12/13/2011 | (Duplicate) | **0.359** | 0.0061 | 0.19 | 0.183 | -- | **--** | -- |
| | GW-074941-3712-CB-MW-6 | 3/7/2012 | (orig) | **0.0477** | < 0.001 | 0.0073 | 0.0192 | -- | **22.5** | -- |
| | GW-074941-060412-CB-MW-6 | 6/4/2012 | (orig) | **0.649** | < 0.01 | 0.309 | 0.314 | -- | **19.2** | -- |
| | GW-074941-060412-CB-DUP | 6/4/2012 | (Duplicate) | **0.62** | < 0.01 | 0.267 | 0.266 | -- | **--** | -- |
| | GW-074941-092012-JP-MW-6 | 9/20/2012 | (orig) | **0.266** | < 0.005 | 0.065 | 0.0355 | -- | **9.53** | -- |
| | GW-074941-092012-JP-DUP | 9/20/2012 | (Duplicate) | **0.282** | < 0.005 | 0.0634 | 0.0348 | -- | -- | -- |
| | GW-074941-122812-JMK-MW6 | 12/28/2012 | (orig) | **0.319** | < 0.005 | 0.0764 | 0.0452 | -- | **8.06** | -- |
| | 074941-061213-JK-MW6 | 6/12/2013 | (orig) | **0.442** | < 0.005 | 0.159 | 0.209 | -- | **16.6** | -- |
| | GW-074941-091113-CM-MW-6 | 9/11/2013 | (orig) | **0.109** | <0.001 | 0.0208 | 0.0123 | -- | **2.260** | -- |
| | GW-074941-091113-CM-DUP | 9/11/2013 | (Duplicate) | **0.0937** | <0.001 | 0.0191 | 0.0114 | -- | **--** | -- |
| | GW-074941-122323-CM-MW6 | 12/13/2013 | (orig) | **0.467** | <0.001 | 0.101 | 0.0537 | -- | **5.900** | -- |
| | GW-074941-122323-CM-DUP | 12/13/2013 | (Duplicate) | **0.456** | <0.001 | 0.0777 | 0.0491 | -- | **--** | -- |

**Explanation**

mg/L = milligrams per liter (parts per million)
NA = Not Analyzed
NMWQCC = New Mexico Water Quality Control Commission

# Appendix A

## 2013 Quarterly Groundwater Sampling Field Forms

# WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Nell Hall #1 JOB# 074941
SAMPLE ID: 074941-061213-SK-MW4 WELL# MW-4

## WELL PURGING INFORMATION

| PURGE DATE (MM DD YY) | SAMPLE DATE (MM DD YY) | SAMPLE TIME (24 HOUR) | WATER VOL. IN CASING (GALLONS) | ACTUAL VOL. PURGED (GALLONS) |
|---|---|---|---|---|
| 06-12-13 | 061213 | 1450 | 2.05 | 6.17 |

## PURGING AND SAMPLING EQUIPMENT

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

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

| | | | | | |
|---|---|---|---|---|---|
| PURGING DEVICE | S | A - SUBMERSIBLE PUMP<br>B - PERISTALTIC PUMP | D - GAS LIFT PUMP<br>E - PURGE PUMP | G - BAILER<br>H - WATERRA® | X= PURGING DEVICE OTHER (SPECIFY) |
| SAMPLING DEVICE | G | C - BLADDER PUMP | F - DIPPER BOTTLE | X - OTHER | X= SAMPLING DEVICE OTHER (SPECIFY) |
| PURGING MATERIAL | E | A - TEFLON<br>B - STAINLESS STEEL | D - PVC<br>E - POLYETHYLENE | | X= PURGING MATERIAL OTHER (SPECIFY) |
| SAMPLING MATERIAL | E | C - POLYPROPYLENE | X - OTHER | | X= SAMPLING MATERIAL OTHER (SPECIFY) |
| PURGE TUBING | C | A - TEFLON<br>B - TYGON | D - POLYPROPYLENE<br>E - POLYETHYLENE | G - COMBINATION TEFLON/POLYPROPYLENE | X= PURGE TUBING OTHER (SPECIFY) |
| SAMPLING TUBING | C | C - ROPE | F - SILICONE | X - OTHER | X= SAMPLING TUBING OTHER (SPECIFY) |
| FILTERING DEVICES 0.45 | A | A - IN-LINE DISPOSABLE | B - PRESSURE | | |

## FIELD MEASUREMENTS

DEPTH TO WATER 24.06 (feet) WELL ELEVATION (feet)

WELL DEPTH 37.76 (feet) GROUNDWATER ELEVATION (feet)

| TEMPERATURE | pH | TDS | SC | DO | ORP | VOLUME |
|---|---|---|---|---|---|---|
| 16.81 (°C) | 7.18 (std) | 1.138 (g/L) | 1751 (µS/cm) | .92 (mg/L) | -105.4 (mV) | 5.25 (gal) |
| 16.51 (°C) | 6.85 (std) | 1.135 (g/L) | 1746 (µS/cm) | .82 (mg/L) | -94.2 (mV) | 5.75 (gal) |
| 16.25 (°C) | 6.74 (std) | 1.139 (g/L) | 1752 (µS/cm) | .61 (mg/L) | 87.7 (mV) | 6.25 (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |

## FIELD COMMENTS

SAMPLE APPEARANCE: ODOR: COLOR: SHEEN Y/N

WEATHER CONDITIONS: TEMPERATURE WINDY Y/N PRECIPITATION Y/N (IF Y TYPE)

SPECIFIC COMMENTS: 37.76 - 24.06 = 13.7 X .15 = 2.055 X 3 = 6.165 ≈ 6.17

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

DATE PRINT Cody Kirkland SIGNATURE

# WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Nell Hill #1 JOB# 094 074941
SAMPLE ID: 074941-061213-JK-MW5 WELL# MW-5

## WELL PURGING INFORMATION

| PURGE DATE (MM DD YY) | SAMPLE DATE (MM DD YY) | SAMPLE TIME (24 HOUR) | WATER VOL. IN CASING (GALLONS) | ACTUAL VOL. PURGED (GALLONS) |
|---|---|---|---|---|
| 061213 | 061213 | 1445 | 2.62 | 7.88 |

## PURGING AND SAMPLING EQUIPMENT

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

| | | | | | |
|---|---|---|---|---|---|
| PURGING DEVICE | G | A - SUBMERSIBLE PUMP<br>B - PERISTALTIC PUMP | D - GAS LIFT PUMP<br>E - PURGE PUMP | G - BAILER<br>H - WATERRA® | X= PURGING DEVICE OTHER (SPECIFY) |
| SAMPLING DEVICE | G | C - BLADDER PUMP | F - DIPPER BOTTLE | X - OTHER | X= SAMPLING DEVICE OTHER (SPECIFY) |
| PURGING MATERIAL | E | A - TEFLON<br>B - STAINLESS STEEL | D - PVC<br>E - POLYETHYLENE | | X= PURGING MATERIAL OTHER (SPECIFY) |
| SAMPLING MATERIAL | E | C - POLYPROPYLENE | X - OTHER | | X= SAMPLING MATERIAL OTHER (SPECIFY) |
| PURGE TUBING | C | A - TEFLON<br>B - TYGON | D - POLYPROPYLENE<br>E - POLYETHYLENE | G - COMBINATION TEFLON/POLYPROPYLENE | X= PURGE TUBING OTHER (SPECIFY) |
| SAMPLING TUBING | C | C - ROPE | F - SILICONE | X - OTHER | X= SAMPLING TUBING OTHER (SPECIFY) |
| FILTERING DEVICES 0.15 | A | A - IN-LINE DISPOSABLE | B - PRESSURE | | |

## FIELD MEASUREMENTS

DEPTH TO WATER 25.39 (feet) WELL ELEVATION (feet)
WELL DEPTH 42.90 (feet) GROUNDWATER ELEVATION (feet)

| TEMPERATURE | pH | TDS | SC | DO | ORP | VOLUME |
|---|---|---|---|---|---|---|
| 15.71 (°C) | 7.07 (std) | 1.050 (g/L) | 1616 (µS/cm) | .30 (mg/L) | -19.6 (mV) | 7 (gal) |
| 15.18 (°C) | 7.03 (std) | 1.043 (g/L) | 1605 (µS/cm) | .25 (mg/L) | 9.2 (mV) | 7.5 (gal) |
| 15.13 (°C) | 7.04 (std) | 1.043 (g/L) | 1605 (µS/cm) | .27 (mg/L) | 17.1 (mV) | 8.0 (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |

## FIELD COMMENTS

SAMPLE APPEARANCE: ODOR: COLOR: SHEEN Y/N
WEATHER CONDITIONS: TEMPERATURE WINDY Y/N PRECIPITATION Y/N (IF Y TYPE)
SPECIFIC COMMENTS: 7.88 X .15 = 2.68 X 3 = 7.88

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

DATE PRINT Josh Krause SIGNATURE

# WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Nell Mall # 6 JOB# 074941
SAMPLE ID: 074941-060213-JK-MW6 WELL# MW-6

## WELL PURGING INFORMATION

| PURGE DATE (MM DD YY) | SAMPLE DATE (MM DD YY) | SAMPLE TIME (24 HOUR) | WATER VOL. IN CASING (GALLONS) | ACTUAL VOL. PURGED (GALLONS) |
|---|---|---|---|---|
| 06 12 13 | 06 12 13 | 1455 | 2.05 | 6.15 |

## PURGING AND SAMPLING EQUIPMENT

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

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

| | | | | | |
|---|---|---|---|---|---|
| PURGING DEVICE | 6 | A - SUBMERSIBLE PUMP | D - GAS LIFT PUMP | G - BAILER | X= PURGING DEVICE OTHER (SPECIFY) |
| | | B - PERISTALTIC PUMP | E - PURGE PUMP | H - WATERRA® | |
| SAMPLING DEVICE | 6 | 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 TEFLON/POLYPROPYLENE | X= PURGE TUBING OTHER (SPECIFY) |
| | | B - TYGON | E - POLYETHYLENE | | |
| SAMPLING TUBING | C | C - ROPE | F - SILICONE | X - OTHER | X= SAMPLING TUBING OTHER (SPECIFY) |
| FILTERING DEVICES 0.45 | A | A - IN-LINE DISPOSABLE | B - PRESSURE | | |

## FIELD MEASUREMENTS

DEPTH TO WATER 24.78 (feet) WELL ELEVATION (feet)

