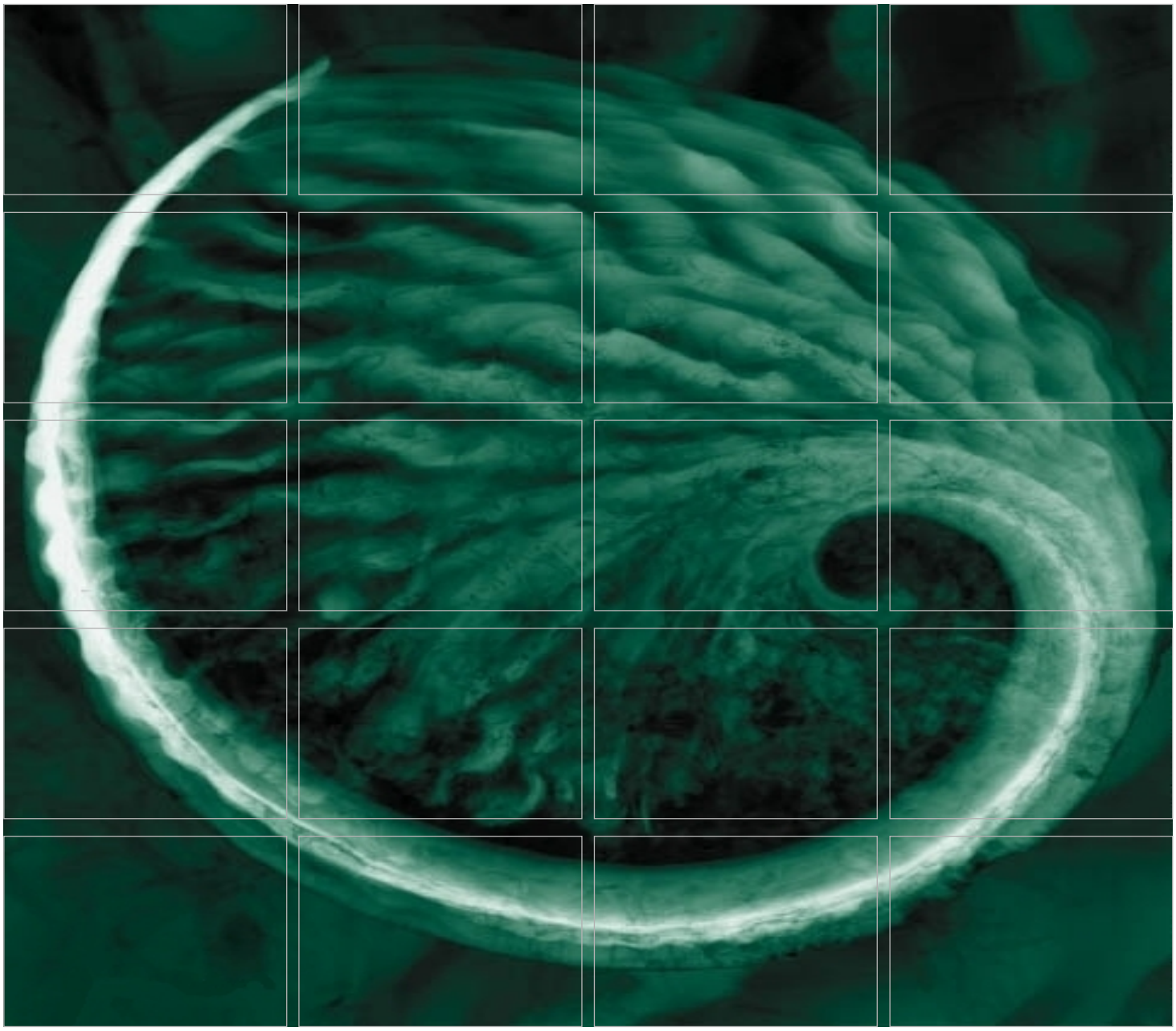

Groundwater Monitoring Report

Phase 3 Stage 1 Groundwater Abatement Plan
First Semiannual 2013
Former BNSF Albuquerque Fueling Area
Albuquerque, New Mexico

July 31, 2013

Presented to:
BNSF Railway Company

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BNSF Railway Company

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Former BNSF Albuquerque Fueling Area
Albuquerque, New Mexico

July 31, 2013

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1. During April 2013, 24 yard monitoring wells and 29 monitoring wells on adjacent and surrounding properties, including the First Baptist Church, were gauged for depth to groundwater and presence of light non-aqueous phase liquid (LNAPL). LNAPL was detected in five yard wells and seven wells located on adjacent properties. LNAPL thickness ranged from 0.01 feet in MW-10 to 1.8 feet in MW-32. MW-2, MW-29, MW-35, MW-43, and FBC-MW1 contained trace levels of LNAPL (<0.01 feet). Approximately 0.7 gallons of LNAPL were removed from seven wells.

   Groundwater flow remains consistent to the east with a hydraulic gradient of approximately 0.006.

2. Groundwater samples were collected from 18 yard wells and 20 wells located on adjacent and surrounding properties during April 2013 and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX 8021), polynuclear aromatic hydrocarbon (PAH 8270 SIM), dissolved barium, iron, and manganese, and natural attenuation parameters.

   Detections of dissolved-phase hydrocarbons above reporting limits were reported in all 38 wells sampled. Thirteen wells (MW-3, MW-11R, MW-16, MW-28, MW-30, MW-36, MW-37, MW-39, MW-40, MW-44, FBC-MW-2, FBC-MW-5, and FBC-MW-6) contained concentrations above a NMWQCC standard. The NMWQCC standard for total naphthalenes of 30 µg/L was exceeded in these wells, which showed total naphthalene concentrations ranging from 42 µg/L in well MW-16 to 1,260 µg/L in well MW-28. In addition, MW-28 contained 10 µg/L of benzene, which is equal to the NMWQCC standard for benzene. No other NMWQCC standards were exceeded.

   Dissolved manganese was detected above reporting limits in all 38 samples submitted and ranged from 40 µg/L to 2,600 µg/L. All but two of the 38 samples submitted exceeded the NMWQCC standard for manganese, which is 200 µg/L. Dissolved barium was detected above reporting limits in all 38 samples submitted and ranged from 35 µg/L to 720 µg/L. The NMWQCC standard for barium is 1,000 µg/L. Dissolved iron was detected above reporting limits in 15 of the 38 samples submitted and ranged from 14 µg/L to 340 µg/L. The NMWQCC standard for iron is 1,000 µg/L.

3. There is evidence, based on analysis of field and laboratory natural attenuation parameters, that biodegradation of dissolved-phase

petroleum hydrocarbon in the groundwater is occurring across the entire site.

1.0 INTRODUCTION

This report has been prepared by Environmental Resources Management (ERM) for the BNSF Railway Company (BNSF) to detail the activities and results associated with the Phase 3 Stage 1 Groundwater Monitoring for the former fueling area at the former BNSF Albuquerque, New Mexico yard in the first half of 2013 (January – June 2013). Although fueling is still conducted at the yard this report refers to the "former fueling area" and "former BNSF Albuquerque, New Mexico yard" because BNSF no longer owns the yard and many of the components of the fueling infrastructure that were in place at the time of BNSF ownership are now inoperative.

1.1 SITE LOCATION AND DESCRIPTION

BNSF's former Albuquerque yard is located immediately east and southeast of downtown Albuquerque, New Mexico. The former fueling area is located approximately between Copper Avenue to the north and Iron Avenue to the south, and between First Street on the west and extends eastward to about one block west of Broadway Boulevard (Figure 1-1). The Rio Grande is located about 1 mile west of the yard.

The yard is currently owned by the New Mexico Department of Transportation and operated by the Mid-Region Council of Governments. The yard serves BNSF trains, AMTRAK passenger trains, and the New Mexico Rail Runner commuter train. There are two former fueling platforms [eastbound (EB) and westbound (WB)], located on the main lines. The former EB fueling platform is located near Central Avenue in the northern portion of the yard. The former WB fueling platform is located beneath the Coal Avenue Overpass approximately 1,300 feet (1/4 mile) south of the EB fueling platform. Currently, fueling of BNSF and Amtrak locomotives is done at the EB and WB platforms using direct loading from tanker trucks (platform fueling cranes have been removed).

A fuel storage area was formerly located east of the WB fueling platform between the Lead and Coal overpasses, along the eastern property boundary, and consisted of a vertical, aboveground storage tank of approximately 60,000-gallon capacity (dismantled), a pump house (dismantled), and a reclaimed oil tank (dismantled) within a concrete-diked containment area. In the past, diesel fuel was brought to the fuel storage area by tank cars and offloaded to the aboveground storage tank. The fuel was pumped from the storage tank to the EB and WB fueling platforms via an underground distribution line. Figure 1-2 illustrates the yard's main features.

1.2 SITE HISTORY

The Albuquerque fueling area has been in existence for approximately 60 years. A diesel fuel overfill occurred at the fuel storage area during September 1997. During the cleanup activity, exposed Bunker C material was removed in the earthen pit adjacent to the fuel storage tank, in addition to the diesel fuel.

1.2.1 Phase 1 and Phase 2 Subsurface Investigations

In late April 1998, BNSF began a preliminary subsurface investigation to determine the vertical and horizontal extent of any remaining Bunker C material at the fuel storage area, as well as diesel fuel. That investigation is referred to as the Phase 1 Subsurface Investigation at the fuel storage area. The Phase 1 Investigation consisted of eight hand auger borings within the center of the diked area to assess Bunker C and diesel fuel in this localized area. The Phase 1 Investigation also consisted of four Geoprobe soil borings outside the concrete dike around the fuel storage area. The Phase 1 work was immediately followed up by a Phase 2 Investigation that consisted of the installation and sampling of seven monitoring wells around the fuel storage area (MW-1 through MW-7). The *Phase 1 and Phase 2 Subsurface Investigations Report* was submitted to the New Mexico Environment Department (NMED) on February 17, 1999 (ERM 1999a). The Phase 1 and 2 investigations around the fuel storage area indicated the presence of dissolved-phase diesel fuel constituents and LNAPL on the water table in the vicinity of the fuel storage area.

1.2.2 Stage 1 Abatement Plan

BNSF submitted a *Stage 1 Ground Water Abatement Plan* to NMED on May 14, 1999 (ERM 1999b). NMED approved the plan on February 9, 2000 as a Phase 1 Stage 1 Plan.

The first part of the Phase 1 Stage 1 Groundwater Abatement Plan Site Investigation was initiated in May 2000. Eighteen soil borings were completed throughout the fueling area to determine the lateral extent of diesel fuel impact. A report, *Phase 1 Stage 1 Groundwater Abatement Plan Site Investigation – Soil Borings* (ERM, 2001), documenting the results of the soil borings was submitted to NMED on January 8, 2001. Results of the soil borings indicated that additional data were required. On February 14, 2001, ERM, on behalf of BNSF, submitted a letter describing the locations of eight proposed monitoring wells at the yard. These eight wells were the second part of the Phase 1 Stage 1 Plan. NMED approved these eight locations in a letter dated February 23, 2001. The eight wells (MW-8 through MW-15) were installed in April, May, and July of 2001. Please note that MW-11 has subsequently been covered over by a concrete pad

by the New Mexico Rail Runner operations but this well has been replaced in nearly the same location with MW-11R.

BNSF submitted a Phase 2 Stage 1 Abatement Plan to the NMED on January 21, 2002 and the NMED approved the plan on February 12, 2002. The Phase 2 Stage 1 Abatement Plan specified the installation of 11 new monitoring wells, soil sampling (monitoring well boreholes), groundwater monitoring (all wells), and slug testing in up to 10 monitoring wells. Three of the proposed monitoring wells were not installed because of access issues with the Forest Service building/lot owners and other considerations.

During July and August 2002 (unrelated to the Phase 2 Stage 1 Abatement Plan), BNSF dismantled the fuel storage tank and former pump house. In addition, an underground sump adjacent to the used oil reclaim tank was removed and the used oil reclaim tank was rendered out-of-service. The reclaim tank is now dismantled. Petroleum-impacted soil and gravel beneath the dismantled diesel fuel tank and former pump house was excavated for disposal. Finally, the earthen pit adjacent to the fuel storage tank was backfilled to the original grade and the concrete wall surrounding the earthen pit was removed.

BNSF submitted a Phase 3 Stage 1 Voluntary Abatement Plan to the NMED on March 24, 2004 and the NMED approved the plan on May 21, 2004. The Phase 3 Stage 1 Abatement Plan specified the installation of 12 new monitoring wells (one on site, 11 off site), soil sampling (monitoring well boreholes), and groundwater monitoring (all wells). BNSF obtained site access agreements with three surrounding landowners in order to install the new monitoring wells, but one other landowner (where the Forest Service building is located) did not grant access.

BNSF submitted a Stage 1 Abatement Plan modification letter on April 1, 2008 and the NMED approved the modification plan in a letter dated June 4, 2008. In the modification letter, BNSF proposed to move from quarterly groundwater monitoring to semiannual groundwater monitoring since there was a significant amount of quarterly sampling data covering the previous 10 years from many of the wells. BNSF also proposed the addition of new monitoring wells to the east of Broadway Blvd., and approval to install these new wells was granted by the city of Albuquerque.

Two monitoring wells (MW-34 and MW-35) were installed in July of 2008 and four additional monitoring wells (MW-37 – MW-40) were installed during May of 2009. During the December 2009 event, monitoring well MW-40 contained trace LNAPL and MW-39 contained total naphthalenes concentrations above the state standard. Therefore, it was proposed that

additional monitoring wells be installed further east to determine the eastern extent of impact. These two additional monitoring wells (MW-41 and MW-42) were installed during March 2010. During the fourth quarter of 2010, BNSF also proposed to move from quarterly fluid level measurements to semiannual fluid level measurements. NMED approved this verbally in December 2010.

During October 2011 as part of an investigation at the former East-bound Fueling Facility (EBFF) and adjacent First Baptist Church (FBC) property, three monitoring wells (MW-22S, MW-43, and MW-44) were installed on site to the north of MW-22. In addition, one monitoring well was installed on the First Baptist Church property (FBC-MW-8). The monitoring wells on the First Baptist Church property were included into the semiannual monitoring program at the former BNSF Albuquerque yard during April 2012.

1.3 REPORT ORGANIZATION

This report summarizes the activities and results of activities conducted at the yard in the first half of 2013 (January – June 2013). Section 2.0 presents the yard activities that were conducted; Section 3.0 summarizes the results of groundwater monitoring; Section 4.0 presents a historical comparison of groundwater monitoring data; Section 5.0 presents future activities at the yard; and Section 6.0 contains references.

2.0 REPORTING PERIOD ACTIVITIES

Activities at the yard during the reporting period included fluid level measurements, dissolved-phase hydrocarbon monitoring, monitoring for natural attenuation parameters, and LNAPL recovery.

2.1 GROUNDWATER MONITORING

The monitoring activities conducted at the yard in the first half of 2013 are presented in this section.

2.1.1 Fluid Level Measurement

Fluid levels were measured on April 1-8, 2013 in 24 yard monitoring wells and 29 monitoring wells on adjacent and surrounding properties with a Geotech® model oil/water interface meter. The Geotech® meter permits measurement of depth to both water and LNAPL in monitoring wells, allowing determination of LNAPL thicknesses as little as 0.01 feet. During 2006, a track was situated on top of yard monitoring well MW-4 and therefore the well has not been measured since. In addition, the construction of a new potable water connection appears to have covered up or destroyed yard monitoring well MW-12; therefore that well was also not measured during the reporting period.

2.1.2 Dissolved-Phase Hydrocarbon and Natural Attenuation Monitoring

During April 2013, samples were collected from 18 yard wells and 20 monitoring wells on adjacent and surrounding properties. All samples were submitted for laboratory analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021, polynuclear aromatic hydrocarbons (PAH) by EPA Method 8270 SIM, and dissolved barium, iron, and manganese by Method 6010. Samples were also collected for natural attenuation parameter analyses including nitrate plus nitrite (Method 353.2) and sulfate (Method 9056), total alkalinity (Method SM2320B), and methane (Method RSK175). Field water quality data was collected during well purging and these data are included in the well sampling forms in Appendix A.

Micropurging methodology was implemented for sampling wells using a submersible pump for purging and sample collection. This method was chosen for the yard following a successful test of the method during the 4th quarter 2001 groundwater monitoring event (MW-10). Low pumping rates used in the method minimize aquifer stress and ensure that the sample contains minimal alterations to water chemistry. The micropurge

method is advantageous at this site, not only with analytical results, but also because less purge water is generated during well purging.

To summarize the micropurge method employed at the yard, a submersible pump is slowly lowered into the monitoring well, where pumping within the top 5 feet of the groundwater column is established at a slow and stable rate. The water from the well is routed to the surface through high-density polyethylene (HDPE) tubing, which is connected to a flow cell. This flow cell, tightly sealed from atmospheric oxygen, contains space where indicator field parameters such as pH, conductivity, temperature, dissolved oxygen, and oxidation/reduction potential are measured. During micropurging, a Geotech® model oil-water interface meter is placed down well to measure the drawdown that is occurring. Once the drawdown stabilizes, the sample is collected from the well since this groundwater is considered to be actual formation water. The submersible pump is decontaminated between wells.

It should be noted that, due to poor stabilization in the past, MW-27 was not sampled using the micropurge method. This well was sampled with a submersible pump, but not at the low rate due to poor stabilization. In addition, MW-38 was sampled with a disposable bailer rather than a submersible pump due to poor stabilization in this well in the past. Field sampling data sheets for all of the wells sampled are included in Appendix A.

For the purpose of assessing sampling procedures and the laboratory's performance, quality assurance (QA) samples were collected and submitted along with the groundwater samples. These QA samples included three duplicate samples, one equipment blank, and five laboratory-prepared trip blanks. The results reported for these QA samples, along with the laboratory quality control (QC) results, allow the evaluation of the laboratory's performance and the effectiveness of field decontamination procedures.

2.2 LNAPL RECOVERY

LNAPL was recovered from any monitoring wells that contained measurable LNAPL during April 2013. A total of approximately 0.7 gallons of LNAPL was removed from seven monitoring wells. Table 4-1 shows the LNAPL recovery amounts from the individual monitoring wells.

3.0 REPORTING PERIOD RESULTS

3.1 FLUID LEVEL SURVEY RESULTS

Table 3-1 presents the groundwater depth and calculated elevation data from the April 2013 groundwater monitoring event. In 2006, a new track was situated on top of MW-4 and therefore the well has not been measured since. In addition, MW-12 appears to have been covered up or destroyed during the construction of a new potable water connection in the area and therefore that well was not measured during the most recent event. The depth to groundwater from the 53 wells measured ranged from approximately 30 to 87.5 feet bgs (variance due to site topography and influence of municipal well pumping). Groundwater flows toward the east because of municipal water pumping, with a hydraulic gradient of approximately 0.006. The interpreted groundwater elevation contours and groundwater flow direction is presented on Figure 3-1.

LNAPL was measurable (≥0.01 feet) in three yard wells (MW-6, MW-8, and MW-10) and four off-site wells (MW-26, MW-32, MW-34, and BSW-1). In addition, five wells (MW-2, MW-29, MW-35, MW-43, and FBC-MW-1) contained trace LNAPL (<0.01 feet). Table 3-1 includes the LNAPL thickness measured for each well during April 2013. Figure 3-1 shows the measured LNAPL thicknesses.

3.2 GROUNDWATER ANALYTICAL RESULTS – DISSOLVED-PHASE HYDROCARBON

The results of the laboratory analysis of dissolved-phase hydrocarbons from the 38 groundwater samples submitted are presented in Tables 3-3 and 3-4 and are shown on Figure 3-2. Groundwater analytical laboratory reports are included in Appendix B.

As shown in the tables, detections of dissolved-phase hydrocarbons were reported in all 38 wells sampled. All but one of the 38 samples contained at least one or more "estimated" detections of a PAH or BTEX compound. The values are considered estimated because the detections found were below the reported detection limit (RDL) but above the minimum detection limit (MDL). These estimated values are flagged in the laboratory report and in Tables 3-3 and 3-4 with a "J" flag.

Thirteen wells (MW-3, MW-11R, MW-16, MW-28, MW-30, MW-36, MW-37, MW-39, MW-40, MW-44, FBC-MW-2, FBC-MW-5, and FBC-MW-6) contained concentrations above a NMWQCC standard. The NMWQCC

standard for total naphthalenes of 30 µg/L was exceeded in these wells, which showed total naphthalene concentrations ranging from 42 µg/L in well MW-16 to 1,260 µg/L in well MW-28. Figure 3-3 shows the total naphthalene concentrations in all wells sampled during the April 2013 event.

MW-28 showed a benzene concentration of 10 µg/L, which is equal to the NMWQCC standard for benzene. No other NMWQCC standards were exceeded.

3.3 GROUNDWATER ANALYTICAL RESULTS – METALS AND NATURAL ATTENUATION PARAMETERS

The results of the laboratory analysis of metals and natural attenuation parameters from the 38 groundwater samples submitted are summarized in Tables 3-5 and 3-6 and shown on Figure 3-4. Groundwater analytical laboratory reports are included in Appendix B.

Figure 3-4 contains a series of graphs that plot the concentration of various parameters across selected upgradient and downgradient wells. On each graph the concentration of a natural attenuation monitoring parameter is shown. This figure thus shows the concentration of natural attenuation parameters in spatial relation to the dissolved-phase hydrocarbon plume.

Figure 3-4.A is a plot of dissolved oxygen across selected upgradient and downgradient wells. The dissolved oxygen trend for the April 2013 monitoring event is slightly variant from the previous monitoring events but not extremely so. In theory the wells upgradient of the dissolved-phase hydrocarbon plume should have higher concentrations of dissolved oxygen than wells within the plume. Within the dissolved-phase hydrocarbon plume the bacteria in the aquifer consume available oxygen in the aquifer as they biodegrade the hydrocarbon.

At the Albuquerque yard the trend has historically been variable and does not always follow the theoretical behavior described above. There have been periods when the depletion of dissolved oxygen is readily seen in the graphs but there are also times when the dissolved oxygen either holds steady across the yard or even increases across the plume in the downgradient direction. One factor in the variation from the theoretical trend could be the difficulty in obtaining accurate dissolved oxygen measurements in the field. Another factor could be that the subsurface microbes use other available electron acceptors in the aquifer such as sulfates, nitrates and manganese (4^+) instead of oxygen even when there would appear to be sufficient oxygen in the aquifer. The discussion of these other electron acceptors is presented below as support. Oxygen is

the primary terminal electron acceptor in the biodegradation of petroleum hydrocarbons (ASTM 1998).

Figure 3-4.B is a plot of nitrate plus nitrite across selected upgradient and downgradient wells and shows that there is a very slight decrease of nitrate plus nitrite across the plume. These data suggest that nitrates are being consumed in the natural biodegradation process as might be expected when sufficient oxygen is no longer available as an electron acceptor. After dissolved oxygen has been nearly or completely consumed, nitrates may be used as an electron acceptor for anaerobic degradation of hydrocarbon (ASTM 1998).

Figure 3-4.C is a plot of sulfate across selected upgradient and downgradient wells and shows that there is a strong decrease of sulfate across the plume. The depletion of sulfates within the groundwater across the plume suggests that sulfates are also being used as an electron acceptor in the biodegradation of the hydrocarbon in the groundwater.

Figure 3-4.D is a plot of manganese across selected upgradient and downgradient wells and shows an increase in the downgradient direction. An increase in soluble manganese in the groundwater would be expected to occur across a dissolved-hydrocarbon plume, and for some distance downgradient of the plume, because manganese 4^+ in the aquifer matrix may be acting as another electron acceptor in the absence of oxygen thus increasing the concentration of soluble manganese (2^+) in the groundwater (ASTM 1998).

Figure 3-4.E is a plot of total alkalinity across selected upgradient and downgradient wells and shows an increase across the plume and in the downgradient direction beyond the plume. This indicates that carbon dioxide may be being produced by biodegradation (ASTM 1998).

Figure 3-4.F is a plot of methane across selected upgradient and downgradient wells and shows an increase across the plume and in the downgradient direction beyond the plume. An increase in methane is evidence of strongly reducing conditions in the aquifer as a result of the use of carbon dioxide as an electron acceptor and the resultant creation of methane in the degradation reaction.

3.3.1 Water Quality Parameters

Field water quality parameters including pH, conductivity, temperature, dissolved oxygen, and oxidation/reduction potential were measured during well purging. The measurements were recorded from an YSI® 556 water quality meter with flow-through cell and are included in the well sampling forms in Appendix A and are shown on Tables 3-7 and 3-8. Due

to poor stabilization during the micropurging of MW-38 in the past, this well was sampled with a disposable bailer and therefore dissolved oxygen and oxidation/reduction potential measurements were not collected at the well.

3.3.2 pH, Temperature, and Conductivity

The pH of the groundwater averages 7.2 and is within the optimal range of 5–8 for microbial activity. The groundwater temperature, averaging 21.4 degrees C, is in the range where the biochemical process is accelerated (greater than 20 degrees C). The conductivity of the groundwater in all wells except MW-31 are consistent indicating that the same zone is being monitored. MW-31 is within the same hydrogeologic zone as the other wells but the higher conductivity (and sulfate) indicate a local variation of the groundwater chemistry in this area.

3.4 GROUNDWATER SAMPLING QA/QC

For the purpose of assessing sampling procedures and the laboratory's performance, QA/QC samples were collected and submitted along with the groundwater samples, and the laboratory ran appropriate blanks and spiked samples. The field QA samples associated with the groundwater sampling included three duplicate samples, one equipment blank, and five laboratory-prepared trip blanks. The results reported for these samples, along with the laboratory quality control results, allow the evaluation of the laboratory's performance and the determination of any sample cross-contamination.

3.4.1 Duplicates

The results of the duplicate samples submitted for analysis are shown on Table 3-9. The field duplicates taken at MW-30, MW-40, and FBC-MW-2 all showed acceptable reproducibility for BTEX and PAH compounds. When comparing the duplicate sample results with the primary samples, MW-30 had nine PAH compounds and MW-40 had one PAH compound that had relative percent differences outside the EPA validation guideline of 30 percent. In addition, MW-30 had three BTEX compounds and FBC-MW-2 had one BTEX compound that had relative percent differences outside the EPA validation guideline of 30 percent. However, due to the relatively low concentrations of the compounds relative to the reporting limits, field duplicate comparison in this situation is not recommended as a quantitative method of laboratory precision evaluation. Instead, the field duplicate data is considered qualitatively and the lab spike samples substituted as a measure of precision. All three field duplicates also showed good reproducibility for metals.

3.4.2 Blanks

None of the trip blanks showed any detections of BTEX compounds above reporting limits. The equipment blank showed several PAH detections, with a total PAH concentration of 0.6 µg/L. The PAH detections found in the equipment blank were very minor, all below 0.2 µg/L. The equipment blank did not show any detections of BTEX compounds above reporting limits.

3.4.3 Holding Times

Holding times for the samples were all met.

3.4.4 Spiked Samples

The matrix spike/matrix spike duplicate samples and the laboratory control samples showed recoveries within acceptable limits, with the exception of a few matrix spike samples that showed recoveries outside of QC limits for alkalinity and benzene. However, relative percent differences for these samples were within limits. One QC batch also showed relative percent differences that exceeded control limits for several PAH compounds. However, method performance was demonstrated by acceptable laboratory control sample recoveries. Despite these minor QC issues, the data are comparable to past results and are considered valid.

3.5 LNAPL RECOVERY RESULTS

During the April 2013 fluid level measurements, MW-6 contained 0.02 feet of LNAPL, MW-8 contained 0.03 feet of LNAPL, MW-10 contained 0.01 feet of LNAPL, MW-26 contained 0.16 feet, MW-32 contained 1.8 feet, MW-34 contained 0.02 feet, and BSW-1 contained 0.72 feet. MW-2, MW-29, MW-35, MW-43, and FBC-MW-1 all contained trace (<0.01 feet) LNAPL. LNAPL was recovered from all of the wells with measureable LNAPL using a disposable bailer. A total of approximately 0.7 gallons of LNAPL was removed from the wells. Table 4-1 shows the LNAPL recovery from each individual well.

4.0 HISTORICAL COMPARISON OF GROUNDWATER MONITORING DATA

4.1 FLUID LEVELS/ LNAPL

The water table depths in the original seven wells (MW-1 through MW-7) are shown on Figure 4-1. The April 2013 measurements showed an increase in water levels of approximately 1.7 feet since the September 2012 measurements. There has been a significant increase of the water table since the fall of 2003. The water table has risen by as much as 8 feet because of decreased municipal water supply pumping in the adjacent Yale Well Field as the city of Albuquerque uses more surface water from the Chama River Diversion Project. Any discussion of fluid levels and LNAPL accumulation needs to be done in light of the rising water table in the downtown area of Albuquerque. Because of the rise in the water table the water table is now above the top of some of the monitoring well screens at the yard. However, since micropurging is conducted at the site the actual formation water sampled from the wells with the water table above the top of the screen is actually from very close or slightly below the top of the screen.

MW-2 and MW-7 have shown LNAPL in the past, with the greatest thicknesses occurring during August and October of 2001. More recent measurements show decreasing LNAPL thicknesses in these wells. MW-2 contained just trace LNAPL during the April 2013 event, 0.02 feet of LNAPL during the September 2012 event, 0.01 feet of LNAPL during the April 2012 event, and did not contain any measurable LNAPL during either the October or March 2011 events. Monitoring well MW-7 was plugged and abandoned during September 2007 due to railroad construction activities in the area. Two other wells, MW-8 and MW-10, have shown consistent LNAPL since March 2003; however, these thicknesses also appear to be decreasing. MW-8 contained 0.03 feet of LNAPL and MW-10 contained 0.01 feet of LNAPL during the April 2013 measurement.

MW-14 has shown LNAPL during the past 22 monitoring events, and LNAPL thickness appeared to be increasing in this well until the December 2007 event, which showed a decrease of LNAPL (from 1.36 feet in September 2007 to 0.58 feet in December 2007). MW-14 did not show any measureable LNAPL during the most recent event, but there was an LNAPL odor on the Geotech® meter. MW-21, another well near the former Eastbound Fueling Facility that recently showed measurable product, did not have measurable accumulations of LNAPL during any of the past 10 events. Prior to March 2007, this well did not show any LNAPL.

MW-26 (located on the former Baines Southwest property) is another well that has consistently shown LNAPL. LNAPL was first measured in the well during December 2004 and the thickness seemed to be increasing in the well. However, during December 2006 the well showed a decrease in LNAPL, from 0.81 feet of LNAPL in September 2006 to 0.19 feet of LNAPL. During the most recent event this well contained 0.16 feet of LNAPL.

Wells MW-28 and MW-29 have also shown LNAPL during previous measurements. MW-28 showed 0.01 feet of LNAPL during the June 2007 event but has not shown any measureable LNAPL since then. MW-29 showed 0.03 feet during the initial June 2007 event and has ranged since then from no measurable LNAPL to 0.02 feet. The most recent event showed trace LNAPL.

MW-32 (located on the TNM&O Coaches property) has also shown LNAPL during the last several events, and product thickness appeared to be increasing in the well until December 2009, which showed a decrease from 1.07 feet in September 2009 to 0.28 feet in December. LNAPL thickness in the well has increased recently, from 0.1 feet in March 2011 to 0.88 feet in April 2012 and 1.8 feet during the most recent event.

MW-34 showed 0.02 feet of LNAPL and MW-35 showed trace (<0.01 feet) LNAPL during the most recent event. Both of these wells are located east of the yard on city of Albuquerque property.

Finally, MW-43, one of the recently installed wells near the Eastbound Fueling Facility, contained trace (<0.01 feet) LNAPL during the most recent event.

Table 4-2 shows the history and variation of LNAPL thickness in selected wells since their installation in November 1998. The accumulation of LNAPL in wells with submerged screens may be a ghost of LNAPL accumulation when the water table was below the top of the screen. To test this hypothesis of ghost LNAPL most of the wells with LNAPL were bailed during the September 2012 sampling event to see if LNAPL would come back into the well. Based on the re-accumulation of LNAPL in the wells, it appears that LNAPL is entering the wells through the well screens. It might be expected that the rising water table may prevent some LNAPL from entering the well when the water table has risen above the screen. In the well with the greatest thickness of LNAPL, MW-32 to the west of the former WBFF, this has not proved to be true. In fact, the largest accumulation of LNAPL has been at a time when the water table was over a foot higher than the top of the well screen. In two other wells with LNAPL the thickness of LNAPL had drastically decreased or dropped to zero well before the water table had risen above the top of the well screen.

4.2 DISSOLVED-PHASE HYDROCARBON

Historical total naphthalene concentration (naphthalene plus 1 and 2-methylnapthalenes) graphs were prepared for the Fuel Storage Area (Figures 4-2A and 4-2B), Westbound Fueling Facility (Figure 4-2C), Eastbound Fueling Facility (Figure 4-2D), off-site wells (Figure 4-2E), and FBC wells (Figure 4-2F). In addition, Tables 4-3 and 4-4 show total naphthalene concentrations for each well over time.

Groundwater sampling began in November 1998 with MW-1 through MW-7. The five wells that were originally sampled showed greatly reduced total naphthalene concentrations from the original sampling event, as shown in Figure 4-2A. As seen in the figure, total naphthalene concentrations in the original wells have continued to decrease since initial sampling. MW-3 has shown a recent increase in total naphthalene concentrations, from 60.9 µg/L during October 2011, to 140 µg/L during April 2012, then 430 µg/L during the September 2012 event, to 499 µg/L during the most recent event (April 2013). This is still lower than the initial sampling at the well, which showed a total naphthalene concentration of 960 µg/L. These results are consistent with a rising water table contacting previously trapped LNAPL in the vadose zone and solubilizing of the naphthalenes from the LNAPL phase into the dissolved phase.

Figure 4-2B shows the wells to the north and south of the former fuel storage area and shows that wells MW-9 and MW-11 have also shown reductions in total naphthalene concentrations since their initial sampling. Wells MW-11R and MW-36, which were first sampled in June 2009, have shown increases in total naphthalene concentrations since the initial event.

Figure 4-2C shows historical total naphthalene concentrations in the Westbound Fueling Facility wells. The figure shows that these wells have shown reductions in total naphthalene concentrations since their initial sampling, with the exception of MW-17, which has shown a slight increase. MW-16 has contained trace LNAPL on four separate occasions and is the only well of the Westbound Fueling Facility wells that consistently showed total naphthalene concentrations above the NMWQCC standard of 30 µg/L. MW-17 has shown a very slight increase in total naphthalene concentrations, from non-detect during the initial sampling in March 2003 to 1.155 µg/L during the most recent event. Well MW-33 has showed an increase in total naphthalenes in the past several events, from non-detect in 2007 to 16.37 µg/L during October 2011. Yet during the April 2012 event there was a decrease in total naphthalene concentrations in the well, down to 0.103 µg/L. The September 2012 event showed a significant increase in total naphthalenes, with 106 µg/L, which

is the highest concentration in this well to date. The most recent event showed another decrease in total naphthalenes in the well, with 5.2 µg/L.

Figure 4-2D shows historical total naphthalene concentrations in the Eastbound Fueling Facility wells. The figure shows that most of the Eastbound Fueling Facility wells display reductions in total naphthalene concentrations since their initial sampling, with the exception of MW-22 and MW-44. MW-22 showed a slight increase in total naphthalenes during the most recent event, from non-detect in March 2003 to 0.419 µg/L during April 2013. MW-44 also showed an increase during the most recent event, from 121.5 µg/L in October 2011 to 158 µg/L during the most recent event. MW-14 has contained LNAPL since June 2006 and therefore was not sampled during the most recent event. In addition, MW-43 contained trace (<0.01 feet) LNAPL during the most recent event and therefore was also not sampled.

Figure 4-2E shows historical total naphthalene concentrations in off-site wells. Some wells show decreases in total naphthalenes over time whereas nine wells show an increase (MW-28, MW-29, MW-31, MW-35, MW-37, MW-38, MW-39, MW-40, and MW-41). MW-28 has shown an increase in total naphthalene concentrations from 65 µg/L in June 2007 to 1,260 µg/L during the most recent event (April 2013). MW-29 shows an increase in total naphthalene concentrations from 134.6 µg/L in June 2007 to 398.5 µg/L in March 2008. This well frequently contains LNAPL. MW-31 shows a very slight increase in total naphthalenes from non-detect in June 2007 to 0.123 µg/L during April 2013. MW-35 was sampled just once, in September 2008, and contained a total naphthalene concentration of 921 µg/L. This well has not been sampled again due to the presence of LNAPL. MW-37 shows an increase from 84.4 µg/L in June 2009 to 667 µg/L during the most recent event. MW-38 shows an increase from 0.45 µg/L in June 2009 to 6.59 µg/L during the most recent event. MW-39 shows an increase from 226.6 µg/L in June 2009 to 279 µg/L during the most recent event. MW-40 shows an increase from 63.8 µg/L in June 2009 to 153.6 µg/L during the most recent event. This well has contained trace LNAPL on five separate occasions. MW-42 showed a very slight increase in total naphthalene concentrations during the most recent event, from non-detect in June 2009 to 0.255 µg/L in April 2013. As mentioned previously the rising water table across the site could be causing the increase in naphthalenes as the water table contacts previously trapped pockets of LNAPL.

Figure 4-2F shows historical total naphthalene concentrations in the FBC wells. These wells were first sampled in April 2012 and all seven wells have shown increases in total naphthalenes since that initial sampling. Three of the wells (FBC-MW2, FBC-MW5, and FBC-MW6) have shown total naphthalenes above the NMWQCC standard of 30 µg/L in all three

sampling events at these wells. The remaining four FBC wells (FBC-MW3, FBC-MW4, FBC-MW7, and FBC-MW8) show total naphthalene concentrations well below the NMWQCC standard.

4.3 NATURAL ATTENUATION

There are over 10 years of natural attenuation monitoring data for the yard, and the data obtained to date indicate that conditions are appropriate for natural attenuation to occur at this site. There is sufficient dissolved oxygen in upgradient groundwater to sustain aerobic biodegradation of hydrocarbon and there are other electron acceptors (such as nitrates, sulfates, and manganese) to sustain biodegradation under anaerobic conditions as the oxygen is consumed. Historical detections of methane at downgradient locations suggest that methane oxidation of hydrocarbons may also be occurring. Historical concentrations of various natural attenuation parameters are shown graphically on Figure 4-3.

5.0 FUTURE ACTIVITIES

The next yard monitoring event will occur during September 2013. This monitoring will include fluid level measurements in all wells at the site, LNAPL recovery from all wells containing measureable LNAPL, and groundwater sampling for dissolved-phase hydrocarbons and natural attenuation parameters from all wells not containing LNAPL.

BNSF is developing a plan to install wells with shallower screened sections adjacent to some of the existing wells where the top of the well screens are submerged below the water table. This will allow comparison of samples from the deeper screened wells with the shallower screened wells and also allow comparison of LNAPL accumulation in the two wells. The wells with the shallower screens will accommodate the future rise in the water table that is projected in this area of Albuquerque.