WELL DEPTH 35.45 (feet) GROUNDWATER ELEVATION (feet)

| TEMPERATURE | pH | TDS | SC | DO | ORP | VOLUME |
|---|---|---|---|---|---|---|
| 15.31 (°C) | 6.53 (std) | 1.298 (g/L) | 1998 (µS/cm) | 0.31 (mg/L) | -80.9 (mV) | 5.25 (gal) |
| 1543 (°C) | 6.52 (std) | 1.313 (g/L) | 2053 (µS/cm) | 0.34 (mg/L) | -89 (mV) | 5.75 (gal) |
| 1493 (°C) | 6.55 (std) | 1.352 (g/L) | 2071 (µS/cm) | 0.35 (mg/L) | -92.2 (mV) | 6.25 (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |

## FIELD COMMENTS

SAMPLE APPEARANCE: ODOR: COLOR: SHEEN Y/N

WEATHER CONDITIONS: TEMPERATURE WINDY Y/N PRECIPITATION Y/N (IF Y TYPE)

SPECIFIC COMMENTS: 13.67 X .15 = 2.05 X 3 = 6.15

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

DATE PRINT JOSH KLECHNER SIGNATURE

# WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Well Hall No. 1 JOB# 074941

SAMPLE ID: GW-074941-09113-CM-MW-4 WELL# MW-4

## WELL PURGING INFORMATION

| PURGE DATE (MM DD YY) | SAMPLE DATE (MM DD YY) | SAMPLE TIME (24 HOUR) | WATER VOL. IN CASING (GALLONS) | ACTUAL VOL. PURGED (GALLONS) |
|---|---|---|---|---|
| 9/11/13 | 9/11/13 | 1900 | 3.256 | 10.0 |

## 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= 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 TEFLON/POLYPROPYLENE | X= PURGE TUBING OTHER (SPECIFY) |
| | | B - TYGON | E - POLYETHYLENE | | |
| SAMPLING TUBING | C | C - ROPE | F - SILICONE | X - OTHER | X= SAMPLING TUBING OTHER (SPECIFY) |
| FILTERING DEVICES 0.45 | A | A - IN-LINE DISPOSABLE | B - PRESSURE | 0.45 for metals only | |

## FIELD MEASUREMENTS

| | | | |
|---|---|---|---|
| DEPTH TO WATER | 17.40 (feet) | WELL ELEVATION | (feet) |
| WELL DEPTH | 37.75 (feet) | GROUNDWATER ELEVATION | (feet) |

| TEMPERATURE | pH | TDS | SC | DO | ORP | VOLUME |
|---|---|---|---|---|---|---|
| 16.37 (°C) | 7.10 (std) | 0.597 (g/L) | 918 (µS/cm) | 6.17 (mg/L) | 60.7 (mV) | 9.0 (gal) |
| 17.22 (°C) | 6.53 (std) | 0.591 (g/L) | 910 (µS/cm) | 5.72 (mg/L) | 66.4 (mV) | 9.5 (gal) |
| 17.51 (°C) | 6.57 (std) | 0.571 (g/L) | 879 (µS/cm) | 5.76 (mg/L) | 59.7 (mV) | 10.0 (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |

## FIELD COMMENTS

SAMPLE APPEARANCE: CLOUDY ODOR: NONE COLOR: BROWN SHEEN Y/N N

WEATHER CONDITIONS: TEMPERATURE 80s WINDY Y/N N PRECIPITATION Y/N (IF Y TYPE) N

SPECIFIC COMMENTS:

1 volume = 3.256

3 volumes = 9.768

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

DATE 9/11/13 PRINT Christie Mathews SIGNATURE Christie Mathews

# WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Well Hall No. 1 JOB# 074941

SAMPLE ID: GW-074941-091113-CM-MW-5 WELL# MW-5

## WELL PURGING INFORMATION

| PURGE DATE (MM DD YY) | SAMPLE DATE (MM DD YY) | SAMPLE TIME (24 HOUR) | WATER VOL. IN CASING (GALLONS) | ACTUAL VOL. PURGED (GALLONS) |
|---|---|---|---|---|
| 9/11/13 | 9/11/13 | 1845 | 3.85 | 11.75 |

## 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= 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 TEFLON/POLYPROPYLENE | X= PURGE TUBING OTHER (SPECIFY) |
| | | B - TYGON | E - POLYETHYLENE | | |
| SAMPLING TUBING | C | C - ROPE | F - SILICONE | X - OTHER | X= SAMPLING TUBING OTHER (SPECIFY) |
| FILTERING DEVICES 0.45 | A | A - IN-LINE DISPOSABLE | B - PRESSURE | 0.45 for metals only | |

## FIELD MEASUREMENTS

| | | | |
|---|---|---|---|
| DEPTH TO WATER | ~~42.92~~ 10.84 | (feet) | WELL ELEVATION (feet) |
| WELL DEPTH | ~~42.92~~ 10.84 | (feet) | GROUNDWATER ELEVATION (feet) |

| TEMPERATURE | pH | TDS | SC | DO | ORP | VOLUME |
|---|---|---|---|---|---|---|
| 17.46 (°C) | 6.91 (std) | 0.565 (g/L) | 870 (µS/cm) | 9.07 (mg/L) | 71.7 (mV) | 10.75 (gal) |
| 17.08 (°C) | 6.12 (std) | 0.561 (g/L) | 863 (µS/cm) | 8.45 (mg/L) | 104.3 (mV) | 11.25 (gal) |
| 17.05 (°C) | 5.86 (std) | 0.559 (g/L) | 861 (µS/cm) | 8.20 (mg/L) | 115.7 (mV) | 11.75 (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |

## FIELD COMMENTS

SAMPLE APPEARANCE: CLOUDY ODOR: NONE COLOR: BROWN SHEEN Y/N N

WEATHER CONDITIONS: TEMPERATURE 80's WINDY Y/N N PRECIPITATION Y/N (IF Y TYPE) N

SPECIFIC COMMENTS:

1 Volume = 3.85

3 Volumes = 11.56

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

DATE 9/11/13 PRINT Christine Mathews SIGNATURE [signature]

# WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Nell Hall No. 1 JOB# 074941
SAMPLE ID: GW-074941-091113-CM-MW-6 WELL# MW-6

## WELL PURGING INFORMATION

| PURGE DATE (MM DD YY) | SAMPLE DATE (MM DD YY) | SAMPLE TIME (24 HOUR) | WATER VOL. IN CASING (GALLONS) | ACTUAL VOL. PURGED (GALLONS) |
|---|---|---|---|---|
| 9/11/13 | 9/11/13 | 1910 | 3.24 | 9.75 |

## PURGING AND SAMPLING EQUIPMENT

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

| | | | | | |
|---|---|---|---|---|---|
| PURGING DEVICE | G | A - SUBMERSIBLE PUMP<br>B - PERISTALTIC PUMP | D - GAS LIFT PUMP<br>E - PURGE PUMP | G - BAILER<br>H - WATERRA® | X= PURGING DEVICE OTHER (SPECIFY) |
| SAMPLING DEVICE | G | C - BLADDER PUMP | F - DIPPER BOTTLE | X - OTHER | X= SAMPLING DEVICE OTHER (SPECIFY) |
| PURGING MATERIAL | E | A - TEFLON<br>B - STAINLESS STEEL | D - PVC<br>E - POLYETHYLENE | | X= PURGING MATERIAL OTHER (SPECIFY) |
| SAMPLING MATERIAL | E | C - POLYPROPYLENE | X - OTHER | | X= SAMPLING MATERIAL OTHER (SPECIFY) |
| PURGE TUBING | C | A - TEFLON<br>B - TYGON | D - POLYPROPYLENE<br>E - POLYETHYLENE | G - COMBINATION TEFLON/POLYPROPYLENE | X= PURGE TUBING OTHER (SPECIFY) |
| SAMPLING TUBING | C | C - ROPE | F - SILICONE | X - OTHER | X= SAMPLING TUBING OTHER (SPECIFY) |
| FILTERING DEVICES 0.45 | A | A - IN-LINE DISPOSABLE | B - PRESSURE | 0.45 for metals only | |

## FIELD MEASUREMENTS

DEPTH TO WATER 18.26 (feet) WELL ELEVATION (feet)
WELL DEPTH 38.48 (feet) GROUNDWATER ELEVATION (feet)

| TEMPERATURE | pH | TDS | SC | DO | ORP | VOLUME |
|---|---|---|---|---|---|---|
| 15.80 (°C) | 6.51 (std) | 91.102 (g/L) | 1695 (µS/cm) | 2.96 (mg/L) | -119.0 (mV) | ~~8.25~~ (gal) 8.75 |
| 16.26 (°C) | 6.24 (std) | 1.112 (g/L) | 1711 (µS/cm) | 2.13 (mg/L) | -114.1 (mV) | ~~8.75~~ (gal) 9.25 |
| 16.54 (°C) | 6.23 (std) | 1.144 (g/L) | 1761 (µS/cm) | 1.62 (mg/L) | -121.5 (mV) | 9.75 (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |

## FIELD COMMENTS

SAMPLE APPEARANCE: CLOUDY ODOR: BIO COLOR: BLACK SHEEN Y/N N
WEATHER CONDITIONS: TEMPERATURE 80s WINDY Y/N N PRECIPITATION Y/N (IF Y TYPE) N
SPECIFIC COMMENTS: Duplicate Collected @ 1915

1 Volume = 3.24
3 Volumes = 9.706

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

DATE 9/11/13 PRINT Christine Mathews SIGNATURE

# WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Nell Hall No. 1 JOB# 074941

SAMPLE ID: GW-074941-121313-CM-MW-4 WELL# MW-4

## WELL PURGING INFORMATION

| PURGE DATE (MM DD YY) | SAMPLE DATE (MM DD YY) | SAMPLE TIME (24 HOUR) | WATER VOL. IN CASING (GALLONS) | ACTUAL VOL. PURGED (GALLONS) |
|---|---|---|---|---|
| 12/13/13 | 12/13/13 | 0920 | 1.539 | 4.75 |

## 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= 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 TEFLON/POLYPROPYLENE | X= PURGE TUBING OTHER (SPECIFY) |
| | | B - TYGON | E - POLYETHYLENE | | |
| SAMPLING TUBING | C | C - ROPE | F - SILICONE | X - OTHER | X= SAMPLING TUBING OTHER (SPECIFY) |
| FILTERING DEVICES 0.45 | A | A - IN-LINE DISPOSABLE | B - PRESSURE | for metals only | |

## FIELD MEASUREMENTS

DEPTH TO WATER 27.90 (feet) WELL ELEVATION (feet)