BNSF is developing a work plan for additional investigation work at the First Baptist Church property and is currently in negotiations with the church for location of wells. BNSF will keep NMED informed of the progress of work plan development.

6.0 REFERENCES

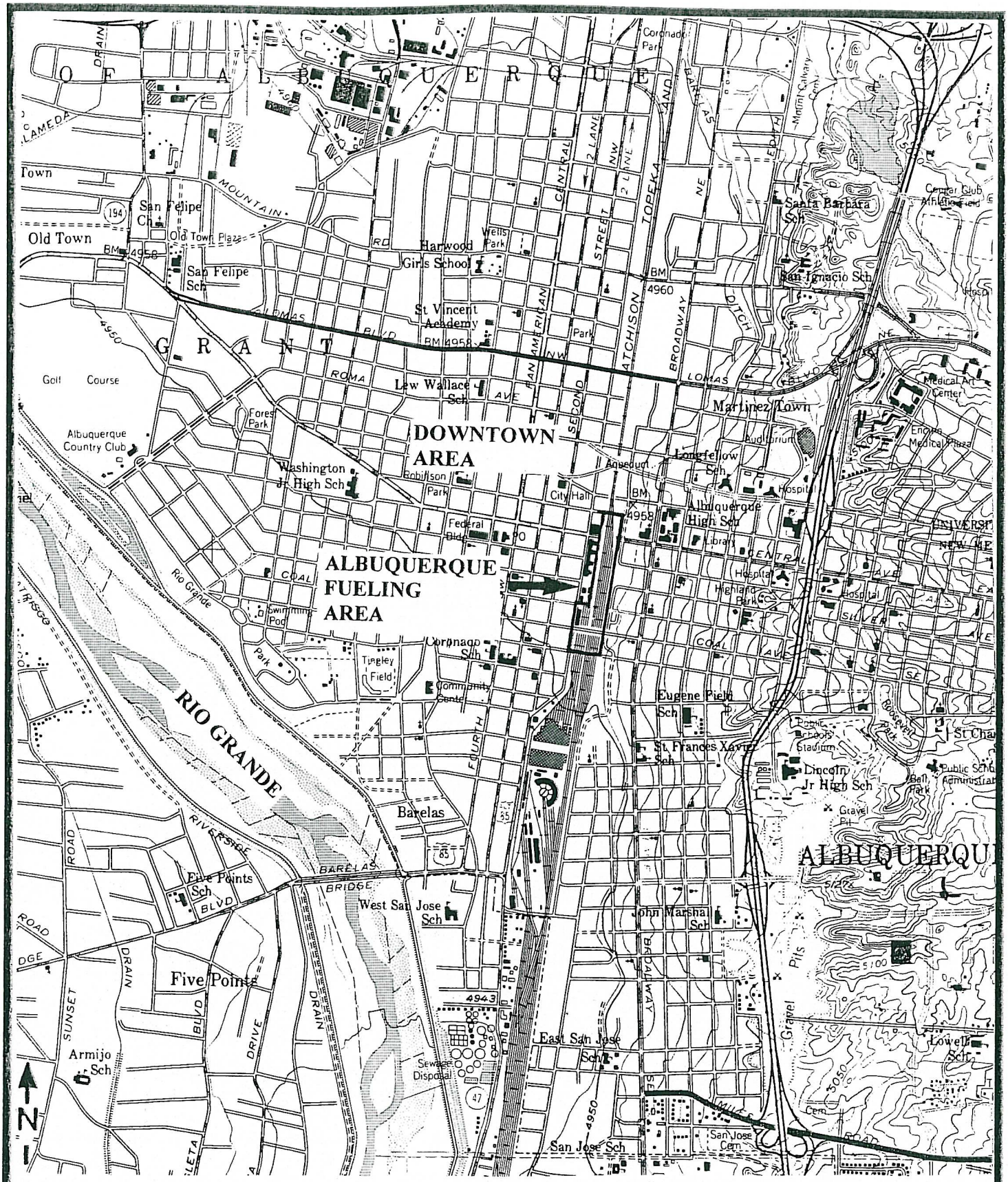
ASTM. 1998. *Standard Guide for Remediation of Ground Water by Natural Attenuation at Petroleum Release Sites*. American Society for Testing and Materials, West Conshohocken, PA. ASTM Standard E 1943–98.

ERM. 1999a. BNSF Albuquerque, NM Fuel Storage Area *Phase 1 and Phase 2 Subsurface Investigations Report (February 17, 1999)*.

ERM. 1999b. BNSF Albuquerque Fueling Operation *Stage 1 Ground Water Abatement Plan (May 14, 1999)*.

ERM. 2001. BNSF Albuquerque Fueling Area *Phase 1 Stage 1 Groundwater Abatement Plan Site Investigation – Soil Borings (January 8, 2001)*.

Figures



LOCATION OF BNSF ALBUQUERQUE FUELING AREA	**ENVIRONMENTAL RESOURCES MANAGEMENT** 2201 Buena Vista SE, Suite 305 Albuquerque, NM 87106 (505) 243-3330
BNSF Railway Company Albuquerque, New Mexico	USGS 7.5 Minute Quadrangle, Albuquerque West Approx. scale: 1" = 2,000 ft.
	Job No. N031001.0 **Figure 1-1**

Project No. 0161604.001
Date: 07/09/12
Drawn By: C. Tallada
CAD File: F:\0161604\001\0161604001-07.DWG

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AMTRAK OFFICES
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ALVARADO TRANSPORTATION CENTER
CITY PARKING LOT
FORMER EAST BOUND FUELING
W.B.M.L.
FORMER WEST BOUND FUELING
FREIGHT DFO STORAGE AREA
FIBER OPTIC BUILDINGS
RESCUE MISSION
COACH REPAIR NO. 21
FORMER ALBUQ. GAS & ELECT. COMPANY GAS PLANT SITE (COAL GASIFICATION)
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FOREST SERVICE
BROADWAY BLVD.
ARNO ST.
EDITH BLVD
WALTER STREET
JOHN ST.
COAL AVE.
LEAD AVE.
SILVER AVE.
GOLD AVE.
CENTRAL AVE.
IRON AVE.
ATRISCO AVE.

MW-15, MW-33, MW-13, MW-32, MW-17, MW-12, MW-16, MW-24, MW-4, MW-5, MW-6, MW-2, MW-1, MW-3, MW-36, MW-11R, MW-10, MW-26, MW-29, MW-28, MW-18, BSW-1, BSW-3, BSW-2, MW-27, MW-31, MW-30, MW-8, MW-9, MW-23, MW-25, MW-19, MW-20, MW-14, MW-22, MW-22S, MW-43, MW-44, MWSF-30, MW-21, FBC-MW-2, FBC-MW-1, FBC-MW-4, FBC-MW-3, FBC-MW-5, FBC-MW-8, FBC-MW-6, FBC-MW-7, MW-34, MW-37, MW-35, MW-38, MW-40, MW-39, MW-41, MW-42

0 250
FEET

LEGEND
APPROXIMATE RAILYARD PROPERTY BOUNDARY
MW-38 MONITORING WELLS

Figure 1-2
Albuquerque Fueling Area
Site Map
BNSF Railway Company
Albuquerque, New Mexico
ERM 07/12

Project No. 0198892.00
Date: 06/06/17
Drawn By: J. Estrada
CAD File: g:\RM\0198892\0198200-01.dwg

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GOLD AVE.
CENTRAL AVE.
TIJERAS AVE.
IRON AVE.
BROADWAY BLVD.
ARNO ST.
EDITH BLVD
WALTER STREET

MW-15 4920.67 (0)	MW-33 4919.97 (0)	MW-32 4918.74 (1.50)	MW-13 4919.25 (0)
MW-17 4919.03 (0)	MW-16 4918.61 (0)	MW-24 4918.24 (0)	MW-12 NM
MW-4 NM	MW-5 4918.17 (0)	MW-2 4918.15 (Trace)	MW-1 4917.71 (0)
MW-11R 4917.37 (0)	MW-10 4917.50 (0.01)	MW-6 4918.10 (0.02)	MW-36 4917.86 (0)
MW-26 4916.95 (0.16)	MW-29 4917.04 (Trace)	MW-3 4917.55 (0)	MW-28 4916.89 (0)
BSW-1 4916.71 (0.72)	BSW-3 4915.77 (0)	MW-18 4916.42 (0)	MW-9 4917.06 (0)
MW-27 4916.60 (0)	BSW-2 4916.09 (0)	MW-8 4916.94 (0.03)	MW-23 4917.03 (0)
MW-31 4915.04 (0)	MW-30 4913.91 (0)	MW-14 4917.23 (0)	MW-25 4917.86 (0)
MW-34 4912.02 (0.02)	MW-37 4910.52 (0)	MW-19 4917.53 (0)	MW-21 4917.08 (0)
MW-35 4911.22 (Trace)	MW-20 4917.43 (0)	MW-44 4916.44 (0)	MWSF-30
MW-38 4911.49 (0)	MW-22 4916.84 (0)	MW-43 4916.57 (Trace)	FBC-MW-2 4916.52 (0)
MW-40 4906.21 (0)	MW-22S 4916.61 (0)	FBC-MW-1 4916.63 (Trace)	FBC-MW-3 4915.73 (0)
MW-39 4907.75 (0)	FBC-MW-5 4915.66 (0)	FBC-MW-4 4916.13 (0)	
MW-41 4905.43 (0)	MW-42 4903.93 (0)	FBC-MW-6 4914.88 (0)	FBC-MW-8 4915.79 (0)
		FBC-MW-7 4914.16 (0)	

4920 4918 4916 4914 4912 4910 4908 4906 4904

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FEET

LEGEND

- APPROXIMATE RAILYARD PROPERTY BOUNDARY
- MW-27 — MONITORING WELLS
- 4916.60 — GROUNDWATER ELEVATION (FT. above mean sea level)
- (0.01) — LNAPL THICKNESS (FT.)
- NM — FLUID LEVELS NOT MEASURED
- 4912 — GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION

Figure 3-1
Albuquerque Fueling Area Groundwater Elevation and LNAPL Thickness Map - April 2013
BNSF Railway Company
Albuquerque, New Mexico

ERM 06/13

Project No. 0198892.00
Date: 06/19/13
Drawn By: J. Estrada
CAD File: G:\RM\0198892\0198892200-03.dwg

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TULEROSA AVE.
IRON AVE.
BROADWAY BLVD.
ARNO ST.
EDITH BLVD
WALTER STREET

	BTEX	PAH
MW-15 (0)	ND	0.101
	ND	13.893
MW-33 (0)		
MW-13 (0)	ND	0.328
MW-32 (1.80)	0.26	79.683
MW-17 (0)	0.73	14.038
MW-16 (0)		
MW-24 (0)	ND	0.7016
MW-12 NM		
MW-4 NM	ND	54.71
MW-5 (0)		
MW-36 (0)	ND	75.681
MW-11R (0)	2.24	482.259
MW-6 (0.02)	ND	30.511
MW-1 (0)		
MW-10 (0.01)	1.53	514.802
MW-3 (0)		
MW-2 (Trace)		
MW-8 (0.03)	ND	13.673
MW-26 (0.16)		
MW-28 (0)	14.13	1,363.429
MW-29 (Trace)		
MW-9 (0)		
BSW-1 (0.72)		
BSW-3 (0)		
MW-18 (0)	ND	14.594
BSW-2 (0)		
MW-27 (0)	ND	2.0193
MW-31 (0)	ND	0.167
MW-30 (0)	7.2	316.454
MW-34 (0.02)		
MW-37 (0)	2.62	736.902
MW-38 (0)	ND	7.574
MW-35 (Trace)		
MW-39 (0)	0.66	356.59
MW-40 (0)	ND	176.258
MW-41 (0)	ND	0.029
MW-42 (0)	ND	0.766
MW-25 (0)	ND	0.076
MW-14 (Trace)		
MW-21 (0)	ND	0.771
MW-19 (0)	ND	39.8249
MWSF-30 NM		
MW-20 (0)	ND	78.62
MW-44 (0)	0.72	180.238
MW-43 (Trace)		
FBC-MW-2 (0)	2.34	543.014
MW-23 (0)	ND	0.0944
MW-22 (0)	ND	6.724
FBC-MW-1 (Trace)		
MW-22S (0)	0.61	31.433
FBC-MW-5 (0)	2.0	515.367
FBC-MW-4 (0)	ND	16.113
FBC-MW-3 (0)	ND	2.8291
FBC-MW-6 (0)	0.77	672.215
FBC-MW-8 (0)	0.48	30.307
FBC-MW-7 (0)	ND	0.412

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FEET

LEGEND

- APPROXIMATE RAILYARD PROPERTY BOUNDARY
- MW-2 — MONITORING WELLS
- BTEX — BENZENE, ETHYLBENZENE, TOLUENE, XYLENES (µg/L)
- PAH — POLYNUCLEAR AROMATIC HYDROCARBONS (µg/L)
- ND — NOT DETECTED
- NM — NOT MEASURED
- (0.01) — LNAPL THICKNESS (FT)

Figure 3-2
Albuquerque Fueling Area
Groundwater Analytical Results and
LNAPL Thickness Map - April 2013
BNSF Railway Company
Albuquerque, New Mexico

ERM 06/13

Project No. 0198892.00
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Drawn By: J. Estrada
CAD File: G:\RM\0198892\0198892200-02.dwg

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SALVATION ARMY
FOREST SERVICE
FIRST BAPTIST CHURCH
JOHN ST.
COAL AVE.
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GOLD AVE.
CENTRAL AVE.
TIJERAS AVE.
IRON AVE.
BROADWAY BLVD.
ARNO ST.
EDITH BLVD
WALTER STREET

MW-15 0.101
MW-33 5.2
MW-13 0.073
MW-32
MW-17 1.16
MW-12 NM
MW-16 42
MW-24 0.372
MW-4 NM
MW-5 3.62
MW-2
MW-36 60
MW-11R 450
MW-6
MW-1 3.19
MW-10
MW-9 5.48
MW-8
MW-23 0.073
MW-26
MW-29
MW-3 499
MW-28 1,260
BSW-1 NM
BSW-3
MW-18 9.1
BSW-2
MW-27 0.26
MW-31 0.123
MW-30 298
MW-34
MW-37 667
MW-35
MW-38 6.59
MW-39 279
MW-40 153.6
MW-41 0.029
MW-42 0.255
MW-19 0.71
MW-25 0.026
MW-44 158
MW-21 0.11
MWSF-30
MW-20 0.73
MW-14
MW-22 0.419
MW-22S 22.15
MW-43
FBC-MW-2 505
FBC-MW-1
FBC-MW-4 3.04
FBC-MW-5 480.59
FBC-MW-3 0.44
FBC-MW-6 551.3
FBC-MW-8 0.86
FBC-MW-7 0.345

ND
30

0 250
FEET

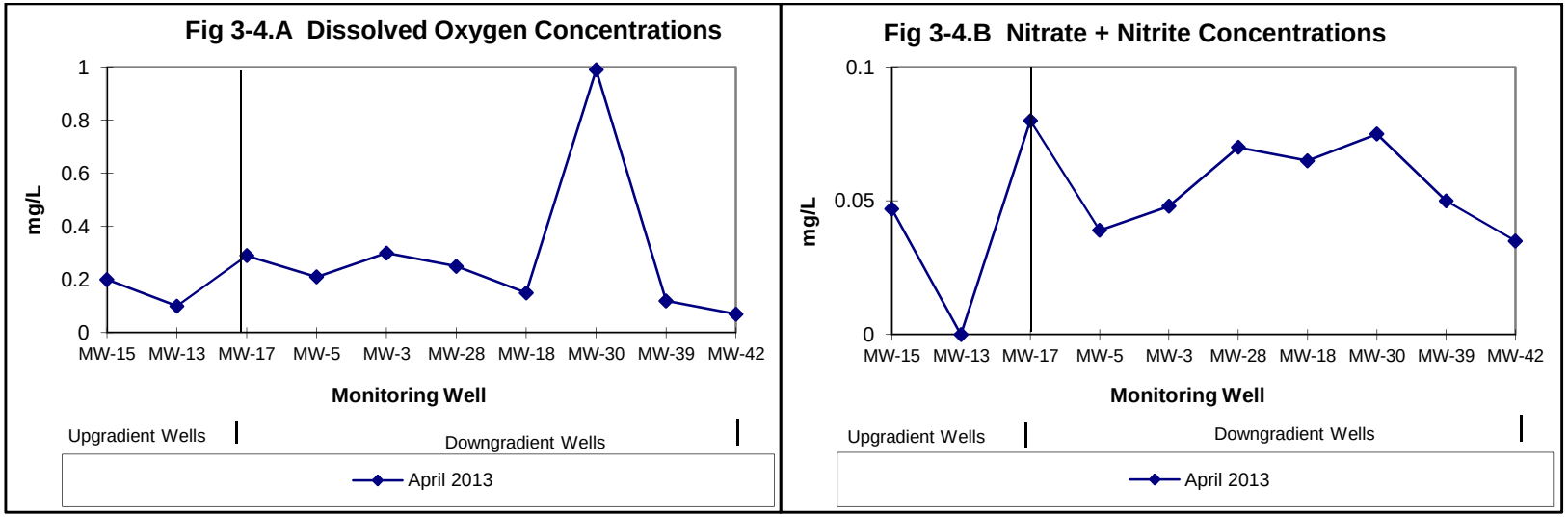
LEGEND

- APPROXIMATE RAILYARD PROPERTY BOUNDARY
- MW-27 — MONITORING WELLS
- 279 — TOTAL NAPHTHALENE (1-METHYLNAPHTHALENE, 2-METHYLNAPHTHALENE, AND NAPHTHALENE) (µg/L)
- ND — NOT DETECTED
- NM — NOT MEASURED
- LNAPL PLUME (APPROXIMATE)
- 30 — TOTAL NAPHTHALENES (30 ppb NMED STANDARD)
- ND — TOTAL NAPHTHALENES (No Detection)

Figure 3-3
Albuquerque Fueling Area
Total Naphthalenes in Groundwater and LNAPL on Groundwater Map - April 2013
BNSF Railway Company
Albuquerque, New Mexico

ERM 06/13

Figure 3-4. Graphs Summarizing Natural Attenuation Parameters
BNSF Albuquerque Fueling Area
April 2013



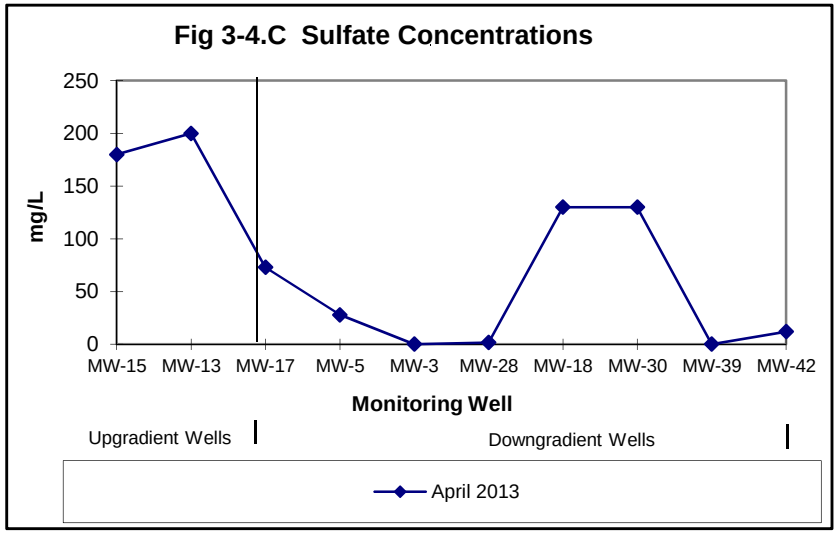
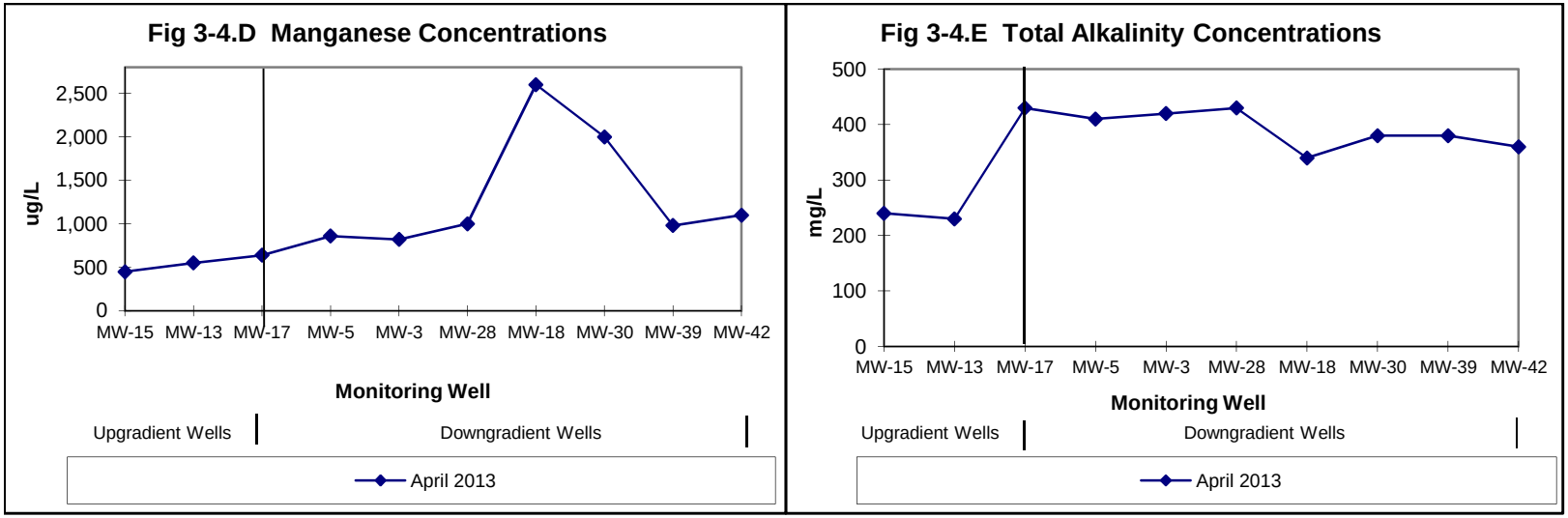


Figure 3-4. Graphs Summarizing Natural Attenuation Parameters *(Continued)*
BNSF Albuquerque Fueling Area
April 2013



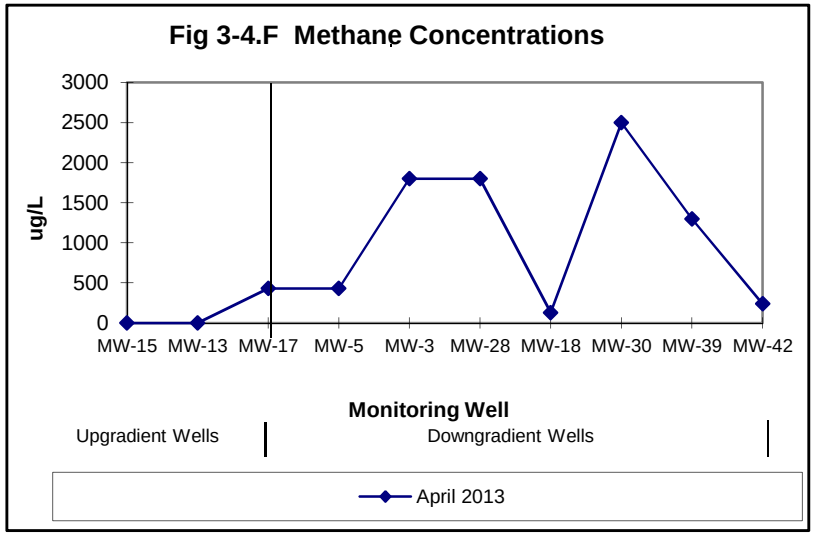


Figure 4-1. BNSF Albuquerque - Historical Groundwater Elevations From Selected Monitoring Wells (November 1998 - April 2013)

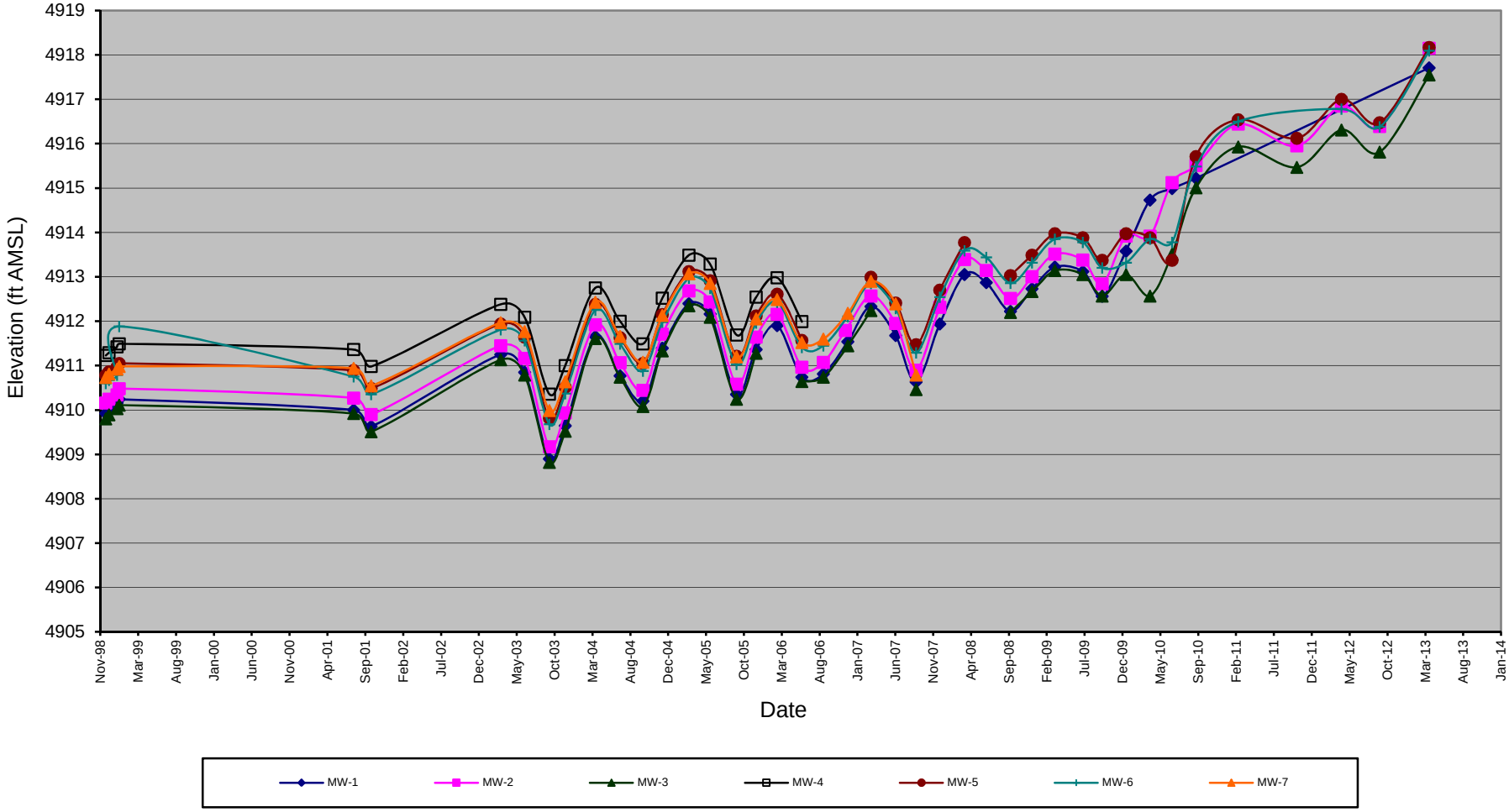


Figure 4-2A. BNSF Albuquerque - Historical Total Naphthalene Concentrations
Former Lead-Coal Fuel Storage Area (November 1998 - April 2013)

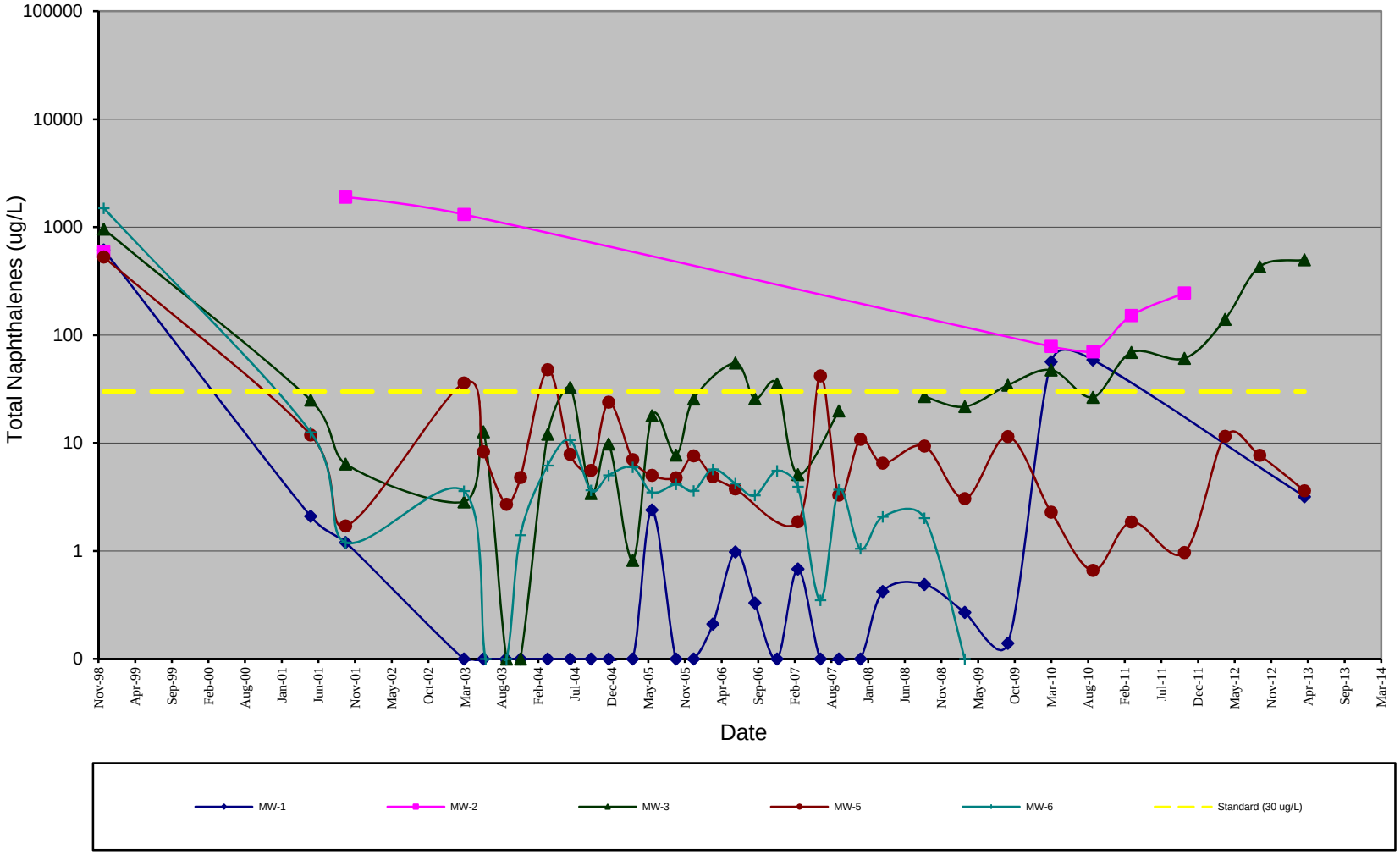


Figure 4-2B. BNSF Albuquerque - Historical Total Naphthalene Concentrations North & South of Former Fuel Storage Area (May 2001 - April 2013)

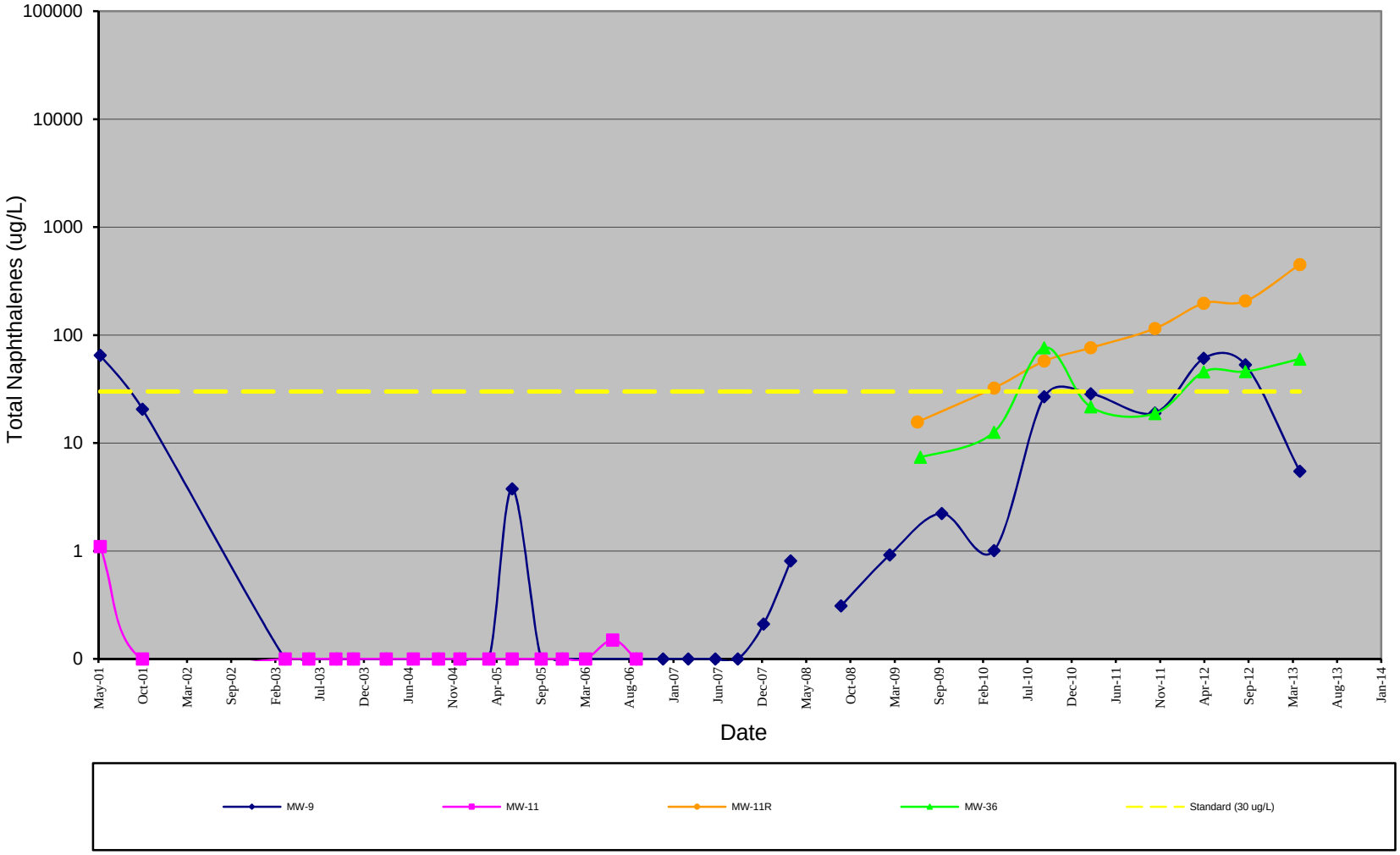


Figure 4-2C. BNSF Albuquerque - Historical Total Naphthalene Concentrations
Westbound Fueling Facility (May 2001 - April 2013)

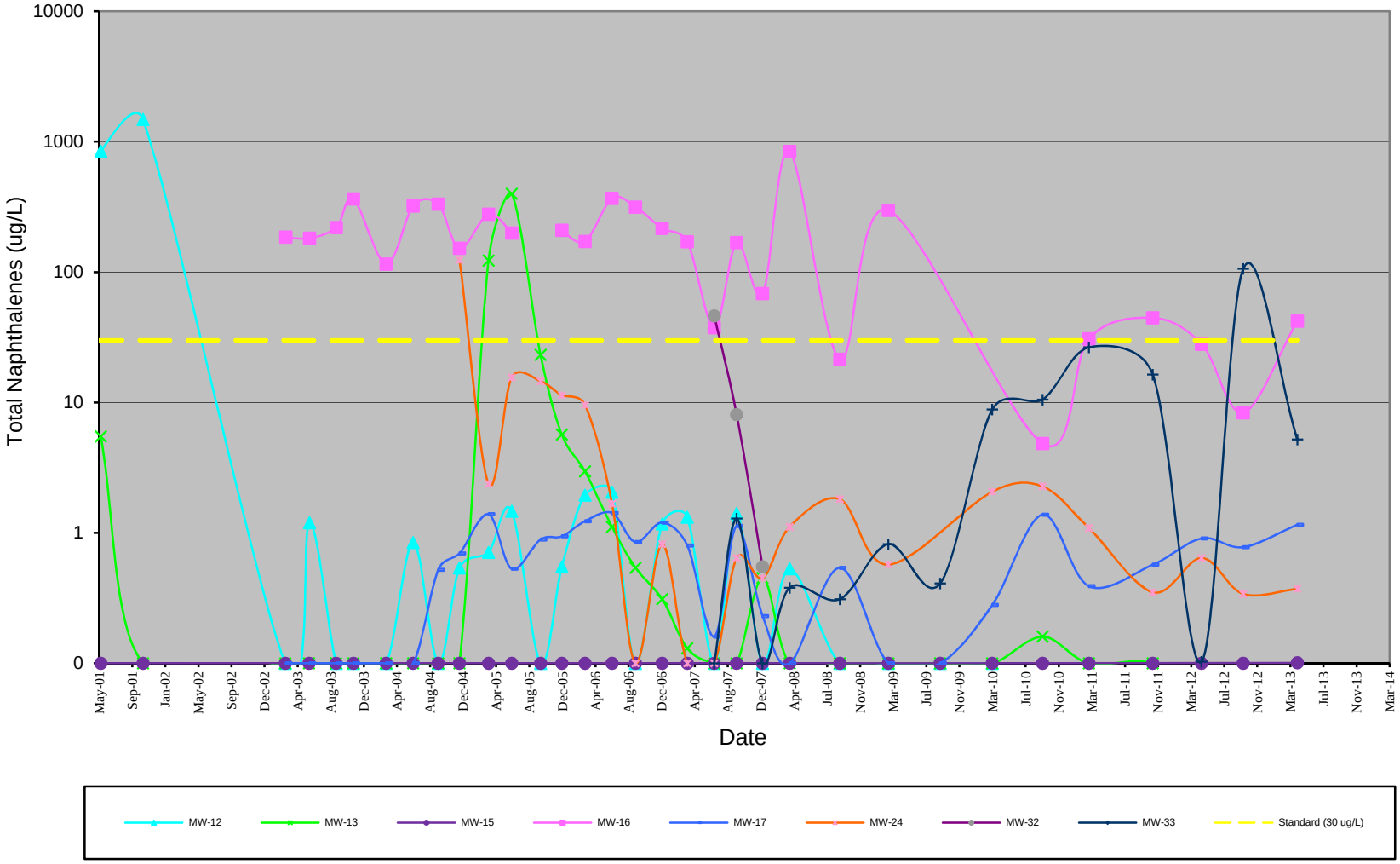


Figure 4-2D. BNSF Albuquerque - Historical Total Naphthalene Concentrations
Eastbound Fueling Facility (May 2001 - April 2013)