WELL DEPTH 37.52 (feet) GROUNDWATER ELEVATION (feet)

| TEMPERATURE | pH | TDS | SC | DO | ORP | VOLUME |
|---|---|---|---|---|---|---|
| 16.00 (°C) | 6.86 (std) | 0.629 (g/L) | 968 (µS/cm) | 1.46 (mg/L) | -109.7 (mV) | 3.75 (gal) |
| 15.96 (°C) | 6.77 (std) | 0.628 (g/L) | 967 (µS/cm) | 1.24 (mg/L) | -130.9 (mV) | 4.25 (gal) |
| 16.01 (°C) | 6.74 (std) | 0.629 (g/L) | 968 (µS/cm) | 1.17 (mg/L) | -137.0 (mV) | 4.75 (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |

## FIELD COMMENTS

SAMPLE APPEARANCE: Slightly cloudy ODOR: No odor COLOR: clear SHEEN Y/N No

WEATHER CONDITIONS: TEMPERATURE 25° WINDY Y/N no PRECIPITATION Y/N (IF Y TYPE) no

SPECIFIC COMMENTS:

1.539 X3 = 4.617

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE SAP PROCEDURES

DATE 12/13/13 PRINT Christine Mathews SIGNATURE Christine Mathews

# WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Nell Hall No. 1 JOB# 074941

SAMPLE ID: GW-074941-121313-CM-MW-5 WELL# MW-5

## WELL PURGING INFORMATION

| PURGE DATE (MM DD YY) | SAMPLE DATE (MM DD YY) | SAMPLE TIME (24 HOUR) | WATER VOL. IN CASING (GALLONS) | ACTUAL VOL. PURGED (GALLONS) |
|---|---|---|---|---|
| 12/13/13 | 12/13/13 | ~~0850~~ 0905 | 2.1616 | 6.5 |

## 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= 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 TEFLON/POLYPROPYLENE | X= PURGE TUBING OTHER (SPECIFY) |
| | | B - TYGON | E - POLYETHYLENE | | |
| SAMPLING TUBING | C | C - ROPE | F - SILICONE | X - OTHER | X= SAMPLING TUBING OTHER (SPECIFY) |
| FILTERING DEVICES 0.45 | A | A - IN-LINE DISPOSABLE | B - PRESSURE | For metals only | |

## FIELD MEASUREMENTS

DEPTH TO WATER 29.2 (feet) WELL ELEVATION (feet)

WELL DEPTH 42.71 (feet) GROUNDWATER ELEVATION (feet)

| TEMPERATURE | pH | TDS | SC | DO | ORP | VOLUME |
|---|---|---|---|---|---|---|
| 14.69 (°C) | 6.66 (std) | .708 (g/L) | 1089 (µS/cm) | 6.51 (mg/L) | -9.6 (mV) | 6.5 (gal) |
| 15.41 (°C) | 6.70 (std) | .726 (g/L) | 1118 (µS/cm) | 5.99 (mg/L) | -21.8 (mV) | 6.0 (gal) |
| 16.09 (°C) | 6.74 (std) | .707 (g/L) | 1088 (µS/cm) | 6.17 (mg/L) | -26.3 (mV) | 6.5 (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |
| (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |

## FIELD COMMENTS

SAMPLE APPEARANCE: Murky Yellowish/Brown ODOR: No odor COLOR: Brown SHEEN Y/N N

WEATHER CONDITIONS: TEMPERATURE 25° WINDY Y/N NO PRECIPITATION Y/N (IF Y TYPE) no

SPECIFIC COMMENTS:

2.1616 x 3 = 6.4848

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

DATE 12/13/13 PRINT Christie Mathews SIGNATURE Christie Mathews

# WELL SAMPLING FIELD INFORMATION FORM

SITE/PROJECT NAME: Nell Hall No. 1 JOB# 074941

SAMPLE ID: GW-074941-121313-CM-MW-6 WELL# MW-6

WELL PURGING INFORMATION

| PURGE DATE (MM DD YY) | SAMPLE DATE (MM DD YY) | SAMPLE TIME (24 HOUR) | WATER VOL. IN CASING (GALLONS) | ACTUAL VOL. PURGED (GALLONS) |
|---|---|---|---|---|
| 12/13/13 | 12/13/13 | ~~0920~~ (CM) 0930 | 1.4976 | 4.75 |

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= 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 | B | 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 | O | A - TEFLON | D - POLYPROPYLENE | G - COMBINATION TEFLON/POLYPROPYLENE | X= PURGE TUBING OTHER (SPECIFY) |
| | | B - TYGON | E - POLYETHYLENE | | |
| SAMPLING TUBING | C | C - ROPE | F - SILICONE | X - OTHER | X= SAMPLING TUBING OTHER (SPECIFY) |
| FILTERING DEVICES 0.45 | A | A - IN-LINE DISPOSABLE | | B - PRESSURE | for metals only |

FIELD MEASUREMENTS

DEPTH TO WATER: ~~28.84~~ 38.20 (CM) (feet) WELL ELEVATION: (feet)

WELL DEPTH: 38.20 (feet) GROUNDWATER ELEVATION: (feet)

| | TEMPERATURE | pH | TDS | SC | DO | ORP | VOLUME |
|---|---|---|---|---|---|---|---|
| (CM) | ~~15.98~~ (°C) | ~~6.92~~ (std) | ~~0.627~~ (g/L) | ~~985~~ (µS/cm) | ~~1.52~~ (mg/L) | ~~-102.9~~ (mV) | (gal) |
| | 14.73 (°C) | 6.36 (std) | .784 (g/L) | 1207 (µS/cm) | 2.95 (mg/L) | -164.5 (mV) | 3.75 (gal) |
| | 15.20 (°C) | 6.36 (std) | .792 (g/L) | 1219 (µS/cm) | 2.11 (mg/L) | -157.8 (mV) | 4.25 (gal) |
| | 15.32 (°C) | 6.37 (std) | .791 (g/L) | 1217 (µS/cm) | 2.03 (mg/L) | -139.7 (mV) | 4.75 (gal) |
| | (°C) | (std) | (g/L) | (µS/cm) | (mg/L) | (mV) | (gal) |

FIELD COMMENTS

SAMPLE APPEARANCE: Cloudy w Black Particulates ODOR: Biodor COLOR: Grey SHEEN Y/N: N.

WEATHER CONDITIONS: TEMPERATURE: 25 WINDY Y/N: no PRECIPITATION Y/N (IF Y TYPE): no

SPECIFIC COMMENTS:

Duplicate collected @ ~~0935~~ 0935

1.4976 x 3 = 4.493

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE QA/QC PROTOCOLS

DATE: 12/13/13 PRINT: Christine Mathews SIGNATURE: Christine Mathews

# Appendix B

## 2013 Quarterly Groundwater Laboratory Analytical Reports

**Pace Analytical Services, Inc.**
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

June 28, 2013

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

RE: Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

Dear Christine Matthews:
Enclosed are the analytical results for sample(s) received by the laboratory on June 14, 2013. 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
Jason Ploss, COP Conestoga-Rovers & Associa

**REPORT OF LABORATORY ANALYSIS**

**Pace Analytical Services, Inc.**
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

## CERTIFICATIONS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

**Kansas Certification IDs**
9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

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## SAMPLE SUMMARY

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **60146960001** | **074941-061213-JK-MW4** | Water | 06/12/13 14:50 | 06/14/13 08:50 |
| **60146960002** | **074941-061213-JK-MW5** | Water | 06/12/13 14:45 | 06/14/13 08:50 |
| **60146960003** | **074941-061213-JK-MW6** | Water | 06/12/13 14:55 | 06/14/13 08:50 |
| **60146960004** | **074941-061213-JK-DUP** | Water | 06/12/13 08:00 | 06/14/13 08:50 |
| **60146960005** | **TRIP BLANK** | Water | 06/12/13 08:00 | 06/14/13 08:50 |

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## SAMPLE ANALYTE COUNT

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| **60146960001** | **074941-061213-JK-MW4** | EPA 6010 | TJT | 1 |
| | | EPA 8260 | JTS | 9 |
| **60146960002** | **074941-061213-JK-MW5** | EPA 6010 | TJT | 1 |
| | | EPA 8260 | JTS | 9 |
| **60146960003** | **074941-061213-JK-MW6** | EPA 6010 | TJT | 1 |
| | | EPA 8260 | JTS | 9 |
| **60146960004** | **074941-061213-JK-DUP** | EPA 8260 | JTS | 9 |
| **60146960005** | **TRIP BLANK** | EPA 8260 | JTS | 9 |

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# PROJECT NARRATIVE

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

**Method:** **EPA 6010**
**Description:** 6010 MET ICP, Dissolved
**Client:** COP Conestoga-Rovers & Associates, Inc. NM
**Date:** June 28, 2013

**General Information:**
3 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.

**Additional Comments:**

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# PROJECT NARRATIVE

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

**Method:** **EPA 8260**
**Description:** 8260 MSV UST, Water
**Client:** COP Conestoga-Rovers & Associates, Inc. NM
**Date:** June 28, 2013

**General Information:**
5 samples were analyzed for EPA 8260. 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.

**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.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits 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.