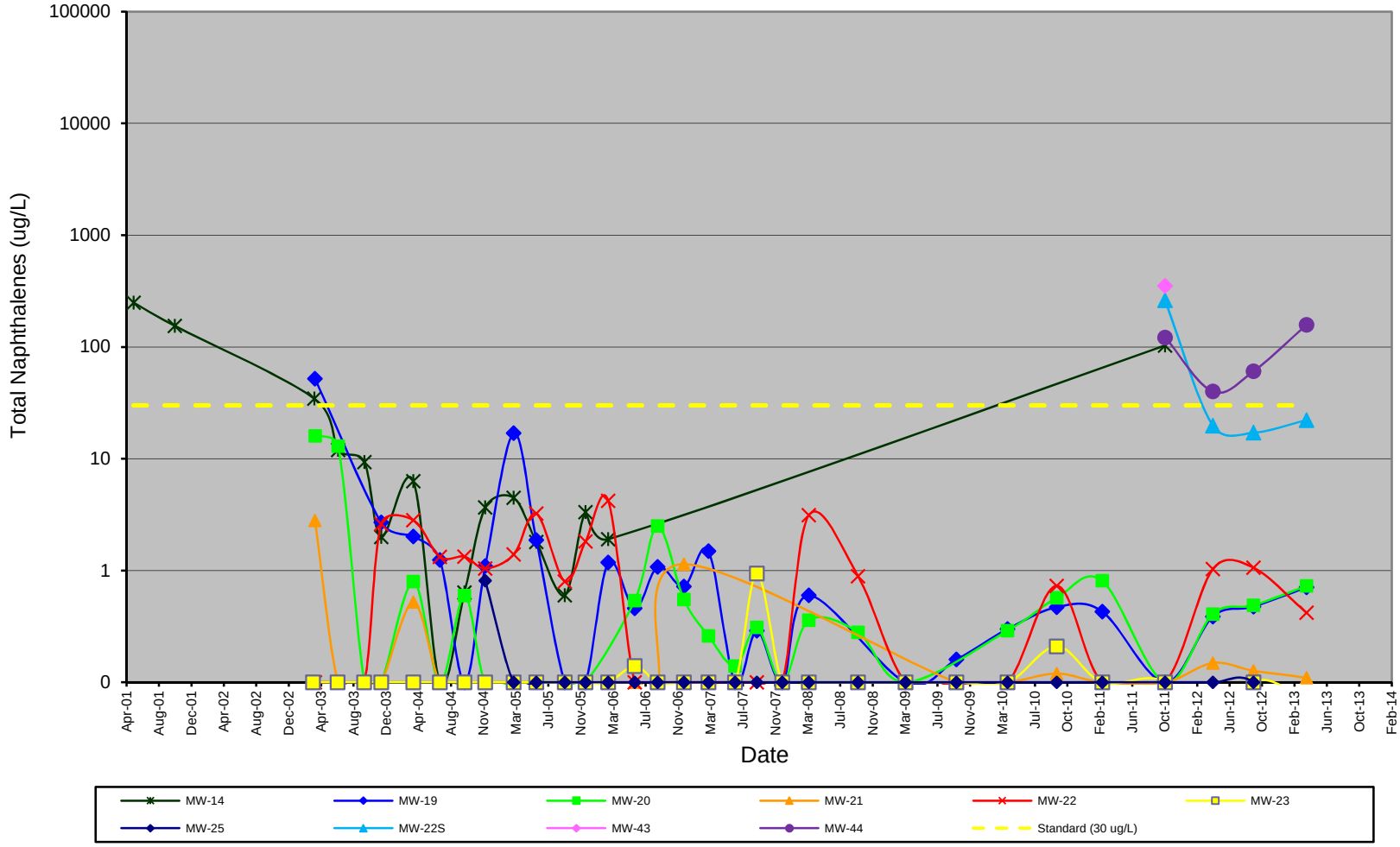


Figure 4-2E. BNSF Albuquerque - Historical Total Naphthalene Concentrations Offsite Wells (March 2003 - April 2013)

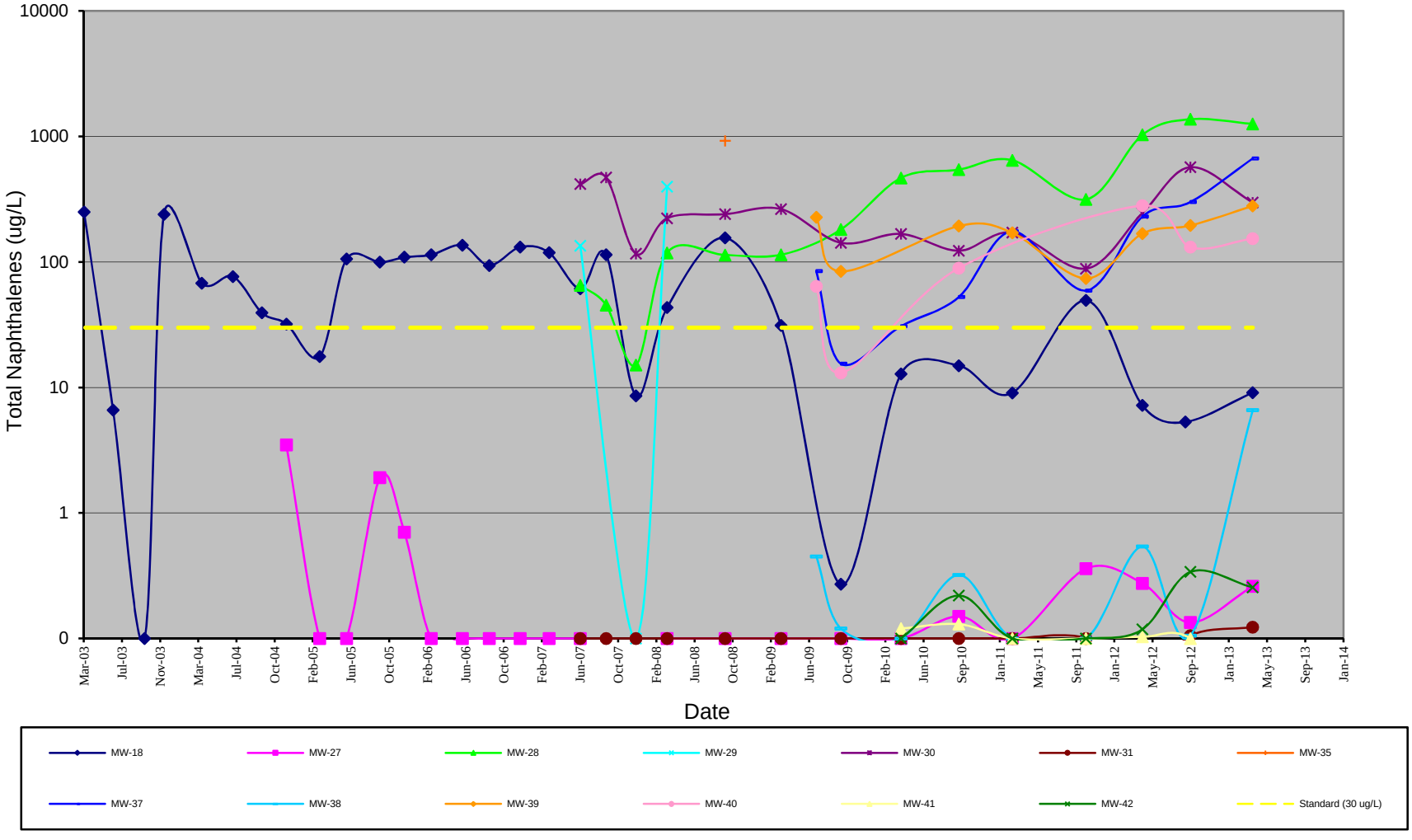


Figure 4-2F. BNSF Albuquerque - Historical Total Naphthalene Concentrations
First Baptist Church Wells (April 2012- April 2013)

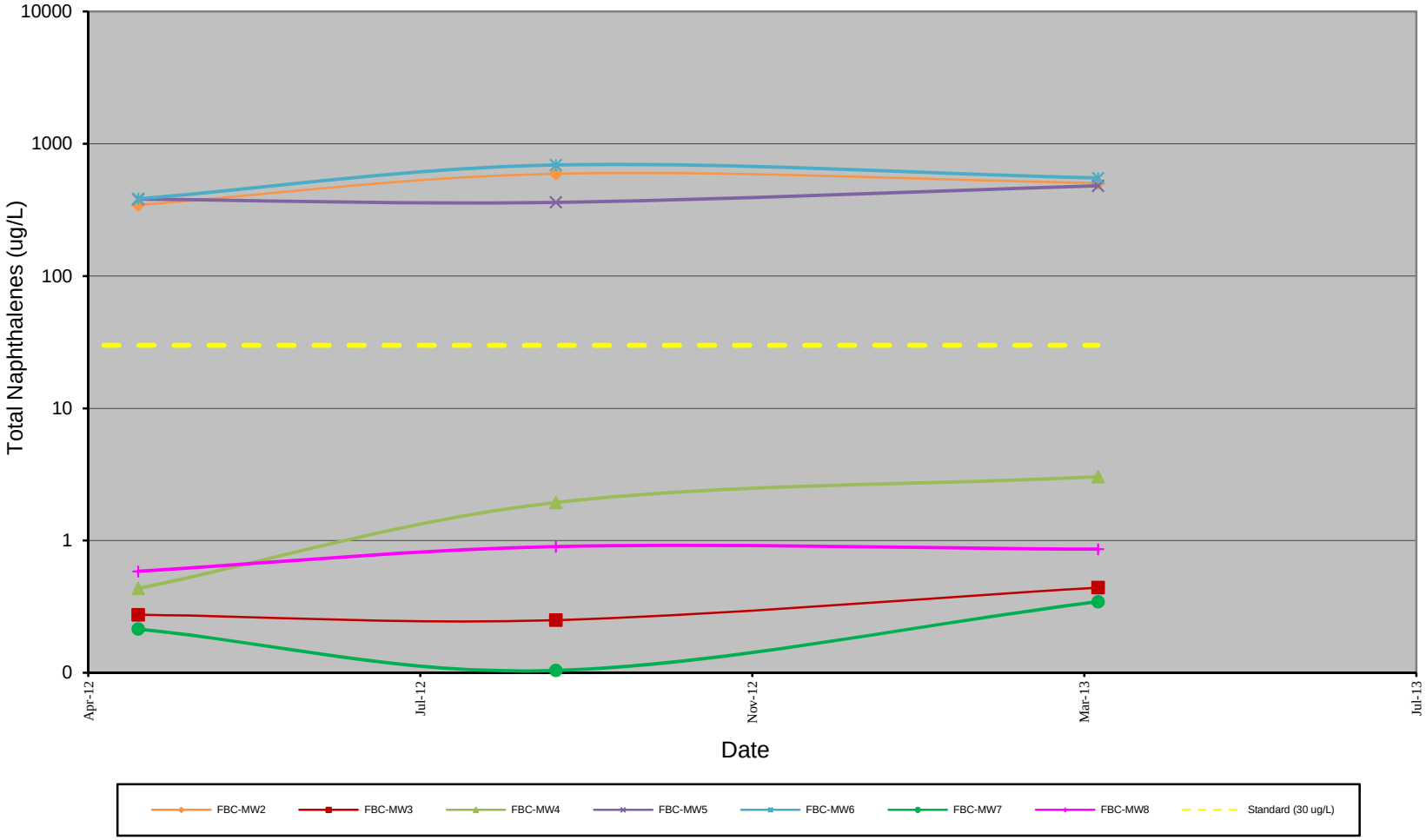
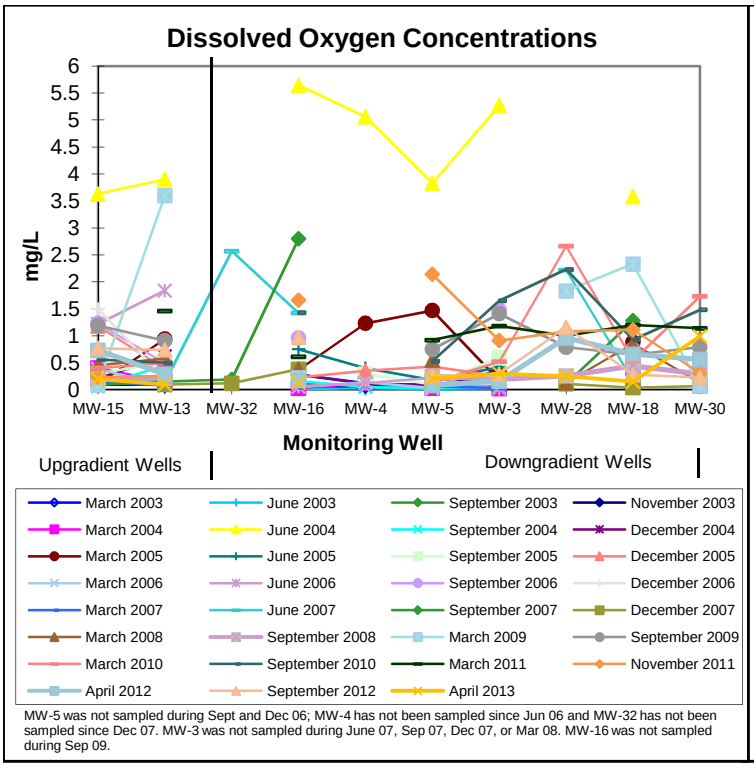
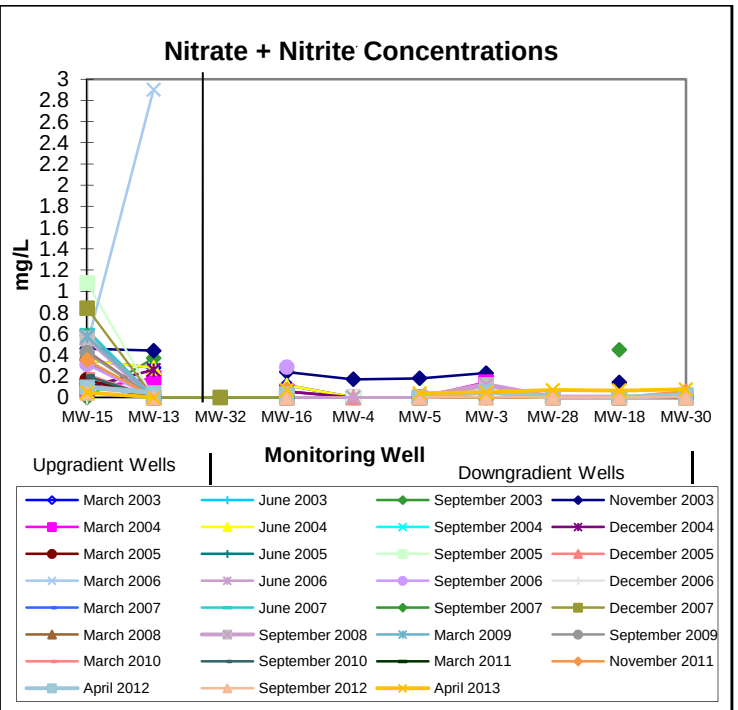


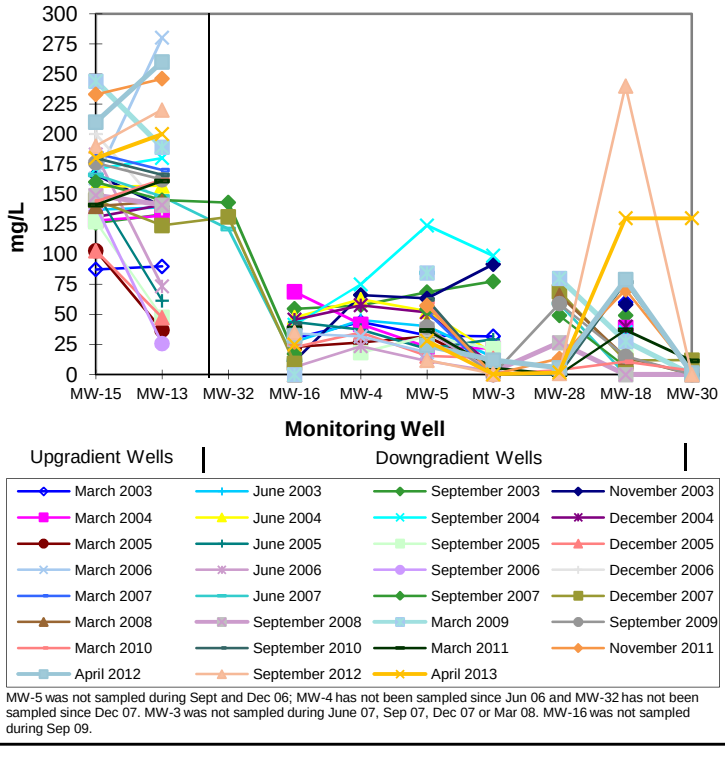
Figure 4-3. Graphs Summarizing Historical Natural Attenuation Parameters
BNSF Albuquerque Fueling Area
March 2003 - April 2013



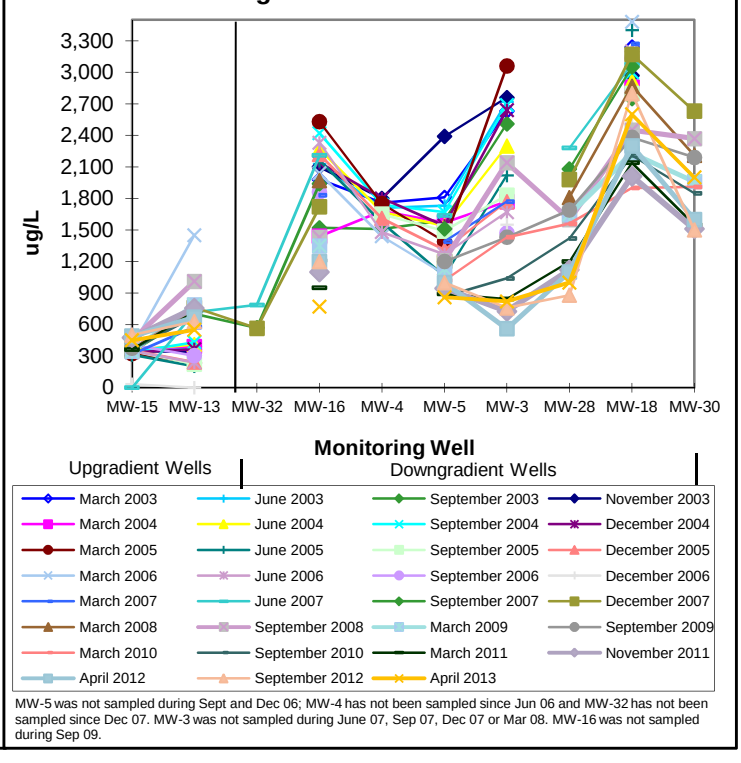
MW-5 was not sampled during Sept and Dec 06; MW-4 has not been sampled since Jun 06 and MW-32 has not been sampled since Dec 07. MW-3 was not sampled during June 07, Sep 07, Dec 07, or Mar 08. MW-16 was not sampled during Sep 09.



MW-5 was not sampled during Sept and Dec 06; MW-4 has not been sampled since Jun 06 and MW-32 has not been sampled since Dec 07. MW-3 was not sampled during June 07, Sep 07, Dec 07 or Mar 08. MW-16 was not sampled during Sep 09.

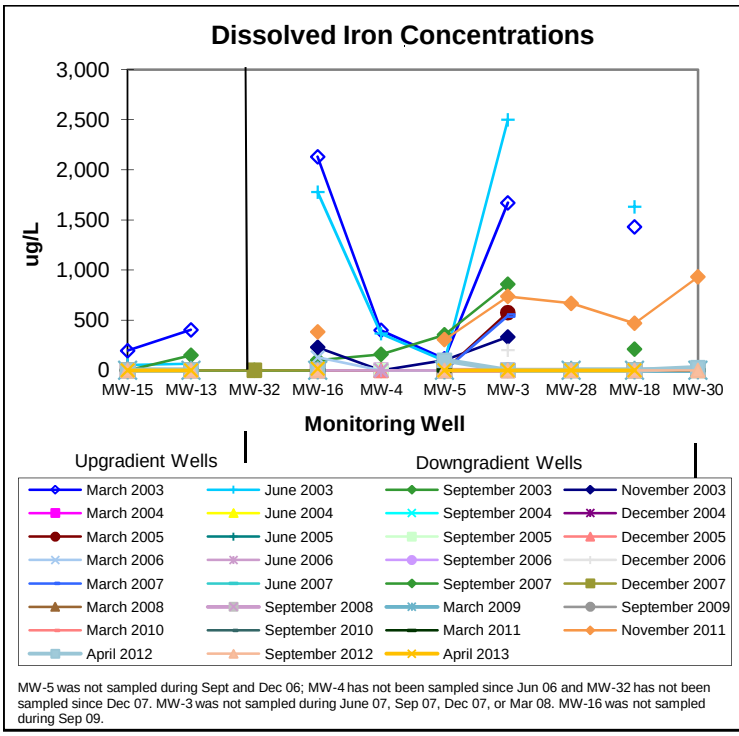


MW-5 was not sampled during Sept and Dec 06; MW-4 has not been sampled since Jun 06 and MW-32 has not been sampled since Dec 07. MW-3 was not sampled during June 07, Sep 07, Dec 07 or Mar 08. MW-16 was not sampled during Sep 09.

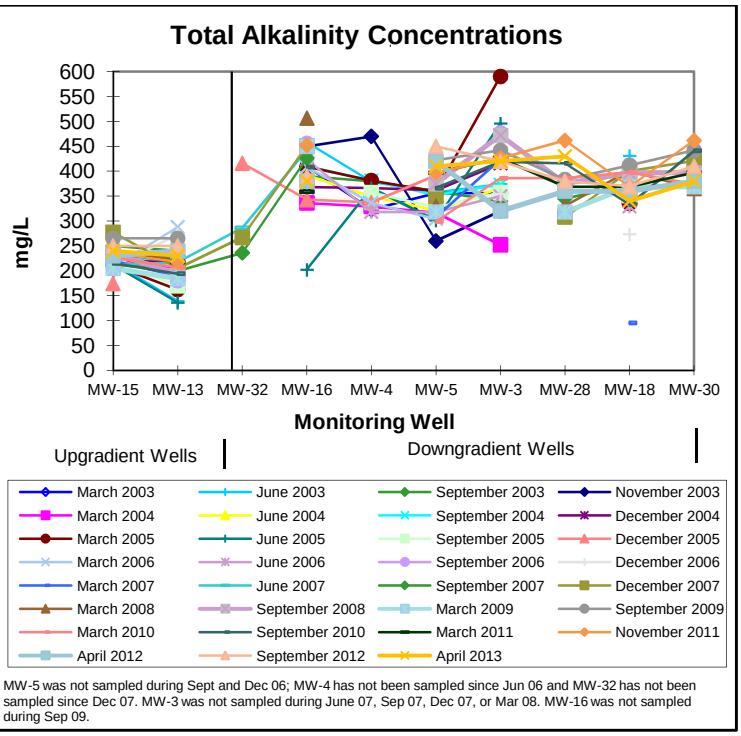


MW-5 was not sampled during Sept and Dec 06; MW-4 has not been sampled since Jun 06 and MW-32 has not been sampled since Dec 07. MW-3 was not sampled during June 07, Sep 07, Dec 07 or Mar 08. MW-16 was not sampled during Sep 09.

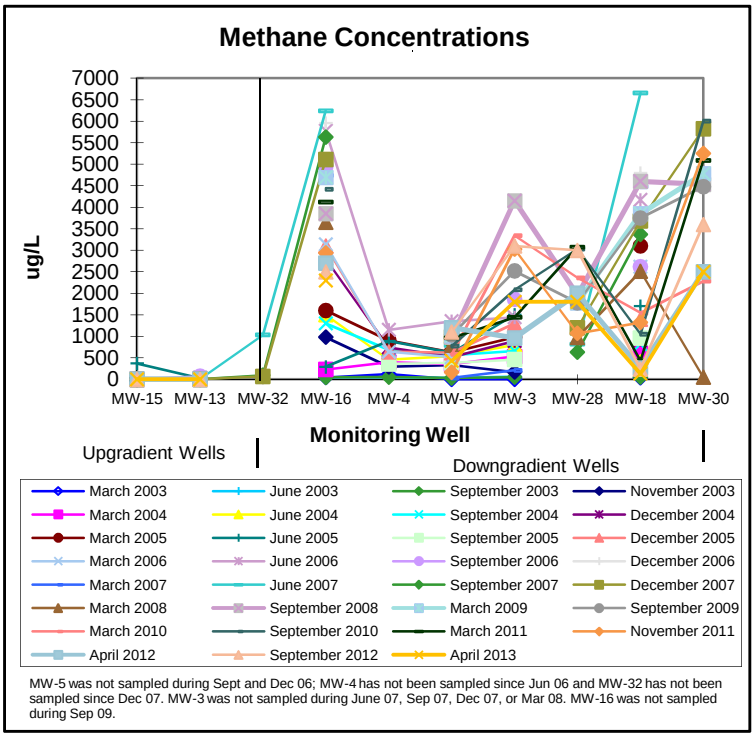
Figure 4-3. Graphs Summarizing Historical Natural Attenuation Parameters *(Continued)*
BNSF Albuquerque Fueling Area
March 2003 - April 2013



MW-5 was not sampled during Sept and Dec 06; MW-4 has not been sampled since Jun 06 and MW-32 has not been sampled since Dec 07. MW-3 was not sampled during June 07, Sep 07, Dec 07, or Mar 08. MW-16 was not sampled during Sep 09.



MW-5 was not sampled during Sept and Dec 06; MW-4 has not been sampled since Jun 06 and MW-32 has not been sampled since Dec 07. MW-3 was not sampled during June 07, Sep 07, Dec 07, or Mar 08. MW-16 was not sampled during Sep 09.



MW-5 was not sampled during Sept and Dec 06; MW-4 has not been sampled since Jun 06 and MW-32 has not been sampled since Dec 07. MW-3 was not sampled during June 07, Sep 07, Dec 07, or Mar 08. MW-16 was not sampled during Sep 09.

Tables

Table 3-1
Fluid Level Survey Results
BNSF Albuquerque Fueling Area
April 2013

Well I.D.	Top of Casing Elevation *(ft AMSL)*	Depth to LNAPL *(ft BTOC)*	Depth to Water *(ft BTOC)*	LNAPL Thickness *(ft)*	Groundwater Elevation* *(ft AMSL)*	Depth to Top of Screen *(ft BTOC)*
MW-1	4953.25	--	35.54	--	4917.71	39.30
MW-2	4953.92	35.77	35.77	Trace	4918.15	39.32
MW-3	4953.70	--	36.15	--	4917.55	39.50
MW-4	4952.94	--	NM	--	NM	39.57
MW-5	4952.94	--	34.77	--	4918.17	37.64
MW-6	4953.40	35.30	35.32	0.02	4918.10	39.30
MW-8	4953.84	36.90	36.93	0.03	4916.94	42.06
MW-9	4954.05	--	36.99	--	4917.06	41.80
MW-10	4953.66	36.16	36.17	0.01	4917.50	39.80
MW-11R	4952.64	--	35.27	--	4917.37	33.75
MW-12	4954.68	--	NM	--	NM	39.60
MW-13	4953.00	--	33.75	--	4919.25	37.25
MW-14	4959.97	--	42.74	--	4917.23	47.85
MW-15	4950.68	--	30.01	--	4920.67	28.55
MW-16	4956.02	--	37.41	--	4918.61	41.65
MW-17	4954.61	--	35.58	--	4919.03	39.00
MW-18	4960.58	--	44.16	--	4916.42	47.06
MW-19	4959.58	--	42.05	--	4917.53	46.76
MW-20	4960.25	--	42.82	--	4917.43	49.65
MW-21	4959.34	--	42.26	--	4917.08	47.67
MW-22	4958.96	--	42.12	--	4916.84	47.67
MW-22S**	4958.86	--	42.25	--	4916.61	32.12
MW-23	4955.98	--	38.95	--	4917.03	44.65
MW-24	4956.39	--	38.15	--	4918.24	37.75
MW-25	4953.57	--	35.71	--	4917.86	38.86
MW-26	4953.69	36.72	36.88	0.16	4916.95	41.49
MW-27	4963.72	--	47.12	--	4916.60	36.84
MW-28	4955.95	--	39.06	--	4916.89	38.86
MW-29	4954.32	37.28	37.28	Trace	4917.04	39.31
MW-30	4963.97	--	50.06	--	4913.91	48.26
MW-31	4966.39	--	51.35	--	4915.04	47.24
MW-32	4952.73	33.74	35.54	1.80	4918.74	36.11
MW-33	4951.88	--	31.91	--	4919.97	33.98
MW-34	4968.80	56.78	56.80	0.02	4912.02	58.76
MW-35	4974.61	63.39	63.39	Trace	4911.22	63.05
MW-36	4952.39	--	34.53	--	4917.86	34.71
MW-37	4966.99	--	56.47	--	4910.52	58.53
MW-38	4977.97	--	66.48	--	4911.49	66.68
MW-39	4983.55	--	75.80	--	4907.75	77.12
MW-40	4981.15	--	74.94	--	4906.21	76.91
MW-41	4992.00	--	86.57	--	4905.43	88.10
MW-42	4991.41	--	87.48	--	4903.93	87.24
MW-43**	4958.41	41.84	41.84	Trace	4916.57	31.63
MW-44**	4957.54	--	41.10	--	4916.44	31.17
BSW-1	4961.15	44.34	45.06	0.72	4916.71	***
BSW-2	4961.04	--	44.95	--	4916.09	***
BSW-3	4960.67	--	44.90	--	4915.77	***

* Elevation corrected for presence of LNAPL (specific gravity = 0.86). AMSL = Above mean sea level. NM = Not measured.
** Newly installed EBFF well. BTOC = Below top of casing. NI = Not installed.
***Well screen data not available for BSW property wells.

Table 3-2
Fluid Level Survey Results
First Baptist Church Wells
April 2013

Well I.D.	Top of Casing Elevation *(ft AMSL)*	Depth to LNAPL *(ft BTOC)*	Depth to Water *(ft BTOC)*	LNAPL Thickness *(ft)*	Groundwater Elevation* *(ft AMSL)*
FBC-MW1	4955.88	39.25	39.25	Trace	4916.63
FBC-MW2	4956.50	--	39.98	--	4916.52
FBC-MW3	4955.98	--	40.25	--	4915.73
FBC-MW4	4955.61	--	39.48	--	4916.13
FBC-MW5	4956.09	--	40.43	--	4915.66
FBC-MW6	4958.75	--	43.87	--	4914.88
FBC-MW7	4958.23	--	44.07	--	4914.16
FBC-MW8	4956.05	--	40.26	--	4915.79

* Elevation corrected for presence of LNAPL (specific gravity = 0.86).
AMSL = Above mean sea level.
BTOC = Below top of casing.

Table 3-3
Groundwater Analytical Data – Organic Compounds
BNSF Albuquerque Fueling Area
April 2013

BTEX by EPA Method 8021 *(µg/L)*	**MW-1**	**MW-3**	**MW-5**	**MW-9**	**MW-11R**	**MW-13**	**MW-15**	**MW-16**	**MW-17**	**MW-18**	**MW-19**	**MW-20**	**MW-21**	**MW-22**	**MW-22S**	**MW-23**	**NMED Standard**
Benzene	<0.5	**0.52** (0.5)	<0.5	<0.5	**0.34** (0.5) **J**	<0.5	<0.5	**0.26** (0.5) **J**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.61** (0.5)	<0.5	10[a]
Toluene	<5.0	**0.3** (5.0) **J**	<5.0	<5.0	**0.24** (5.0) **J**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	750[a]
Ethylbenzene	<0.5	<0.5	<0.5	<0.5	**0.36** (0.5) **J**	<0.5	<0.5	<0.5	**0.2** (0.5) **J**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	750[a]
Total Xylene	<1.5	**0.71** (1.5) **J**	<1.5	<1.5	**1.3** (1.5) **J**	<1.5	<1.5	<1.5	**0.53** (1.5) **J**	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	
Total BTEX	**--**	**1.53**	**--**	**--**	**2.24**	**--**	**--**	**0.26**	**0.73**	**--**	**--**	**--**	**--**	**--**	**0.61**	**--**	

PAH by EPA Method 8270 SIM *(µg/L)*	**MW-1**	**MW-3**	**MW-5**	**MW-9**	**MW-11R**	**MW-13**	**MW-15**	**MW-16**	**MW-17**	**MW-18**	**MW-19**	**MW-20**	**MW-21**	**MW-22**	**MW-22S**	**MW-23**	**NMED Standard**
Anthracene	**0.45** (0.05)	**0.15** (0.05)	**0.99** (0.5)	**0.12** (0.05)	**0.74** (0.05)	<0.05	<0.05	**0.95** (0.05)	**0.22** (0.05)	**0.2** (0.05)	**1.9** (0.05)	**8.8** (0.05)	**0.09** (0.05)	**0.29** (0.05)	**0.3** (0.05)	<0.05	NE
Acenaphthene	**18** (0.5)	**9.2** (0.5)	**32** (0.5)	**6.5** (0.5)	**14** (0.05)	**0.044** (0.5) **J**	<0.05	**20** (0.5)	**10** (0.5)	**3.7** (0.05)	**22** (0.5)	**51** (0.5)	**0.3** (0.05)	**4.9** (0.5)	**4.2** (0.05)	**0.0084** (0.05) **J**	NE
Acenaphthylene	**1.4** (0.05)	**0.59** (0.05)	**4.9** (0.5)	**0.38** (0.05)	**1.6** (0.05)	<0.05	<0.05	**2.6** (0.05)	**1.1** (0.05)	**0.3** (0.05)	**1.9** (0.05)	**0.84** (0.05)	<0.05	**0.23** (0.05)	**0.49** (0.05)	<0.05	NE
Benzo(a)anthracene	<0.05	**0.012** (0.05) **J**	<0.5	<0.05	<0.05	<0.05	<0.05	**0.013** (0.05) **J**	<0.05	**0.014** (0.05) **J**	**0.2** (0.05)	**0.22** (0.05)	<0.05	**0.014** (0.05) **J**	<0.05	<0.05	NE
Benzo(a)pyrene	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.053** (0.05)	**0.027** (0.05) **J**	<0.05	<0.05	<0.05	**0.013** (0.05) **J**	0.7[a]
Benzo(b)fluoranthene	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.1** (0.05)	**0.042** (0.05) **J**	<0.05	<0.05	<0.05	<0.05	NE
Benzo(g,h,i)perylene	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.015** (0.05) **J**	<0.05	<0.05	<0.05	<0.05	<0.05	NE
Benzo(k)fluoranthene	<0.05	**0.033** (0.05) **J**	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.029** (0.05) **J**	**0.015** (0.05) **J**	<0.05	<0.05	<0.05	<0.05	NE
Chrysene	<0.05	**0.014** (0.05) **J**	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.14** (0.05)	**0.16** (0.05)	<0.05	<0.05	<0.05	<0.05	NE
Dibenz(a,h)anthracene	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.0049** (0.05) **J**	<0.05	<0.05	<0.05	<0.05	<0.05	NE
Fluoranthene	**0.051** (0.05)	**0.083** (0.05)	<0.5	<0.05	**0.019** (0.05) **J**	**0.03** (0.05) **J**	<0.05	**0.25** (0.05)	<0.05	**0.05** (0.05) **J**	**1.5** (0.05)	**7.3** (0.05)	**0.047** (0.05) **J**	**0.083** (0.05)	**0.053** (0.05)	<0.05	NE
Fluorene	**7.2** (0.05)	**5** (0.05)	**13** (0.5)	**0.89** (0.05)	**10** (0.05)	<0.05	<0.05	**11** (0.5)	**1.5** (0.05)	**0.7** (0.05)	**10** (0.5)	**5.5** (0.05)	**0.14** (0.05)	**0.5** (0.05)	**2.7** (0.05)	<0.05	NE
Indeno(1,2,3-c,d)pyrene	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.015** (0.05) **J**	<0.05	<0.05	<0.05	<0.05	<0.05	NE
1-Methylnaphthalene	**2.1** (0.25)	**210** (5.0)	**1.9** (2.5) **J**	**1.9** (0.25)	**160** (5.0)	**0.014** (0.25) **J**	**0.019** (0.25) **J**	**17** (0.25)	**0.54** (0.25)	**5** (0.25)	**0.25** (0.25) **J**	**0.28** (0.25)	**0.034** (0.25) **J**	**0.2** (0.25) **J**	**15** (0.25)	**0.027** (0.25) **J**	
2-Methylnaphthalene	**0.16** (0.25) **J**	**220** (5.0)	**0.22** (2.5) **J**	**0.58** (0.25)	**140** (5.0)	**0.014** (0.25) **J**	**0.024** (0.25) **J**	**10** (0.25)	**0.065** (0.25) **J**	**1.9** (0.25)	**0.058** (0.25) **J**	**0.069** (0.25) **J**	**0.012** (0.25) **J**	**0.029** (0.25) **J**	**6.8** (0.25) **J**	**0.017** (0.25) **J**	30[a]
Naphthalene	**0.93** (0.25)	**69** (0.25)	**1.5** (2.5) **J**	**3** (0.25)	**150** (5.0)	**0.045** (0.25) **J**	**0.058** (0.25) **J**	**15** (0.25)	**0.55** (0.25)	**2.2** (0.25)	**0.4** (0.25)	**0.38** (0.25)	**0.064** (0.25) **J**	**0.19** (0.25) **J**	**0.35** (0.25)	**0.029** (0.25) **J**	
2-Chloronaphthalene	<0.25	<0.25	<2.5	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	NE
Phenanthrene	**0.11** (0.05)	**0.57** (0.05)	<0.5	**0.083** (0.05)	**5.9** (0.05)	**0.021** (0.05) **J**	<0.05	**2.7** (0.05)	**0.044** (0.05) **J**	**0.38** (0.05)	**0.16** (0.05)	**0.087** (0.05)	<0.05	**0.038** (0.05) **J**	**1.3** (0.05)	<0.05	NE
Pyrene	**0.11** (0.05)	**0.15** (0.05)	**0.2** (0.5) **J**	**0.22** (0.05)	<0.05	**0.16** (0.05)	<0.05	**0.17** (0.05)	**0.019** (0.05) **J**	**0.15** (0.05)	**1.1** (0.05)	**3.9** (0.05)	**0.084** (0.05)	**0.25** (0.05)	**0.24** (0.05)	<0.05	NE
Total PAH	**30.511**	**514.802**	**54.71**	**13.673**	**482.259**	**0.328**	**0.101**	**79.683**	**14.038**	**14.594**	**39.8249**	**78.62**	**0.771**	**6.724**	**31.433**	**0.0944**	

Bolded values indicate detections; bolded and shaded values indicate exceedance of NMED standard.
NE = Standard or screening level not established.
<0.5 = Analyte not detected at reporting limit of 0.5.
(0.05) = Reporting Limit *(µg/L)*.
[a] New Mexico Water Quality Control Commission Standard 3103.A.

Table 3-3 *(continued)*
Groundwater Analytical Data – Organic Compounds
BNSF Albuquerque Fueling Area
April 2013

BTEX by EPA Method 8021 *(µg/L)*	**MW-24**	**MW-25**	**MW-27**	**MW-28**	**MW-30**	**MW-31**	**MW-33**	**MW-36**	**MW-37**	**MW-38**	**MW-39**	**MW-40**	**MW-41**	**MW-42**	**MW-44**	**NMED Standard**
Benzene	<0.5	<0.5	<0.5	**10** (0.5)	**4.6** (0.5)	<0.5	<0.5	<0.5	**0.91** (0.5)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	10[a]
Toluene	<5.0	<5.0	<5.0	**0.55** (5.0) **J**	**0.29** (5.0) **J**	<5.0	<5.0	<5.0	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	750[a]
Ethylbenzene	<0.5	<0.5	<0.5	**0.88** (0.5)	**0.41** (0.5) **J**	<0.5	<0.5	<0.5	**0.41** (0.5) **J**	<0.5	<0.5	<0.5	<0.5	<0.5	**0.18** (0.5) **J**	750[a]
Total Xylene	<1.5	<1.5	<1.5	**2.7** (1.5)	**1.9** (1.5)	<1.5	<1.5	<1.5	**1.3** (1.5) **J**	<1.5	**0.66** (1.5) **J**	<1.5	<1.5	<1.5	**0.54** (1.5) **J**	620[a]
Total BTEX	**--**	**--**	**--**	**14.13**	**7.2**	**--**	**--**	**--**	**2.62**	**--**	**0.66**	**--**	**--**	**--**	**0.72**	

PAH by EPA Method 8270 SIM *(µg/L)*	**MW-24**	**MW-25**	**MW-27**	**MW-28**	**MW-30**	**MW-31**	**MW-33**	**MW-36**	**MW-37**	**MW-38**	**MW-39**	**MW-40**	**MW-41**	**MW-42**	**MW-44**	**NMED Standard**
Anthracene	**0.0086** (0.05) **J**	<0.05	**0.0086** (0.05) **J**	**3.2** (0.25)	**0.48** (0.05)	<0.05	**0.51** (0.05)	**1** (0.05)	**1** (0.05)	**0.033** (0.05) **J**	**0.64** (0.05)	**0.35** (0.05)	<0.05	**0.0088** (0.05) **J**	**1.2** (0.05)	NE
Acenaphthene	**0.21** (0.05)	<0.05	**1.6** (0.5)	**26** (0.25)	**8.8** (0.05)	**0.015** (0.05) **J**	**4.7** (0.05)	**5.8** (0.5)	**26** (0.05)	**0.54** (0.05)	**32** (0.5)	**9.8** (0.5)	<0.05	**0.34** (0.05)	**6.3** (0.5)	NE
Acenaphthylene	**0.021** (0.05) **J**	<0.05	**0.11** (0.05)	**3.8** (0.25)	**0.83** (0.05)	<0.05	**0.58** (0.05)	**0.93** (0.05)	**2.8** (0.05)	**0.04** (0.05) **J**	**4.1** (0.5)	**1.1** (0.05)	<0.05	**0.034** (0.05) **J**	**1.1** (0.05)	NE
Benzo(a)anthracene	<0.05	<0.05	<0.05	**0.14** (0.25) **J**	**0.014** (0.05) **J**	<0.05	**0.057** (0.05)	<0.05	<0.05	<0.05	**0.016** (0.05) **J**	<0.05	<0.05	<0.05	**0.015** (0.05) **J**	NE
Benzo(a)pyrene	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	**0.013** (0.05) **J**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.7[a]
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	**0.023** (0.05) **J**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NE
Benzo(g,h,i)perylene	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NE
Benzo(k)fluoranthene	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NE
Chrysene	<0.05	<0.05	<0.05	**0.099** (0.25) **J**	<0.05	<0.05	**0.03** (0.05) **J**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.013** (0.05) **J**	NE
Dibenz(a,h)anthracene	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NE
Fluoranthene	<0.05	<0.05	<0.05	**0.79** (0.25)	**0.055** (0.05)	<0.05	**0.44** (0.05)	**0.091** (0.05) **J**	**0.045** (0.05) **J**	<0.05	**0.084** (0.05)	**0.042** (0.05) **J**	<0.05	<0.05	**0.12** (0.05)	NE
Fluorene	**0.048** (0.05) **J**	<0.05	**0.031** (0.05) **J**	**29** (0.25)	**5.6** (0.05)	**0.014** (0.05) **J**	**1.4** (0.05)	**4.8** (0.05)	**22** (0.05)	**0.31** (0.05)	**23** (0.5)	**5.7** (0.05)	<0.05	**0.1** (0.05)	**7.3** (0.05)	NE
Indeno(1,2,3-c,d)pyrene	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NE
1-Methylnaphthalene	**0.18** (0.25) **J**	<0.25	**0.15** (0.25) **J**	**480** (1.25)	**100** (2.5)	**0.051** (0.25) **J**	**2.7** (0.25)	**34** (0.25)	**350** (5.0)	**6.1** (0.25)	**200** (2.5)	**72** (0.25)	<0.25	**0.075** (0.25) **J**	**97** (0.25)	
2-Methylnaphthalene	**0.12** (0.25) **J**	<0.25	<0.25	**440** (2.5)	**48** (0.25)	**0.037** (0.25) **J**	**1.5** (0.25)	**13** (0.25)	**97** (0.25)	**0.27** (0.25)	**47** (2.5)	**80** (0.25)	<0.25	<0.25	**43** (0.25)	30[a]
Naphthalene	**0.072** (0.25) **J**	**0.026** (0.25) **J**	**0.11** (0.25) **J**	**340** (1.25)	**150** (2.5)	**0.035** (0.25) **J**	**1** (0.25)	**13** (0.25)	**220** (5.0)	**0.22** (0.25) **J**	**32** (2.5)	**1.6** (0.25)	**0.029** (0.25) **J**	**0.18** (0.25) **J**	**18** (0.25)	
2-Chloronaphthalene	<0.25	<0.25	<0.25	<1.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	**0.65** (2.5) **J**	<0.25	<0.25	<0.25	<0.25	NE
Phenanthrene	**0.017** (0.05) **J**	<0.05	**0.0097** (0.05) **J**	**39** (0.25)	**2.6** (0.05)	**0.015** (0.05) **J**	**0.52** (0.05)	**2.8** (0.05)	**18** (0.05)	**0.061** (0.05)	**17** (0.5)	**5.6** (0.05)	<0.05	**0.0082** (0.05) **J**	**5.9** (0.05)	NE
Pyrene	**0.025** (0.05) **J**	**0.05** (0.05) **J**	<0.05	**1.4** (0.25)	**0.075** (0.05)	<0.05	**0.42** (0.05)	**0.26** (0.05)	**0.057** (0.05)	<0.05	**0.1** (0.05)	**0.066** (0.05)	<0.05	**0.02** (0.05) **J**	**0.29** (0.05)	NE
Total PAH	**0.7016**	**0.076**	**2.0193**	**1,363.429**	**316.454**	**0.167**	**13.893**	**75.681**	**736.902**	**7.574**	**356.59**	**176.258**	**0.029**	**0.766**	**180.238**	

Bolded values indicate detections; bolded and shaded values indicate exceedance of NMED standard.
NE = Standard or screening level not established.
<0.5 = Analyte not detected at reporting limit of 0.5.
(0.05) = Reporting Limit *(µg/L)*.
[a] New Mexico Water Quality Control Commission Standard 3103.A.

Table 3-4
Groundwater Analytical Data – Organic Compounds
First Baptist Church Wells
April 2013

BTEX by EPA Method 8021 *(µg/L)*	**FBC-MW2**	**FBC-MW3**	**FBC-MW4**	**FBC-MW5**	**FBC-MW6**	**FBC-MW7**	**FBC-MW8**	**NMED Standard**
Benzene	**0.55** (0.5)	<0.5	<0.5	**2** (0.5)	<0.5	<0.5	**0.26** (0.5) **J**	10[a]
Toluene	**0.47** (5.0) **J**	<5.0	<5.0	<5.0	<5.0	<5.0	**0.22** (5.0) **J**	750[a]
Ethylbenzene	**0.22** (0.5) **J**	<0.5	<0.5	<0.5	**0.77** (0.5)	<0.5	<0.5	750[a]
Total Xylene	**1.1** (1.5) **J**	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	620[a]
Total BTEX	**2.34**	**--**	**--**	**2.0**	**0.77**	**--**	**0.48**	

PAH by EPA Method 8270 SIM *(µg/L)*	**FBC-MW2**	**FBC-MW3**	**FBC-MW4**	**FBC-MW5**	**FBC-MW6**	**FBC-MW7**	**FBC-MW8**	**NMED Standard**
Anthracene	**1.3** (0.05)	**0.32** (0.05)	**1.5** (0.25)	**0.84** (0.05)	**3.5** (0.05)	<0.05	**1.5** (0.25)	NE
Acenaphthene	**9.4** (0.05)	**1.6** (0.5)	**7.4** (0.25)	**7.3** (0.5)	**20** (1.0)	**0.019** (0.5) **J**	**13** (0.25)	NE
Acenaphthylene	**1.6** (0.05)	<0.05	**1.5** (0.25)	**1.3** (0.05)	**2.7** (0.05)	<0.05	**2.7** (0.25)	NE
Benzo(a)anthracene	**0.03** (0.05) **J**	**0.023** (0.05) **J**	**0.065** (0.25) **J**	**0.018** (0.05) **J**	**0.13** (0.05)	<0.05	<0.25	NE
Benzo(a)pyrene	<0.05	**0.018** (0.05) **J**	**0.09** (0.25) **J**	<0.05	**0.029** (0.05) **J**	<0.05	<0.25	0.7[a]
Benzo(b)fluoranthene	<0.05	**0.035** (0.05)	**0.19** (0.25) **J**	<0.05	**0.038** (0.05) **J**	<0.05	<0.25	NE
Benzo(g,h,i)perylene	<0.05	**0.021** (0.05) **J**	**0.21** (0.25) **J**	<0.05	**0.019** (0.05) **J**	<0.05	<0.25	NE
Benzo(k)fluoranthene	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05	<0.25	NE
Chrysene	**0.024** (0.05) **J**	**0.021** (0.05) **J**	**0.068** (0.25) **J**	**0.019** (0.05) **J**	**0.099** (0.05)	<0.05	<0.25	NE
Dibenz(a,h)anthracene	<0.05	**0.0041** (0.05) **J**	**0.03** (0.25) **J**	<0.05	<0.05	<0.05	<0.25	NE
Fluoranthene	**0.22** (0.05)	<0.05	**0.16** (0.25) **J**	**0.14** (0.05)	**1.1** (0.05)	<0.05	<0.25	NE
Fluorene	**12** (0.05)	**0.017** (0.05) **J**	**1.5** (0.25)	**9.9** (0.05)	**33** (1.0)	**0.018** (0.05) **J**	**12** (0.25)	NE
Indeno(1,2,3-c,d)pyrene	<0.05	<0.05	**0.14** (0.25) **J**	<0.05	<0.05	<0.05	<0.25	NE
1-Methylnaphthalene	**260** (5.0)	**0.13** (0.25) **J**	**1.5** (1.25)	**230** (5.0)	**310** (5.0)	**0.12** (0.25) **J**	**0.48** (1.25) **J**	
2-Methylnaphthalene	**240** (5.0)	**0.13** (0.25) **J**	**0.76** (1.25) **J**	**250** (5.0)	**240** (5.0)	**0.13** (0.25) **J**	**<**1.25	30[a]
Naphthalene	**5** (0.25)	**0.18** (0.25)	**0.78** (1.25) **J**	**0.59** (0.25)	**1.3** (0.25)	**0.095** (0.25) **J**	**0.38** (1.25) **J**	
2-Chloronaphthalene	<0.25	<0.25	<1.25	<0.25	<0.25	<0.25	<1.25	NE
Phenanthrene	**13** (0.05)	<0.05	<0.25	**15** (1.0)	**58** (1.0)	**0.03** (0.1) **J**	**0.047** (0.25) **J**	NE
Pyrene	**0.44** (0.05)	**0.33** (0.05)	**0.22** (0.25) **J**	**0.26** (0.05)	**2.3** (0.05)	<0.05	**0.2** (0.25) **J**	NE
Total PAH	**543.014**	**2.8291**	**16.113**	**515.367**	**672.215**	**0.412**	**30.307**	

Bolded values indicate detections; bolded and shaded values indicate exceedance of NMED standard.
NE = Standard or screening level not established.
<0.5 = Analyte not detected at reporting limit of 0.5.
(0.05) = Reporting Limit *(µg/L)*.
[a] New Mexico Water Quality Control Commission Standard 3103.A.

Table 3-5
Groundwater Analytical Results – Metals and Natural Attenuation Parameters
BNSF Albuquerque Fueling Area
April 2013

	Dissolved Metals by EPA Method 6010 *(µg/L)*			Natural Attenuation Parameters			
				Method 353.2 *(mg/L)*	Method 9056 *(mg/L)*	Method SM2320B *(mg/L)*	Method RSK 175 *(µg/L)*
Well I.D.	**Barium**	**Iron**	**Manganese**	**Nitrate-Nitrite (as N)**	**Sulfate**	**Total Alkalinity**	**Methane**
MW-1	300	ND	940	0.049 (J)	52 (50.0)	330 (20.0)	510 (10.0)
MW-3	530	ND	820	0.048 (J)	0.21 (5.0) (J)	420 (100.0)	1,800 (50.0)
MW-5	350	100	860	0.039 (J)	28 (5.0)	410 (100.0)	430 (10.0)
MW-9	250	ND	1,300	0.047 (J)	59 (50.0)	310 (20.0)	300 (20.0)
MW-11R	360	39 (J)	1,000	0.13	34 (5.0)	400 (20.0)	200 (10.0)
MW-13	150	ND	550	ND	200 (25.0)	230 (20.0)	ND (10.0)
MW-15	58	ND	450	0.047 (J)	180 (25.0)	240 (20.0)	ND (10.0)
MW-16	280	15 (J)	770	0.068 (J)	25 (5.0)	380 (100.0	2,300 (50.0)
MW-17	350	ND	640	0.08 (J)	73 (50.0)	430 (100.0)	430 (10.0)
MW-18	460	ND	2,600	0.065 (J)	130 (50.0)	340 (20.0)	130 (10.0)
MW-19	280	16 (J)	780	0.046 (J)	180 (10.0)	280 (20.0)	110 (10.0)
MW-20	280	ND	640	ND	110 (10.0)	320 (20.0)	580 (10.0)
MW-21	58	ND	1,400	0.086 (0.2) (J)	240 (25.0)	210 (20.0)	ND (10.0)
MW-22	270	ND	880	0.056 (J)	54 (50.0)	360 (20.0)	360 (10.0)
MW-22S	200	ND	920	ND	100 (50.0)	340 (20.0)	180 (10.0)
MW-23	48	21 (J)	650	2.6	210 (50.0)	240 (20.0)	ND (10.0)
MW-24	72	19 (J)	670	0.036 (J)	170 (50.0)	210 (20.0)	62 (10.0)
MW-25	37	ND	380	0.033 (J)	200 (100.0)	190 (20.0)	ND (10.0)
MW-27	40	ND	40	0.69	130 (50.0)	360 (20.0)	ND (10.0)
MW-28	440	ND	1,000	0.07 (J)	1.7 (5.0) (J)	430 (100.0)	1,800 (100.0)
MW-30	570	64 (J)	2,000	0.075 (J)	13 (5.0)	380 (100.0)	2,500 (50.0)
MW-31	41	ND	1,600	0.054 (J)	760 (50.0)	350 (20.0)	ND (10.0)
MW-33	190	ND	390	0.082 (J)	170 (50.0)	270 (20.0)	61 (10.0)
MW-36	240	48	1,600	ND	100 (50.0)	300 (20.0)	1,500 (40.0)
MW-37	720	ND	1,300	0.14	ND (5.0)	420 (100.0)	4,600 (100.0)
MW-38	120	46 (J)	1,700	0.14	180 (10.0)	490 (200.0)	62 (10.0)
MW-39	460	ND	980	0.05 (J)	0.23 (5.0) (J)	380 (20.0)	1,300 (20.0)
MW-40	360	19 (J)	1,500	0.048 (J)	4.6 (5.0) (J)	340 (20.0)	2,400 (40.0)
MW-41	40	ND	73	0.98	320 (100.0)	260 (20.0)	ND (10.0)
MW-42	280	ND	1,100	0.035 (J)	12 (5.0)	360 (20.0)	240 (10.0)
MW-44	380	17 (J)	1,100	0.059 (J)	120 (50.0)	380 (20.0)	79 (10.0)
Reporting Limit	5	100	10	0.1	--	--	--
NMED Standard	1,000	1,000	200	10	600	NE	NE

Shaded values indicate exceedance of NMED standard.

ND = Analyte Not Detected.

NE = Standard or screening level not established.

(5.0) = Reporting Limit.

Table 3-6
Groundwater Analytical Results – Metals and Natural Attenuation Parameters
First Baptist Church Wells
April 2013

	Dissolved Metals by EPA Method 6010 *(µg/L)*			Natural Attenuation Parameters			
				Method 353.2 *(mg/L)*	Method 9056 *(mg/L)*	Method SM2320B *(mg/L)*	Method RSK 175 *(µg/L)*
Well I.D.	**Barium**	**Iron**	**Manganese**	**Nitrate-Nitrite (as N)**	**Sulfate**	**Total Alkalinity**	**Methane**
FBC-MW2	720	84 (J)	1,200	0.082 (J)	ND (5.0)	520 (200.0)	570 (10.0)
FBC-MW3	120	59 (J)	950	ND	210 (25.0)	270 (20.0)	37 (10.0)
FBC-MW4	300	ND	960	0.038 (J)	110 (10.0)	330 (20.0)	220 (10.0)
FBC-MW5	720	340	940	0.3	ND (5.0)	610 (100.0)	2,700 (50.0)
FBC-MW6	700	ND	950	0.065 (J)	23 (5.0)	460 (100.0)	1,300 (50.0)
FBC-MW7	35	ND	500	0.028 (J)	300 (25.0)	260 (20.0)	ND (10.0)
FBC-MW8	370	14 (J)	640	0.038 (J)	89 (5.0)	340 (20.0)	84 (10.0)
Reporting Limit	5	100	10	0.1	--	--	--
NMED Standard	1,000	1,000	200	10	600	NE	NE

Shaded values indicate exceedance of NMED standard.

ND = Analyte Not Detected.

NE = Standard or screening level not established.

(5.0) = Reporting Limit.

FBC-MW1 contained trace LNAPL and therefore was not sampled.

Table 3-7
Field Water Quality Measurements
BNSF Albuquerque Fueling Area
April 2013

Well I.D.	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	Oxidation Reduction Potential (mv)	Dissolved Oxygen (mg/L)
MW-1	21.40	7.41	859	-340.5	0.10
MW-3	21.59	7.42	1,034	-219.9	0.30
MW-5	21.66	7.58	1,053	-327.4	0.21
MW-9	22.42	7.54	831	-121.8	0.20
MW-11R	21.39	7.17	937	-205.2	0.15
MW-13	21.63	7.21	1,054	-107.7	0.10
MW-15	20.44	7.27	967	-99.5	0.20
MW-16	21.09	7.23	934	-212.9	0.13
MW-17	20.63	7.32	1,178	-170.0	0.29
MW-18	21.41	7.36	1,076	-151.8	0.15
MW-19	21.21	7.38	999	-317.7	0.13
MW-20	20.18	7.47	940	-308.7	0.19
MW-21	21.26	7.21	968	-208.3	0.13
MW-22	20.66	7.54	881	-160.9	0.40
MW-22S	21.34	7.53	949	-204.1	1.11
MW-23	21.58	7.11	1,061	-26.8	0.15
MW-24	20.80	7.31	852	-125.3	0.17
MW-25	20.11	7.25	955	-87.1	2.15
MW-27	20.56	7.05	1,129	34.1	3.04
MW-28	21.61	7.15	896	-149.7	0.25
MW-30	22.31	6.89	1,067	-194.8	0.99
MW-31	22.22	7.01	3,536	-113.0	0.11
MW-33	22.47	7.27	948	-148.7	0.16
MW-36	20.91	7.10	940	-163.0	0.07
MW-37	22.13	7.17	1,010	-181.2	0.15
MW-38*	20.54	6.96	1,133	NM	NM
MW-39	21.87	7.24	1,000	-171.0	0.12
MW-40	21.90	7.18	904	-123.1	0.07
MW-41	22.34	6.93	1,514	29.3	4.17
MW-42	22.48	7.05	983	-80.8	0.07
MW-44	22.11	7.11	1,032	-159.6	0.58

Notes:

* This well was sampled with a disposable bailer rather than a submersible pump; therefore, dissolved oxygen and ORP measurements were not recorded.

Table 3-8
Field Water Quality Measurements
First Baptist Church Wells
April 2013

Well I.D.	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	Oxidation Reduction Potential (mv)	Dissolved Oxygen (mg/L)
FBC-MW2	22.55	6.86	1,051	-178.1	1.46
FBC-MW3	21.96	7.21	1,010	-148.6	0.18
FBC-MW4	22.43	7.35	941	-287.4	0.14
FBC-MW5	22.01	6.92	974	-134.8	2.80
FBC-MW6	21.37	7.08	990	-145.5	0.71
FBC-MW7	22.18	7.02	1,174	-29.2	0.20
FBC-MW8	21.77	7.55	928	-340.6	0.08

Note:
FBC-MW1 contained trace LNAPL and therefore was not sampled.

Table 3-9
Groundwater QA/QC Results
BNSF Albuquerque Fueling Area
April 2013

Chemical Analyte	MW-30	MW-30 DUP	MW-40	MW-40 DUP	FBC-MW2	FBC-MW2 DUP	Equipment Blank	Trip Blanks 1 - 5
BTEX by EPA Method 8021 *(µg/L)*								
Benzene	**4.6** (0.5)	**2.7** (0.5)	ND (0.5)	ND (0.5)	**0.55** (0.5)	**0.34** (0.5) **J**	ND (0.5)	ND (0.5)
Toluene	**0.29** (5.0) **J**	**0.3** (5.0) **J**	ND (5.0)	ND (5.0)	**0.47** (5.0) **J**	ND (5.0)	ND (5.0)	ND (5.0)
Ethylbenzene	**0.41** (0.5) **J**	**0.21** (0.5) **J**	ND (0.5)	**0.33** (0.5) **J**	**0.22** (0.5) **J**	**0.18** (0.5) **J**	ND (0.5)	ND (0.5)
Total Xylene	**1.9** (1.5)	**1.1** (1.5) **J**	ND (1.5)	**0.62** (1.5) **J**	**1.1** (1.5) **J**	**1.1** (1.5) **J**	ND (1.5)	ND (1.5)
Total BTEX	**7.2**	**4.31**	**--**	**0.95**	**2.34**	**1.62**	**--**	**--**
PAH by EPA Method 8270 SIM *(µg/L)*								
Anthracene	**0.48** (0.05)	**0.19** (0.05)	**0.35** (0.05)	**0.37** (0.05)	**1.3** (0.05)	**1.4** (0.05)	**0.011** (0.05) **J**	NA
Acenaphthene	**8.8** (0.05)	**4.8** (1.0)	**9.8** (0.5)	**13** (0.5)	**9.4** (0.05)	**9.9** (0.5)	**0.026** (0.5) **J**	NA
Acenaphthylene	**0.83** (0.05)	**0.4** (0.05)	**1.1** (0.05)	**1.2** (0.05)	**1.6** (0.05)	**1.6** (0.05)	ND (0.05)	NA
Benzo(a)anthracene	**0.014** (0.05) **J**	ND (0.05)	ND (0.05)	ND (0.05)	**0.03** (0.05) **J**	**0.031** (0.05) **J**	ND (0.05)	NA
Benzo(a)pyrene	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA
Benzo(b)fluoranthene	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA
Benzo(g,h,i)perylene	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA
Benzo(k)fluoranthene	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA
Chrysene	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	**0.024** (0.05) **J**	**0.028**(0.05) **J**	ND (0.05)	NA
Dibenz(a,h)anthracene	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA
Fluoranthene	**0.055** (0.05)	**0.024** (0.05) **J**	**0.042** (0.05) **J**	**0.051** (0.05)	**0.22** (0.05)	**0.25** (0.05)	ND (0.05)	NA
Fluorene	**5.6** (0.05)	**2.9** (0.05)	**5.7** (0.05)	**5.9** (0.05)	**12** (0.05)	**13** (0.05)	**0.037** (0.05) **J**	NA
Indeno(1,2,3-c,d)pyrene	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA
1-Methylnaphthalene	**100** (2.5)	**76** (2.5)	**72** (0.25)	**71** (0.25)	**260** (5.0)	**280** (5.0)	**0.19** (0.25) **J**	NA
2-Methylnaphthalene	**48** (0.25)	**30** (0.25)	**80** (0.25)	**78** (0.25)	**240** (5.0)	**270** (5.0)	**0.17** (0.25) **J**	NA
Naphthalene	**150** (2.5)	**120** (2.5)	**1.6** (0.25)	**1.7** (0.25)	**5** (0.25)	**5.2** (0.25)	**0.056** (0.25) **J**	NA
2-Chloronaphthalene	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	NA
Phenanthrene	**2.6** (0.05)	**1.6** (0.05)	**5.6** (0.05)	**5.8** (0.05)	**13** (0.05)	**14** (1.0)	**0.11** (0.05)	NA
Pyrene	**0.075** (0.05)	**0.035** (0.05) **J**	**0.066** (0.05)	**0.13** (0.05)	**0.44** (0.05)	**0.48** (0.05)	ND (0.05)	NA
Total PAH	**316.454**	**235.949**	**176.258**	**177.151**	**543.014**	**595.889**	**0.6**	
Dissolved Metals by EPA Method 6010 *(µg/L)*								
Barium	**570** (5)	**620** (5)	**360** (5)	**360** (5)	**720** (5)	**720** (5)	**13** (5)	NA
Iron	**64** (100) **J**	**70** (100) **J**	**19** (100) **J**	ND (100)	**84** (100) **J**	**190** (100)	ND (100)	NA
Manganese	**2,000** (10.0)	**2,100** (10.0)	**1,500** (10.0)	**1,600** (10.0)	**1,200** (10.0)	**1,200** (10.0)	**13** (10.0)	NA

NA = Chemical analyte was not analyzed.

ND = Chemical analyte was not detected in sample.

(0.5) = Reporting Limit.

Table 4-1
LNAPL Recovery Data
BNSF Albuquerque Fueling Area
April 2013

Well I.D.	Depth to LNAPL *(ft BTOC)*	Depth to Water *(ft BTOC)*	LNAPL Thickness *(ft)*	LNAPL Recovered *(gallons)*
MW-6	35.30	35.32	0.02	0.01
MW-8	36.90	36.93	0.03	0.015
MW-10	36.16	36.17	0.01	0.01
MW-26	36.72	36.88	0.16	0.03
MW-32	33.74	35.54	1.8	0.4
MW-34	56.78	56.80	0.02	0.004
BSW-1	44.34	45.06	0.72	0.2
Total Gallons Removed				**0.669**

Table 4-2
Historical Comparison of LNAPL Thickness
BNSF Albuquerque Fueling Area
November 1998–April 2013

Date	Well I.D.																						
	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-14	MW-16	MW-19	MW-20	MW-21	MW-26	MW-28	MW-29	MW-32	MW-34	MW-35	MW-40	MW-43
11/23/98	0	0	0	0.01	0.01	0	0	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/5/98	0	0	0	0	0	Trace	0.01	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/6/99	0	0	0	0	0	Trace	0.05	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/15/99	0	0	Trace	0	0	0	0.06	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
8/1/01	0	0.79	0	0	0	0	0.57	0	0	0	0	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/9/01	0	0.89	0	0	0.02	0	0.68	0	0	0	0	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/6/03	0	0.22	0	0	0	0	0.03	0	0	1.32	0	0	0	0	0	NI	NI	NI	NI	NI	NI	NI	NI
6/9/03	0	0.28	0	0	0	0	0.02	0.70	0	0.28	0	0	0.02	0	0	NI	NI	NI	NI	NI	NI	NI	NI
9/15/03	0	0.37	0	0	0	0	0.01	0.78	0	0.29	0	0	0.02	0	0	NI	NI	NI	NI	NI	NI	NI	NI
10/17/03	0	0.20	0	0	0	0	0.01	0.14	0	0.21	0	0	0	0	0	NI	NI	NI	NI	NI	NI	NI	NI
3/15/04	0	0.08	0	0	0	0	0	0.13	0	0.20	0	0	0	0	0	NI	NI	NI	NI	NI	NI	NI	NI
6/21/04	0	0.19	0	0	0	0	0	0.05	Trace	0.01	0	0	0	0	0	NI	NI	NI	NI	NI	NI	NI	NI
9/20/04	0	0.20	0	0	0	0	0	0.06	0	0.02	0	0	0	0	0	NI	NI	NI	NI	NI	NI	NI	NI
12/6/04	0	0.09	0	0	0	0	0	0.04	0	0.02	0	0	0	0	0	0.01	NI	NI	NI	NI	NI	NI	NI
3/21/05	0	0.06	0	0	0	0	0	0.05	0	0	0	0	0	0	0	0.43	NI	NI	NI	NI	NI	NI	NI
6/13/05	0	0.17	0	0	0	0	0	0.07	0	Trace	0	0	0	0	0	1.54	NI	NI	NI	NI	NI	NI	NI
9/26/05	0	0.20	0	0	0	0	0	0.06	0	0.02	0	Trace	0	0	0	2.69	NI	NI	NI	NI	NI	NI	NI
12/12/05	0	0.08	0	0	0	0	Trace	0.07	0	0.01	0	0	0	0	0	0.95	NI	NI	NI	NI	NI	NI	NI
3/6/06	0	0.11	NM	0	0	0	0	Trace	NM	0.01	0	0	0	Trace	0	0.21	NI	NI	NI	NI	NI	NI	NI
6/12/06	0	0.20	0	0	0	0	0	NM	NM	0.01	0.05	0	0	0	0	0.96	NI	NI	NI	NI	NI	NI	NI
9/5/06	0	0.13	0	NM	NM	0	0	NM	0	0.02	0.09	0	0	0	0	0.81	NI	NI	NI	NI	NI	NI	NI
12/11/06	0	Trace	0	NM	NM	0	0	NM	0	0.02	0.66	0	0	0	0	0.19	NI	NI	NI	NI	NI	NI	NI
3/12/07	0	Trace	0	NM	0	0	0	0.03	0	0.01	0.62	0	0	0	Trace	0	NI	NI	NI	NI	NI	NI	NI
6/18/07	0	0.02	NM	NM	0	0	0	0.02	0	0.02	0.62	0	0	0	0.01	0.22	0.01	0.03	0	NI	NI	NI	NI
9/7/07	0	0.03	0	NM	0	0	0	NM	0	Trace	1.36	0	0	0	0.01	0.33	0	0.02	0	NI	NI	NI	NI
12/10/07	0	0	NM	NM	0	0	PA	0.03	0	NM	0.58	0	0	0	0.01	0	0	0	0	NI	NI	NI	NI
3/17/08	0	0	NM	NM	0	0		0.01	0	0	0.57	0	0	0	Trace	0	0	0	Trace	NI	NI	NI	NI
6/11/08	0	0	NM	NM	NM	0		0.03	0	0	0.22	0	0	0	0.01	0.05	0	0.01	0.02	NI	NI	NI	NI
9/15/08	0	Trace	0	NM	0	0		0.04	0	Trace	0.21	0	NM	0	Trace	0.21	0	0.01	0.95	0.02	0	NI	NI
12/10/08	0	Trace	0	NM	0	0		0	0	0	0.21	0	0	0	0.01	0.02	0	0	0.67	0.03	0.01	NI	NI
3/10/09	0	Trace	0	NM	0	0		0.04	0	Trace	0.22	0	0	0	Trace	0	0	Trace	0.23	0.03	0.11	NI	NI
6/29/09	0	0	0	NM	0	0		0.03	0	0	0.19	0	0	0	Trace	Trace	0	0	0.36	0.04	0.85	0	NI
9/14/09	0	Trace	0	NM	0	0.04		0.03	0	Trace	0.17	0	0	0	0	0.03	0	Trace	1.07	0.02	0.46	0	NI
12/17/09	0	Trace	0	NM	0	0.04		0.04	0	0	0.14	0	0	0	0	Trace	0	Trace	0.28	0.01	0	Trace	NI
3/22/10	0	0	0	NM	0	0.02		0.04	0	0	0.13	Trace	0	0	0	0.01	0	Trace	Trace	Trace	Trace	Trace	NI
6/17/10	0	0	0	NM	0	0.02		0.04	0	0	0.13	Trace	0	0	0	0.02	0	0	0	Trace	0.08	Trace	NI
9/20/10	0	0	0	NM	0	0.02		Trace	0	Trace	0.12	0	0	0	0	0.01	0	Trace	Trace	Trace	Trace	0	NI
3/7/11	NM	0	0	NM	0	0.02		0.03	0	Trace	0.15	0	0	0	0	0.03	0	Trace	0.10	0.02	Trace	Trace	NI
10/25/11 – 11/2/11	NM	0	0	NM	0	NM		0.02	0	Trace	Trace	0	0	0	0	0.08	0	Trace	0.47	Trace	0.13	Trace	0.15
4/19/12	NM	0.01	0	NM	0	0.01		0.04	0	Trace	Trace	0	0	0	0	0.11	0	Trace	0.88	0.01	Trace	0	Trace
9/17/12	NM	0.02	0	NM	0	0.01		0.06	0	Trace	0.01	0	0	0	0	0.15	0	Trace	1.91	0.02	0.09	0	0.05
4/1/13	0	Trace	0	NM	0	0.02		0.03	0	0.01	Trace	0	0	0	0	0.16	0	Trace	1.80	0.02	Trace	0	Trace

Notes:
LNAPL thickness measurements in feet.
Trace = <0.01 feet.
NI = Not installed.
NM = Not measured.
PA = Well plugged and abandoned.

Table 4-3
Historical Comparison of Total Naphthalenes (µg/L)
BNSF Albuquerque Fueling Area
November 1998–April 2013

	Well I.D.																						
Date	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**MW-7**	**MW-8**	**MW-9**	**MW-10**	**MW-11**	**MW-11R**	**MW-12**	**MW-13**	**MW-14**	**MW-15**	**MW-16**	**MW-17**	**MW-18**	**MW-19**	**MW-20**	**MW-21**	**MW-22**
11/98	616	590	960	438	530	1500	2320	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/01	2.1	*	25	1.5	11.9	12.6	NA	53.5	65	900	1.1	NI	850	5.5	249	ND	NI	NI	NI	NI	NI	NI	NI
10/01	1.2	1900	6.4	3.1	1.7	1.2	4010	5.6	20.6	156	ND	NI	1480	ND	154	ND	NI	NI	NI	NI	NI	NI	NI
3/03	ND	1310	2.85	2.4	36	3.6	1940	2200	ND	35800	ND	NI	ND	ND	34.5	ND	185	ND	250	52	16	2.8	ND
6/03	ND	*	12.7	ND	8.3	ND	*	*	ND	*	ND	NI	1.2	ND	12	ND	202	ND	6.6	*	13	ND	ND
9/03	ND	*	ND	ND	2.7	ND	*	*	ND	*	ND	NI	ND	ND	9.3	ND	219.4	ND	ND	*	ND	ND	ND
11/03	ND	*	ND	ND	4.8	1.4	*	*	ND	*	ND	NI	ND	ND	2	ND	364	ND	238.7	2.7	ND	ND	2.6
3/04	ND	*	12.084	ND	47.735	5.418	10.88	*	ND	*	ND	NI	ND	ND	6.286	ND	115.07	ND	67.62	2.02	0.796	0.523	2.826
6/04	ND	*	32.771	ND	7.868	10.614	26.734	*	*	*	ND	NI	0.845	ND	ND	ND	320.84	ND	76.53	1.244	ND	ND	1.327
9/04	ND	*	3.424	ND	5.586	3.646	35.368	*	ND	*	ND	NI	ND	ND	0.636	ND	331.79	0.522	39.351	ND	0.596	ND	1.331
12/04	ND	*	9.801	ND	23.929	5.026	43.79	*	ND	*	ND	NI	0.538	ND	3.659	ND	151.96	0.696	32.016	1.096	ND	ND	1.043
3/05	ND	*	0.82	1.97	7.02	5.96	48.61	*	ND	1967	ND	NI	0.71	122.45	4.47	ND	278.1	1.39	17.64	16.92	2.05	ND	1.39
6/05	2.4	*	17.87	ND	5.02	3.48	21.78	*	3.77	*	ND	NI	1.47	399.4	1.8	ND	199.5	0.53	105.54	1.87	ND	ND	3.24
9/05	ND	*	7.73	ND	4.77	4.15	14.69	*	ND	*	ND	NI	ND	23.17	0.6	ND	*	0.89	99.46	ND	ND	ND	0.8
12/05	ND	*	25.61	ND	7.63	3.61	NA	*	ND	*	ND	NI	0.55	5.68	3.32	ND	208.9	0.94	109	ND	ND	ND	1.82
3/06	0.21	*	NA	0.12	4.87	5.71	22.93	*	--	*	ND	NI	1.95	2.96	1.91	ND	172	1.23	114	1.18	*	ND	4.21
6/06	0.98	*	55.09	ND	3.77	4.23	15.69	--	--	*	0.15	NI	2.06	1.11	*	ND	366.8	1.42	135.9	0.46	0.54	ND	ND
9/06	0.33	*	25.71	--	--	3.27	5.12	--	ND	*	ND	NI	ND	0.54	*	ND	315.5	0.85	93.7	1.08	2.5	ND	ND
12/06	ND	*	35.5	--	--	5.55	16.38	--	ND	*	--	NI	1.17	0.31	*	ND	216.2	1.2	131.4	0.72	0.55	1.14	ND
3/07	0.68	*	5.11	--	1.87	3.94	7.77	*	ND	*	--	NI	1.32	0.13	*	ND	170.4	0.8	118.4	1.49	0.26	*	ND
6/07	ND	*	--	--	41.75	0.35	5.31	*	ND	*	--	NI	ND	ND	*	ND	37.44	0.16	61.1	ND	0.14	*	ND
9/07	ND	*	19.88	--	3.3	3.69	11.2	--	ND	*	--	NI	1.41	ND	*	ND	168.1	1.13	114.3	0.29	0.31	*	ND
12/07	0.1	*	--	--	10.82	1.05	PA	*	0.21	--	--	NI	ND	0.45	*	ND	68.4	0.23	8.57	ND	ND	*	ND
3/08	0.42	*	--	--	6.51	2.08		*	0.81	*	--	NI	0.53	0.1	*	ND	841	ND	43.3	0.6	0.36	*	3.13
9/08	0.49	*	26.95	--	9.35	2.01		*	0.31	*	--	NI	ND	ND	*	ND	21.46	0.54	155.6	--	0.28	*	0.89
3/09	0.27	*	21.73	--	3.06	ND		*	0.92	*	--	NI	ND	ND	*	ND	297.8	ND	31.22	ND	ND	*	ND
6/09	NA	*	NA	--	NA	NA		*	NA	NA	--	15.66	NA	NA	*	NA	NA	*	NA	NA	NA	*	NA
9/09	0.14	*	34.36	--	11.49	*		*	2.23	*	--	--	ND	ND	*	ND	*	ND	0.27	0.16	--	ND	ND
3/10	56.48	78.45	47.52	--	2.29	*		*	1.01	*	--	32.35	ND	ND	*	ND	*	0.28	12.81	0.3	0.29	ND	ND
9/10	59	70.1	26.57	--	0.66	*		*	26.78	*	--	57.4	--	0.16	*	ND	4.85	1.38	14.9	0.47	0.57	0.12	0.73
3/11	--	151.7	69.2	--	1.86	*		*	28.65	*	--	76.2	--	ND	*	ND	30.77	0.39	9.03	0.43	0.81	ND	ND
10/11	--	245	60.9	--	0.97	--		*	19.01	*	--	115.1	--	ND	103	ND	44.47	0.57	49.4	ND	ND	ND	ND
4/12	--	*	140	--	11.56	*		*	61	*	--	197	--	0.05	*	ND	28	0.907	7.2	0.387	0.408	0.149	1.03
9/12	--	*	430	--	7.7	*		*	53	*	--	207	--	0.031	*	ND	8.35	0.777	5.3	0.476	0.489	0.127	1.06
4/13	3.19	*	499	--	3.62	*		*	5.48	*	--	450	--	0.073	*	0.101	42	1.155	9.1	0.708	0.729	0.11	0.419

ND = Not detected.
-- = Well not sampled due to inability to locate or inaccessibility.
* = Well not sampled due to presence of LNAPL in well.
NI = Well not installed.
PA = Well plugged and abandoned.
NA = Not analyzed.