**Additional Comments:**

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

**Pace Analytical Services, Inc.**
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## ANALYTICAL RESULTS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

**Sample: 074941-061213-JK-MW4** **Lab ID: 60146960001** Collected: 06/12/13 14:50 Received: 06/14/13 08:50 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 | | | | | | | | |
| Iron, Dissolved | **1460** | ug/L | 50.0 | 11.6 | 1 | 06/18/13 14:00 | 06/21/13 09:58 | 7439-89-6 | |
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | | |
| Benzene | ND | ug/L | 1.0 | 0.060 | 1 | | 06/25/13 22:36 | 71-43-2 | |
| Ethylbenzene | ND | ug/L | 1.0 | 0.18 | 1 | | 06/25/13 22:36 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 0.17 | 1 | | 06/25/13 22:36 | 108-88-3 | |
| Xylene (Total) | ND | ug/L | 3.0 | 0.42 | 1 | | 06/25/13 22:36 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| Dibromofluoromethane (S) | 95 | % | 80-120 | | 1 | | 06/25/13 22:36 | 1868-53-7 | |
| Toluene-d8 (S) | 96 | % | 80-120 | | 1 | | 06/25/13 22:36 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 101 | % | 80-120 | | 1 | | 06/25/13 22:36 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 97 | % | 80-120 | | 1 | | 06/25/13 22:36 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 0.10 | 1 | | 06/25/13 22:36 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

**Sample: 074941-061213-JK-MW5** **Lab ID: 60146960002** Collected: 06/12/13 14:45 Received: 06/14/13 08:50 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 | | | | | | | | |
| Iron, Dissolved | ND | ug/L | 50.0 | 11.6 | 1 | 06/18/13 14:00 | 06/21/13 10:06 | 7439-89-6 | |
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | | |
| Benzene | ND | ug/L | 1.0 | 0.060 | 1 | | 06/25/13 22:52 | 71-43-2 | |
| Ethylbenzene | ND | ug/L | 1.0 | 0.18 | 1 | | 06/25/13 22:52 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 0.17 | 1 | | 06/25/13 22:52 | 108-88-3 | |
| Xylene (Total) | ND | ug/L | 3.0 | 0.42 | 1 | | 06/25/13 22:52 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| Dibromofluoromethane (S) | 97 | % | 80-120 | | 1 | | 06/25/13 22:52 | 1868-53-7 | |
| Toluene-d8 (S) | 99 | % | 80-120 | | 1 | | 06/25/13 22:52 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 100 | % | 80-120 | | 1 | | 06/25/13 22:52 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 100 | % | 80-120 | | 1 | | 06/25/13 22:52 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 0.10 | 1 | | 06/25/13 22:52 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, Inc.**
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## ANALYTICAL RESULTS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

**Sample: 074941-061213-JK-MW6** **Lab ID: 60146960003** Collected: 06/12/13 14:55 Received: 06/14/13 08:50 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 | | | | | | | | |
| Iron, Dissolved | **16600** | ug/L | 50.0 | 11.6 | 1 | 06/18/13 14:00 | 06/21/13 10:13 | 7439-89-6 | |
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | | |
| Benzene | **442** | ug/L | 5.0 | 0.30 | 5 | | 06/25/13 23:07 | 71-43-2 | |
| Ethylbenzene | **159** | ug/L | 5.0 | 0.90 | 5 | | 06/25/13 23:07 | 100-41-4 | |
| Toluene | ND | ug/L | 5.0 | 0.85 | 5 | | 06/25/13 23:07 | 108-88-3 | |
| Xylene (Total) | **209** | ug/L | 15.0 | 2.1 | 5 | | 06/25/13 23:07 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| Dibromofluoromethane (S) | 98 | % | 80-120 | | 5 | | 06/25/13 23:07 | 1868-53-7 | |
| Toluene-d8 (S) | 99 | % | 80-120 | | 5 | | 06/25/13 23:07 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 100 | % | 80-120 | | 5 | | 06/25/13 23:07 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 98 | % | 80-120 | | 5 | | 06/25/13 23:07 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 0.10 | 5 | | 06/25/13 23:07 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

**Sample: 074941-061213-JK-DUP** **Lab ID: 60146960004** Collected: 06/12/13 08:00 Received: 06/14/13 08:50 Matrix: Water

| Parameters | Results | Units | Report Limit | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | | |
| Benzene | ND | ug/L | 1.0 | 0.060 | 1 | | 06/25/13 23:23 | 71-43-2 | |
| Ethylbenzene | ND | ug/L | 1.0 | 0.18 | 1 | | 06/25/13 23:23 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 0.17 | 1 | | 06/25/13 23:23 | 108-88-3 | |
| Xylene (Total) | ND | ug/L | 3.0 | 0.42 | 1 | | 06/25/13 23:23 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| Dibromofluoromethane (S) | 99 | % | 80-120 | | 1 | | 06/25/13 23:23 | 1868-53-7 | |
| Toluene-d8 (S) | 99 | % | 80-120 | | 1 | | 06/25/13 23:23 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 100 | % | 80-120 | | 1 | | 06/25/13 23:23 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 100 | % | 80-120 | | 1 | | 06/25/13 23:23 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 0.10 | 1 | | 06/25/13 23:23 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, Inc.**
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Lenexa, KS 66219
(913)599-5665

## ANALYTICAL RESULTS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

**Sample: TRIP BLANK** **Lab ID: 60146960005** Collected: 06/12/13 08:00 Received: 06/14/13 08:50 Matrix: Water

| Parameters | Results | Units | Report Limit | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | | |
| Benzene | ND | ug/L | 1.0 | 0.060 | 1 | | 06/25/13 21:49 | 71-43-2 | |
| Ethylbenzene | ND | ug/L | 1.0 | 0.18 | 1 | | 06/25/13 21:49 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 0.17 | 1 | | 06/25/13 21:49 | 108-88-3 | |
| Xylene (Total) | ND | ug/L | 3.0 | 0.42 | 1 | | 06/25/13 21:49 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| Dibromofluoromethane (S) | 99 | % | 80-120 | | 1 | | 06/25/13 21:49 | 1868-53-7 | |
| Toluene-d8 (S) | 100 | % | 80-120 | | 1 | | 06/25/13 21:49 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 101 | % | 80-120 | | 1 | | 06/25/13 21:49 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 100 | % | 80-120 | | 1 | | 06/25/13 21:49 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 0.10 | 1 | | 06/25/13 21:49 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, Inc.**
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Lenexa, KS 66219
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## QUALITY CONTROL DATA

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

QC Batch: MPRP/23127 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60146960001, 60146960002, 60146960003

METHOD BLANK: 1206781 Matrix: Water
Associated Lab Samples: 60146960001, 60146960002, 60146960003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Iron, Dissolved | ug/L | ND | 50.0 | 06/20/13 12:56 | |

LABORATORY CONTROL SAMPLE: 1206782

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Iron, Dissolved | ug/L | 10000 | 9680 | 97 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1206783 1206784

| Parameter | Units | 60146960001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron, Dissolved | ug/L | 1460 | 10000 | 10000 | 11400 | 11300 | 99 | 99 | 75-125 | 0 | 20 | |

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

QC Batch: MSV/54541 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60146960001, 60146960002, 60146960003, 60146960004, 60146960005

METHOD BLANK: 1210779 Matrix: Water
Associated Lab Samples: 60146960001, 60146960002, 60146960003, 60146960004, 60146960005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Benzene | ug/L | ND | 1.0 | 06/25/13 21:03 | |
| Ethylbenzene | ug/L | ND | 1.0 | 06/25/13 21:03 | |
| Toluene | ug/L | ND | 1.0 | 06/25/13 21:03 | |
| Xylene (Total) | ug/L | ND | 3.0 | 06/25/13 21:03 | |
| 1,2-Dichloroethane-d4 (S) | % | 100 | 80-120 | 06/25/13 21:03 | |
| 4-Bromofluorobenzene (S) | % | 101 | 80-120 | 06/25/13 21:03 | |
| Dibromofluoromethane (S) | % | 98 | 80-120 | 06/25/13 21:03 | |
| Toluene-d8 (S) | % | 99 | 80-120 | 06/25/13 21:03 | |

LABORATORY CONTROL SAMPLE: 1210780

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Benzene | ug/L | 20 | 20.1 | 101 | 73-122 | |
| Ethylbenzene | ug/L | 20 | 21.0 | 105 | 76-123 | |
| Toluene | ug/L | 20 | 19.5 | 98 | 76-122 | |
| Xylene (Total) | ug/L | 60 | 62.4 | 104 | 76-122 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 98 | 80-120 | |
| 4-Bromofluorobenzene (S) | % | | | 99 | 80-120 | |
| Dibromofluoromethane (S) | % | | | 97 | 80-120 | |
| Toluene-d8 (S) | % | | | 98 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1210781 1210782

| Parameter | Units | 60147110001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ug/L | ND | 20 | 20 | 20.4 | 18.4 | 102 | 92 | 48-150 | 10 | 31 | |
| Ethylbenzene | ug/L | ND | 20 | 20 | 21.9 | 19.8 | 109 | 99 | 50-147 | 10 | 31 | |
| Toluene | ug/L | ND | 20 | 20 | 20.6 | 18.4 | 103 | 92 | 51-147 | 11 | 32 | |
| Xylene (Total) | ug/L | ND | 60 | 60 | 63.2 | 58.3 | 105 | 97 | 49-145 | 8 | 31 | |
| 1,2-Dichloroethane-d4 (S) | % | | | | | | 100 | 101 | 80-120 | | | |
| 4-Bromofluorobenzene (S) | % | | | | | | 99 | 100 | 80-120 | | | |
| Dibromofluoromethane (S) | % | | | | | | 99 | 100 | 80-120 | | | |
| Toluene-d8 (S) | % | | | | | | 100 | 100 | 80-120 | | | |
| Preservation pH | | 1.0 | | | 1.0 | 1.0 | | | | 0 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, Inc.**
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Lenexa, KS 66219
(913)599-5665

# QUALIFIERS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

**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.

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074941 Nell Hall No. 1
Pace Project No.: 60146960

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **60146960001** | **074941-061213-JK-MW4** | EPA 3010 | MPRP/23127 | EPA 6010 | ICP/18251 |
| **60146960002** | **074941-061213-JK-MW5** | EPA 3010 | MPRP/23127 | EPA 6010 | ICP/18251 |
| **60146960003** | **074941-061213-JK-MW6** | EPA 3010 | MPRP/23127 | EPA 6010 | ICP/18251 |
| **60146960001** | **074941-061213-JK-MW4** | EPA 8260 | MSV/54541 | | |
| **60146960002** | **074941-061213-JK-MW5** | EPA 8260 | MSV/54541 | | |
| **60146960003** | **074941-061213-JK-MW6** | EPA 8260 | MSV/54541 | | |
| **60146960004** | **074941-061213-JK-DUP** | EPA 8260 | MSV/54541 | | |
| **60146960005** | **TRIP BLANK** | EPA 8260 | MSV/54541 | | |

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## Sample Condition Upon Receipt

**WO# : 60146960**

60146960

Client Name: Cop_ CRA

| Optional |
|---|
| Proj Due Date: |
| Proj Name: |

**Courier:** Fed Ex ☑ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

**Tracking #:** 8011 3631 7418 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 ☐

**Thermometer Used:** T-112 / T-194 **Type of Ice:** Wet Blue None ☐ Samples received on ice, cooling process has begun
(circle one)