Table 4-3 *(continued)*
Historical Comparison of Total Naphthalenes *(µg/L)*
BNSF Albuquerque Fueling Area
November 1998–April 2013

	Well I.D.																						
Date	**MW-22S**	**MW-23**	**MW-24**	**MW-25**	**MW-26**	**MW-27**	**MW-28**	**MW-29**	**MW-30**	**MW-31**	**MW-32**	**MW-33**	**MW-34**	**MW-35**	**MW-36**	**MW-37**	**MW-38**	**MW-39**	**MW-40**	**MW-41**	**MW-42**	**MW-43**	**MW-44**
11/98	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/01	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/01	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/03	NI	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/03	NI	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/03	NI	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/03	NI	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/04	NI	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/04	NI	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/04	NI	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/04	NI	ND	123.72	0.812	*	3.475	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/05	NI	ND	2.38	ND	*	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/05	NI	ND	15.55	ND	*	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/05	NI	ND	14.53	ND	*	1.91	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/05	NI	ND	11.36	ND	*	0.7	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/06	NI	ND	9.56	ND	*	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/06	NI	0.14	1.67	ND	*	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/06	NI	ND	ND	ND	*	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/06	NI	ND	0.82	ND	*	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/07	NI	ND	ND	ND	*	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/07	NI	ND	ND	ND	*	ND	65	134.6	416.5	ND	46.02	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/07	NI	0.94	0.64	ND	*	--	45.2	*	472	0.1	8.05	1.29	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/07	NI	ND	0.45	ND	*	--	15.07	ND	116.2	ND	0.55	ND	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/08	NI	ND	1.11	ND	*	ND	118.2	398.5	222.8	ND	*	0.38	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/08	NI	ND	1.81	ND	*	ND	113.6	*	240	ND	*	0.31	*	921	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/09	NI	ND	0.57	ND	350	ND	114.1	*	263.8	ND	*	0.82	*	*	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/09	NI	NA	*	NA	*	NA	NA	*	NA	--	*	NA	*	*	7.38	84.4	0.45	226.6	63.8	NI	NI	NI	NI
9/09	NI	ND	*	ND	*	ND	181.4	*	142	ND	*	0.41	*	*	*	15.46	0.12	84.1	13.08	NI	NI	NI	NI
3/10	NI	ND	2.07	ND	*	ND	467	*	167.2	ND	*	8.82	*	*	12.61	30.7	ND	*	*	0.12	ND	NI	NI
9/10	NI	0.21	2.27	ND	*	0.15	544	*	122.8	ND	*	10.53	*	*	76.5	52.49	0.32	193.2	89.2	0.13	0.22	NI	NI
3/11	NI	ND	1.09	ND	*	ND	646	*	171.1	ND	*	26.48	*	*	21.61	175.2	ND	170.4	*	ND	ND	NI	NI
10/11	261	ND	0.35	ND	*	0.36	315.1	*	88.4	ND	*	16.37	*	*	18.76	59.1	ND	73.9	*	ND	ND	352.1	121.5
4/12	19.81	0.023	0.642	ND	*	0.275	1030	*	245	0.044	*	117	*	*	45.7	230	0.54	168	281	0.103	0.118	*	39.9
9/12	17.11	ND	0.34	ND	*	0.134	1370	*	569	0.105	*	106	*	*	46	300	0.105	195	131	ND	0.339	*	60.6
4/13	22.15	0.073	0.372	0.026	*	0.26	1260	*	298	0.123	*	5.2	*	*	60	667	6.59	279	153.6	0.029	0.255	*	158

ND = Not detected.
-- = Well not sampled due to inability to locate or inaccessibility.
* = Well not sampled due to presence of LNAPL in well.
NI = Well not installed.
PA = Well plugged and abandoned.
NA = Well not sampled during this event.

Table 4-4
Historical Comparison of Total Naphthalenes (µg/L)
First Baptist Church Wells
April 2012 - April 2013

	Well I.D.							
Date	**FBC-MW1**	**FBC-MW-2**	**FBC-MW3**	**FBC-MW4**	**FBC-MW5**	**FBC-MW6**	**FBC-MW7**	**FBC-MW8**
4/12	*	345	0.275	0.434	380.85	383.5	0.214	0.585
9/12	*	594	0.25	1.94	360.64	691.1	0.104	0.9
4/13	*	505	0.44	3.04	480.59	551.3	0.345	0.86

* = Well not sampled due to presence of LNAPL in well.

Appendix A
Well Sampling Forms

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

15.2 V

Time	DTW
1420	35.73
1423	35.73
1426	35.74

Date 4/4/13

Sampling Method Submersible pump with dedicated tubing.

Field Conditions Clear, 73°F

Project Number

Well ID MW-1

Field Team RES & JE

Water Level 35.54

Total Depth —

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Purge Volume

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1420	Initial	21.47	7.34	859	-312.0	0.14	cloudy, strong anaerobic odor
1426	3.0 GAL	21.44	7.39	857	-329.0	0.12	clear, " " "
1429	3.75	21.40	7.40	857	-334.5	0.11	as above
1432	4.50	21.00	7.41	859	-346.5	0.10	as above
1434 →		Collected MW1-GW-0413 - FIELD DUP NA Parameters					

Supervisor's Signature Date

e

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque 14.9V

Time	DTW
1541	36.40
1544	36.40
1547	36.40

Date 4/4/13 Sampling Method Submersible Field Conditions Clear, 79°F.

Project Number pump with dedicated tubing.

Well ID MW-3 Field Team RKS & TE

Water Level 36.15 Total Depth —

Casing Volume — Borehole Volume — Purge Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1541	Initial	22.12	7.52	1,037	-172.3	2.31	Clear, strong anaerobic odor
1547	1.75	21.39	7.43	1,035	-215.0	0.33	" " " "
1550	2.00	21.52	7.42	1,035	-218.4	0.32	" " " "
1553	2.25	21.59	7.42	1,034	-219.9	0.30	" " " "
1556	Collected MW3-GW-0413				BTEX PAH		
					NA Parameters		

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

Time	DTW
1537	34.83
1540	34.89
1543	34.90
1547	34.90

Date 4/3/13

Sampling Method Submers. blp pump w. dedicated tubing

Field Conditions Clear, 73°F

Project Number

Well ID MW-5

Field Team PMS & TE

Water Level 34.77

Total Depth /

Casing Volume /
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Borehole Volume /
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Purge Volume /

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1537	Initial	20.82	7.56	1,065	-279.0	0.62	clear, strong anaerobic odor
1547	2.25	21.28	7.56	1,054	-323.9	0.30	" " " "
1550	2.50	21.05	7.58	1,053	-327.5	0.21	" " " "
1553	2.75	21.66	7.58	1,053	-327.4	0.21	" " " "
1556	Collected MW5-GW-0413				BTEX PAH		
					NA Parameters		

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

13.7 ✓

Site: BNSF Albuquerque

Time	DTW
1144	37.04
1147	37.05
1150	37.03

Date 4/4/13

Project Number

Well ID MW-9

Water Level 36.99

Casing Volume ✓
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated tubing

Field Team BUS & TE

Total Depth ✓

Borehole Volume ✓
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Clear, 72°F

Purge Volume ✓

Total Gallons Removed ~2

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1143	Initial	19.86	7.63	828	-139.8	0.71	clear, anaerobic odor
1150	1.25	21.63	7.53	832	-133.5	0.23	" " "
1153	1.5	22.28	7.54	831	-120.9	0.21	" " "
1156	1.75	22.42	7.54	831	-121.8	0.20	" " "
1158	— Collected MW9-GW-0413				BTEX PAH NA Parameters		

Supervisor's Signature _____ Date _____

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

14.0 V

Time	DTW
~~1459~~	—
1500	35.30
1503	35.30
1506	35.30

Date 4/4/13

Project Number

Well ID MW-11R

Water Level 35.27'

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump with dedicated tubing

Field Team RKS & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Clear, 69°F

Purge Volume —

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (μS/cm)	ORP (mv)	DO (mg/L)	Remarks
1459	Initial	21.13	7.30	885	-186.7	0.39	cloudy, gray black color, anaerobic odor
1506	2.25	21.51	7.18	~~8~~ 913 RKS	-202.3	0.15	slightly cloudy, " " "
1509	3.00	21.37	7.17	933	-205.0	0.15	" " " " " "
1512	3.75	21.39	7.17	937	-205.2	0.15	" " " " " "
1514	— Collected MW-11R-GW-0413				BTEX PAH ~~NA~~ Parameters		

Supervisor's Signature

Date

12.7

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

Time	DTW
11:27	33.79
11:30	33.78
11:33	33.78

Date 4/1/13

Project Number

Well ID MW-13

Water Level 33.75

Casing Volume /
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump with dedicated tubing

Field Team PKS & TE

Total Depth /

Borehole Volume /
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Clear, 75°F.

Purge Volume

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
11:26	Initial	21.49	7.38	1,044	-195.4	1.05	clear, anaerob. c odor
11:34	1.25	21.54	7.22	1,048	-125.5	0.14	" " "
11:37	1.75	21.66	7.21	1,052	-111.0	0.11	" " "
11:40	2.25	21.63	7.21	1,054	-107.7	0.10	" " "
11:44	Collected MW13-GW-0413				ifc & NA Parameters		

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

11.V

Site: _____BNSF Albuquerque_____

Time	DTW
1045	30.08
1048	30.07
1051	30.05

Date 4-1-13

Sampling Method Submersible pump w. TH/dedicated tubing

Field Conditions Clear, 64°F

Project Number _____

Well ID MW-15

Field Team RKS & JE

Water Level 30.01

Total Depth —

Casing Volume ✓
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Borehole Volume ✓
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Purge Volume _____

Total Gallons Removed _____

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1045	Initial	21.78	7.33	987	-83.4	1.05	clear
1051	1.5	20.70	7.27	967	-65.4	0.43	"
1054	2.5	20.48	7.28	968	-95.1	0.24	"
1057	3.5	20.44	7.27	967	-99.5	0.20	"
1059	Collected MW15-GW-0413				HC & NA	parameters	

Supervisor's Signature _____ Date _____

MONITORING WELL SAMPLING DATA SHEET

Site: _____BNSF Albuquerque_____

Time	DTW
1326	37.58
1329	37.57
1332	37.57

Date 4/3/13

Sampling Method Submersible pump with dedicated tubing.

Field Conditions Clear, 65°F

Project Number _____

Well ID MW-16

Field Team RPK & TC

Water Level 37.41

Total Depth -

Casing Volume /
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Borehole Volume /
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Purge Volume /

Total Gallons Removed _____

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
13:26	Initial	20.18	7.08	959	-174.5	0.97	clear, brownish color, strong anaerobic odor
13:32	2.0	20.98	7.24	936	-207.9	0.14	" " " " "
13:35	2.75	21.10	7.23	934	-213.4	0.13	" " " "
13:38	3.50	21.09	7.23	934	-212.9	0.13	" " " "
13:40	— Collected MW16-GW-0413				Bkup PAH		
					NA Parameters		

Supervisor's Signature _____ Date _____

MONITORING WELL SAMPLING DATA SHEET

13.7V

Site: _____BNSF Albuquerque_____

Time	DTW
1400	35.69
1403	35.69
1406	35.69

Date 4/3/13

Project Number _____

Well ID MW-17

Water Level 35.58

Casing Volume ✓
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated tubing

Field Team RRS & TE

Total Depth ✓

Borehole Volume ✓
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Clear, 69°F

Purge Volume ✓

Total Gallons Removed _____

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1400	Initial	20.70	7.38	1,182	-169.4	1.88	clear, strong anaerobic odor.
1406	1.0	20.82	7.32	1,184	-186.2	0.28	" " " "
1409	1.5	20.62	7.32	1,177	-170.0	0.28	" " " "
1412	2.0	20.63	7.32	1,178	-170.0	0.29	" " " "
1414	— Collected MW-17-BW-0413				BTEX PAH NA Parameters		

Supervisor's Signature _____ Date _____

MONITORING WELL SAMPLING DATA SHEET

17.1 V

Site: _____BNSF Albuquerque_____

Time	DTW
1457	44.22
1500	44.23
1503	44.23
~~1506~~	

Date 4/~~8~~3/13

Project Number _____

Well ID MW-~~33~~18

Water Level 44.16

Casing Volume ✓
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump with dedicated tubing.

Field Team RHS & TE

Total Depth ✓

Borehole Volume ✓
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Clear, 66°F.

Purge Volume _____

Total Gallons Removed _____

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1457	Initial	21.04	7.45	1,074	-128.1	0.66	clear, faint anaerobic odor?
1503	2.25	21.23	7.38	1,086	-141.4	0.17	" " " "
1506	3.00	20.95	7.36	1,082	-146.4	0.17	" " " "
1509	3.75	21.41	7.36	1,076	-151.8	0.15	" " " "
1512	Collect	MW18-GW-0413			BTEX PAH		
					NA Parameters		

Supervisor's Signature _____ Date _____

13.10 last time

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

Time	DTW
1041	42.35
1044	42.15
1047	42.15
1050	42.15

Date 4/3/13

Sampling Method Submersible pump w/ dedicated tubing

Field Conditions Clear, 54°F.

Project Number

Well ID MW-19

Field Team BAS & TE

Water Level 42.05

Total Depth —

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Purge Volume —

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1041	Initial	19.90	7.48	991	-285.6	1.98	clear, anaerobic odor
1050	1.5	21.22	7.37	1001	-321.7	0.12	slightly cloudy, " "
1053	2.0	21.20	7.38	999	-315.8	0.13	" " "
1056	2.5	21.21	7.38	999	-317.7	0.13	" " "
1058	Collected MW19-GW-0413				BTEX, PAH, NA Parameters		

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

13.6 last time.

11.4 V

Site: BNSF Albuquerque

Time	DTW
0841	42.69
0844	42.90
0847	42.90

Date 9/3/13

Project Number

Well ID MW-20

Water Level 42.82

Casing Volume ✓
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated tubing

Field Team RS & TE

Total Depth ✓

Borehole Volume ✓
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Overcast, light breeze.

Purge Volume

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
0841	Initial	17.64	7.47	926	-234.8	1.23	clear, strong anaerobic odor.
0847	1.5	20.12	7.53	939	-291.9	0.26	" " " "
0850	2.25	20.17	7.48	939	-291.6	0.20	" " " "
0853	3.00	20.18	7.47	940	-309.7	0.19	" " " "
0855	— Collected MW20-GW-0913				GTEL PAH		
					NA Parameters		

Supervisor's Signature Date

KC

MONITORING WELL SAMPLING DATA SHEET

12.9 last time,

Site: BNSF Albuquerque 11.8V

Time	DTW
0945	42.37
0948	42.44
0952	42.42
0955	42.43

Date 4/3/13 Sampling Method Submersible pump w/ dedicated tubing. Field Conditions Clear, light breeze, 43° F

Project Number

Well ID MW-21 Field Team PRS & TE

Water Level 42.26 Total Depth /

Casing Volume / Borehole Volume / Purge Volume /

(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
0945	Initial	18.28	7.45	959	-214.2	1.13	clear, noticeable ammonia odor
0955	2.75	21.22	7.19	969	-205.5	0.14	" " " "
0958	4.5	21.24	7.23	969	-210.0	0.04	" " " "
1001	6.25	21.26	7.21	968	-208.3	0.13	" " " "
1004	Collected MW21-GW-0413				BTEX PAH		
					NA Parameters.		

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

17V

Site: _____BNSF Albuquerque____________

Time	DTW
0851	42.33
0854	42.32
0857	42.32

Date 4/4/13

Project Number ______

Well ID MW-22

Water Level 42.12

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump with dedicated tubing

Field Team RKS & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Clear, 48°F

Purge Volume ______

Total Gallons Removed ______

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
0851	Initial	15.32	7.75	836	-116.3	1.80	clear, anaerobic odor.
0857	1.75	20.48	7.57	873	-166.0	0.45	" " "
0900	2.75	20.63	7.53	878	-166.9	0.43	" " "
0903	3.75	20.66	7.54	881	-166.9	0.40	" " "
0905 —	Collected MW 22- GW. 0413				BTEX EPA NA parameters		

Supervisor's Signature ______________________ Date ____________

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

Time	DTW
0922	42.34
0925	42.36
0928	42.36

Date 4/4/13

Sampling Method Submersible pump with dedicated tubing

Field Conditions clear, 59°F

Project Number

Well ID MW-225

Field Team RHS & TE

Water Level 42.25

Total Depth –

Casing Volume –
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Borehole Volume –
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Purge Volume

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
0922	Initial	16.07	7.36	923	-138.2	1.90	slightly cloudy, anaerobic odor
0928	1.0	21.21	7.57	951	-189.5	1.20	" " " "
0931	1.5	21.35	7.54	948	-199.0	1.13	" " " "
0934	2.0	21.34	7.53	949	-204.1	1.11	" " " "
0936	Collected MW225-GW-0413				BTEX PAH NA Parameters		

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

11.62 V

Site: _____BNSF Albuquerque_____

Time	DTW
1347	39.23
1351	39.16
1354	39.16
1357	39.17

Date 4/2/13

Project Number _____

Well ID MW-23

Water Level 38.95

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated LDPE tubing

Field Team CQ & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Sunny, light breeze ~60°

Purge Volume —

Total Gallons Removed _____

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1347	initial	21.66	7.34	1,147	-28.8	1.50	clear
1357	2.0	21.77	7.12	1,061	-23.1	0.13	"
1400	2.5	21.83	7.12	1,061	-24.5	0.12	"
1403	3.5	21.58	7.11	1,061	-24.8	0.15	"
1405	Collected	sample MW23-GW-0413 for			BTEX, PAH	& NA parameters.	

Supervisor's Signature _____ Date _____

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

14.4V

Time	DTW
1255	38.18
1258	38.18
1301	38.18

Date 4/3/13

Project Number

Well ID MW-24

Water Level 38.15

Casing Volume /
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ ded. calced tubing.

Field Team PKS & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Clear, 65°F

Purge Volume /

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1255	Initial	20.64	7.44	850	-113.9	0.91	clear, anaerobic odor.
1301	1.3	21.30	7.31	854	-119.8	0.19	" " "
1304	2.0	21.40	7.32	852	-125.0	0.18	" " "
1307	2.7	20.80	7.31	852	-125.3	0.17	" " "
1310	— Collected MW24-GW-0413				BTEX RAH NA Parameters		

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

Site: _____BNSF Albuquerque_____

Time	DTW
0849	35.71
0852	35.75
0855	35.74
0858	35.74

Date 4/2/13

Project Number _____

Well ID MW-25

Water Level 35.71

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated LDPE tubing.

Field Team CQ & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Sunny, calm

Purge Volume —

Total Gallons Removed _____

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
0849	initial	18.63	7.32	953	-56.8	3.52	clear
0858	1.5	20.19	7.24	955	-83.4	1.89	"
0901	2.0	20.27	7.25	955	-82.0	2.30	"
0904	2.2	20.11	7.25	955	-87.1	2.15	"
0910	Collected sample MW-25-GW-0413 for BTEX, PAH & NA parameters.						

Supervisor's Signature _____ Date _____

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

Time	DTW

Date 4/2/13

Sampling Method Submersible pumps w/ dedicated HDPE tubing.

Field Conditions cloudy, light breeze ~60°

Project Number

Well ID MW-27

Field Team CQ & TE

Water Level 47.12

Total Depth 57.22

Casing Volume 6.5
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Purge Volume 19.5

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1434	initial	19.88	7.02	1,316	7.4	3.69	silty, dark brown
1442	2.75	20.56	6.95	1312	43.3	3.59	
1452	5	20.96	6.99	1300	41.7	3.37	clear
1457	8.5	20.45	7.01	1,212	36.1	2.55	slightly cloudy, rust colored
1500	9.75	20.41	7.03	1,201	35.7	2.89	" "
1503	12.0	20.56	7.05	1,129	34.1	3.04	well pumping dry
1508	Collected	Sample	MW27	GW-0413	for BTEX, PAH & NA parameters.		

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET 15.5V

Site: BNSF Albuquerque

Time	DTW
1102	39.15
1105	39.14
1108	39.14

Date 4/5/13

Project Number

Well ID MW-28

Water Level 39.06

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated LDPE tubing.

Field Team CQ & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions

Purge Volume —

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1102	INITIAL	20.37	7.26	855	-153.8	1.80	
1108	1.5 GAL	21.24	7.19	861	-156.5	0.17	
1111	2.0 GAL	21.50	7.17	873	-154.3	0.17	
1114	2.5 GAL	21.61	7.15	896	-149.7	0.25	
1117	COLLECT SAMPLE			MW28-GW-0413 for BTEX, PAH & NA parameters.			

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

Time	DTW
1705	50.63
1708	50.52
1711	50.53
1714	50.53

Date 4/4/13

Sampling Method Submersible Pump w/ dedicated HDPE

Field Conditions Clear, 73°F.

Project Number

Well ID MW-30 Salvation Army

Field Team RKS & JE

Water Level 50.06

Total Depth —

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Purge Volume —

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1705	Initial	21.77	6.82	1165	-154.2	0.34	very cloudy, grayish color, strong anaerobic odor.
1714	2.25	22.13	6.86	1,087	-187.4	0.33	slightly cloudy, as above.
1717	3.00	22.22	6.89	1,074	-191.5	0.92	" " " "
1720	3.75	22.31	6.89	1,067	-194.8	0.99	" " " "
1722	—— Collected	MW30-	GW-0413		BTEX PAH		
	&	DUP2	——	——→	NA Parameters		

Supervisor's Signature

Date

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

B.1 ✓

Time	DTW
1258	51.23
1304	51.88
1307	51.88
1310	51.88

Date 4/2/13

Project Number

Well ID MW-31

Water Level 51.35

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated LDPE tubing

Field Team CQ & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Sunny, calm, warm ~54°

Purge Volume —

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1258	initial	21.94	7.03	4,175	-99.9	0.42	silty, orangish brown
1310	2.2	22.34	7.01	3,894	-113.9	0.10	cloudy, rust colored
1313	3.0	22.24	7.01	3,634	-113.0	0.11	" "
1316	3.5	22.22	7.01	3,536	-113.0	0.11	" "
1320	Collected	sample	MW31-	GW-0413	For BTEX,	PAH & NA	parameters.

Supervisor's Signature _____ Date _____

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

13.6 V

Time	DTW
1317	32.27
1320	32.27
1323	32.27

Date 4/4/13

Project Number

Well ID MW-33

Water Level 31.91

Casing Volume /
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump with dedicated tubing.

Field Team PKS & TE

Total Depth —

Borehole Volume /
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Clear, 70°F

Purge Volume /

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1317	Initial	21.64	7.39	956	-130.8	0.62	cloudy, anaerobic odor
1323	1.5	22.52	7.27	951	-149.0	0.17	" " "
1326	2.0	22.49	7.27	949	-149.7	0.16	" " "
1329	2.5	22.47	7.27	948	-148.7	0.16	" " "
1331	Collected MW33-GW-0413				BTEX PAH		
					NA Parameters		

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

Time	DTW
1533	34.63
1536	34.61
1539	34.63

Date 4/2/13

Project Number

Well ID MW-36

Water Level 34.53

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated LDPE tubing

Field Team CQ & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions overcast, light breeze ~60°

Purge Volume —

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1533	initial	19.98	6.97	993	-130.9	0.23	slightly cloudy
1539	1.8	20.98	7.10	946	-165.2	0.11	clear
1542	2.5	20.58	7.10	942	-163.6	0.06	"
1545	3.3	20.91	7.10	940	-163.0	0.07	"
1550	Collected	sample	MW36-	GW-0413	for BTEX,	PAH & NA	parameters.

Supervisor's Signature _____ Date _____

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

16.7V

Time	DTW
1621	56.92
1624	56.94
1627	56.94

Date 4/4/13

Project Number

Well ID MW-37

Water Level 56.47

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump with dedicated tubing

Field Team PKS & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Clear, 79°F

Note: tubing stained pink above water table, then coated black beneath the pink.

Purge Volume

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1621	Initial	21.68	7.24	1,035	-170.8	0.19	v. cloudy, HC odor?, anaerobic odor
1627	2.0	22.14	7.16	1,016	-183.9	0.14	" " " "
1630	2.5	22.16	7.17	1,013	-180.1	0.14	" " " "
1633	3.0	22.13	7.17	1,010	-181.2	0.15	" " " "
1635 —	Collected	MW37-GW-0413			BTEX PAH NA Parameters		

Supervisor's Signature

Date

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

Time	DTW

NA

Date 4/5/13

Project Number

Well ID MW-38

Water Level 616.48

Casing Volume 2.5
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method disposable bailer

Field Team CQ & TE

Total Depth 82.55

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Sunny, light breeze ~45°

Purge Volume 7.5

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
909	initial	19.83	7.64	1139	NM	NM	
0943	2.5	20.48	7.32	1,147	NM	NM	cloudy. Bailer was not sinking, we had to add a weight to it to help it go down
1008	5.0	20.16	7.52	1139	NM	NM	
1039	7.5	20.54	6.96	1133	NM	NM	
1041	COLLECT SAMPLE MW38-GW-0413						

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

17 ✓

1020	79.82
1023	78.84

Time	DTW
1002	78.84
1005	78.63
1008	78.56
1011	78.81
1014	79.12
1017	78.80

Site: BNSF Albuquerque

Date 4/2/13

Project Number

Well ID MW-39

Water Level 75.80

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated LDPE tubing

Field Team CQ & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Sunny, calm ~45°

Purge Volume —

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1001	initial	19.95	7.31	987	-127.9	2.39	silty, brown
1023	6.5	21.91	7.23	996	-179.1	0.08	
1026	7.25	21.77	7.24	997	-169.9	0.10	
1029	8.50	21.87	7.24	1,000	-171.0	0.12	slightly cloudy
1032	COLLECTED MW39-GW-0413						

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

16.7 ✓

Site: BNSF Albuquerque

Time	DTW
1123	74.98
1126	74.98
1129	74.98

Date 4/2/13

Project Number

Well ID MW-40

Water Level 74.94

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated LDPE tubing.

Field Team CQ & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Sunny, calm,

Purge Volume —

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1123	initial	20.61	7.27	902	-133.7	0.83	cloudy, gray, faint HC odor
1129	1 GAL	21.96	7.19	908	-136.1	0.26	
1132	1.25 GAL	21.86	7.18	906	-130.1	0.10	
1135	1.5 GAL	21.90	7.18	904	-123.1	0.07	
1138	Collected sample MW40-GW-0413 for BTEX, PAH & NA parameters.						

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

18.3v

Site: _____BNSF Albuquerque_____

Time	DTW
1407	86.74
1410	86.70
1413	86.76
1416	86.77

Date 4/1/13

Sampling Method Submersible pump w/ ded. coated tubing

Field Conditions Clear, 76°F

Project Number _____

Well ID MW-41

Field Team RVS & TE

Water Level 86.57

Total Depth –

Casing Volume –
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Borehole Volume –
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Purge Volume –

Total Gallons Removed _____

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1407	Initial	23.73	7.13	1509	-0.6	5.13	cloudy, brown
1416	1.75	22.24	6.89	1,502	38.3	3.86	" "
1419	2.50	22.46	6.93	1507	35.1	3.87	" "
1422	3.25	22.34	6.93	1,514	29.3	4.17	" "
1424	——	Collected MW41-GW-0413			NA & itC	Parameters	

Supervisor's Signature _____ Date _____

MONITORING WELL SAMPLING DATA SHEET

Site: _____BNSF Albuquerque_____

Time	DTW
1502	87.67
1505	87.64
1508	87.64
1511	87.65

Date 4/1/13

Sampling Method Submersible pump with dedicated tubing

Field Conditions Clear, 88°F

Project Number _____

Well ID MW-42

Field Team PLS & TE

Water Level 87.48

Total Depth /

Casing Volume /
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Borehole Volume /
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Purge Volume /

Total Gallons Removed _____

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1502	Initial	21.92	7.10	972	-12.7	0.26	cloudy,
1511	2.0	21.92	7.01	977	-48.8	0.09	sl. cloudy,
1514	2.5	22.46	7.00	975	-72.8	0.07	sl. cloudy.
1517	3.0	22.48	7.05	983	-80.8	0.07	
1520	—— Collected MW42-GW-0413				BTEX PAH		

Supervisor's Signature _____ Date _____

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

Time	DTW
10:06	41.14
1009	41.18
1012	41.16
1015	41.17

Date 4/4/13

Project Number

Well ID MW-44

Water Level 41.10

Casing Volume ✓
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated tubing

Field Team PBS & TE

Total Depth ✓

Borehole Volume ✓
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Clear, 64°F

Purge Volume ✓

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1006	Initial	19.40	7.05	1013	-127.0	0.87	cloudy, anaerobic odor
1015	1.5	21.98	7.10	1,029	-176.2	0.27	" " "
1018	1.75	22.14	7.11	1,032	-171.6	0.40	" " "
1021	2.0	22.11	7.11	1,032	-159.6	0.58	" " "
1024	Collected MW-44-GW-0413						BTEX PAH NA Parameters

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

Site: ____BNSF Albuquerque – FBC____

15.4 ✓

Time	DTW
1545	40.04
1548	40.07
1551	40.07

Date 4/5/13

Project Number_____

Well ID FBC-MW2

Water Level 39.98

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated LDPE tubing.

Field Team CQ & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions partly cloudy, breezy

Purge Volume —

Total Gallons Removed_____

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1545	initial	22.12	6.85	1,104	-139.2	0.53	cloudy
1551	1.0	22.49	6.83	1,068	-167.5	0.42	clear
1554	1.3	22.58	6.84	1,059	-172.7	0.87	"
1557	1.7	22.55	6.86	1,051	-178.1	1.46	"
1600	Collected	sample	FBCMW2-GW-0413 and DUP3-0413				for BTEX, PAH & NA parameters.

Supervisor's Signature_____ Date_____

MONITORING WELL SAMPLING DATA SHEET

Site: ____BNSF Albuquerque - FBC____

14.6v

Time	DTW
1309	40.41
1312	40.33
1315	40.33
1318	40.35

Date 4/5/13

Project Number _____

Well ID FBC MW-3

Water Level 40.25

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated HDPE tubing

Field Team MQ & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Overcast, breezy ~62°

Purge Volume —

Total Gallons Removed _____

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1309	initial	21.01	7.17	1,012	-129.8	0.39	slightly cloudy
1318	1.3	21.87	7.19	1,012	-145.2	0.17	" "
1321	1.7	21.91	7.21	1,013	-149.5	0.19	" "
1324	2.0	21.96	7.21	1,010	-148.6	0.18	" "
1330	Collected sample FBCMW3-GW-0413 for BTEX, PAH & NA parameters.						

Supervisor's Signature _____ Date _____

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque - FBC

Time	DTW
1342	39.62
1346	39.65
1349	39.65
1352	39.65

Date 4/5/13

Sampling Method Submersible pump

Field Conditions partly cloudy, light breeze ~65°

Project Number

Well ID FBC MW-4

Field Team CQ & TE

Water Level 39.48

Total Depth —

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Purge Volume —

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1342	initial	22.28	7.29	949	-199.8	0.81	very slightly cloudy
1352	2.4	22.61	7.35	942	-266.4	0.13	clear
1355	3.0	22.51	7.36	942	-274.7	0.13	"
1358	3.7	22.43	7.35	941	-287.4	0.14	"
1400	Collected	sample from FBC MW4-GW-0413 for BTEX, PAH & NA parameters.					

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

Site: ____BNSF Albuquerque____ - FBC 12.0V

Time	DTW
0953	40.59
0954	40.61
0956	40.62
0953	40.62

Date 4/8/13

Sampling Method Submersible

Field Conditions _____

Project Number _____ pump w. Th ded. dated tubing.

Well ID FBC-MW5

Field Team RAC & TF

Water Level 40.43'

Total Depth –

Casing Volume –
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Borehole Volume –
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Purge Volume _____

Total Gallons Removed _____

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
0954	Initial	21.52	6.99	964	-120.1	2.63	clear, faint HC odor?
0953	4.0	22.03	6.96	971	-134.9	3.07	" " " "
0956	5.0	22.00	6.91	975	-134.8	2.79	" " " "
0959	6.0	22.01	6.92	974	-134.8	2.80	" " " "
1004	Collected		FBC MW5	- GW - 0413		BTEX PAH	
						NA Duplicate	

Supervisor's Signature _____ Date _____

Tim
10966 4/4/20

MONITORING WELL SAMPLING DATA SHEET

Site: Bust Alb. FBC

Date 4/8/17

Project Number

Well ID FBC-MW6

Water Level 43.87 ✓

Casing Volume ✓ 0.7
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump with ded. coated tubing

Field Team RWS & JTE

Total Depth ✓ 47.93

Borehole Volume ✓
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Slightly overcast, light breeze, 69°F

Purge Volume 2.1

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP mv	D.O. mg/L	Remarks
1046	Initial	22.03	7.10	964	-138.4	0.52	slightly cloudy, ltc odor??
1058	→ Stopped pumping ?. Pull. pressure and set up to Bail.						
1108	1.4 ~~0.7~~	19.80	7.42	1004	-109.2	2.61	SILTY
1114	~~1.4~~ 2.1 ~~2.8~~	21.37	7.08	990	-145.5	0.71	
* Pump rate @ a very low rate but fluctuating.							
1116	→ Collected	FBCMW6-GW-0413					FTOT PAH NA Parameters

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

Site: BNSF Albuquerque

Time	DTW
1235	44.12
1239	44.12
1242	44.16

Date 4/5/13

Project Number

Well ID FBCMW-7

Water Level 44.07

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated LDPE tubing.

Field Team CQ & TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Overcast, light breeze ~ 61°

Purge Volume —

Total Gallons Removed

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1235	initial	22.22	7.02	1,175	-28.4	0.61	clear
1242	1.5	22.07	7.02	1,173	-34.5	0.22	"
1245	2.3	22.10	7.02	1,174	-29.9	0.18	"
1248	2.8	22.18	7.02	1,174	-29.2	0.20	"
1250	Collected	sample	FBCMW7-GW-0413	for	BTEX,	PAH,	NA parameters.

Supervisor's Signature Date

MONITORING WELL SAMPLING DATA SHEET

Site: ____BNSF Albuquerque – FBC____

Time	DTW
1507	40.31
1510	40.31
1513	40.31

Date 4/5/13

Project Number _____

Well ID ~~MW8~~ FBC-MW8

Water Level 40.26

Casing Volume —
(0.16 gal/linear Ft. of 2-in. casing)
(0.64 gal/linear Ft. of 4-in. casing)

Sampling Method Submersible pump w/ dedicated LDPE tubing

Field Team CQ; TE

Total Depth —

Borehole Volume —
(0.39 gal/linear Ft. of 2-in casing)
(0.24 gal/linear Ft. of 4-in casing)
for 6 1/4-in borehole

Field Conditions Sunny, breezy ~70°

Purge Volume —

Total Gallons Removed _____

Time	Cumulative gal. Removed	Temperature (°C)	pH (s.u.)	Conductivity (µS/cm)	ORP (mv)	DO (mg/L)	Remarks
1507	initial	22.42	7.52	939	-300.1	0.31	clear
1513	2.75	21.92	7.52	929	-331.3	0.11	"
1516	3.75	21.97	7.55	929	-335.6	0.10	"
1519	4.75	21.77	7.55	928	-340.6	0.08	"
1525	Collected sample FBCMW8-GW-0413						

Supervisor's Signature _____ Date _____

Appendix B
Groundwater Analytical Laboratory Reports

ESC
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12065 Lebanon Rd
Mt. Juliet, TN 37122
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Est. 1970

Quality Control Summary
SDG: L628335

For: ERM - BNSF Region 6
Project: BNSF- ABQ
April 15, 2013

Sample Receiving and Handling

All sample aliquots were received at the correct temperature, in the proper containers, and with the appropriate preservatives. All method specified holding times were met.