**Cooler Temperature:** 2.6

Temperature should be above freezing to 6°C

**Date and initials of person examining contents:** 6/14/13

| | | |
|---|---|---|
| Chain of Custody present: | ☑Yes ☐No ☐N/A | 1. |
| Chain of Custody filled out: | ☑Yes ☐No ☐N/A | 2. |
| Chain of Custody relinquished: | ☑Yes ☐No ☐N/A | 3. |
| Sampler name & signature on COC: | ☑Yes ☐No ☐N/A | 4. |
| Samples arrived within holding time: | ☑Yes ☐No ☐N/A | 5. |
| **Short Hold Time analyses (<72hr):** | ☐Yes ☑No ☐N/A | 6. |
| **Rush Turn Around Time requested:** | ☐Yes ☑No ☐N/A | 7. |
| Sufficient volume: | ☑Yes ☐No ☐N/A | 8. |
| Correct containers used: | ☑Yes ☐No ☐N/A | |
| Pace containers used: | ☑Yes ☐No ☐N/A | 9. |
| Containers intact: | ☑Yes ☐No ☐N/A | 10. |
| Unpreserved 5035A soils frozen w/in 48hrs? | ☐Yes ☐No ☑N/A | 11. |
| Filtered volume received for dissolved tests? | ☐Yes ☐No ☑N/A | 12. |
| Sample labels match COC: | ☑Yes ☐No ☐N/A | |
| Includes date/time/ID/analyses Matrix: WT | | 13. |
| All containers needing preservation have been checked. | ☑Yes ☐No ☐N/A | |
| All containers needing preservation are found to be in compliance with EPA recommendation. | ☑Yes ☐No ☐N/A | 14. |
| Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics | ☑Yes ☐No | Initial when completed / Lot # of added preservative |
| Trip Blank present: | ☑Yes ☐No ☐N/A | |
| Pace Trip Blank lot # (if purchased): 050613.3 | | 15. |
| Headspace in VOA vials ( >6mm): | ☑Yes ☐No ☐N/A | 3 of 3 (TB) 1 of 3 - mw6 2 of 3 - Dup 16. |
| Project sampled in USDA Regulated Area: | ☐Yes ☐No ☑N/A | 17. List State: |

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AAF Date: 6/17/13

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: of

**Section A** — **Required** Client Information:

| | |
|---|---|
| Company: | COP CRA NM |
| Address: | 6121 Indian School Rd NE, Ste 200 |
| | Albequerque, NM 87110 |
| Email To: | cmathews@craworld.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, Cassie Brown |
| Purchase Order No.: | 4517146284 |
| Project Name: | Nell Hall No.1 |
| Project Number: | 074941 |

**Section C** — Invoice Information:

| | |
|---|---|
| Attention: | ePayables |
| Company Name: | |
| Address: | |
| Pace Quote Reference: | |
| Pace Project Manager: | Alice Flanagan |
| Pace Profile #: | 5514, 23 |

**REGULATORY AGENCY**

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NM

**Section D** — Required Client Information

**SAMPLE ID** (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

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 |

Requested Analysis Filtered (Y/N)

| ITEM # | SAMPLE ID | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED: COMPOSITE START DATE | COMPOSITE START TIME | COMPOSITE END/GRAB DATE | COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test Y/N | 8260 BTEX | 6010 Dissolved Fe | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 074941-061213-JK-MW4 | WT | G | ~~06/12/13~~ SAMPLED | ~~1150~~ | 06/12/13 | 1450 | | 4 | | | 1 | 3 | | | | | X | X | X | | 30669H, 1BP3F 2-0 001 |
| 2 | 074941-061213-JK-MW5 | WT | G | ~~06/12/13~~ | ~~1145~~ | 06/12/13 | 1445 | | 4 | | | 1 | 3 | | | | | X | X | X | | 002 |
| 3 | 074941-061213-JK-MW6 | WT | G | ~~06/12/13~~ | ~~1155~~ | 06/12/13 | 1455 | | 4 | | | 1 | 3 | | | | | X | X | X | | 003 |
| 4 | 074941-061213-JK-DUP | WT | G | 061213 | | | | | 3 | | | | 3 | | | | | X | | | | 004 |
| 5 | TRIP BLANK | WT | G | | | | | | 3 | | | | | | | | | | | | | 005 (TB) |
| 6 | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | |

00146960

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 6-13-13 | 1530 | E.Brackett / Pace | 6/14 | 0850 | 2.6 | Y | Y | Y |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**SAMPLER NAME AND SIGNATURE**

PRINT Name of SAMPLER: Kelly Williams / Josh Kirkland

SIGNATURE of SAMPLER: Kelly Williams — DATE Signed (MM/DD/YY): 06/12/13

| Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples 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.

**Pace Analytical Services, Inc.**
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September 27, 2013

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

RE: Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

Dear Christine Matthews:
Enclosed are the analytical results for sample(s) received by the laboratory on September 13, 2013. 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
Jeff Walker, COP Conestoga-Rovers & Associa

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## CERTIFICATIONS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

**Kansas Certification IDs**
9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

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## SAMPLE SUMMARY

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **60153068001** | **GW-074941-091113-CM-MW-4** | Water | 09/11/13 19:00 | 09/13/13 08:30 |
| **60153068002** | **GW-074941-091113-CM-MW-5** | Water | 09/11/13 18:45 | 09/13/13 08:30 |
| **60153068003** | **GW-074941-091113-CM-MW-6** | Water | 09/11/13 19:10 | 09/13/13 08:30 |
| **60153068004** | **GW-074941-091113-CM-DUP** | Water | 09/11/13 19:15 | 09/13/13 08:30 |
| **60153068005** | **TB-074941-091213-CM-001** | Water | 09/12/13 12:30 | 09/13/13 08:30 |

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## SAMPLE ANALYTE COUNT

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| **60153068001** | **GW-074941-091113-CM-MW-4** | EPA 6010 | NDJ | 1 |
| | | EPA 8260 | PRG | 8 |
| **60153068002** | **GW-074941-091113-CM-MW-5** | EPA 6010 | NDJ | 1 |
| | | EPA 8260 | PRG | 8 |
| **60153068003** | **GW-074941-091113-CM-MW-6** | EPA 6010 | NDJ | 1 |
| | | EPA 8260 | PRG | 8 |
| **60153068004** | **GW-074941-091113-CM-DUP** | EPA 8260 | SDR | 8 |
| **60153068005** | **TB-074941-091213-CM-001** | EPA 8260 | SDR | 8 |

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# PROJECT NARRATIVE

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

**Method:** **EPA 6010**
**Description:** 6010 MET ICP, Dissolved
**Client:** COP Conestoga-Rovers & Associates, Inc. NM
**Date:** September 27, 2013

**General Information:**
3 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.

**Additional Comments:**

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# PROJECT NARRATIVE

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

**Method:** **EPA 8260**
**Description:** 8260 MSV UST, Water
**Client:** COP Conestoga-Rovers & Associates, Inc. NM
**Date:** September 27, 2013

**General Information:**
5 samples were analyzed for EPA 8260. 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.

**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.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits 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: MSV/56415

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: MSV/56416

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

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

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## ANALYTICAL RESULTS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

**Sample: GW-074941-091113-CM-MW-4** **Lab ID: 60153068001** Collected: 09/11/13 19:00 Received: 09/13/13 08:30 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 | | | | | | | | |
| Iron, Dissolved | ND | ug/L | 50.0 | 11.6 | 1 | 09/19/13 00:00 | 09/20/13 12:44 | 7439-89-6 | |
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | | |
| Benzene | ND | ug/L | 1.0 | 0.060 | 1 | | 09/20/13 07:03 | 71-43-2 | |
| Ethylbenzene | ND | ug/L | 1.0 | 0.18 | 1 | | 09/20/13 07:03 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 0.17 | 1 | | 09/20/13 07:03 | 108-88-3 | |
| Xylene (Total) | ND | ug/L | 3.0 | 0.42 | 1 | | 09/20/13 07:03 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| Toluene-d8 (S) | 103 | % | 80-120 | | 1 | | 09/20/13 07:03 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 101 | % | 80-120 | | 1 | | 09/20/13 07:03 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 89 | % | 80-120 | | 1 | | 09/20/13 07:03 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 0.10 | 1 | | 09/20/13 07:03 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, Inc.**
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## ANALYTICAL RESULTS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

**Sample: GW-074941-091113-CM-MW-5** **Lab ID: 60153068002** Collected: 09/11/13 18:45 Received: 09/13/13 08:30 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 | | | | | | | | |
| Iron, Dissolved | **72.3** | ug/L | 50.0 | 11.6 | 1 | 09/19/13 00:00 | 09/20/13 12:46 | 7439-89-6 | |
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | | |
| Benzene | ND | ug/L | 1.0 | 0.060 | 1 | | 09/20/13 07:18 | 71-43-2 | |
| Ethylbenzene | ND | ug/L | 1.0 | 0.18 | 1 | | 09/20/13 07:18 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 0.17 | 1 | | 09/20/13 07:18 | 108-88-3 | |
| Xylene (Total) | ND | ug/L | 3.0 | 0.42 | 1 | | 09/20/13 07:18 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| Toluene-d8 (S) | 105 | % | 80-120 | | 1 | | 09/20/13 07:18 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 99 | % | 80-120 | | 1 | | 09/20/13 07:18 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 89 | % | 80-120 | | 1 | | 09/20/13 07:18 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 0.10 | 1 | | 09/20/13 07:18 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, Inc.**
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## ANALYTICAL RESULTS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

**Sample: GW-074941-091113-CM-MW-6** **Lab ID: 60153068003** Collected: 09/11/13 19:10 Received: 09/13/13 08:30 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 | | | | | | | | |
| Iron, Dissolved | **2260** | ug/L | 50.0 | 11.6 | 1 | 09/19/13 00:00 | 09/20/13 12:48 | 7439-89-6 | |
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | | |
| Benzene | **109** | ug/L | 1.0 | 0.060 | 1 | | 09/20/13 07:33 | 71-43-2 | |
| Ethylbenzene | **20.8** | ug/L | 1.0 | 0.18 | 1 | | 09/20/13 07:33 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 0.17 | 1 | | 09/20/13 07:33 | 108-88-3 | |
| Xylene (Total) | **12.3** | ug/L | 3.0 | 0.42 | 1 | | 09/20/13 07:33 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| Toluene-d8 (S) | 104 | % | 80-120 | | 1 | | 09/20/13 07:33 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 99 | % | 80-120 | | 1 | | 09/20/13 07:33 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 90 | % | 80-120 | | 1 | | 09/20/13 07:33 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 0.10 | 1 | | 09/20/13 07:33 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, Inc.**
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