Anions by Method 9056

Laboratory Control Sample

Samples L628335-03, -04, and -05 were analyzed in analytical batch WG654454. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Samples L628335-01, -02, -06, -08, and -07 were analyzed in analytical batch WG654519. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Samples L628335-09, -11, -10, and -12 were analyzed in analytical batch WG654648. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Sample Duplicate Analysis

For analytical batch WG654454 sample duplicate analysis was performed on sample L628139-01. The relative percent differences were within the method limits.

For analytical batch WG654454 sample duplicate analysis was performed on sample L628335-05. The relative percent differences were within the method limits.

For analytical batch WG654519 sample duplicate analysis was performed on sample L628335-01. The relative percent differences were within the method limits.

For analytical batch WG654519 sample duplicate analysis was performed on sample L628335-02. The relative percent differences were within the method limits.

For analytical batch WG654648 sample duplicate analysis was performed on sample L628386-09. The relative percent differences were within the method limits.

For analytical batch WG654648 sample duplicate analysis was performed on sample L628466-14. The relative percent differences were within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG654454 matrix spike/matrix spike duplicate analysis was performed on sample L628176-01. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

For analytical batch WG654519 matrix spike/matrix spike duplicate analysis was performed on sample L628501-05. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

For analytical batch WG654648 matrix spike/matrix spike duplicate analysis was performed on sample L628416-01. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

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Quality Control Summary
SDG: L628335

For: ERM - BNSF Region 6
Project: BNSF- ABQ
April 15, 2013

Blank Analysis
The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Methane by Method RSK175
Laboratory Control Sample
Samples L628335-01, -02, -06, -08, -05, -09, -10, -11, -12, -03, -04, and -07 were analyzed in analytical batch WG654562. The laboratory control sample associated with these samples was within the laboratory control limits.

Samples L628335-07, -06, -08, and -12 were analyzed in analytical batch WG654778. The laboratory control sample associated with these samples was within the laboratory control limits.

Matrix Spike/Matrix Spike Duplicate
Precision for batch WG654562 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Precision for batch WG654778 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis
The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Nitrate-Nitrite by Method 353.2
Laboratory Control Sample
Samples L628335-04, -02, -03, -06, -08, -01, -05, -07, and -09 were analyzed in analytical batch WG655230. The laboratory control sample associated with these samples was within the laboratory control limits.

Samples L628335-11, -12, and -10 were analyzed in analytical batch WG655378. The laboratory control sample associated with these samples was within the laboratory control limits.

Sample Duplicate Analysis
For analytical batch WG655230 sample duplicate analysis was performed on sample L628101-01. The relative percent differences were within the method limits.

For analytical batch WG655230 sample duplicate analysis was performed on sample L628381-01. The relative percent differences were within the method limits.

For analytical batch WG655378 sample duplicate analysis was performed on sample L628123-01. The relative percent differences were within the method limits.

For analytical batch WG655378 sample duplicate analysis was performed on sample L628417-07. The relative percent differences were within the method limits.

Matrix Spike/Matrix Spike Duplicate
For analytical batch WG655230, matrix spike/matrix spike duplicate analysis was performed on sample L628177-01. The spike recoveries and relative percent differences were within laboratory control limits.

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Quality Control Summary
SDG: L628335

For: ERM - BNSF Region 6
Project: BNSF- ABQ
April 15, 2013

For analytical batch WG655378, matrix spike/matrix spike duplicate analysis was performed on sample L628123-02. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis
The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Alkalinity by Method 2320 B-2011
Laboratory Control Sample
Samples L628335-04, -01, -02, and -03 were analyzed in analytical batch WG655672. The laboratory control sample associated with these samples was within the laboratory control limits.

Samples L628335-06, -08, -11, -12, -09, -05, -10, and -07 were analyzed in analytical batch WG655675. The laboratory control sample associated with these samples was within the laboratory control limits.

Sample Duplicate Analysis
For analytical batch WG655672 sample duplicate analysis was performed on sample L628055-12. The relative percent differences were within the method limits.

For analytical batch WG655675 sample duplicate analysis was performed on sample L628526-02. The relative percent differences were within the method limits.

For analytical batch WG655675 sample duplicate analysis was performed on sample L628335-05. The relative percent differences were within the method limits.

Matrix Spike/Matrix Spike Duplicate
For analytical batch WG655672, matrix spike/matrix spike duplicate analysis was performed on sample L628055-11. The spike recoveries and relative percent differences were within laboratory control limits.

For analytical batch WG655675, matrix spike/matrix spike duplicate analysis was performed on sample L628335-10. The spike recoveries were below the laboratory control limits. The relative percent difference was within control limits.

Blank Analysis
The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Trace Metals by Method 6010B
Laboratory Control Sample
Samples L628335-01, -02, -03, -06, -05, -07, -10, -12, -04, -08, -11, and -09 were analyzed in analytical batch WG654998. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Sample Duplicate Analysis
For analytical batch WG654998 sample duplicate analysis was performed on sample L628335-12. The relative percent difference exceeded the method limits for Iron,Dissolved.

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Quality Control Summary
SDG: L628335

For: ERM - BNSF Region 6
Project: BNSF- ABQ
April 15, 2013

Matrix Spike/Matrix Spike Duplicate
For analytical batch WG654998 matrix spike/matrix spike duplicate analysis was performed on sample L628335-12. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

Blank Analysis
The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Method 8021B
Laboratory Control Sample
Samples L628335-01, -06, -09, -12, -03, -07, -08, -02, -10, -04, -05, and -11 were analyzed in analytical batch WG654452. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Samples L628335-02, -13, -01, -11, -12, -05, -03, -08, -09, -04, -07, -10, and -06 were analyzed in analytical batch WG655201. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate
For analytical batch WG654452 matrix spike/matrix spike duplicate analysis was performed on sample L628335-01. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

For analytical batch WG655201 matrix spike/matrix spike duplicate analysis was performed on sample L628335-01. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

Blank Analysis
The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Semi-volatile Organic Compounds by Method 8270C-SIM
Laboratory Control Sample
Samples L628335-01, -02, -03, -04, -05, and -06 were analyzed in analytical batch WG654463. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Samples L628335-07, -08, -09, -10, -11, and -12 were analyzed in analytical batch WG654524. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate
Precision for batch WG654463 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Precision for batch WG654524 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis
The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

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Quality Control Summary
SDG: L628335

For: ERM - BNSF Region 6
Project: BNSF- ABQ
April 15, 2013

Nancy F. McLain
ESC Representative
ESC Lab Sciences

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Est. 1970

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

Report Summary

Friday April 12, 2013

Report Number: L628335
Samples Received: 04/03/13
Client Project: TT0069-N03

Description: BNSF- ABQ

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Mark W. Beasley , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-01

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW15-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/01/13 10:59

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	180000	390	390	25000	ug/l		9056	04/04/13	5
Alkalinity	240000	5000	5000	20000	ug/l		2320 B-	04/11/13	1
Methane	U	2.0	2	10	ug/l		RSK175	04/04/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/04/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/04/13	1
Nitrate-Nitrite	47.	23.	23	100	ug/l	J	353.2	04/09/13	1
Barium,Dissolved	58.	1.7	1.7	5	ug/l		6010B	04/08/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/08/13	1
Manganese,Dissolved	450	1.2	1.2	10	ug/l		6010B	04/08/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/05/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/05/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/05/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	97.4				% Rec.		8021B	04/05/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	U	0.0076	0.0076	0.05	ug/l		8270C-S	04/08/13	1
Acenaphthene	U	0.0082	0.0082	0.05	ug/l		8270C-S	04/08/13	1
Acenaphthylene	U	0.0068	0.0068	0.05	ug/l		8270C-S	04/08/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/08/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/08/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/08/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/08/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/08/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l		8270C-S	04/08/13	1
Fluorene	U	0.0085	0.0085	0.05	ug/l		8270C-S	04/08/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/08/13	1
Naphthalene	0.058	0.020	0.02	0.25	ug/l	J	8270C-S	04/08/13	1
Phenanthrene	U	0.0082	0.0082	0.05	ug/l		8270C-S	04/08/13	1
Pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
1-Methylnaphthalene	0.019	0.0082	0.0082	0.25	ug/l	J	8270C-S	04/08/13	1
2-Methylnaphthalene	0.024	0.0090	0.009	0.25	ug/l	J	8270C-S	04/08/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/08/13	1
Surrogate Recovery									
Nitrobenzene-d5	99.0				% Rec.		8270C-S	04/08/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-01

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW15-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/01/13 10:59

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	92.5				% Rec.		8270C-S	04/08/13	1
p-Terphenyl-d14	104.				% Rec.		8270C-S	04/08/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-02

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW13-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/01/13 11:44

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	200000	390	390	25000	ug/l		9056	04/04/13	5
Alkalinity	230000	5000	5000	20000	ug/l		2320 B-	04/11/13	1
Methane	U	2.0	2	10	ug/l		RSK175	04/04/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/04/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/04/13	1
Nitrate-Nitrite	U	23.	23	100	ug/l		353.2	04/09/13	1
Barium,Dissolved	150	1.7	1.7	5	ug/l		6010B	04/08/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/08/13	1
Manganese,Dissolved	550	1.2	1.2	10	ug/l		6010B	04/08/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/05/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/05/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/05/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	97.0				% Rec.		8021B	04/05/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	U	0.0076	0.0076	0.05	ug/l		8270C-S	04/08/13	1
Acenaphthene	0.044	0.0082	0.0082	0.05	ug/l	J	8270C-S	04/08/13	1
Acenaphthylene	U	0.0068	0.0068	0.05	ug/l		8270C-S	04/08/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/08/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/08/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/08/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/08/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/08/13	1
Fluoranthene	0.030	0.016	0.016	0.05	ug/l	J	8270C-S	04/08/13	1
Fluorene	U	0.0085	0.0085	0.05	ug/l		8270C-S	04/08/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/08/13	1
Naphthalene	0.045	0.020	0.02	0.25	ug/l	J	8270C-S	04/08/13	1
Phenanthrene	0.021	0.0082	0.0082	0.05	ug/l	J	8270C-S	04/08/13	1
Pyrene	0.16	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
1-Methylnaphthalene	0.014	0.0082	0.0082	0.25	ug/l	J	8270C-S	04/08/13	1
2-Methylnaphthalene	0.014	0.0090	0.009	0.25	ug/l	J	8270C-S	04/08/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/08/13	1
Surrogate Recovery									
Nitrobenzene-d5	96.3				% Rec.		8270C-S	04/08/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-02

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW13-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/01/13 11:44

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	89.9				% Rec.		8270C-S	04/08/13	1
p-Terphenyl-d14	105.				% Rec.		8270C-S	04/08/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-03

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW41-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/01/13 14:24

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	320000	1500	1500	100000	ug/l		9056	04/04/13	20
Alkalinity	260000	5000	5000	20000	ug/l		2320 B-	04/11/13	1
Methane	U	2.0	2	10	ug/l		RSK175	04/04/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/04/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/04/13	1
Nitrate-Nitrite	980	23.	23	100	ug/l		353.2	04/09/13	1
Barium,Dissolved	40.	1.7	1.7	5	ug/l		6010B	04/08/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/08/13	1
Manganese,Dissolved	73.	1.2	1.2	10	ug/l		6010B	04/08/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/05/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/05/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/05/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	97.6				% Rec.		8021B	04/05/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	U	0.0076	0.0076	0.05	ug/l		8270C-S	04/08/13	1
Acenaphthene	U	0.0082	0.0082	0.05	ug/l		8270C-S	04/08/13	1
Acenaphthylene	U	0.0068	0.0068	0.05	ug/l		8270C-S	04/08/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/08/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/08/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/08/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/08/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/08/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l		8270C-S	04/08/13	1
Fluorene	U	0.0085	0.0085	0.05	ug/l		8270C-S	04/08/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/08/13	1
Naphthalene	0.029	0.020	0.02	0.25	ug/l	J	8270C-S	04/08/13	1
Phenanthrene	U	0.0082	0.0082	0.05	ug/l		8270C-S	04/08/13	1
Pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
1-Methylnaphthalene	U	0.0082	0.0082	0.25	ug/l		8270C-S	04/08/13	1
2-Methylnaphthalene	U	0.0090	0.009	0.25	ug/l		8270C-S	04/08/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/08/13	1
Surrogate Recovery									
Nitrobenzene-d5	88.6				% Rec.		8270C-S	04/08/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-03

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW41-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/01/13 14:24

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	91.8				% Rec.		8270C-S	04/08/13	1
p-Terphenyl-d14	103.				% Rec.		8270C-S	04/08/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-04

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW42-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/01/13 15:20

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	12000	77.	77	5000	ug/l		9056	04/04/13	1
Alkalinity	360000	5000	5000	20000	ug/l		2320 B-	04/11/13	1
Methane	240	2.0	2	10	ug/l		RSK175	04/04/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/04/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/04/13	1
Nitrate-Nitrite	35.	23.	23	100	ug/l	J	353.2	04/09/13	1
Barium,Dissolved	280	1.7	1.7	5	ug/l		6010B	04/08/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/08/13	1
Manganese,Dissolved	1100	1.2	1.2	10	ug/l		6010B	04/08/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/05/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/05/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/05/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	97.8				% Rec.		8021B	04/05/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.0088	0.0076	0.0076	0.05	ug/l	J	8270C-S	04/08/13	1
Acenaphthene	0.34	0.0082	0.0082	0.05	ug/l		8270C-S	04/08/13	1
Acenaphthylene	0.034	0.0068	0.0068	0.05	ug/l	J	8270C-S	04/08/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/08/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/08/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/08/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/08/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/08/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l		8270C-S	04/08/13	1
Fluorene	0.10	0.0085	0.0085	0.05	ug/l		8270C-S	04/08/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/08/13	1
Naphthalene	0.18	0.020	0.02	0.25	ug/l	J	8270C-S	04/08/13	1
Phenanthrene	0.0082	0.0082	0.0082	0.05	ug/l	J	8270C-S	04/08/13	1
Pyrene	0.020	0.012	0.012	0.05	ug/l	J	8270C-S	04/08/13	1
1-Methylnaphthalene	0.075	0.0082	0.0082	0.25	ug/l	J	8270C-S	04/08/13	1
2-Methylnaphthalene	U	0.0090	0.009	0.25	ug/l		8270C-S	04/08/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/08/13	1
Surrogate Recovery									
Nitrobenzene-d5	91.2				% Rec.		8270C-S	04/08/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-04

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW42-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/01/13 15:20

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	90.4				% Rec.		8270C-S	04/08/13	1
p-Terphenyl-d14	104.				% Rec.		8270C-S	04/08/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-05

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW25-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 09:10

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	200000	1500	1500	100000	ug/l		9056	04/04/13	20
Alkalinity	190000	5000	5000	20000	ug/l		2320 B-	04/12/13	1
Methane	U	2.0	2	10	ug/l		RSK175	04/04/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/04/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/04/13	1
Nitrate-Nitrite	33.	23.	23	100	ug/l	J	353.2	04/09/13	1
Barium,Dissolved	37.	1.7	1.7	5	ug/l		6010B	04/08/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/08/13	1
Manganese,Dissolved	380	1.2	1.2	10	ug/l		6010B	04/08/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/05/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/05/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/05/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	97.9				% Rec.		8021B	04/05/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	U	0.0076	0.0076	0.05	ug/l		8270C-S	04/08/13	1
Acenaphthene	U	0.0082	0.0082	0.05	ug/l		8270C-S	04/08/13	1
Acenaphthylene	U	0.0068	0.0068	0.05	ug/l		8270C-S	04/08/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/08/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/08/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/08/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/08/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/08/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l		8270C-S	04/08/13	1
Fluorene	U	0.0085	0.0085	0.05	ug/l		8270C-S	04/08/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/08/13	1
Naphthalene	0.026	0.020	0.02	0.25	ug/l	J	8270C-S	04/08/13	1
Phenanthrene	U	0.0082	0.0082	0.05	ug/l		8270C-S	04/08/13	1
Pyrene	0.050	0.012	0.012	0.05	ug/l	J	8270C-S	04/08/13	1
1-Methylnaphthalene	U	0.0082	0.0082	0.25	ug/l		8270C-S	04/08/13	1
2-Methylnaphthalene	U	0.0090	0.009	0.25	ug/l		8270C-S	04/08/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/08/13	1
Surrogate Recovery									
Nitrobenzene-d5	93.5				% Rec.		8270C-S	04/08/13	1

U = ND (Not Detected) = Less than SDL
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MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-05

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW25-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 09:10

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	92.4				% Rec.		8270C-S	04/08/13	1
p-Terphenyl-d14	107.				% Rec.		8270C-S	04/08/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-06

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW39-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 10:32

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	230	77.	77	5000	ug/l	J	9056	04/04/13	1
Alkalinity	380000	5000	5000	20000	ug/l		2320 B-	04/12/13	1
Methane	1300	4.1	4.1	20	ug/l		RSK175	04/05/13	2
Ethane	U	4.0	4	13	ug/l		RSK175	04/04/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/04/13	1
Nitrate-Nitrite	50.	23.	23	100	ug/l	J	353.2	04/09/13	1
Barium,Dissolved	460	1.7	1.7	5	ug/l		6010B	04/08/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/08/13	1
Manganese,Dissolved	980	1.2	1.2	10	ug/l		6010B	04/08/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/06/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/06/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/06/13	1
Total Xylene	0.66	0.51	0.51	1.5	ug/l	J	8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	97.5				% Rec.		8021B	04/06/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.64	0.0076	0.0076	0.05	ug/l		8270C-S	04/10/13	1
Acenaphthene	32.	0.082	0.082	0.5	ug/l		8270C-S	04/10/13	10
Acenaphthylene	4.1	0.068	0.068	0.5	ug/l		8270C-S	04/10/13	10
Benzo(a)anthracene	0.016	0.012	0.012	0.05	ug/l	J	8270C-S	04/10/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/10/13	1
Fluoranthene	0.084	0.016	0.016	0.05	ug/l		8270C-S	04/10/13	1
Fluorene	23.	0.085	0.085	0.5	ug/l		8270C-S	04/10/13	10
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/10/13	1
Naphthalene	32.	0.20	0.2	2.5	ug/l		8270C-S	04/10/13	10
Phenanthrene	17.	0.082	0.082	0.5	ug/l		8270C-S	04/10/13	10
Pyrene	0.10	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
1-Methylnaphthalene	200	0.082	0.082	2.5	ug/l		8270C-S	04/10/13	10
2-Methylnaphthalene	47.	0.090	0.09	2.5	ug/l		8270C-S	04/10/13	10
2-Chloronaphthalene	0.65	0.065	0.065	2.5	ug/l	J	8270C-S	04/10/13	10
Surrogate Recovery									
Nitrobenzene-d5	79.7				% Rec.		8270C-S	04/10/13	10

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-06

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW39-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 10:32

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	152.				% Rec.	J1	8270C-S	04/10/13	10
p-Terphenyl-d14	99.7				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-07

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW40-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 11:38

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	4600	77.	77	5000	ug/l	J	9056	04/04/13	1
Alkalinity	340000	5000	5000	20000	ug/l		2320 B-	04/12/13	1
Methane	2400	8.2	8.2	40	ug/l		RSK175	04/05/13	4
Ethane	U	4.0	4	13	ug/l		RSK175	04/04/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/04/13	1
Nitrate-Nitrite	48.	23.	23	100	ug/l	J	353.2	04/09/13	1
Barium,Dissolved	360	1.7	1.7	5	ug/l		6010B	04/08/13	1
Iron,Dissolved	19.	14.	14	100	ug/l	J	6010B	04/08/13	1
Manganese,Dissolved	1500	1.2	1.2	10	ug/l		6010B	04/08/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/06/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/06/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/06/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	98.2				% Rec.		8021B	04/06/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.35	0.0076	0.0076	0.05	ug/l		8270C-S	04/08/13	1
Acenaphthene	9.8	0.0082	0.0082	0.05	ug/l		8270C-S	04/08/13	1
Acenaphthylene	1.1	0.0068	0.0068	0.05	ug/l		8270C-S	04/08/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/08/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/08/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/08/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/08/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/08/13	1
Fluoranthene	0.042	0.016	0.016	0.05	ug/l	J	8270C-S	04/08/13	1
Fluorene	5.7	0.0085	0.0085	0.05	ug/l		8270C-S	04/08/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/08/13	1
Naphthalene	1.6	0.020	0.02	0.25	ug/l		8270C-S	04/08/13	1
Phenanthrene	5.6	0.0082	0.0082	0.05	ug/l		8270C-S	04/08/13	1
Pyrene	0.066	0.012	0.012	0.05	ug/l		8270C-S	04/08/13	1
1-Methylnaphthalene	72.	0.0082	0.0082	0.25	ug/l		8270C-S	04/08/13	1
2-Methylnaphthalene	80.	0.0090	0.009	0.25	ug/l		8270C-S	04/08/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/08/13	1
Surrogate Recovery									
Nitrobenzene-d5	144.				% Rec.		8270C-S	04/08/13	1

U = ND (Not Detected) = Less than SDL
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MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-07

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW40-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 11:38

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	98.2				% Rec.		8270C-S	04/08/13	1
p-Terphenyl-d14	102.				% Rec.		8270C-S	04/08/13	1

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-08

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : DUP1-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 00:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	5300	77.	77	5000	ug/l		9056	04/04/13	1
Alkalinity	330000	5000	5000	20000	ug/l		2320 B-	04/12/13	1
Methane	3000	10.	10	50	ug/l		RSK175	04/05/13	5
Ethane	U	4.0	4	13	ug/l		RSK175	04/04/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/04/13	1
Nitrate-Nitrite	52.	23.	23	100	ug/l	J	353.2	04/09/13	1
Barium,Dissolved	360	1.7	1.7	5	ug/l		6010B	04/08/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/08/13	1
Manganese,Dissolved	1600	1.2	1.2	10	ug/l		6010B	04/08/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/06/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/06/13	1
Ethylbenzene	0.33	0.16	0.16	0.5	ug/l	J	8021B	04/06/13	1
Total Xylene	0.62	0.51	0.51	1.5	ug/l	J	8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	97.1				% Rec.		8021B	04/06/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.37	0.0076	0.0076	0.05	ug/l		8270C-S	04/09/13	1
Acenaphthene	13.	0.082	0.082	0.5	ug/l		8270C-S	04/10/13	10
Acenaphthylene	1.2	0.0068	0.0068	0.05	ug/l		8270C-S	04/09/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/09/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/09/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/09/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/09/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/09/13	1
Fluoranthene	0.051	0.016	0.016	0.05	ug/l		8270C-S	04/09/13	1
Fluorene	5.9	0.0085	0.0085	0.05	ug/l		8270C-S	04/09/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/09/13	1
Naphthalene	1.7	0.020	0.02	0.25	ug/l		8270C-S	04/09/13	1
Phenanthrene	5.8	0.0082	0.0082	0.05	ug/l		8270C-S	04/09/13	1
Pyrene	0.13	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
1-Methylnaphthalene	71.	0.0082	0.0082	0.25	ug/l		8270C-S	04/09/13	1
2-Methylnaphthalene	78.	0.0090	0.009	0.25	ug/l		8270C-S	04/09/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/09/13	1
Surrogate Recovery									
Nitrobenzene-d5	123.				% Rec.		8270C-S	04/09/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-08

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : DUP1-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 00:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	102.				% Rec.		8270C-S	04/09/13	1
p-Terphenyl-d14	103.				% Rec.		8270C-S	04/09/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-09

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW31-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 13:20

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	760000	770	770	50000	ug/l		9056	04/04/13	10
Alkalinity	350000	5000	5000	20000	ug/l		2320 B-	04/12/13	1
Methane	U	2.0	2	10	ug/l		RSK175	04/04/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/04/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/04/13	1
Nitrate-Nitrite	54.	23.	23	100	ug/l	J	353.2	04/09/13	1
Barium,Dissolved	41.	1.7	1.7	5	ug/l		6010B	04/08/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/08/13	1
Manganese,Dissolved	1600	1.2	1.2	10	ug/l		6010B	04/08/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/06/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/06/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/06/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	97.2				% Rec.		8021B	04/06/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	U	0.0076	0.0076	0.05	ug/l		8270C-S	04/09/13	1
Acenaphthene	0.015	0.0082	0.0082	0.05	ug/l	J	8270C-S	04/09/13	1
Acenaphthylene	U	0.0068	0.0068	0.05	ug/l		8270C-S	04/09/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/09/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/09/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/09/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/09/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/09/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l		8270C-S	04/09/13	1
Fluorene	0.014	0.0085	0.0085	0.05	ug/l	J	8270C-S	04/09/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/09/13	1
Naphthalene	0.035	0.020	0.02	0.25	ug/l	J	8270C-S	04/09/13	1
Phenanthrene	0.015	0.0082	0.0082	0.05	ug/l	J	8270C-S	04/09/13	1
Pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
1-Methylnaphthalene	0.051	0.0082	0.0082	0.25	ug/l	J	8270C-S	04/09/13	1
2-Methylnaphthalene	0.037	0.0090	0.009	0.25	ug/l	J	8270C-S	04/09/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/09/13	1
Surrogate Recovery									
Nitrobenzene-d5	107.				% Rec.		8270C-S	04/09/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-09

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW31-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 13:20

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	106.				% Rec.		8270C-S	04/09/13	1
p-Terphenyl-d14	104.				% Rec.		8270C-S	04/09/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-10

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW23-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 14:05

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	210000	770	770	50000	ug/l		9056	04/05/13	10
Alkalinity	240000	5000	5000	20000	ug/l	J6	2320 B-	04/12/13	1
Methane	U	2.0	2	10	ug/l		RSK175	04/04/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/04/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/04/13	1
Nitrate-Nitrite	2600	23.	23	100	ug/l		353.2	04/10/13	1
Barium,Dissolved	48.	1.7	1.7	5	ug/l		6010B	04/08/13	1
Iron,Dissolved	21.	14.	14	100	ug/l	J	6010B	04/08/13	1
Manganese,Dissolved	650	1.2	1.2	10	ug/l		6010B	04/08/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/06/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/06/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/06/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	97.4				% Rec.		8021B	04/06/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	U	0.0076	0.0076	0.05	ug/l		8270C-S	04/09/13	1
Acenaphthene	0.0084	0.0082	0.0082	0.05	ug/l	J	8270C-S	04/09/13	1
Acenaphthylene	U	0.0068	0.0068	0.05	ug/l		8270C-S	04/09/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
Benzo(a)pyrene	0.013	0.012	0.012	0.05	ug/l	J	8270C-S	04/09/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/09/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/09/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/09/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/09/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/09/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l		8270C-S	04/09/13	1
Fluorene	U	0.0085	0.0085	0.05	ug/l		8270C-S	04/09/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/09/13	1
Naphthalene	0.029	0.020	0.02	0.25	ug/l	J	8270C-S	04/09/13	1
Phenanthrene	U	0.0082	0.0082	0.05	ug/l		8270C-S	04/09/13	1
Pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
1-Methylnaphthalene	0.027	0.0082	0.0082	0.25	ug/l	J	8270C-S	04/09/13	1
2-Methylnaphthalene	0.017	0.0090	0.009	0.25	ug/l	J	8270C-S	04/09/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/09/13	1
Surrogate Recovery									
Nitrobenzene-d5	132.				% Rec.		8270C-S	04/09/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-10

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW23-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 14:05

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	109.				% Rec.		8270C-S	04/09/13	1
p-Terphenyl-d14	109.				% Rec.		8270C-S	04/09/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-11

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW27-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 15:08

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	130000	770	770	50000	ug/l		9056	04/05/13	10
Alkalinity	360000	5000	5000	20000	ug/l		2320 B-	04/12/13	1
Methane	U	2.0	2	10	ug/l		RSK175	04/04/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/04/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/04/13	1
Nitrate-Nitrite	690	23.	23	100	ug/l		353.2	04/10/13	1
Barium,Dissolved	40.	1.7	1.7	5	ug/l		6010B	04/08/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/08/13	1
Manganese,Dissolved	40.	1.2	1.2	10	ug/l		6010B	04/08/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/06/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/06/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/06/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	97.5				% Rec.		8021B	04/06/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.0086	0.0076	0.0076	0.05	ug/l	J	8270C-S	04/09/13	1
Acenaphthene	1.6	0.0082	0.0082	0.05	ug/l		8270C-S	04/09/13	1
Acenaphthylene	0.11	0.0068	0.0068	0.05	ug/l		8270C-S	04/09/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/09/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/09/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/09/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/09/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/09/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l		8270C-S	04/09/13	1
Fluorene	0.031	0.0085	0.0085	0.05	ug/l	J	8270C-S	04/09/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/09/13	1
Naphthalene	0.11	0.020	0.02	0.25	ug/l	J	8270C-S	04/09/13	1
Phenanthrene	0.0097	0.0082	0.0082	0.05	ug/l	J	8270C-S	04/09/13	1
Pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
1-Methylnaphthalene	0.15	0.0082	0.0082	0.25	ug/l	J	8270C-S	04/09/13	1
2-Methylnaphthalene	U	0.0090	0.009	0.25	ug/l		8270C-S	04/09/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/09/13	1
Surrogate Recovery									
Nitrobenzene-d5	106.				% Rec.		8270C-S	04/09/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-11

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW27-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 15:08

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	103.				% Rec.		8270C-S	04/09/13	1
p-Terphenyl-d14	104.				% Rec.		8270C-S	04/09/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-12

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW36-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 15:50

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	100000	770	770	50000	ug/l		9056	04/05/13	10
Alkalinity	300000	5000	5000	20000	ug/l		2320 B-	04/12/13	1
Methane	1500	8.2	8.2	40	ug/l		RSK175	04/05/13	4
Ethane	U	4.0	4	13	ug/l		RSK175	04/04/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/04/13	1
Nitrate-Nitrite	U	23.	23	100	ug/l		353.2	04/10/13	1
Barium,Dissolved	240	1.7	1.7	5	ug/l		6010B	04/08/13	1
Iron,Dissolved	48.	14.	14	100	ug/l	JP1	6010B	04/08/13	1
Manganese,Dissolved	1600	1.2	1.2	10	ug/l		6010B	04/08/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/06/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/06/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/06/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	97.2				% Rec.		8021B	04/06/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	1.0	0.0076	0.0076	0.05	ug/l		8270C-S	04/09/13	1
Acenaphthene	5.8	0.0082	0.0082	0.05	ug/l		8270C-S	04/09/13	1
Acenaphthylene	0.93	0.0068	0.0068	0.05	ug/l		8270C-S	04/09/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/09/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/09/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/09/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/09/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/09/13	1
Fluoranthene	0.091	0.016	0.016	0.05	ug/l		8270C-S	04/09/13	1
Fluorene	4.8	0.0085	0.0085	0.05	ug/l		8270C-S	04/09/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/09/13	1
Naphthalene	13.	0.020	0.02	0.25	ug/l		8270C-S	04/09/13	1
Phenanthrene	2.8	0.0082	0.0082	0.05	ug/l		8270C-S	04/09/13	1
Pyrene	0.26	0.012	0.012	0.05	ug/l		8270C-S	04/09/13	1
1-Methylnaphthalene	34.	0.0082	0.0082	0.25	ug/l		8270C-S	04/09/13	1
2-Methylnaphthalene	13.	0.0090	0.009	0.25	ug/l		8270C-S	04/09/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/09/13	1
Surrogate Recovery									
Nitrobenzene-d5	117.				% Rec.		8270C-S	04/09/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-12

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : MW36-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 15:50

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	105.				% Rec.		8270C-S	04/09/13	1
p-Terphenyl-d14	105.				% Rec.		8270C-S	04/09/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 12, 2013

ESC Sample # : L628335-13

Date Received : April 03, 2013
Description : BNSF- ABQ

Site ID : BNSF ABQ

Sample ID : TRIPBLANK

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/02/13 00:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/10/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/10/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/10/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	99.8				% Rec.		8021B	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
This report shall not be reproduced, except in full, without the written approval from ESC.
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Reported: 04/12/13 17:07 Printed: 04/12/13 17:08

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L628335-01	WG655230	SAMP	Nitrate-Nitrite	R2609881	J
	WG654463	SAMP	Naphthalene	R2607547	J
	WG654463	SAMP	1-Methylnaphthalene	R2607547	J
	WG654463	SAMP	2-Methylnaphthalene	R2607547	J
L628335-02	WG654463	SAMP	Acenaphthene	R2607547	J
	WG654463	SAMP	Fluoranthene	R2607547	J
	WG654463	SAMP	Naphthalene	R2607547	J
	WG654463	SAMP	Phenanthrene	R2607547	J
	WG654463	SAMP	1-Methylnaphthalene	R2607547	J
	WG654463	SAMP	2-Methylnaphthalene	R2607547	J
L628335-03	WG654463	SAMP	Naphthalene	R2607547	J
L628335-04	WG655230	SAMP	Nitrate-Nitrite	R2609881	J
	WG654463	SAMP	Anthracene	R2607547	J
	WG654463	SAMP	Acenaphthylene	R2607547	J
	WG654463	SAMP	Naphthalene	R2607547	J
	WG654463	SAMP	Phenanthrene	R2607547	J
	WG654463	SAMP	Pyrene	R2607547	J
	WG654463	SAMP	1-Methylnaphthalene	R2607547	J
L628335-05	WG655230	SAMP	Nitrate-Nitrite	R2609881	J
	WG654463	SAMP	Naphthalene	R2607547	J
	WG654463	SAMP	Pyrene	R2607547	J
L628335-06	WG655230	SAMP	Nitrate-Nitrite	R2609881	J
	WG655201	SAMP	Total Xylene	R2610185	J
	WG654463	SAMP	Benzo(a)anthracene	R2610501	J
	WG654463	SAMP	2-Chloronaphthalene	R2610501	J
	WG654463	SAMP	2-Fluorobiphenyl	R2610501	J1
	WG654519	SAMP	Sulfate	R2604522	J
L628335-07	WG655230	SAMP	Nitrate-Nitrite	R2609881	J
	WG654998	SAMP	Iron,Dissolved	R2607820	J
	WG654524	SAMP	Fluoranthene	R2607422	J
	WG654519	SAMP	Sulfate	R2604522	J
L628335-08	WG655230	SAMP	Nitrate-Nitrite	R2609881	J
	WG654452	SAMP	Ethylbenzene	R2606961	J
	WG655201	SAMP	Total Xylene	R2610185	J
L628335-09	WG655230	SAMP	Nitrate-Nitrite	R2609881	J
	WG654524	SAMP	Acenaphthene	R2610503	J
	WG654524	SAMP	Fluorene	R2610503	J
	WG654524	SAMP	Naphthalene	R2610503	J
	WG654524	SAMP	Phenanthrene	R2610503	J
	WG654524	SAMP	1-Methylnaphthalene	R2610503	J
	WG654524	SAMP	2-Methylnaphthalene	R2610503	J
L628335-10	WG654998	SAMP	Iron,Dissolved	R2607820	J
	WG654524	SAMP	Acenaphthene	R2610503	J
	WG654524	SAMP	Benzo(a)pyrene	R2610503	J
	WG654524	SAMP	Naphthalene	R2610503	J
	WG654524	SAMP	1-Methylnaphthalene	R2610503	J
	WG654524	SAMP	2-Methylnaphthalene	R2610503	J
	WG655675	SAMP	Alkalinity	R2616062	J6
L628335-11	WG654524	SAMP	Anthracene	R2610503	J
	WG654524	SAMP	Fluorene	R2610503	J
	WG654524	SAMP	Naphthalene	R2610503	J
	WG654524	SAMP	Phenanthrene	R2610503	J
	WG654524	SAMP	1-Methylnaphthalene	R2610503	J
L628335-12	WG654998	SAMP	Iron,Dissolved	R2607820	JP1

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/12/13 at 17:08:48

TSR Signing Reports: 134
R5 - Desired TAT

Sample: L628335-01 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

Sample: L628335-02 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

Sample: L628335-03 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

Sample: L628335-04 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

Sample: L628335-05 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

Sample: L628335-06 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

Sample: L628335-07 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

Sample: L628335-08 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

Sample: L628335-09 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

Sample: L628335-10 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

Sample: L628335-11 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

Sample: L628335-12 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

Sample: L628335-13 Account: BNSF6ERM Received: 04/03/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/12/13 17:07

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Anions by Method 9056		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654454**
Analysis Date:	4/3/2013	Analyst:	477
Instrument ID:	IC-5		
Sample Numbers:	L628335-03, -04, -05		

Method Blank

Analyte	CAS	PQL	Qualifiers
Sulfate		<5.00	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Sulfate	40.0	36.9	92.2	90 - 110	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Sulfate	40.0	37.1	92.8	90 - 110	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Anions by Method 9056		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654519**
Analysis Date:	4/4/2013	Analyst:	477
Instrument ID:	IC-10		
Sample Numbers:	L628335-01, -02, -06, -08, -07		

Method Blank

Analyte	CAS	PQL	Qualifiers
Sulfate		<5.00	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Sulfate	40.0	38.6	96.5	90 - 110	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Sulfate	40.0	39.1	97.8	90 - 110	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Anions by Method 9056		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654648**
Analysis Date:	4/4/2013	Analyst:	477
Instrument ID:	IC-10		
Sample Numbers:	L628335-09, -11, -10, -12		

Method Blank

Analyte	CAS	PQL	Qualifiers
Sulfate		<5.00	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Sulfate	40.0	38.0	95.0	90 - 110	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Sulfate	40.0	38.3	95.7	90 - 110	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Anions by Method 9056		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654454**
Analysis Date:	4/3/2013	Analyst:	477
Instrument ID:	IC-5		
Sample Numbers:	L628335-03, -04, -05		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Sulfate	40.0	36.9	92.2	37.1	92.8	90-110		0.5	20	

Sample Duplicate
L628335-05

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Sulfate	200	220	9.5	20	

Matrix Spike/Matrix Spike Duplicate
L628176-01

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Sulfate	50.0	15.0	60.9	91.8	64.7	99.4	80-120		6.1	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Anions by Method 9056		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654519**
Analysis Date:	4/4/2013	Analyst:	477
Instrument ID:	IC-10		
Sample Numbers:	L628335-01, -02, -06, -08, -07		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Sulfate	40.0	38.6	96.5	39.1	97.8	90-110		1.3	20	

Sample Duplicate
L628335-01

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Sulfate	180	180	0.0	20	

Sample Duplicate
L628335-02

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Sulfate	200	200	0.0	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Anions by Method 9056		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654519**
Analysis Date:	4/4/2013	Analyst:	477
Instrument ID:	IC-10		
Sample Numbers:	L628335-01, -02, -06, -08, -07		

Matrix Spike/Matrix Spike Duplicate

L628501-05

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Sample was not analyzed for Sulfate											

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Anions by Method 9056		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654648**
Analysis Date:	4/4/2013	Analyst:	477
Instrument ID:	IC-10		
Sample Numbers:	L628335-09, -11, -10, -12		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Sulfate	40.0	38.0	95.0	38.3	95.7	90-110		0.8	20	

Sample Duplicate
L628466-14

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Sulfate	0.000	0.000			

Matrix Spike/Matrix Spike Duplicate
L628416-01

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Sample was not analyzed for Sulfate											

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Alkalinity by Method 2320 B-2011		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655672**
Analysis Date:	4/11/2013 9:17:00 PM	Analyst:	239
Instrument ID:	TITRATION	Extraction Date:	4/11/2013
Sample Numbers:	L628335-04, -01, -02, -03		

Method Blank

Analyte	CAS	PQL	Qualifiers
Alkalinity		<20.0	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Alkalinity	100	104	104	85 - 115	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Alkalinity	100	95.4	95.4	85 - 115	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Alkalinity by Method 2320 B-2011		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655675**
Analysis Date:	4/12/2013 9:07:00 AM	Analyst:	239
Instrument ID:	TITRATION	Extraction Date:	4/11/2013
Sample Numbers:	L628335-06, -08, -11, -12, -09, -05, -10, -07		

Method Blank

Analyte	CAS	PQL	Qualifiers
Alkalinity		<20.0	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Alkalinity	100	102	102	85 - 115	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Alkalinity	100	109	109	85 - 115	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Alkalinity by Method 2320 B-2011		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655672**
Analysis Date:	4/11/2013 9:17:00 PM	Analyst:	239
Instrument ID:	TITRATION	Extraction Date:	4/11/2013
Sample Numbers:	L628335-04, -01, -02, -03		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Alkalinity	100	104	104	95.4	95.4	85-115		8.6	20	

Sample Duplicate

L628055-12

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Alkalinity	700	669	4.5	20	

Matrix Spike/Matrix Spike Duplicate

L628055-11

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Alkalinity	1000	800	1720	92.0	1720	92.0	80-120		0.0	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Alkalinity by Method 2320 B-2011		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655675**
Analysis Date:	4/12/2013 9:07:00 AM	Analyst:	239
Instrument ID:	TITRATION	Extraction Date:	4/11/2013
Sample Numbers:	L628335-06, -08, -11, -12, -09, -05, -10, -07		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Alkalinity	100	102	102	109	109	85-115		6.6	20	

Sample Duplicate
L628526-02

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Alkalinity	210	212	0.9	20	

Sample Duplicate
L628335-05

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Alkalinity	190	197	3.6	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Alkalinity by Method 2320 B-2011		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655675**
Analysis Date:	4/12/2013 9:07:00 AM	Analyst:	239
Instrument ID:	TITRATION	Extraction Date:	4/11/2013
Sample Numbers:	L628335-06, -08, -11, -12, -09, -05, -10, -07		

Matrix Spike/Matrix Spike Duplicate

L628335-10

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Alkalinity	100	240	313	73.0	314	74.0	80-120	J6	0.3	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Methane by Method RSK175		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654562**
Analysis Date:	4/4/2013 1:33:00 PM	Analyst:	564
Instrument ID:	AIRGC2	Extraction Date:	4/4/2013
Sample Numbers:	L628335-01, -02, -06, -08, -05, -09, -10, -11, -12, -03, -04, -07		

Method Blank

Analyte	CAS	PQL	Qualifiers
Ethane		<0.0130	
Ethene		<0.0130	
Methane		<0.0100	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Ethane	0.645	0.717	111	70 - 130	
Ethene	0.635	0.694	109	70 - 130	
Methane	0.339	0.382	113	70 - 130	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Ethane	0.645	0.711	110	70 - 130	
Ethene	0.635	0.689	109	70 - 130	
Methane	0.339	0.376	111	70 - 130	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Methane by Method RSK175		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654778**
Analysis Date:	4/5/2013 1:33:00 PM	Analyst:	564
Instrument ID:	AIRGC2	Extraction Date:	4/5/2013
Sample Numbers:	L628335-07, -06, -08, -12		

Method Blank

Analyte	CAS	PQL	Qualifiers
Methane		<0.0100	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Methane	0.339	0.387	114	70 - 130	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Methane	0.339	0.380	112	70 - 130	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Methane by Method RSK175		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654562**
Analysis Date:	4/4/2013 1:33:00 PM	Analyst:	564
Instrument ID:	AIRGC2	Extraction Date:	4/4/2013
Sample Numbers:	L628335-01, -02, -06, -08, -05, -09, -10, -11, -12, -03, -04, -07		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Ethane	0.645	0.717	111	0.711	110	70-130		0.8	25	
Ethene	0.635	0.694	109	0.689	109	70-130		0.8	25	
Methane	0.339	0.382	113	0.376	111	70-130		1.7	25	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Methane by Method RSK175		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654778**
Analysis Date:	4/5/2013 1:33:00 PM	Analyst:	564
Instrument ID:	AIRGC2	Extraction Date:	4/5/2013
Sample Numbers:	L628335-07, -06, -08, -12		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Methane	0.339	0.387	114	0.380	112	70-130		1.8	25	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Nitrate-Nitrite by Method 353.2		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655230**
Analysis Date:	4/9/2013 4:33:00 PM	Analyst:	508
Instrument ID:	LACHAT6	Extraction Date:	4/9/2013
Sample Numbers:	L628335-04, -02, -03, -06, -08, -01, -05, -07, -09		

Method Blank

Analyte	CAS	PQL	Qualifiers
Nitrate-Nitrite		<0.100	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Nitrate-Nitrite	5.00	4.80	96.0	90 - 110	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Nitrate-Nitrite	5.00	4.74	94.8	90 - 110	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Nitrate-Nitrite by Method 353.2		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655378**
Analysis Date:	4/10/2013 1:29:00 PM	Analyst:	508
Instrument ID:	LACHAT6	Extraction Date:	4/9/2013
Sample Numbers:	L628335-11, -12, -10		

Method Blank

Analyte	CAS	PQL	Qualifiers
Nitrate-Nitrite		<0.100	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Nitrate-Nitrite	5.00	4.79	95.8	90 - 110	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Nitrate-Nitrite	5.00	4.72	94.4	90 - 110	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Nitrate-Nitrite by Method 353.2		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655230**
Analysis Date:	4/9/2013 4:33:00 PM	Analyst:	508
Instrument ID:	LACHAT6	Extraction Date:	4/9/2013
Sample Numbers:	L628335-04, -02, -03, -06, -08, -01, -05, -07, -09		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Nitrate-Nitrite	5.00	4.80	96.0	4.74	94.8	90-110		1.3	20	

Sample Duplicate
L628101-01

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Nitrate-Nitrite	8.40	8.30	1.2	20	

Sample Duplicate
L628381-01

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Nitrate-Nitrite	0.340	0.330	3.0	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Nitrate-Nitrite by Method 353.2		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655230**
Analysis Date:	4/9/2013 4:33:00 PM	Analyst:	508
Instrument ID:	LACHAT6	Extraction Date:	4/9/2013
Sample Numbers:	L628335-04, -02, -03, -06, -08, -01, -05, -07, -09		

Matrix Spike/Matrix Spike Duplicate

L628177-01

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Nitrate-Nitrite	5.00	0.160	4.75	91.8	4.77	92.2	90-110		0.4	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Nitrate-Nitrite by Method 353.2		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655378**
Analysis Date:	4/10/2013 1:29:00 PM	Analyst:	508
Instrument ID:	LACHAT6	Extraction Date:	4/9/2013
Sample Numbers:	L628335-11, -12, -10		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Nitrate-Nitrite	5.00	4.79	95.8	4.72	94.4	90-110		1.5	20	

Sample Duplicate
L628123-01

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Nitrate-Nitrite	0.500	0.510	2.0	20	

Sample Duplicate
L628417-07

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Nitrate-Nitrite	0.760	0.760	0.0	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Nitrate-Nitrite by Method 353.2		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655378**
Analysis Date:	4/10/2013 1:29:00 PM	Analyst:	508
Instrument ID:	LACHAT6	Extraction Date:	4/9/2013
Sample Numbers:	L628335-11, -12, -10		

Matrix Spike/Matrix Spike Duplicate

L628123-02

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Nitrate-Nitrite	5.00	0.0000	4.61	92.2	5.05	101	90-110		9.1	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Trace Metals by Method 6010B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654998**
Analysis Date:	4/8/2013	Analyst:	447
Instrument ID:	ICP8	Extraction Date:	4/7/2013
Sample Numbers:	L628335-01, -02, -03, -06, -05, -07, -10, -12, -04, -08, -11, -09		

Method Blank

Analyte	CAS	PQL	Qualifiers
Barium,Dissolved	7440-39-3	<0.00500	
Iron,Dissolved	7439-89-6	<0.100	
Manganese,Dissolved	7439-96-5	<0.0100	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Barium,Dissolved	1.11	1.06	95.5	85 - 115	
Iron,Dissolved	1.11	1.09	98.2	85 - 115	
Manganese,Dissolved	1.11	1.05	94.6	85 - 115	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Trace Metals by Method 6010B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654998**
Analysis Date:	4/8/2013	Analyst:	447
Instrument ID:	ICP8	Extraction Date:	4/7/2013
Sample Numbers:	L628335-01, -02, -03, -06, -05, -07, -10, -12, -04, -08, -11, -09		

Sample Duplicate
L628335-12

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Barium,Dissolved	0.250	0.240	4.1	20	
Iron,Dissolved	0.440	0.0480	161	20	P1
Manganese,Dissolved	1.60	1.60	0.0	20	

Matrix Spike/Matrix Spike Duplicate
L628335-12

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Barium,Dissolved	1.11	0.240	1.32	97.3	1.31	96.4	75-125		0.8	20	
Iron,Dissolved	1.11	0.0480	1.20	104	1.17	101	75-125		2.5	20	
Manganese,Dissolved	1.11	1.60	2.83	111	2.82	110	75-125		0.4	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654452**
Analysis Date:	4/5/2013	Analyst:	403
Instrument ID:	VOCGC8		

Sample Numbers: L628335-01, -06, -09, -12, -03, -07, -08, -02, -10, -04, -05, -11

Method Blank

Analyte	CAS	PQL	Qualifiers
Benzene	71-43-2	<0.0005	
Toluene	108-88-3	<0.0050	
Ethylbenzene	100-41-4	<0.0005	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Benzene	0.0500	0.0417	83.4	79 - 114	
Toluene	0.0500	0.0416	83.3	79 - 112	
Ethylbenzene	0.0500	0.0423	84.7	80 - 116	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Benzene	0.0500	0.0474	94.8	79 - 114	
Toluene	0.0500	0.0473	94.6	79 - 112	
Ethylbenzene	0.0500	0.0483	96.7	80 - 116	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655201**
Analysis Date:	4/10/2013	Analyst:	403
Instrument ID:	VOCGC8		

Sample Numbers: L628335-02, -13, -01, -11, -12, -05, -03, -08, -09, -04, -07, -10, -06

Method Blank

Analyte	CAS	PQL	Qualifiers
Benzene	71-43-2	<0.0005	
Toluene	108-88-3	<0.0050	
Ethylbenzene	100-41-4	<0.0005	
m&p-Xylene	1330-20-7	<0.0015	
o-Xylene	1330-20-7	<0.0015	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Benzene	0.0500	0.0439	87.8	79 - 114	
Toluene	0.0500	0.0448	89.6	79 - 112	
Ethylbenzene	0.0500	0.0451	90.3	80 - 116	
m&p-Xylene	0.100	0.0879	87.9	85 - 120	
o-Xylene	0.0500	0.0461	92.3	82 - 116	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Benzene	0.0500	0.0445	89.0	79 - 114	
Toluene	0.0500	0.0448	89.6	79 - 112	
Ethylbenzene	0.0500	0.0456	91.2	80 - 116	
m&p-Xylene	0.100	0.0885	88.5	85 - 120	
o-Xylene	0.0500	0.0472	94.3	82 - 116	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654452**
Analysis Date:	4/5/2013	Analyst:	403
Instrument ID:	VOCGC8		

Sample Numbers: L628335-01, -06, -09, -12, -03, -07, -08, -02, -10, -04, -05, -11

Surrogate Summary

Laboratory Sample ID	a,a,a-Trifluorotoluene - FID ppb	a,a,a-Trifluorotoluene - FID % Rec	a,a,a-Trifluorotoluene - PID ppb	a,a,a-Trifluorotoluene - PID % Rec
LCS WG654452			193	96.5
LCSD WG654452			193	96.7
MS WG654452			193	96.7
MSD WG654452			193	96.5
Blank WG654452			196	98.2
L628335-01			195	97.4
L628335-02			194	97.0
L628335-03			195	97.6
L628335-04			196	97.8
L628335-05			196	97.9
L628335-06			195	97.5
L628335-07			196	98.2
L628335-08			194	97.1
L628335-09			194	97.2
L628335-10			195	97.4
L628335-11			195	97.5
L628335-12			194	97.2

a,a,a-Trifluorotoluene (FID)	200 ppb	Limits - 0 - 0
a,a,a-Trifluorotoluene (PID)	200 ppb	Limits - 55 - 122

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655201**
Analysis Date:	4/10/2013	Analyst:	403
Instrument ID:	VOCGC8		

Sample Numbers: L628335-02, -13, -01, -11, -12, -05, -03, -08, -09, -04, -07, -10, -06

Surrogate Summary

Laboratory Sample ID	a,a,a-Trifluorotoluene - FID ppb	a,a,a-Trifluorotoluene - FID % Rec	a,a,a-Trifluorotoluene - PID ppb	a,a,a-Trifluorotoluene - PID % Rec
LCS WG655201			197	98.3
LCSD WG655201			196	97.9
MS WG655201			197	98.7
MSD WG655201			197	98.4
Blank WG655201			198	99.0
L628335-13			200	99.8
L628335-01			199	99.6
L628335-02			200	100
L628335-03			200	100
L628335-04			198	99.2
L628335-05			199	99.4
L628335-06			199	99.4
L628335-07			198	99.2
L628335-08			198	99.2
L628335-09			199	99.5
L628335-10			200	100
L628335-11			199	99.6
L628335-12			199	99.6

a,a,a-Trifluorotoluene (FID)	200 ppb	Limits - 0 - 0
a,a,a-Trifluorotoluene (PID)	200 ppb	Limits - 55 - 122

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654452**
Analysis Date:	4/5/2013	Analyst:	403
Instrument ID:	VOCGC8		

Sample Numbers: L628335-01, -06, -09, -12, -03, -07, -08, -02, -10, -04, -05, -11

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Benzene	0.0500	0.0417	83.4	0.0474	94.8	79-114		13	20	
Toluene	0.0500	0.0416	83.3	0.0473	94.6	79-112		13	20	
Ethylbenzene	0.0500	0.0423	84.7	0.0483	96.7	80-116		13	20	

Matrix Spike/Matrix Spike Duplicate

L628335-01

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Benzene	0.0500	0.0000	0.0465	92.9	0.0475	95.0	35-147		2.2	20	
Toluene	0.0500	0.0000	0.0465	92.9	0.0472	94.5	35-148		1.7	20	
Ethylbenzene	0.0500	0.0000	0.0475	95.0	0.0484	96.7	39-141		1.8	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655201**
Analysis Date:	4/10/2013	Analyst:	403
Instrument ID:	VOCGC8		

Sample Numbers: L628335-02, -13, -01, -11, -12, -05, -03, -08, -09, -04, -07, -10, -06

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Benzene	0.0500	0.0439	87.8	0.0445	89.0	79-114		1.4	20	
Toluene	0.0500	0.0448	89.6	0.0448	89.6	79-112		0.0	20	
Ethylbenzene	0.0500	0.0451	90.3	0.0456	91.2	80-116		1.0	20	
m&p-Xylene	0.100	0.0879	87.9	0.0885	88.5	85-120		0.6	20	
o-Xylene	0.0500	0.0461	92.3	0.0472	94.3	82-116		2.2	20	

Matrix Spike/Matrix Spike Duplicate

L628335-01

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Benzene	0.0500	0.0000	0.0466	93.1	0.0473	94.6	35-147		1.6	20	
Toluene	0.0500	0.0000	0.0473	94.6	0.0478	95.5	35-148		1.0	20	
Ethylbenzene	0.0500	0.0000	0.0483	96.6	0.0487	97.3	39-141		0.7	20	
m&p-Xylene	0.100	0.0000	0.0936	93.6	0.0940	94.0	26-157		0.4	20	
o-Xylene	0.0500	0.0000	0.0490	98.1	0.0493	98.7	40-145		0.6	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654452**
Analysis Date:	4/5/2013	Analyst:	403
Instrument ID:	VOCGC8		

Sample Numbers: L628335-01, -06, -09, -12, -03, -07, -08, -02, -10, -04, -05, -11

Internal Standard Response and Retention Time Summary

FileID:0405_02.D Date:4/5/2013 Time:5:35 PM

	IS - FID		IS - PID	
	Response	RT	Response	RT
12 Hour Std	328180	6.27	2790120	6.27
Upper Limit	656360	6.77	5580240	6.77
Lower Limit	164090	5.77	1395060	5.77
Sample ID	Response	RT	Response	RT
Blank WG654452	330071	6.27	2761200	6.27
L628335-01	314353	6.27	2652279	6.27
L628335-02	331250	6.27	2771904	6.26
L628335-03	325341	6.27	2720057	6.27
L628335-04	321782	6.27	2704978	6.27
L628335-05	279385	6.27	2334932	6.27
L628335-06	316987	6.27	2656968	6.27
L628335-07	319696	6.27	2687161	6.27
L628335-08	318237	6.27	2683759	6.27
LCS WG654452	322211	6.27	2751543	6.26
LCSD WG654452	318962	6.27	2708925	6.27
MS WG654452	313988	6.27	2699278	6.26
MSD WG654452	312654	6.27	2676574	6.27

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654452**
Analysis Date:	4/5/2013	Analyst:	403
Instrument ID:	VOCGC8		

Sample Numbers: L628335-01, -06, -09, -12, -03, -07, -08, -02, -10, -04, -05, -11

Internal Standard Response and Retention Time Summary

FileID:0405_20.D Date:4/6/2013 Time:1:40 AM

	IS - FID		IS - PID	
	Response	RT	Response	RT
12 Hour Std	323759	6.27	2739489	6.27
Upper Limit	647518	6.77	5478978	6.77
Lower Limit	161879.5	5.77	1369744.5	5.77
Sample ID	Response	RT	Response	RT
L628335-09	330474	6.27	2806409	6.27
L628335-10	291767	6.27	2471699	6.26
L628335-11	315257	6.27	2663489	6.27
L628335-12	308898	6.27	2608755	6.27

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655201**
Analysis Date:	4/10/2013	Analyst:	403
Instrument ID:	VOCGC8		

Sample Numbers: L628335-02, -13, -01, -11, -12, -05, -03, -08, -09, -04, -07, -10, -06

Internal Standard Response and Retention Time Summary

FileID:0409_33.D Date:4/9/2013 Time:11:31 PM

	IS - FID		IS - PID	
	Response	RT	Response	RT
12 Hour Std	316198	6.27	2671550	6.27
Upper Limit	632396	6.77	5343100	6.77
Lower Limit	158099	5.77	1335775	5.77

Sample ID	Response	RT	Response	RT
Blank WG655201	309907	6.27	2635158	6.27
L628335-01	308765	6.27	2628991	6.27
L628335-02	306827	6.27	2614083	6.27
L628335-03	310835	6.27	2645601	6.27
L628335-04	307112	6.27	2623045	6.27
L628335-05	307125	6.27	2617523	6.27
L628335-06	309357	6.27	2645605	6.27
L628335-07	264042	6.27	2277635	6.27
L628335-08	304084	6.27	2614678	6.27
L628335-13	308544	6.27	2646102	6.27
LCS WG655201	327819	6.27	2831892	6.27
LCSD WG655201	316978	6.27	2746690	6.27
MS WG655201	308366	6.27	2693286	6.27
MSD WG655201	306783	6.27	2657916	6.27

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG655201**
Analysis Date:	4/10/2013	Analyst:	403
Instrument ID:	VOCGC8		

Sample Numbers: L628335-02, -13, -01, -11, -12, -05, -03, -08, -09, -04, -07, -10, -06

Internal Standard Response and Retention Time Summary

FileID:0409_51.D Date:4/10/2013 Time:7:23 AM

	IS - FID		IS - PID	
	Response	RT	Response	RT
12 Hour Std	303382	6.27	2638704	6.27
Upper Limit	606764	6.77	5277408	6.77
Lower Limit	151691	5.77	1319352	5.77
Sample ID	Response	RT	Response	RT
L628335-09	310178	6.27	2650717	6.27
L628335-10	318053	6.27	2701193	6.27
L628335-11	319024	6.27	2683462	6.27
L628335-12	317470	6.27	2672890	6.27

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/4/2013	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Method Blank

Analyte	CAS	PQL	Qualifiers
Naphthalene	91-20-3	<0.000250	
2-Methylnaphthalene	91-57-6	<0.000250	
1-Methylnaphthalene	90-12-0	<0.000250	
2-Chloronaphthalene	91-58-7	<0.0000500	
Acenaphthylene	208-96-8	<0.0000500	
Acenaphthene	83-32-9	<0.0000500	
Fluorene	86-73-7	<0.0000500	
Phenanthrene	85-01-8	<0.0000500	
Anthracene	120-12-7	<0.0000500	
Fluoranthene	206-44-0	<0.0000500	
Pyrene	129-00-0	<0.0000500	
Benzo(a)anthracene	56-55-3	<0.0000500	
Chrysene	218-01-9	<0.0000500	
Benzo(b)fluoranthene	205-99-2	<0.0000500	
Benzo(k)fluoranthene	207-08-9	<0.0000500	
Benzo(a)pyrene	50-32-8	<0.0000500	
Indeno(1,2,3-cd)pyrene	193-39-5	<0.0000500	
Dibenz(a,h)anthracene	53-70-3	<0.0000500	
Benzo(g,h,i)perylene	191-24-2	<0.0000500	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/5/2013	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Method Blank

Analyte	CAS	PQL	Qualifiers
Naphthalene	91-20-3	<0.000250	
2-Methylnaphthalene	91-57-6	<0.000250	
1-Methylnaphthalene	90-12-0	<0.000250	
2-Chloronaphthalene	91-58-7	<0.0000500	
Acenaphthylene	208-96-8	<0.0000500	
Acenaphthene	83-32-9	<0.0000500	
Fluorene	86-73-7	<0.0000500	
Phenanthrene	85-01-8	<0.0000500	
Anthracene	120-12-7	<0.0000500	
Fluoranthene	206-44-0	<0.0000500	
Pyrene	129-00-0	<0.0000500	
Benzo(a)anthracene	56-55-3	<0.0000500	
Chrysene	218-01-9	<0.0000500	
Benzo(b)fluoranthene	205-99-2	<0.0000500	
Benzo(k)fluoranthene	207-08-9	<0.0000500	
Benzo(a)pyrene	50-32-8	<0.0000500	
Indeno(1,2,3-cd)pyrene	193-39-5	<0.0000500	
Dibenz(a,h)anthracene	53-70-3	<0.0000500	
Benzo(g,h,i)perylene	191-24-2	<0.0000500	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-volatile Organic Compounds by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/8/2013 7:35:00 PM	Analyst:	282
Instrument ID:	BNAMS12	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
1-Methylnaphthalene	0.00200	0.00208	104	71.2 - 137	
2-Chloronaphthalene	0.00200	0.00221	110	81.1 - 129	
2-Methylnaphthalene	0.00200	0.00206	103	69.8 - 134	
Acenaphthene	0.00200	0.00214	107	80.8 - 128	
Acenaphthylene	0.00200	0.00197	98.4	77.2 - 132	
Anthracene	0.00200	0.00204	102	78.4 - 136	
Benzo(a)anthracene	0.00200	0.00204	102	69.2 - 141	
Benzo(a)pyrene	0.00200	0.00208	104	71.1 - 135	
Benzo(b)fluoranthene	0.00200	0.00237	119	69.5 - 140	
Benzo(g,h,i)perylene	0.00200	0.00225	113	64.6 - 138	
Benzo(k)fluoranthene	0.00200	0.00221	110	69.3 - 144	
Chrysene	0.00200	0.00227	114	75.6 - 138	
Dibenz(a,h)anthracene	0.00200	0.00218	109	64.1 - 139	
Fluoranthene	0.00200	0.00214	107	78.6 - 135	
Fluorene	0.00200	0.00208	104	78.3 - 131	
Indeno(1,2,3-cd)pyrene	0.00200	0.00218	109	64.8 - 140	
Naphthalene	0.00200	0.00232	116	80.2 - 126	
Phenanthrene	0.00200	0.00215	108	79.6 - 130	
Pyrene	0.00200	0.00214	107	76.6 - 134	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-volatile Organic Compounds by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/8/2013 7:35:00 PM	Analyst:	282
Instrument ID:	BNAMS12	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
1-Methylnaphthalene	0.00200	0.00208	104	71.2 - 137	
2-Chloronaphthalene	0.00200	0.00218	109	81.1 - 129	
2-Methylnaphthalene	0.00200	0.00206	103	69.8 - 134	
Acenaphthene	0.00200	0.00213	106	80.8 - 128	
Acenaphthylene	0.00200	0.00195	97.4	77.2 - 132	
Anthracene	0.00200	0.00208	104	78.4 - 136	
Benzo(a)anthracene	0.00200	0.00203	101	69.2 - 141	
Benzo(a)pyrene	0.00200	0.00209	104	71.1 - 135	
Benzo(b)fluoranthene	0.00200	0.00215	108	69.5 - 140	
Benzo(g,h,i)perylene	0.00200	0.00232	116	64.6 - 138	
Benzo(k)fluoranthene	0.00200	0.00247	124	69.3 - 144	
Chrysene	0.00200	0.00227	113	75.6 - 138	
Dibenz(a,h)anthracene	0.00200	0.00217	108	64.1 - 139	
Fluoranthene	0.00200	0.00211	106	78.6 - 135	
Fluorene	0.00200	0.00205	103	78.3 - 131	
Indeno(1,2,3-cd)pyrene	0.00200	0.00218	109	64.8 - 140	
Naphthalene	0.00200	0.00232	116	80.2 - 126	
Phenanthrene	0.00200	0.00215	107	79.6 - 130	
Pyrene	0.00200	0.00213	107	76.6 - 134	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-volatile Organic Compounds by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/8/2013 11:37:00 PM	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
1-Methylnaphthalene	0.00200	0.00201	101	71.2 - 137	
2-Chloronaphthalene	0.00200	0.00215	108	81.1 - 129	
2-Methylnaphthalene	0.00200	0.00200	99.8	69.8 - 134	
Acenaphthene	0.00200	0.00209	105	80.8 - 128	
Acenaphthylene	0.00200	0.00169	84.7	77.2 - 132	
Anthracene	0.00200	0.00177	88.3	78.4 - 136	
Benzo(a)anthracene	0.00200	0.00172	86.2	69.2 - 141	
Benzo(a)pyrene	0.00200	0.00194	96.8	71.1 - 135	
Benzo(b)fluoranthene	0.00200	0.00249	124	69.5 - 140	
Benzo(g,h,i)perylene	0.00200	0.00219	109	64.6 - 138	
Benzo(k)fluoranthene	0.00200	0.00235	118	69.3 - 144	
Chrysene	0.00200	0.00228	114	75.6 - 138	
Dibenz(a,h)anthracene	0.00200	0.00210	105	64.1 - 139	
Fluoranthene	0.00200	0.00192	96.1	78.6 - 135	
Fluorene	0.00200	0.00205	102	78.3 - 131	
Indeno(1,2,3-cd)pyrene	0.00200	0.00210	105	64.8 - 140	
Naphthalene	0.00200	0.00222	111	80.2 - 126	
Phenanthrene	0.00200	0.00210	105	79.6 - 130	
Pyrene	0.00200	0.00203	102	76.6 - 134	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-volatile Organic Compounds by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/8/2013 11:37:00 PM	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
1-Methylnaphthalene	0.00200	0.00198	98.8	71.2 - 137	
2-Chloronaphthalene	0.00200	0.00215	108	81.1 - 129	
2-Methylnaphthalene	0.00200	0.00196	97.9	69.8 - 134	
Acenaphthene	0.00200	0.00209	104	80.8 - 128	
Acenaphthylene	0.00200	0.00171	85.3	77.2 - 132	
Anthracene	0.00200	0.00180	90.1	78.4 - 136	
Benzo(a)anthracene	0.00200	0.00163	81.5	69.2 - 141	
Benzo(a)pyrene	0.00200	0.00190	94.8	71.1 - 135	
Benzo(b)fluoranthene	0.00200	0.00238	119	69.5 - 140	
Benzo(g,h,i)perylene	0.00200	0.00212	106	64.6 - 138	
Benzo(k)fluoranthene	0.00200	0.00227	113	69.3 - 144	
Chrysene	0.00200	0.00233	116	75.6 - 138	
Dibenz(a,h)anthracene	0.00200	0.00202	101	64.1 - 139	
Fluoranthene	0.00200	0.00193	96.6	78.6 - 135	
Fluorene	0.00200	0.00202	101	78.3 - 131	
Indeno(1,2,3-cd)pyrene	0.00200	0.00203	102	64.8 - 140	
Naphthalene	0.00200	0.00222	111	80.2 - 126	
Phenanthrene	0.00200	0.00211	106	79.6 - 130	
Pyrene	0.00200	0.00203	101	76.6 - 134	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-volatile Organic Compounds by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/8/2013 7:35:00 PM	Analyst:	282
Instrument ID:	BNAMS12	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Surrogate Summary

			FBP		NBZ		TPH	
Laboratory Sample ID	Instrument	File ID	ppm	% Rec	ppm	% Rec	ppm	% Rec
L628335-01	BNAMS12	0408A_22	0.00185	92.5	0.00198	99.0	0.00207	104
L628335-02	BNAMS12	0408A_23	0.0018	89.9	0.00193	96.3	0.00211	105
L628335-03	BNAMS12	0408A_24	0.00184	91.8	0.00177	88.6	0.00206	103
L628335-04	BNAMS12	0408A_25	0.00181	90.4	0.00182	91.2	0.00207	104
L628335-05	BNAMS12	0408A_26	0.00185	92.4	0.00187	93.5	0.00213	107
L628335-06 10x	BNAMS13	0410_15	0.00303	152 J1	0.00159	79.7		
BLANK WG654463	BNAMS12	0404_04	0.00214	107	0.00198	98.8	0.00223	112
LCS WG654463	BNAMS12	0404_05	0.00205	102	0.00199	99.4	0.00213	106
LCSD WG654463	BNAMS12	0404_06	0.00205	103	0.002	99.9	0.00214	107
L628335-06	BNAMS13	0409_49					0.00199	99.7

FBP --2-FLUOROBIPHENYL	True Value: 0.002 ppm	Limits: 64.4 - 143
NBZ --NITROBENZENE-D5	True Value: 0.002 ppm	Limits: 61.3 - 162
TPH --P-TERPHENYL-D14	True Value: 0.002 ppm	Limits: 55.30 - 145

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-volatile Organic Compounds by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/8/2013 11:37:00 PM	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Surrogate Summary

			FBP		NBZ		TPH	
Laboratory Sample ID	Instrument	File ID	ppm	% Rec	ppm	% Rec	ppm	% Rec
L628335-07	BNAMS13	0408A_27	0.00196	98.2	0.00287	144	0.00204	102
L628335-08	BNAMS13	0409_20	0.00203	102	0.00246	123	0.00206	103
L628335-09	BNAMS13	0409_21	0.00211	106	0.00213	107	0.00208	104
L628335-10	BNAMS13	0409_22	0.00218	109	0.00264	132	0.00219	109
L628335-11	BNAMS13	0409_23	0.00206	103	0.00212	106	0.00208	104
L628335-12	BNAMS13	0409_24	0.00211	105	0.00234	117	0.0021	105
BLANK WG654524	BNAMS12	0405_07	0.00217	109	0.00179	89.3	0.00226	113
LCS WG654524	BNAMS12	0405_08	0.00204	102	0.0017	85.2	0.00211	105
LCSD WG654524	BNAMS12	0405_09	0.00206	103	0.00175	87.7	0.00213	107

FBP --2-FLUOROBIPHENYL	True Value: 0.002 ppm	Limits: 64.4 - 143
NBZ --NITROBENZENE-D5	True Value: 0.002 ppm	Limits: 61.3 - 162
TPH --P-TERPHENYL-D14	True Value: 0.002 ppm	Limits: 55.30 - 145

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-volatile Organic Compounds by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/8/2013 7:35:00 PM	Analyst:	282
Instrument ID:	BNAMS12	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
1-Methylnaphthalene	0.00200	0.00208	104	0.00208	104	71.2-137		0.0	20	
2-Chloronaphthalene	0.00200	0.00221	110	0.00218	109	81.1-129		1.0	20	
2-Methylnaphthalene	0.00200	0.00206	103	0.00206	103	69.8-134		0.1	20	
Acenaphthene	0.00200	0.00214	107	0.00213	106	80.8-128		0.6	20	
Acenaphthylene	0.00200	0.00197	98.4	0.00195	97.4	77.2-132		1.0	20	
Anthracene	0.00200	0.00204	102	0.00208	104	78.4-136		1.7	20	
Benzo(a)anthracene	0.00200	0.00204	102	0.00203	101	69.2-141		0.9	20	
Benzo(a)pyrene	0.00200	0.00208	104	0.00209	104	71.1-135		0.5	20	
Benzo(b)fluoranthene	0.00200	0.00237	119	0.00215	108	69.5-140		9.9	20	
Benzo(g,h,i)perylene	0.00200	0.00225	113	0.00232	116	64.6-138		3.1	20	
Benzo(k)fluoranthene	0.00200	0.00221	110	0.00247	124	69.3-144		11	20	
Chrysene	0.00200	0.00227	114	0.00227	113	75.6-138		0.2	20	
Dibenz(a,h)anthracene	0.00200	0.00218	109	0.00217	108	64.1-139		0.5	20	
Fluoranthene	0.00200	0.00214	107	0.00211	106	78.6-135		1.3	20	
Fluorene	0.00200	0.00208	104	0.00205	103	78.3-131		1.4	20	
Indeno(1,2,3-cd)pyrene	0.00200	0.00218	109	0.00218	109	64.8-140		0.2	20	
Naphthalene	0.00200	0.00232	116	0.00232	116	80.2-126		0.0	20	
Phenanthrene	0.00200	0.00215	108	0.00215	107	79.6-130		0.3	20	
Pyrene	0.00200	0.00214	107	0.00213	107	76.6-134		0.4	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-volatile Organic Compounds by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/8/2013 11:37:00 PM	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
1-Methylnaphthalene	0.00200	0.00201	101	0.00198	98.8	71.2-137		1.7	20	
2-Chloronaphthalene	0.00200	0.00215	108	0.00215	108	81.1-129		0.2	20	
2-Methylnaphthalene	0.00200	0.00200	99.8	0.00196	97.9	69.8-134		1.9	20	
Acenaphthene	0.00200	0.00209	105	0.00209	104	80.8-128		0.4	20	
Acenaphthylene	0.00200	0.00169	84.7	0.00171	85.3	77.2-132		0.7	20	
Anthracene	0.00200	0.00177	88.3	0.00180	90.1	78.4-136		2.0	20	
Benzo(a)anthracene	0.00200	0.00172	86.2	0.00163	81.5	69.2-141		5.7	20	
Benzo(a)pyrene	0.00200	0.00194	96.8	0.00190	94.8	71.1-135		2.1	20	
Benzo(b)fluoranthene	0.00200	0.00249	124	0.00238	119	69.5-140		4.3	20	
Benzo(g,h,i)perylene	0.00200	0.00219	109	0.00212	106	64.6-138		3.3	20	
Benzo(k)fluoranthene	0.00200	0.00235	118	0.00227	113	69.3-144		3.6	20	
Chrysene	0.00200	0.00228	114	0.00233	116	75.6-138		2.1	20	
Dibenz(a,h)anthracene	0.00200	0.00210	105	0.00202	101	64.1-139		4.3	20	
Fluoranthene	0.00200	0.00192	96.1	0.00193	96.6	78.6-135		0.5	20	
Fluorene	0.00200	0.00205	102	0.00202	101	78.3-131		1.6	20	
Indeno(1,2,3-cd)pyrene	0.00200	0.00210	105	0.00203	102	64.8-140		3.6	20	
Naphthalene	0.00200	0.00222	111	0.00222	111	80.2-126		0.1	20	
Phenanthrene	0.00200	0.00210	105	0.00211	106	79.6-130		0.5	20	
Pyrene	0.00200	0.00203	102	0.00203	101	76.6-134		0.1	20	

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/4/2013	Analyst:	282
Instrument ID:	BNAMS12	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Internal Standard Response and Retention Time Summary

FileID:0404_03.D Date:4/4/2013 Time:9:24 AM

	IS1		IS2		IS3	
	Response	RT	Response	RT	Response	RT
12 Hour Std			60346	7.34	39205	9.06
Upper Limit			120692	7.84	78410	9.56
Lower Limit			30173	6.84	19602.5	8.56
Sample ID	Response	RT	Response	RT	Response	RT
Blank WG654463			53386	7.34	35002	9.06
LCS WG654463			57166	7.34	36177	9.06
LCSD WG654463			56802	7.34	36255	9.06

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/4/2013	Analyst:	282
Instrument ID:	BNAMS12	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Internal Standard Response and Retention Time Summary

FileID:0404_03.D Date:4/4/2013 Time:9:24 AM

	IS4		IS5		IS6	
	Response	RT	Response	RT	Response	RT
12 Hour Std	64642	10.54	64608	13.18	67432	14.54
Upper Limit	129284	11.04	129216	13.68	134864	15.04
Lower Limit	32321	10.04	32304	12.68	33716	14.04
Sample ID	Response	RT	Response	RT	Response	RT
Blank WG654463	57923	10.54	56580	13.18	60889	14.54
LCS WG654463	58125	10.54	58466	13.18	61539	14.54
LCSD WG654463	58470	10.54	58733	13.18	61254	14.54

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/4/2013	Analyst:	282
Instrument ID:	BNAMS12	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Internal Standard Response and Retention Time Summary

FileID:0408A_02.D Date:4/8/2013 Time:10:53 AM

	IS1		IS2		IS3	
	Response	RT	Response	RT	Response	RT
12 Hour Std			54288	7.33	40787	9.06
Upper Limit			108576	7.83	81574	9.56
Lower Limit			27144	6.83	20393.5	8.56
Sample ID	Response	RT	Response	RT	Response	RT
L628335-01			73588	7.33	61739	9.06
L628335-02			66232	7.33	55533	9.06
L628335-03			57480	7.33	48340	9.06
L628335-04			62719	7.33	53312	9.06
L628335-05			69796	7.33	58150	9.06

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/4/2013	Analyst:	282
Instrument ID:	BNAMS12	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Internal Standard Response and Retention Time Summary

FileID:0408A_02.D Date:4/8/2013 Time:10:53 AM

	IS4		IS5		IS6	
	Response	RT	Response	RT	Response	RT
12 Hour Std	68762	10.54	67657	13.17	62887	14.54
Upper Limit	137524	11.04	135314	13.67	125774	15.04
Lower Limit	34381	10.04	33828.5	12.67	31443.5	14.04
Sample ID	Response	RT	Response	RT	Response	RT
L628335-01	93513	10.54	97774	13.18	108441	14.54
L628335-02	81948	10.54	83379	13.18	90725	14.54
L628335-03	73807	10.53	74098	13.18	81844	14.54
L628335-04	79610	10.53	79348	13.17	81865	14.54
L628335-05	89589	10.53	90170	13.17	96286	14.54