## ANALYTICAL RESULTS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

**Sample: GW-074941-091113-CM-DUP** **Lab ID: 60153068004** Collected: 09/11/13 19:15 Received: 09/13/13 08:30 Matrix: Water

| Parameters | Results | Units | Report Limit | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | | |
| Benzene | **93.7** | ug/L | 1.0 | 0.055 | 1 | | 09/19/13 15:09 | 71-43-2 | |
| Ethylbenzene | **19.1** | ug/L | 1.0 | 0.056 | 1 | | 09/19/13 15:09 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 0.066 | 1 | | 09/19/13 15:09 | 108-88-3 | |
| Xylene (Total) | **11.4** | ug/L | 3.0 | 0.12 | 1 | | 09/19/13 15:09 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| Toluene-d8 (S) | 102 | % | 80-120 | | 1 | | 09/19/13 15:09 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 105 | % | 80-120 | | 1 | | 09/19/13 15:09 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 108 | % | 80-120 | | 1 | | 09/19/13 15:09 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 0.10 | 1 | | 09/19/13 15:09 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

**Sample: TB-074941-091213-CM-001** **Lab ID: 60153068005** Collected: 09/12/13 12:30 Received: 09/13/13 08:30 Matrix: Water

| Parameters | Results | Units | Report Limit | MDL | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | | |
| Benzene | ND | ug/L | 1.0 | 0.055 | 1 | | 09/19/13 15:26 | 71-43-2 | |
| Ethylbenzene | ND | ug/L | 1.0 | 0.056 | 1 | | 09/19/13 15:26 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 0.066 | 1 | | 09/19/13 15:26 | 108-88-3 | |
| Xylene (Total) | ND | ug/L | 3.0 | 0.12 | 1 | | 09/19/13 15:26 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | | |
| Toluene-d8 (S) | 100 | % | 80-120 | | 1 | | 09/19/13 15:26 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 102 | % | 80-120 | | 1 | | 09/19/13 15:26 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 106 | % | 80-120 | | 1 | | 09/19/13 15:26 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 0.10 | 1 | | 09/19/13 15:26 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, Inc.**
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## QUALITY CONTROL DATA

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

QC Batch: MPRP/24349 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60153068001, 60153068002, 60153068003

METHOD BLANK: 1256522 Matrix: Water
Associated Lab Samples: 60153068001, 60153068002, 60153068003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Iron, Dissolved | ug/L | ND | 50.0 | 09/20/13 12:26 | |

LABORATORY CONTROL SAMPLE: 1256523

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Iron, Dissolved | ug/L | 10000 | 9500 | 95 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1256524 1256525

| Parameter | Units | 60153083001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron, Dissolved | ug/L | 18000 | 10000 | 10000 | 27100 | 27200 | 91 | 92 | 75-125 | 0 | 20 | |

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

QC Batch: MSV/56415 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60153068001, 60153068002, 60153068003

METHOD BLANK: 1256325 Matrix: Water
Associated Lab Samples: 60153068001, 60153068002, 60153068003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Benzene | ug/L | ND | 1.0 | 09/20/13 02:33 | |
| Ethylbenzene | ug/L | ND | 1.0 | 09/20/13 02:33 | |
| Toluene | ug/L | ND | 1.0 | 09/20/13 02:33 | |
| Xylene (Total) | ug/L | ND | 3.0 | 09/20/13 02:33 | |
| 1,2-Dichloroethane-d4 (S) | % | 96 | 80-120 | 09/20/13 02:33 | |
| 4-Bromofluorobenzene (S) | % | 101 | 80-120 | 09/20/13 02:33 | |
| Toluene-d8 (S) | % | 102 | 80-120 | 09/20/13 02:33 | |

LABORATORY CONTROL SAMPLE: 1256326

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Benzene | ug/L | 20 | 19.5 | 97 | 73-122 | |
| Ethylbenzene | ug/L | 20 | 19.6 | 98 | 76-123 | |
| Toluene | ug/L | 20 | 19.8 | 99 | 76-122 | |
| Xylene (Total) | ug/L | 60 | 59.0 | 98 | 76-122 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 97 | 80-120 | |
| 4-Bromofluorobenzene (S) | % | | | 103 | 80-120 | |
| Toluene-d8 (S) | % | | | 99 | 80-120 | |

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## QUALITY CONTROL DATA

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

QC Batch: MSV/56416 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60153068004, 60153068005

METHOD BLANK: 1256328 Matrix: Water
Associated Lab Samples: 60153068004, 60153068005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Benzene | ug/L | ND | 1.0 | 09/19/13 13:12 | |
| Ethylbenzene | ug/L | ND | 1.0 | 09/19/13 13:12 | |
| Toluene | ug/L | ND | 1.0 | 09/19/13 13:12 | |
| Xylene (Total) | ug/L | ND | 3.0 | 09/19/13 13:12 | |
| 1,2-Dichloroethane-d4 (S) | % | 105 | 80-120 | 09/19/13 13:12 | |
| 4-Bromofluorobenzene (S) | % | 100 | 80-120 | 09/19/13 13:12 | |
| Toluene-d8 (S) | % | 101 | 80-120 | 09/19/13 13:12 | |

LABORATORY CONTROL SAMPLE: 1256329

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Benzene | ug/L | 20 | 18.9 | 95 | 73-122 | |
| Ethylbenzene | ug/L | 20 | 19.8 | 99 | 76-123 | |
| Toluene | ug/L | 20 | 20.0 | 100 | 76-122 | |
| Xylene (Total) | ug/L | 60 | 59.0 | 98 | 76-122 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 103 | 80-120 | |
| 4-Bromofluorobenzene (S) | % | | | 100 | 80-120 | |
| Toluene-d8 (S) | % | | | 101 | 80-120 | |

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# QUALIFIERS

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

## 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.

## BATCH QUALIFIERS

Batch: MSV/56415

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSV/56416

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074941 Nell Hall No. 1
Pace Project No.: 60153068

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **60153068001** | **GW-074941-091113-CM-MW-4** | EPA 3010 | MPRP/24349 | EPA 6010 | ICP/18990 |
| **60153068002** | **GW-074941-091113-CM-MW-5** | EPA 3010 | MPRP/24349 | EPA 6010 | ICP/18990 |
| **60153068003** | **GW-074941-091113-CM-MW-6** | EPA 3010 | MPRP/24349 | EPA 6010 | ICP/18990 |
| **60153068001** | **GW-074941-091113-CM-MW-4** | EPA 8260 | MSV/56415 | | |
| **60153068002** | **GW-074941-091113-CM-MW-5** | EPA 8260 | MSV/56415 | | |
| **60153068003** | **GW-074941-091113-CM-MW-6** | EPA 8260 | MSV/56415 | | |
| **60153068004** | **GW-074941-091113-CM-DUP** | EPA 8260 | MSV/56416 | | |
| **60153068005** | **TB-074941-091213-CM-001** | EPA 8260 | MSV/56416 | | |

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# Sample Condition Upon Receipt
# ESI Tech Spec Client

WO#: 60153068

60153068

Client Name: COPCRANM

| Optional |
|---|
| Proj Due Date: |
| Proj Name: |

**Courier:** Fed Ex ☑ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

**Tracking #:** 6011 3632 2277 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-112 / T-194 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

**Cooler Temperature:** 1.5

**Date and initials of person examining contents:** 9/13/13 BA

Temperature should be above freezing to 6°C

| | | |
|---|---|---|
| Chain of Custody present: | ☑Yes ☐No ☐N/A | 1. |
| Chain of Custody filled out: | ☑Yes ☐No ☐N/A | 2. |
| Chain of Custody relinquished: | ☑Yes ☐No ☐N/A | 3. |
| Sampler name & signature on COC: | ☑Yes ☐No ☐N/A | 4. |
| Samples arrived within holding time: | ☑Yes ☐No ☐N/A | 5. |
| **Short Hold Time analyses (<72hr):** | ☐Yes ☑No ☐N/A | 6. |
| **Rush Turn Around Time requested:** | ☐Yes ☑No ☐N/A | 7. |
| Sufficient volume: | ☑Yes ☐No ☐N/A | 8. |
| Correct containers used: | ☑Yes ☐No ☐N/A | |
| Pace containers used: | ☑Yes ☐No ☐N/A | 9. |
| Containers intact: | ☑Yes ☐No ☐N/A | 10. |
| Unpreserved 5035A soils frozen w/in 48hrs? | ☐Yes ☐No ☑N/A | 11. |
| Filtered volume received for dissolved tests? | ☑Yes ☐No ☐N/A | 12. |
| Sample labels match COC: Includes date/time/ID/analyses Matrix: WT | ☑Yes ☐No ☐N/A | 13. |
| All containers needing preservation have been checked. | ☑Yes ☐No ☐N/A | |
| All containers needing preservation are found to be in compliance with EPA recommendation. | ☑Yes ☐No ☐N/A | 14. |
| Exceptions: (VOA) coliform, TOC, O&G, WI-DRO (water), Phenolics | ☑Yes ☐No | Initial when completed / Lot # of added preservative |
| Trip Blank present: Pace Trip Blank lot # (if purchased): 080513-3 | ☑Yes ☐No ☐N/A | 15. |
| Headspace in VOA vials ( >6mm): | ☐Yes ☑No ☐N/A | 16. |
| Project sampled in USDA Regulated Area: | ☐Yes ☐No ☑N/A | 17. List State: |

**Client Notification/ Resolution:** Copy COC to Client? Y / (N) Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: MXF Date: 9/13/13

**Temp Log** Record start and finish times when unpacking cooler, if >20 min, recheck sample temps.

| | |
|---|---|
| Start: 1140 | Start: |
| End: 1145 | End: |
| Temp: | Temp: |

# CHAIN-OF-CUSTODY / Analytical Request Document

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

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Page: of

**Section A** Required Client Information:

| | |
|---|---|
| Company: | COP CRA NM |
| Address: | 6121 Indian School Rd NE, Ste 200 |
| | Albequerque, NM 87110 |
| Email To: | cmathews@craworld.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: | Jeff Walker, Angela Bown |
| Purchase Order No.: | 4517653456 |
| Project Name: | Nell Hall No.1 |
| Project Number: | 074941 |

**Section C** Invoice Information:

| | |
|---|---|
| Attention: | ePayables |
| Company Name: | |
| Address: | |
| Pace Quote Reference: | |
| Pace Project Manager: | Alice Flanagan |
| Pace Profile #: | 5514, 23 |

**REGULATORY AGENCY**

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

Site Location STATE: NM

**Section D** Required Client Information

**SAMPLE ID**
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

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 |

Requested Analysis Filtered (Y/N)

| ITEM # | SAMPLE ID | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED COMPOSITE START DATE | COLLECTED COMPOSITE START TIME | COLLECTED COMPOSITE END/GRAB DATE | COLLECTED COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test Y/N | 8260 BTEX | 6010 Dissolved Fe | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SW-074941-09113-CM-MW-4 | | G | | | 9/11/13 | 1900 | | 4 | | | X | X | | | | | X | X | | | 601306B 3DG9AA 1BP3E 001 |
| 2 | SW-074941-09113-CM-MW-5 | | G | | | 9/11/13 | 1845 | | 4 | | | X | X | | | | | X | X | | | 002 |
| 3 | SW-074941-09113-CM-MW-6 | | G | | | 9/11/13 | 1910 | | 4 | | | X | X | | | | | X | X | | | 003 |
| 4 | SW-074941-09113-CM-DUP | | G | | | 9/11/13 | 1915 | | 3 | | | | X | | | | | X | | | | 004 |
| 5 | TB-074941-09123-CM-001 | | | | | 9/12/13 | 1230 | | 3 | | | | X | | | | | X | | | | 005 |
| 6 | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | |

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS: Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|
| Metals were field filtered | Christine Mathews/CRA | 9/12/13 | 1300 | Bennett Clark/PACE | 09/13/13 | 0830 | 1.5 | Y | Y | Y |

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Christine Mathews
SIGNATURE of SAMPLER: Christine Mathews DATE Signed (MM/DD/YY): 9/12/13

*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

**Pace Analytical Services, Inc.**
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December 30, 2013

Jeff Walker
COP Conestoga-Rovers & Associa
6121 Indian School Rd. NE
Ste 200
Albuquerque, NM 87110

RE: Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

Dear Jeff Walker:
Enclosed are the analytical results for sample(s) received by the laboratory on December 17, 2013. 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: Angela Bown, COP Conestoga-Rovers & Associa
Christine Matthews, CRA

**Pace Analytical Services, Inc.**
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## CERTIFICATIONS

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

**Kansas Certification IDs**

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, Inc.**
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## SAMPLE SUMMARY

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **60159758001** | **GW-074941-122323-CM-MW4** | Water | 12/13/13 09:20 | 12/17/13 09:00 |
| **60159758002** | **GW-074941-122323-CM-MW5** | Water | 12/13/13 09:05 | 12/17/13 09:00 |
| **60159758003** | **GW-074941-122323-CM-MW6** | Water | 12/13/13 09:50 | 12/17/13 09:00 |
| **60159758004** | **GW-074941-122323-CM-DUP** | Water | 12/13/13 09:35 | 12/17/13 09:00 |
| **60159758005** | **TRIP BLANK** | Water | 12/13/13 00:00 | 12/17/13 09:00 |

**Pace Analytical Services, Inc.**
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## SAMPLE ANALYTE COUNT

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| **60159758001** | **GW-074941-122323-CM-MW4** | EPA 6010 | TDS | 1 |
| | | EPA 8260 | JTS | 8 |
| **60159758002** | **GW-074941-122323-CM-MW5** | EPA 6010 | TDS | 1 |
| | | EPA 8260 | JTS | 8 |
| **60159758003** | **GW-074941-122323-CM-MW6** | EPA 6010 | TDS | 1 |
| | | EPA 8260 | JTS | 8 |
| **60159758004** | **GW-074941-122323-CM-DUP** | EPA 8260 | JTS | 8 |
| **60159758005** | **TRIP BLANK** | EPA 8260 | JTS | 8 |

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## PROJECT NARRATIVE

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

**Method:** **EPA 6010**
**Description:** 6010 MET ICP, Dissolved
**Client:** COP Conestoga-Rovers & Associates, Inc. NM
**Date:** December 30, 2013

**General Information:**
3 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, where applicable, 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.

**Additional Comments:**

**Pace Analytical Services, Inc.**
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## PROJECT NARRATIVE

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

**Method:** **EPA 8260**
**Description:** 8260 MSV UST, Water
**Client:** COP Conestoga-Rovers & Associates, Inc. NM
**Date:** December 30, 2013

**General Information:**
5 samples were analyzed for EPA 8260. 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.

**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.

**Internal Standards:**
All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**
All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**
All analytes were below the report limit in the method blank, where applicable, 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: MSV/58448
A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: MSV/58457
A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: MSV/58486
A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

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

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## ANALYTICAL RESULTS

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

**Sample: GW-074941-122323-CM-MW4** **Lab ID: 60159758001** Collected: 12/13/13 09:20 Received: 12/17/13 09:00 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP, Dissolved** | Analytical Method: EPA 6010 Preparation Method: EPA 3010 | | | | | | | |
| Iron, Dissolved | **758** | ug/L | 50.0 | 1 | 12/18/13 13:30 | 12/27/13 14:09 | 7439-89-6 | |
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | |
| Benzene | ND | ug/L | 1.0 | 1 | | 12/18/13 23:40 | 71-43-2 | |
| Ethylbenzene | ND | ug/L | 1.0 | 1 | | 12/18/13 23:40 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 1 | | 12/18/13 23:40 | 108-88-3 | |
| Xylene (Total) | ND | ug/L | 3.0 | 1 | | 12/18/13 23:40 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Toluene-d8 (S) | 100 | % | 80-120 | 1 | | 12/18/13 23:40 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 101 | % | 80-120 | 1 | | 12/18/13 23:40 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 101 | % | 80-120 | 1 | | 12/18/13 23:40 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 1 | | 12/18/13 23:40 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

**Sample: GW-074941-122323-CM-MW5** **Lab ID: 60159758002** Collected: 12/13/13 09:05 Received: 12/17/13 09:00 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP, Dissolved** | Analytical Method: EPA 6010 Preparation Method: EPA 3010 | | | | | | | |
| Iron, Dissolved | **76.0** | ug/L | 50.0 | 1 | 12/18/13 13:30 | 12/27/13 14:11 | 7439-89-6 | |
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | |
| Benzene | ND | ug/L | 1.0 | 1 | | 12/18/13 23:56 | 71-43-2 | |
| Ethylbenzene | ND | ug/L | 1.0 | 1 | | 12/18/13 23:56 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 1 | | 12/18/13 23:56 | 108-88-3 | |
| Xylene (Total) | ND | ug/L | 3.0 | 1 | | 12/18/13 23:56 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Toluene-d8 (S) | 100 | % | 80-120 | 1 | | 12/18/13 23:56 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 100 | % | 80-120 | 1 | | 12/18/13 23:56 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 101 | % | 80-120 | 1 | | 12/18/13 23:56 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 1 | | 12/18/13 23:56 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

**Sample: GW-074941-122323-CM-MW6** **Lab ID: 60159758003** Collected: 12/13/13 09:50 Received: 12/17/13 09:00 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP, Dissolved** | Analytical Method: EPA 6010 Preparation Method: EPA 3010 | | | | | | | |
| Iron, Dissolved | **5900** | ug/L | 50.0 | 1 | 12/18/13 13:30 | 12/27/13 14:13 | 7439-89-6 | |
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | |
| Benzene | **467** | ug/L | 10.0 | 10 | | 12/19/13 16:43 | 71-43-2 | |
| Ethylbenzene | **101** | ug/L | 1.0 | 1 | | 12/19/13 00:12 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 1 | | 12/19/13 00:12 | 108-88-3 | |
| Xylene (Total) | **53.7** | ug/L | 3.0 | 1 | | 12/19/13 00:12 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Toluene-d8 (S) | 99 | % | 80-120 | 1 | | 12/19/13 00:12 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 110 | % | 80-120 | 1 | | 12/19/13 00:12 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 97 | % | 80-120 | 1 | | 12/19/13 00:12 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 1 | | 12/19/13 00:12 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

**Sample: GW-074941-122323-CM-DUP** **Lab ID: 60159758004** Collected: 12/13/13 09:35 Received: 12/17/13 09:00 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | |
| Benzene | **456** | ug/L | 10.0 | 10 | | 12/19/13 16:59 | 71-43-2 | |
| Ethylbenzene | **77.7** | ug/L | 1.0 | 1 | | 12/19/13 02:38 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 1 | | 12/19/13 02:38 | 108-88-3 | |
| Xylene (Total) | **49.1** | ug/L | 3.0 | 1 | | 12/19/13 02:38 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Toluene-d8 (S) | 99 | % | 80-120 | 1 | | 12/19/13 02:38 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 106 | % | 80-120 | 1 | | 12/19/13 02:38 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 94 | % | 80-120 | 1 | | 12/19/13 02:38 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 1 | | 12/19/13 02:38 | | |

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## ANALYTICAL RESULTS

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

**Sample: TRIP BLANK** **Lab ID: 60159758005** Collected: 12/13/13 00:00 Received: 12/17/13 09:00 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **8260 MSV UST, Water** | Analytical Method: EPA 8260 | | | | | | | |
| Benzene | ND | ug/L | 1.0 | 1 | | 12/19/13 01:49 | 71-43-2 | |
| Ethylbenzene | ND | ug/L | 1.0 | 1 | | 12/19/13 01:49 | 100-41-4 | |
| Toluene | ND | ug/L | 1.0 | 1 | | 12/19/13 01:49 | 108-88-3 | |
| Xylene (Total) | ND | ug/L | 3.0 | 1 | | 12/19/13 01:49 | 1330-20-7 | |
| ***Surrogates*** | | | | | | | | |
| Toluene-d8 (S) | 99 | % | 80-120 | 1 | | 12/19/13 01:49 | 2037-26-5 | |
| 4-Bromofluorobenzene (S) | 100 | % | 80-120 | 1 | | 12/19/13 01:49 | 460-00-4 | |
| 1,2-Dichloroethane-d4 (S) | 100 | % | 80-120 | 1 | | 12/19/13 01:49 | 17060-07-0 | |
| Preservation pH | **1.0** | | 1.0 | 1 | | 12/19/13 01:49 | | |

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

QC Batch: MPRP/25648 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 60159758001, 60159758002, 60159758003

METHOD BLANK: 1307870 Matrix: Water
Associated Lab Samples: 60159758001, 60159758002, 60159758003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Iron, Dissolved | ug/L | ND | 50.0 | 12/27/13 13:33 | |

LABORATORY CONTROL SAMPLE: 1307871

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Iron, Dissolved | ug/L | 10000 | 9720 | 97 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1307872 1307873

| Parameter | Units | 60159732001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron, Dissolved | ug/L | 25.4 mg/L | 10000 | 10000 | 33900 | 34500 | 84 | 90 | 75-125 | 2 | 20 | |

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

QC Batch: MSV/58448 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60159758001, 60159758002, 60159758003

METHOD BLANK: 1307952 Matrix: Water
Associated Lab Samples: 60159758001, 60159758002, 60159758003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Benzene | ug/L | ND | 1.0 | 12/18/13 18:48 | |
| Ethylbenzene | ug/L | ND | 1.0 | 12/18/13 18:48 | |
| Toluene | ug/L | ND | 1.0 | 12/18/13 18:48 | |
| Xylene (Total) | ug/L | ND | 3.0 | 12/18/13 18:48 | |
| 1,2-Dichloroethane-d4 (S) | % | 101 | 80-120 | 12/18/13 18:48 | |
| 4-Bromofluorobenzene (S) | % | 100 | 80-120 | 12/18/13 18:48 | |
| Toluene-d8 (S) | % | 100 | 80-120 | 12/18/13 18:48 | |

LABORATORY CONTROL SAMPLE: 1307953

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Benzene | ug/L | 20 | 19.9 | 99 | 73-122 | |
| Ethylbenzene | ug/L | 20 | 20.0 | 100 | 76-123 | |
| Toluene | ug/L | 20 | 19.8 | 99 | 76-122 | |
| Xylene (Total) | ug/L | 60 | 59.6 | 99 | 76-122 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 100 | 80-120 | |
| 4-Bromofluorobenzene (S) | % | | | 100 | 80-120 | |
| Toluene-d8 (S) | % | | | 100 | 80-120 | |

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

QC Batch: MSV/58457 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60159758004, 60159758005

METHOD BLANK: 1308147 Matrix: Water
Associated Lab Samples: 60159758004, 60159758005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Benzene | ug/L | ND | 1.0 | 12/19/13 01:33 | |
| Ethylbenzene | ug/L | ND | 1.0 | 12/19/13 01:33 | |
| Toluene | ug/L | ND | 1.0 | 12/19/13 01:33 | |
| Xylene (Total) | ug/L | ND | 3.0 | 12/19/13 01:33 | |
| 1,2-Dichloroethane-d4 (S) | % | 101 | 80-120 | 12/19/13 01:33 | |
| 4-Bromofluorobenzene (S) | % | 101 | 80-120 | 12/19/13 01:33 | |
| Toluene-d8 (S) | % | 100 | 80-120 | 12/19/13 01:33 | |

LABORATORY CONTROL SAMPLE: 1308148

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Benzene | ug/L | 20 | 19.5 | 98 | 73-122 | |
| Ethylbenzene | ug/L | 20 | 19.6 | 98 | 76-123 | |
| Toluene | ug/L | 20 | 18.3 | 92 | 76-122 | |
| Xylene (Total) | ug/L | 60 | 59.0 | 98 | 76-122 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 95 | 80-120 | |
| 4-Bromofluorobenzene (S) | % | | | 101 | 80-120 | |
| Toluene-d8 (S) | % | | | 94 | 80-120 | |

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

QC Batch: MSV/58486 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 60159758003, 60159758004

METHOD BLANK: 1308666 Matrix: Water
Associated Lab Samples: 60159758003, 60159758004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Benzene | ug/L | ND | 1.0 | 12/19/13 13:14 | |
| 1,2-Dichloroethane-d4 (S) | % | 99 | 80-120 | 12/19/13 13:14 | |
| 4-Bromofluorobenzene (S) | % | 101 | 80-120 | 12/19/13 13:14 | |
| Toluene-d8 (S) | % | 99 | 80-120 | 12/19/13 13:14 | |

LABORATORY CONTROL SAMPLE: 1308667

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Benzene | ug/L | 20 | 19.2 | 96 | 73-122 | |
| 1,2-Dichloroethane-d4 (S) | % | | | 98 | 80-120 | |
| 4-Bromofluorobenzene (S) | % | | | 102 | 80-120 | |
| Toluene-d8 (S) | % | | | 100 | 80-120 | |

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# QUALIFIERS

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

## 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.

## BATCH QUALIFIERS

Batch: MSV/58448

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSV/58457

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSV/58486

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 074941 NELL HALL NO.1
Pace Project No.: 60159758

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **60159758001** | **GW-074941-122323-CM-MW4** | EPA 3010 | MPRP/25648 | EPA 6010 | ICP/19687 |
| **60159758002** | **GW-074941-122323-CM-MW5** | EPA 3010 | MPRP/25648 | EPA 6010 | ICP/19687 |
| **60159758003** | **GW-074941-122323-CM-MW6** | EPA 3010 | MPRP/25648 | EPA 6010 | ICP/19687 |
| **60159758001** | **GW-074941-122323-CM-MW4** | EPA 8260 | MSV/58448 | | |
| **60159758002** | **GW-074941-122323-CM-MW5** | EPA 8260 | MSV/58448 | | |
| **60159758003** | **GW-074941-122323-CM-MW6** | EPA 8260 | MSV/58448 | | |
| **60159758003** | **GW-074941-122323-CM-MW6** | EPA 8260 | MSV/58486 | | |
| **60159758004** | **GW-074941-122323-CM-DUP** | EPA 8260 | MSV/58457 | | |
| **60159758004** | **GW-074941-122323-CM-DUP** | EPA 8260 | MSV/58486 | | |
| **60159758005** | **TRIP BLANK** | EPA 8260 | MSV/58457 | | |

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**Sample Condition Upon Receipt**
**ESI Tech Spec Client**

**WO# : 60159758**

60159758

Client Name: COP CRA

| Optional |
|---|
| Proj Due Date: |
| Proj Name: |

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

**Tracking #:** 568127991263 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 ☑ zip

**Thermometer Used:** T-239 / T-194 **Type of Ice:** Wet Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

**Cooler Temperature:** 2-0

**Date and initials of person examining contents:** AV 12/17/13

Temperature should be above freezing to 6°C

| | | |
|---|---|---|
| Chain of Custody present: | ☑Yes ☐No ☐N/A | 1. |
| Chain of Custody filled out: | ☑Yes ☐No ☐N/A | 2. |
| Chain of Custody relinquished: | ☑Yes ☐No ☐N/A | 3. 1 0920 |
| Sampler name & signature on COC: | ☑Yes ☐No ☐N/A | 4. 2 0905 |
| Samples arrived within holding time: | ☑Yes ☐No ☐N/A | 5. 3 0950 |
| **Short Hold Time analyses (<72hr):** | ☐Yes ☑No ☐N/A | 6. 4 0935 |
| **Rush Turn Around Time requested:** | ☐Yes ☑No ☐N/A | 7. |
| Sufficient volume: | ☑Yes ☐No ☐N/A | 8. |
| Correct containers used: | ☑Yes ☐No ☐N/A | |
| Pace containers used: | ☑Yes ☐No ☐N/A | 9. |
| Containers intact: | ☑Yes ☐No ☐N/A | 10. |
| Unpreserved 5035A soils frozen w/in 48hrs? | ☐Yes ☐No ☑N/A | 11. |
| Filtered volume received for dissolved tests? | ☐Yes ☐No ☑N/A | 12. |
| Sample labels match COC: | ☑Yes ☐No ☐N/A | |
| Includes date/time/ID/analyses Matrix: | | 13. |
| All containers needing preservation have been checked. | ☑Yes ☐No ☐N/A | |
| All containers needing preservation are found to be in compliance with EPA recommendation. | ☑Yes ☐No ☐N/A | 14. |
| Exceptions: (VOA) coliform, TOC, O&G, WI-DRO (water), Phenolics pH 12/17 | ☑Yes ☐No | Initial when completed / Lot # of added preservative |
| Trip Blank present: | ☑Yes ☐No ☐N/A | |
| Pace Trip Blank lot # (if purchased): 111113-3 | | 15. |
| Headspace in VOA vials ( >6mm): | ☐Yes ☑No ☐N/A | 16. |
| Project sampled in USDA Regulated Area: | ☐Yes ☐No ☑N/A | 17. List State: |

AFT

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AMF Date: 12/17/13

**Temp Log**: Record start and finish times when unpacking cooler, if >20 min, recheck sample temps.

| | |
|---|---|
| Start: 1135 | Start: |
| End: 1140 | End: |
| Temp: | Temp: |

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



Page: of

| Section A Required Client Information: | | Section B Required Project Information: | | Section C Invoice Information: | |
|---|---|---|---|---|---|
| Company: | COP CRA NM | Report To: | Christine Mathews | Attention: | ePayables |
| Address: | 6121 Indian School Rd NE, Ste 200 | Copy To: | Jeff Walker, Angela Bown | Company Name: | |
| | Albequerque, NM 87110 | | | Address: | |
| Email To: | cmathews@craworld.com | Purchase Order No.: | 4517653456 | Pace Quote Reference: | |
| Phone: (505)884-0672 | Fax: (505)884-4932 | Project Name: | Nell Hall No.1 | Pace Project Manager: | Alice Flanagan |
| Requested Due Date/TAT: | standard | Project Number: | 074941 | Pace Profile #: | 5514, 23 |

REGULATORY AGENCY: ☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NM

Requested Analysis Filtered (Y/N)

| ITEM # | Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE | 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: COMPOSITE START DATE | COMPOSITE START TIME | COMPOSITE END/GRAB DATE | COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test Y/N | 8260 BTEX | 6010 Dissolved Fe | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | GW-074941-121313-CM-MW-4 | | WT | G | | | 12/13/13 | | | 4 | | | 1 | 3 | | | | | X | X | | | 001 |
| 2 | GW-074941-121313-CM-MW-5 | | WT | G | | | 12/13/13 | | | 4 | | | 1 | 3 | | | | | X | X | | | 002 |
| 3 | GW-074941-121313-CM-MW-6 | | WT | G | | | 12/13/13 | | | 4 | | | 1 | 3 | | | | | X | X | | | 003 |
| 4 | GW-074941-121313-CM-DUP | | WT | G | | | 12/13/13 | | | 3 | | | | 3 | | | | | X | | | | 004 |
| 5 | | | | | | | | | | | | | | | | | | | | | | | 005 |
| 6 | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | |

60159758

Pace Project No./ Lab I.D.

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Christine Mathews / CRA | 12/16/13 | 0930 | | 12/17/13 | 0900 | 2.0 | Y | Y | Y |

| SAMPLER NAME AND SIGNATURE | | | | | |
|---|---|---|---|---|---|
| PRINT Name of SAMPLER: | Christine Mathews | | | | |
| SIGNATURE of SAMPLER: | | DATE Signed (MM/DD/YY): | 12/16/13 | | |

| Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples 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.