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/4/2013	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Internal Standard Response and Retention Time Summary

FileID:0409_31.D Date:4/9/2013 Time:11:01 PM

	IS1 Response	IS1 RT	IS2 Response	IS2 RT	IS3 Response	IS3 RT	
12 Hour Std			66376	7.45	47325	9.18	
Upper Limit			132752	7.95	94650	9.68	
Lower Limit			33188	6.95	23662.5	8.68	
Sample ID	Response	RT	Response	RT	Response	RT	
L628335-06			116977	7.45	96804	9.18	*

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/4/2013	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Internal Standard Response and Retention Time Summary

FileID:0409_31.D Date:4/9/2013 Time:11:01 PM

	IS4		IS5		IS6	
	Response	RT	Response	RT	Response	RT
12 Hour Std	82424	10.66	90147	13.3	98506	14.67
Upper Limit	164848	11.16	180294	13.8	197012	15.17
Lower Limit	41212	10.16	45073.5	12.8	49253	14.17
Sample ID	Response	RT	Response	RT	Response	RT
L628335-06	138641	10.66	149511	13.30	167541	14.67

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/4/2013	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Internal Standard Response and Retention Time Summary

FileID:0410_03.D Date:4/10/2013 Time:11:31 AM

	IS1		IS2		IS3	
	Response	RT	Response	RT	Response	RT
12 Hour Std			72792	7.46	51086	9.18
Upper Limit			145584	7.96	102172	9.68
Lower Limit			36396	6.96	25543	8.68
Sample ID	Response	RT	Response	RT	Response	RT
L628335-06			75287	7.45	52716	9.18

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654463**
Analysis Date:	4/4/2013	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/3/2013
Sample Numbers:	L628335-01, -02, -03, -04, -05, -06		

Internal Standard Response and Retention Time Summary

FileID:0410_03.D Date:4/10/2013 Time:11:31 AM

	IS4		IS5		IS6	
	Response	RT	Response	RT	Response	RT
12 Hour Std	90790	10.66	99344	13.31	108426	14.67
Upper Limit	181580	11.16	198688	13.81	216852	15.17
Lower Limit	45395	10.16	49672	12.81	54213	14.17
Sample ID	Response	RT	Response	RT	Response	RT
L628335-06	91578	10.66	94396	13.31	99017	14.68

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/5/2013	Analyst:	282
Instrument ID:	BNAMS12	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Internal Standard Response and Retention Time Summary

FileID:0405_05.D Date:4/5/2013 Time:10:34 AM

	IS1		IS2		IS3	
	Response	RT	Response	RT	Response	RT
12 Hour Std			55923	7.34	35480	9.06
Upper Limit			111846	7.84	70960	9.56
Lower Limit			27961.5	6.84	17740	8.56
Sample ID	Response	RT	Response	RT	Response	RT
Blank WG654524			44430	7.34	27771	9.06
LCS WG654524			47214	7.34	29416	9.06
LCSD WG654524			49358	7.34	30249	9.06

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/5/2013	Analyst:	282
Instrument ID:	BNAMS12	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Internal Standard Response and Retention Time Summary

FileID:0405_05.D Date:4/5/2013 Time:10:34 AM

	IS4		IS5		IS6	
	Response	RT	Response	RT	Response	RT
12 Hour Std	59543	10.54	59699	13.18	55615	14.54
Upper Limit	119086	11.04	119398	13.68	111230	15.04
Lower Limit	29771.5	10.04	29849.5	12.68	27807.5	14.04
Sample ID	Response	RT	Response	RT	Response	RT
Blank WG654524	44959	10.54	42519	13.18	41257	14.54
LCS WG654524	47950	10.54	46097	13.18	40887	14.54
LCSD WG654524	48564	10.54	47023	13.18	43612	14.54

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/5/2013	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Internal Standard Response and Retention Time Summary

FileID:0408A_04.D Date:4/8/2013 Time:12:39 PM

	IS1		IS2		IS3	
	Response	RT	Response	RT	Response	RT
12 Hour Std			73749	7.46	52617	9.18
Upper Limit			147498	7.96	105234	9.68
Lower Limit			36874.5	6.96	26308.5	8.68
Sample ID	Response	RT	Response	RT	Response	RT
L628335-07			74425	7.45	59475	9.18

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/5/2013	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Internal Standard Response and Retention Time Summary

FileID:0408A_04.D Date:4/8/2013 Time:12:39 PM

	IS4		IS5		IS6	
	Response	RT	Response	RT	Response	RT
12 Hour Std	92883	10.66	103110	13.3	116920	14.67
Upper Limit	185766	11.16	206220	13.8	233840	15.17
Lower Limit	46441.5	10.16	51555	12.8	58460	14.17
Sample ID	Response	RT	Response	RT	Response	RT
L628335-07	96075	10.66	108722	13.30	125799	14.67

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Est. 1970

Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/5/2013	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Internal Standard Response and Retention Time Summary

FileID:0409_04.D Date:4/9/2013 Time:9:16 AM

	IS1		IS2		IS3	
	Response	RT	Response	RT	Response	RT
12 Hour Std			61180	7.46	41423	9.18
Upper Limit			122360	7.96	82846	9.68
Lower Limit			30590	6.96	20711.5	8.68
Sample ID	Response	RT	Response	RT	Response	RT
L628335-08			76309	7.45	56012	9.18
L628335-09			71120	7.46	50181	9.18
L628335-10			69749	7.46	49369	9.18
L628335-11			73779	7.46	52167	9.18
L628335-12			72483	7.45	51054	9.18

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/5/2013	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Internal Standard Response and Retention Time Summary

FileID:0409_04.D Date:4/9/2013 Time:9:16 AM

	IS4		IS5		IS6	
	Response	RT	Response	RT	Response	RT
12 Hour Std	71618	10.66	78997	13.3	83995	14.67
Upper Limit	143236	11.16	157994	13.8	167990	15.17
Lower Limit	35809	10.16	39498.5	12.8	41997.5	14.17
Sample ID	Response	RT	Response	RT	Response	RT
L628335-08	90546	10.66	99227	13.31	112534	14.67
L628335-09	87145	10.66	95246	13.31	106380	14.67
L628335-10	86597	10.66	92410	13.31	104002	14.67
L628335-11	89136	10.66	94967	13.31	106735	14.67
L628335-12	86176	10.66	92091	13.31	103548	14.67

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/5/2013	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Internal Standard Response and Retention Time Summary

FileID:0410_03.D Date:4/10/2013 Time:11:31 AM

	IS1		IS2		IS3	
	Response	RT	Response	RT	Response	RT
12 Hour Std			72792	7.46	51086	9.18
Upper Limit			145584	7.96	102172	9.68
Lower Limit			36396	6.96	25543	8.68
Sample ID	Response	RT	Response	RT	Response	RT
L628335-08			73093	7.46	51781	9.18

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Quality Control Summary
SDG: L628335
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/1/2013	**Analytic Batch:**	**WG654524**
Analysis Date:	4/5/2013	Analyst:	282
Instrument ID:	BNAMS13	Extraction Date:	4/4/2013
Sample Numbers:	L628335-07, -08, -09, -10, -11, -12		

Internal Standard Response and Retention Time Summary

FileID:0410_03.D Date:4/10/2013 Time:11:31 AM

	IS4		IS5		IS6	
	Response	RT	Response	RT	Response	RT
12 Hour Std	90790	10.66	99344	13.31	108426	14.67
Upper Limit	181580	11.16	198688	13.81	216852	15.17
Lower Limit	45395	10.16	49672	12.81	54213	14.17
Sample ID	Response	RT	Response	RT	Response	RT
L628335-08	91730	10.66	95586	13.31	99334	14.68

ERM - BNSF Region 6

2201 Buena Vista Dr. SE. Suite 305
Albuquerque,NM 87106

Billing information:

BNSF Railway Company
Charles Thomas
4200 Deen Rd

Fort Worth,TX 76106

Chain of Custody
Page 1 of 2

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Fax: (615) 758-5859

F145

Report to: Carly Qualler

Email: carly.qualler@erm.com

Project Description: BNSF- ABQ

City/State Collected: Albuquerque/NM

Phone: (505) 243-3330
FAX:

Client Project #: TT0069-N03

Lab Project #: BNSF6ERM-ABQ

Collected by (print): Robert K. Stewart

Site/Facility ID#: BNSF ABQ

P.O.#:

Collected by (signature): Robert K Stewart / Carly Qualler
Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day.....100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: BNSF NORMAL

Email? ___No X Yes
FAX? ___No ___Yes

Acctnum: BNSF6ERM (lab use only)
Template/Prelogin: T85339/ P423917
Cooler #: 3-15 mg
Shipped Via: FedEx Ground

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	ALK 500mlHDPE-NoPres	BTEX 40mlAmb-HCl	BTEX- Trip Blank 40mlAmb-HCl-Blk	Dissolved Ba, Fe, Mn 500mlHDPE-NoPres	NO2NO3 250mlHDPE-H2SO4 <2	PAHSIMLVI 40mlAmb-NoPres-WT	RSK175 40mlAmb-NoPres	SULFATE 125mlHDPE-NoPres	Remarks/Contaminant	Sample # (lab only)
MW15-GW-0413	Grab	GW	—	4/1/13	1059	10	X	X		X	X	X	X	X	L628335	-01
MW13-GW-0413	↓	GW	—		1144	10	X	X		X	X	X	X	X		-02
MW11-GW-0413		GW	—		1424	10	X	X		X	X	X	X	X		-03
MW42-GW-0413	↓	GW	—		1520	10	X	X		X	X	X	X	X		-04
MW25-GW-0413	Grab	GW	—	4/2/13	0910	10	X	X		X	X	X	X	X		-05
MW39-GW-0413		GW	—		1032	10	X	X		X	X	X	X	X		-06
MW40-GW-0413		GW	—		1138	10	X	X		X	X	X	X	X		-07
DUP1-0413		GW	—		AM	10	X	X		X	X	X	X	X		-08
MW31-GW-0413	↓	GW	—		1320	10	X	X		X	X	X	X	X		-09

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks: Filter metals @ lab.

5547 0234 7230
5547 0234 7300

pH _____ Temp _____

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Carly Qualler	4/2/13	1730	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)
			Troy Ogle

Samples returned via: ☑ FedEx ☐ UPS ☐ Courier ☐ _____
Temp: 3.6 Bottles Received: 190 121
Date: 4-3-13 Time: 0411

Condition: JF (lab use only) OK
COC Seal Intact: ___ Y ___ N ___ NA
pH Checked: <2 NCF:

ERM - BNSF Region 6

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Billing information:

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Phone: (615) 758-5858
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Report to: Carly Qualler
Email: carly.qualler@erm.com
Project Description: BNSF- ABQ
City/State Collected: Albuquerque, NM
Phone: (505) 243-3330
FAX:
Client Project #: TT0069-N03
Lab Project #: BNSF6ERM-ABQ
Collected by (print): Carly Qualler
Site/Facility ID#: BNSF ABQ
P.O.#:
Collected by (signature):
Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day.....100%
___ Two Day.....50%
___ Three Day.....25%

Date Results Needed: BNSF Normal
Email? ___No X Yes
FAX? ___No ___Yes

Acctnum: BNSF6ERM (lab use only)
Template/Prelogin: T85339/ P423917
Cooler #: 3-15 MG
Shipped Via: FedEX Ground

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	ALK 500mlHDPE-NoPres	BTEX 40mlAmb-HCl	BTEX- Trip Blank 40mlAmb-HCl-Blk	Dissolved Ba, Fe, Mn 500mlHDPE-NoPres	NO2NO3 250mlHDPE-H2SO4 <2	PAHSIMLVI 40mlAmb-NoPres-WT	RSK175 40mlAmb-NoPres	SULFATE 125mlHDPE-NoPres	Remarks/Contaminant	Sample # (lab only)
MW23-GW-0413	Grab	GW	—	4/2/13	1405	10	X	X		X	X	X	X	X		L628335 -10
MW27-GW-0413	1	GW	—	1	1508	10	X	X		X	X	X	X	X		-11
MW36-GW-0413	1	GW	—	1	1550	10	X	X		X	X	X	X	X		-12
Trip Blank	Grab	GW	—	4/2/13	—	~~1~~ 10	~~X~~	~~X~~	X	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~		-13
		GW				10	X	X		X	X	X	X	X		
		GW				10	X	X		X	X	X	X	X		
		GW				10	X	X		X	X	X	X	X		
		GW				10	X	X		X	X	X	X	X		
		GW				10	X	X		X	X	X	X	X		

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks: filter metals @ lab

pH _____ Temp _____

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Carly Qualler	4/2/13	1730	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)
			Troy Ogle

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐
Temp: 3.6 Bottles Received: 12
Date: 4-3-13 Time: 0911

Condition: OK (lab use only)
COC Seal Intact: ___ Y ___ N ___ NA
pH Checked: <2 NCF:

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Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

Report Summary

Tuesday April 16, 2013

Report Number: L629063
Samples Received: 04/05/13
Client Project: TT0069-N03

Description: BNSF- ABQ

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Mark W. Beasley , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-01

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW20-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 08:55

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	110000	150	150	10000	ug/l		9056	04/07/13	2
Alkalinity	320000	5000	5000	20000	ug/l		2320 B-	04/13/13	1
Methane	580	2.0	2	10	ug/l		RSK175	04/06/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/06/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/06/13	1
Nitrate-Nitrite	U	23.	23	100	ug/l		353.2	04/12/13	1
Barium,Dissolved	280	1.7	1.7	5	ug/l		6010B	04/10/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/10/13	1
Manganese,Dissolved	640	1.2	1.2	10	ug/l		6010B	04/10/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/10/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/10/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/10/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	99.8				% Rec.		8021B	04/10/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	8.8	0.0076	0.0076	0.05	ug/l		8270C-S	04/10/13	1
Acenaphthene	51.	0.082	0.082	0.5	ug/l		8270C-S	04/12/13	10
Acenaphthylene	0.84	0.0068	0.0068	0.05	ug/l		8270C-S	04/10/13	1
Benzo(a)anthracene	0.22	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
Benzo(a)pyrene	0.027	0.012	0.012	0.05	ug/l	J	8270C-S	04/10/13	1
Benzo(b)fluoranthene	0.042	0.014	0.014	0.05	ug/l	J	8270C-S	04/10/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Benzo(k)fluoranthene	0.015	0.014	0.014	0.05	ug/l	J	8270C-S	04/10/13	1
Chrysene	0.16	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/10/13	1
Fluoranthene	7.3	0.016	0.016	0.05	ug/l		8270C-S	04/10/13	1
Fluorene	5.5	0.0085	0.0085	0.05	ug/l		8270C-S	04/10/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/10/13	1
Naphthalene	0.38	0.020	0.02	0.25	ug/l		8270C-S	04/10/13	1
Phenanthrene	0.087	0.0082	0.0082	0.05	ug/l		8270C-S	04/10/13	1
Pyrene	3.9	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
1-Methylnaphthalene	0.28	0.0082	0.0082	0.25	ug/l		8270C-S	04/10/13	1
2-Methylnaphthalene	0.069	0.0090	0.009	0.25	ug/l	J	8270C-S	04/10/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/10/13	1
Surrogate Recovery									
Nitrobenzene-d5	143.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 04/16/13 15:39 Printed: 04/16/13 15:40

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-01

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW20-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 08:55

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	114.				% Rec.		8270C-S	04/10/13	1
p-Terphenyl-d14	122.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 04/16/13 15:39 Printed: 04/16/13 15:40

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-02

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW21-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 10:04

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	240000	390	390	25000	ug/l		9056	04/07/13	5
Alkalinity	210000	5000	5000	20000	ug/l		2320 B-	04/13/13	1
Methane	U	2.0	2	10	ug/l		RSK175	04/06/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/06/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/06/13	1
Nitrate-Nitrite	86.	46.	46	200	ug/l	J	353.2	04/12/13	2
Barium,Dissolved	58.	1.7	1.7	5	ug/l		6010B	04/10/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/10/13	1
Manganese,Dissolved	1400	1.2	1.2	10	ug/l		6010B	04/10/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/10/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/10/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/10/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	100.				% Rec.		8021B	04/10/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.090	0.0076	0.0076	0.05	ug/l		8270C-S	04/10/13	1
Acenaphthene	0.30	0.0082	0.0082	0.05	ug/l		8270C-S	04/10/13	1
Acenaphthylene	U	0.0068	0.0068	0.05	ug/l		8270C-S	04/10/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/10/13	1
Fluoranthene	0.047	0.016	0.016	0.05	ug/l	J	8270C-S	04/10/13	1
Fluorene	0.14	0.0085	0.0085	0.05	ug/l		8270C-S	04/10/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/10/13	1
Naphthalene	0.064	0.020	0.02	0.25	ug/l	J	8270C-S	04/10/13	1
Phenanthrene	U	0.0082	0.0082	0.05	ug/l		8270C-S	04/10/13	1
Pyrene	0.084	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
1-Methylnaphthalene	0.034	0.0082	0.0082	0.25	ug/l	J	8270C-S	04/10/13	1
2-Methylnaphthalene	0.012	0.0090	0.009	0.25	ug/l	J	8270C-S	04/10/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/10/13	1
Surrogate Recovery									
Nitrobenzene-d5	128.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-02

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW21-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 10:04

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	114.				% Rec.		8270C-S	04/10/13	1
p-Terphenyl-d14	121.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-03

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW19-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 10:58

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	180000	150	150	10000	ug/l		9056	04/07/13	2
Alkalinity	280000	2600	2600	20000	ug/l		2320 B-	04/15/13	1
Methane	110	2.0	2	10	ug/l		RSK175	04/06/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/06/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/06/13	1
Nitrate-Nitrite	46.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	280	1.7	1.7	5	ug/l		6010B	04/10/13	1
Iron,Dissolved	16.	14.	14	100	ug/l	J	6010B	04/10/13	1
Manganese,Dissolved	780	1.2	1.2	10	ug/l		6010B	04/10/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/10/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/10/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/10/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	100.				% Rec.		8021B	04/10/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	1.9	0.0076	0.0076	0.05	ug/l		8270C-S	04/10/13	1
Acenaphthene	22.	0.082	0.082	0.5	ug/l		8270C-S	04/12/13	10
Acenaphthylene	1.9	0.0068	0.0068	0.05	ug/l		8270C-S	04/10/13	1
Benzo(a)anthracene	0.20	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
Benzo(a)pyrene	0.053	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
Benzo(b)fluoranthene	0.10	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Benzo(g,h,i)perylene	0.015	0.011	0.011	0.05	ug/l	J	8270C-S	04/10/13	1
Benzo(k)fluoranthene	0.029	0.014	0.014	0.05	ug/l	J	8270C-S	04/10/13	1
Chrysene	0.14	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Dibenz(a,h)anthracene	0.0049	0.0040	0.004	0.05	ug/l	J	8270C-S	04/10/13	1
Fluoranthene	1.5	0.016	0.016	0.05	ug/l		8270C-S	04/10/13	1
Fluorene	10.	0.085	0.085	0.5	ug/l		8270C-S	04/12/13	10
Indeno(1,2,3-cd)pyrene	0.015	0.015	0.015	0.05	ug/l	J	8270C-S	04/10/13	1
Naphthalene	0.40	0.020	0.02	0.25	ug/l		8270C-S	04/10/13	1
Phenanthrene	0.16	0.0082	0.0082	0.05	ug/l		8270C-S	04/10/13	1
Pyrene	1.1	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
1-Methylnaphthalene	0.25	0.0082	0.0082	0.25	ug/l	J	8270C-S	04/10/13	1
2-Methylnaphthalene	0.058	0.0090	0.009	0.25	ug/l	J	8270C-S	04/10/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/10/13	1
Surrogate Recovery									
Nitrobenzene-d5	135.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-03

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW19-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 10:58

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	108.				% Rec.		8270C-S	04/10/13	1
p-Terphenyl-d14	114.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-04

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW24-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 13:10

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	170000	770	770	50000	ug/l		9056	04/07/13	10
Alkalinity	210000	2600	2600	20000	ug/l		2320 B-	04/15/13	1
Methane	62.	2.0	2	10	ug/l		RSK175	04/06/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/06/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/06/13	1
Nitrate-Nitrite	36.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	72.	1.7	1.7	5	ug/l		6010B	04/10/13	1
Iron,Dissolved	19.	14.	14	100	ug/l	J	6010B	04/10/13	1
Manganese,Dissolved	670	1.2	1.2	10	ug/l		6010B	04/10/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/10/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/10/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/10/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	100.				% Rec.		8021B	04/10/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.0086	0.0076	0.0076	0.05	ug/l	J	8270C-S	04/10/13	1
Acenaphthene	0.21	0.0082	0.0082	0.05	ug/l		8270C-S	04/10/13	1
Acenaphthylene	0.021	0.0068	0.0068	0.05	ug/l	J	8270C-S	04/10/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/10/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l		8270C-S	04/10/13	1
Fluorene	0.048	0.0085	0.0085	0.05	ug/l	J	8270C-S	04/10/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/10/13	1
Naphthalene	0.072	0.020	0.02	0.25	ug/l	J	8270C-S	04/10/13	1
Phenanthrene	0.017	0.0082	0.0082	0.05	ug/l	J	8270C-S	04/10/13	1
Pyrene	0.025	0.012	0.012	0.05	ug/l	J	8270C-S	04/10/13	1
1-Methylnaphthalene	0.18	0.0082	0.0082	0.25	ug/l	J	8270C-S	04/10/13	1
2-Methylnaphthalene	0.12	0.0090	0.009	0.25	ug/l	J	8270C-S	04/10/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/10/13	1
Surrogate Recovery									
Nitrobenzene-d5	126.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-04

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW24-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 13:10

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	118.				% Rec.		8270C-S	04/10/13	1
p-Terphenyl-d14	121.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-05

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW16-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 13:40

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	25000	77.	77	5000	ug/l		9056	04/09/13	1
Alkalinity	380000	13000	13000	100000	ug/l	J6	2320 B-	04/15/13	5
Methane	2300	10.	10	50	ug/l		RSK175	04/06/13	5
Ethane	U	20.	20	65	ug/l		RSK175	04/06/13	5
Ethene	U	28.	28	65	ug/l		RSK175	04/06/13	5
Nitrate-Nitrite	68.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	280	1.7	1.7	5	ug/l		6010B	04/10/13	1
Iron,Dissolved	15.	14.	14	100	ug/l	J	6010B	04/10/13	1
Manganese,Dissolved	770	1.2	1.2	10	ug/l		6010B	04/10/13	1
Benzene	0.26	0.19	0.19	0.5	ug/l	J	8021B	04/10/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/10/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/10/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	100.				% Rec.		8021B	04/10/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.95	0.0076	0.0076	0.05	ug/l		8270C-S	04/10/13	1
Acenaphthene	20.	0.082	0.082	0.5	ug/l		8270C-S	04/12/13	10
Acenaphthylene	2.6	0.0068	0.0068	0.05	ug/l		8270C-S	04/10/13	1
Benzo(a)anthracene	0.013	0.012	0.012	0.05	ug/l	J	8270C-S	04/10/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/10/13	1
Fluoranthene	0.25	0.016	0.016	0.05	ug/l		8270C-S	04/10/13	1
Fluorene	11.	0.085	0.085	0.5	ug/l		8270C-S	04/12/13	10
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/10/13	1
Naphthalene	15.	0.020	0.02	0.25	ug/l		8270C-S	04/10/13	1
Phenanthrene	2.7	0.0082	0.0082	0.05	ug/l		8270C-S	04/10/13	1
Pyrene	0.17	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
1-Methylnaphthalene	17.	0.0082	0.0082	0.25	ug/l		8270C-S	04/10/13	1
2-Methylnaphthalene	10.	0.0090	0.009	0.25	ug/l		8270C-S	04/10/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/10/13	1
Surrogate Recovery									
Nitrobenzene-d5	135.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-05

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW16-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 13:40

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	111.				% Rec.		8270C-S	04/10/13	1
p-Terphenyl-d14	117.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-06

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW17-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 14:14

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	73000	770	770	50000	ug/l		9056	04/07/13	10
Alkalinity	430000	13000	13000	100000	ug/l		2320 B-	04/15/13	5
Methane	430	2.0	2	10	ug/l		RSK175	04/06/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/06/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/06/13	1
Nitrate-Nitrite	80.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	350	1.7	1.7	5	ug/l		6010B	04/10/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/10/13	1
Manganese,Dissolved	640	1.2	1.2	10	ug/l		6010B	04/10/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/10/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/10/13	1
Ethylbenzene	0.20	0.16	0.16	0.5	ug/l	J	8021B	04/10/13	1
Total Xylene	0.53	0.51	0.51	1.5	ug/l	J	8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	102.				% Rec.		8021B	04/10/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.22	0.0076	0.0076	0.05	ug/l		8270C-S	04/10/13	1
Acenaphthene	10.	0.082	0.082	0.5	ug/l		8270C-S	04/12/13	10
Acenaphthylene	1.1	0.0068	0.0068	0.05	ug/l		8270C-S	04/10/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/10/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l		8270C-S	04/10/13	1
Fluorene	1.5	0.0085	0.0085	0.05	ug/l		8270C-S	04/10/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/10/13	1
Naphthalene	0.55	0.020	0.02	0.25	ug/l		8270C-S	04/10/13	1
Phenanthrene	0.044	0.0082	0.0082	0.05	ug/l	J	8270C-S	04/10/13	1
Pyrene	0.019	0.012	0.012	0.05	ug/l	J	8270C-S	04/10/13	1
1-Methylnaphthalene	0.54	0.0082	0.0082	0.25	ug/l		8270C-S	04/10/13	1
2-Methylnaphthalene	0.065	0.0090	0.009	0.25	ug/l	J	8270C-S	04/10/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/10/13	1
Surrogate Recovery									
Nitrobenzene-d5	127.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-06

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW17-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 14:14

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	111.				% Rec.		8270C-S	04/10/13	1
p-Terphenyl-d14	116.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-07

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW18-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 15:12

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	130000	770	770	50000	ug/l		9056	04/07/13	10
Alkalinity	340000	2600	2600	20000	ug/l		2320 B-	04/15/13	1
Methane	130	2.0	2	10	ug/l		RSK175	04/06/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/06/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/06/13	1
Nitrate-Nitrite	65.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	460	1.7	1.7	5	ug/l		6010B	04/10/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/10/13	1
Manganese,Dissolved	2600	1.2	1.2	10	ug/l		6010B	04/10/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	104.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.20	0.0076	0.0076	0.05	ug/l		8270C-S	04/10/13	1
Acenaphthene	3.7	0.0082	0.0082	0.05	ug/l		8270C-S	04/10/13	1
Acenaphthylene	0.30	0.0068	0.0068	0.05	ug/l		8270C-S	04/10/13	1
Benzo(a)anthracene	0.014	0.012	0.012	0.05	ug/l	J	8270C-S	04/10/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/10/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/10/13	1
Fluoranthene	0.050	0.016	0.016	0.05	ug/l	J	8270C-S	04/10/13	1
Fluorene	0.70	0.0085	0.0085	0.05	ug/l		8270C-S	04/10/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/10/13	1
Naphthalene	2.2	0.020	0.02	0.25	ug/l		8270C-S	04/10/13	1
Phenanthrene	0.38	0.0082	0.0082	0.05	ug/l		8270C-S	04/10/13	1
Pyrene	0.15	0.012	0.012	0.05	ug/l		8270C-S	04/10/13	1
1-Methylnaphthalene	5.0	0.0082	0.0082	0.25	ug/l		8270C-S	04/10/13	1
2-Methylnaphthalene	1.9	0.0090	0.009	0.25	ug/l		8270C-S	04/10/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/10/13	1
Surrogate Recovery									
Nitrobenzene-d5	128.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-07

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW18-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 15:12

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	116.				% Rec.		8270C-S	04/10/13	1
p-Terphenyl-d14	122.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
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REPORT OF ANALYSIS

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ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-08

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW5-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 15:56

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	28000	77.	77	5000	ug/l		9056	04/09/13	1
Alkalinity	410000	13000	13000	100000	ug/l		2320 B-	04/15/13	5
Methane	430	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	39.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	350	1.7	1.7	5	ug/l		6010B	04/10/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/10/13	1
Manganese,Dissolved	860	1.2	1.2	10	ug/l		6010B	04/10/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	103.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.99	0.076	0.076	0.5	ug/l		8270C-S	04/12/13	10
Acenaphthene	32.	0.082	0.082	0.5	ug/l		8270C-S	04/12/13	10
Acenaphthylene	4.9	0.068	0.068	0.5	ug/l		8270C-S	04/12/13	10
Benzo(a)anthracene	U	0.12	0.12	0.5	ug/l		8270C-S	04/12/13	10
Benzo(a)pyrene	U	0.12	0.12	0.5	ug/l		8270C-S	04/12/13	10
Benzo(b)fluoranthene	U	0.14	0.14	0.5	ug/l		8270C-S	04/12/13	10
Benzo(g,h,i)perylene	U	0.11	0.11	0.5	ug/l		8270C-S	04/12/13	10
Benzo(k)fluoranthene	U	0.14	0.14	0.5	ug/l		8270C-S	04/12/13	10
Chrysene	U	0.11	0.11	0.5	ug/l		8270C-S	04/12/13	10
Dibenz(a,h)anthracene	U	0.040	0.04	0.5	ug/l		8270C-S	04/12/13	10
Fluoranthene	U	0.16	0.16	0.5	ug/l		8270C-S	04/12/13	10
Fluorene	13.	0.085	0.085	0.5	ug/l		8270C-S	04/12/13	10
Indeno(1,2,3-cd)pyrene	U	0.15	0.15	0.5	ug/l		8270C-S	04/12/13	10
Naphthalene	1.5	0.20	0.2	2.5	ug/l	J	8270C-S	04/12/13	10
Phenanthrene	U	0.082	0.082	0.5	ug/l		8270C-S	04/12/13	10
Pyrene	0.20	0.12	0.12	0.5	ug/l	J	8270C-S	04/12/13	10
1-Methylnaphthalene	1.9	0.082	0.082	2.5	ug/l	J	8270C-S	04/12/13	10
2-Methylnaphthalene	0.22	0.090	0.09	2.5	ug/l	J	8270C-S	04/12/13	10
2-Chloronaphthalene	U	0.065	0.065	2.5	ug/l		8270C-S	04/12/13	10
Surrogate Recovery									
Nitrobenzene-d5	32.8				% Rec.	J2	8270C-S	04/12/13	10

U = ND (Not Detected) = Less than SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-08

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW5-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 15:56

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	93.5				% Rec.		8270C-S	04/12/13	10
p-Terphenyl-d14	104.				% Rec.		8270C-S	04/12/13	10

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REPORT OF ANALYSIS

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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-09

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW22-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 09:05

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	54000	770	770	50000	ug/l		9056	04/07/13	10
Alkalinity	360000	2600	2600	20000	ug/l		2320 B-	04/15/13	1
Methane	360	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	56.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	270	1.7	1.7	5	ug/l		6010B	04/11/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/11/13	1
Manganese,Dissolved	880	1.2	1.2	10	ug/l		6010B	04/11/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	103.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.29	0.0076	0.0076	0.05	ug/l		8270C-S	04/12/13	1
Acenaphthene	4.9	0.0082	0.0082	0.05	ug/l		8270C-S	04/12/13	1
Acenaphthylene	0.23	0.0068	0.0068	0.05	ug/l		8270C-S	04/12/13	1
Benzo(a)anthracene	0.014	0.012	0.012	0.05	ug/l	J	8270C-S	04/12/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/12/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/12/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/12/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/12/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/12/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/12/13	1
Fluoranthene	0.083	0.016	0.016	0.05	ug/l		8270C-S	04/12/13	1
Fluorene	0.50	0.0085	0.0085	0.05	ug/l		8270C-S	04/12/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/12/13	1
Naphthalene	0.19	0.020	0.02	0.25	ug/l	J	8270C-S	04/12/13	1
Phenanthrene	0.038	0.0082	0.0082	0.05	ug/l	J	8270C-S	04/12/13	1
Pyrene	0.25	0.012	0.012	0.05	ug/l		8270C-S	04/12/13	1
1-Methylnaphthalene	0.20	0.0082	0.0082	0.25	ug/l	J	8270C-S	04/12/13	1
2-Methylnaphthalene	0.029	0.0090	0.009	0.25	ug/l	J	8270C-S	04/12/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/12/13	1
Surrogate Recovery									
Nitrobenzene-d5	146.				% Rec.		8270C-S	04/12/13	1

U = ND (Not Detected) = Less than SDL
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MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-09

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW22-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 09:05

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	109.				% Rec.		8270C-S	04/12/13	1
p-Terphenyl-d14	114.				% Rec.		8270C-S	04/12/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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Reported: 04/16/13 15:39 Printed: 04/16/13 15:40

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ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-10

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : TRIP BLANK 2

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/03/13 00:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/10/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/10/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/10/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/10/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	100.				% Rec.		8021B	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-11

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW22S-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 09:36

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	100000	770	770	50000	ug/l		9056	04/07/13	10
Alkalinity	340000	2600	2600	20000	ug/l		2320 B-	04/15/13	1
Methane	180	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	U	23.	23	100	ug/l		353.2	04/12/13	1
Barium,Dissolved	200	1.7	1.7	5	ug/l		6010B	04/11/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/11/13	1
Manganese,Dissolved	920	1.2	1.2	10	ug/l		6010B	04/11/13	1
Benzene	0.61	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	103.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.30	0.0076	0.0076	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthene	4.2	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthylene	0.49	0.0068	0.0068	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/11/13	1
Fluoranthene	0.053	0.016	0.016	0.05	ug/l		8270C-S	04/11/13	1
Fluorene	2.7	0.0085	0.0085	0.05	ug/l		8270C-S	04/11/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/11/13	1
Naphthalene	0.35	0.020	0.02	0.25	ug/l		8270C-S	04/11/13	1
Phenanthrene	1.3	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Pyrene	0.24	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
1-Methylnaphthalene	15.	0.0082	0.0082	0.25	ug/l		8270C-S	04/11/13	1
2-Methylnaphthalene	6.8	0.0090	0.009	0.25	ug/l		8270C-S	04/11/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/11/13	1
Surrogate Recovery									
Nitrobenzene-d5	124.				% Rec.		8270C-S	04/11/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-11

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW22S-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 09:36

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	114.				% Rec.		8270C-S	04/11/13	1
p-Terphenyl-d14	108.				% Rec.		8270C-S	04/11/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-12

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW44-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 10:24

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	120000	770	770	50000	ug/l		9056	04/07/13	10
Alkalinity	380000	2600	2600	20000	ug/l		2320 B-	04/15/13	1
Methane	79.	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	59.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	380	1.7	1.7	5	ug/l		6010B	04/11/13	1
Iron,Dissolved	17.	14.	14	100	ug/l	J	6010B	04/11/13	1
Manganese,Dissolved	1100	1.2	1.2	10	ug/l		6010B	04/11/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	0.18	0.16	0.16	0.5	ug/l	J	8021B	04/12/13	1
Total Xylene	0.54	0.51	0.51	1.5	ug/l	J	8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	103.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	1.2	0.0076	0.0076	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthene	6.3	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthylene	1.1	0.0068	0.0068	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)anthracene	0.015	0.012	0.012	0.05	ug/l	J	8270C-S	04/11/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Chrysene	0.013	0.011	0.011	0.05	ug/l	J	8270C-S	04/11/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/11/13	1
Fluoranthene	0.12	0.016	0.016	0.05	ug/l		8270C-S	04/11/13	1
Fluorene	7.3	0.0085	0.0085	0.05	ug/l		8270C-S	04/11/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/11/13	1
Naphthalene	18.	0.020	0.02	0.25	ug/l		8270C-S	04/11/13	1
Phenanthrene	5.9	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Pyrene	0.29	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
1-Methylnaphthalene	97.	0.0082	0.0082	0.25	ug/l		8270C-S	04/11/13	1
2-Methylnaphthalene	43.	0.0090	0.009	0.25	ug/l		8270C-S	04/11/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/11/13	1
Surrogate Recovery									
Nitrobenzene-d5	151.				% Rec.		8270C-S	04/11/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-12

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW44-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 10:24

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	105.				% Rec.		8270C-S	04/11/13	1
p-Terphenyl-d14	107.				% Rec.		8270C-S	04/11/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-13

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW9-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 11:58

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	59000	770	770	50000	ug/l		9056	04/07/13	10
Alkalinity	310000	2600	2600	20000	ug/l		2320 B-	04/15/13	1
Methane	300	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	47.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	250	1.7	1.7	5	ug/l		6010B	04/11/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/11/13	1
Manganese,Dissolved	1300	1.2	1.2	10	ug/l		6010B	04/11/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	103.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.12	0.0076	0.0076	0.05	ug/l		8270C-S	04/12/13	1
Acenaphthene	6.5	0.0082	0.0082	0.05	ug/l		8270C-S	04/12/13	1
Acenaphthylene	0.38	0.0068	0.0068	0.05	ug/l		8270C-S	04/12/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/12/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/12/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/12/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/12/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/12/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/12/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/12/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l		8270C-S	04/12/13	1
Fluorene	0.89	0.0085	0.0085	0.05	ug/l		8270C-S	04/12/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/12/13	1
Naphthalene	3.0	0.020	0.02	0.25	ug/l		8270C-S	04/12/13	1
Phenanthrene	0.083	0.0082	0.0082	0.05	ug/l		8270C-S	04/12/13	1
Pyrene	0.22	0.012	0.012	0.05	ug/l		8270C-S	04/12/13	1
1-Methylnaphthalene	1.9	0.0082	0.0082	0.25	ug/l		8270C-S	04/12/13	1
2-Methylnaphthalene	0.58	0.0090	0.009	0.25	ug/l		8270C-S	04/12/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/12/13	1
Surrogate Recovery									
Nitrobenzene-d5	118.				% Rec.		8270C-S	04/12/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-13

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW9-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 11:58

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	102.				% Rec.		8270C-S	04/12/13	1
p-Terphenyl-d14	105.				% Rec.		8270C-S	04/12/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 04/16/13 15:39 Printed: 04/16/13 15:41

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-14

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW33-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 13:31

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	170000	770	770	50000	ug/l		9056	04/07/13	10
Alkalinity	270000	2600	2600	20000	ug/l		2320 B-	04/15/13	1
Methane	61.	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	82.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	190	1.7	1.7	5	ug/l		6010B	04/11/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/11/13	1
Manganese,Dissolved	390	1.2	1.2	10	ug/l		6010B	04/11/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	103.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.51	0.0076	0.0076	0.05	ug/l		8270C-S	04/12/13	1
Acenaphthene	4.7	0.0082	0.0082	0.05	ug/l		8270C-S	04/12/13	1
Acenaphthylene	0.58	0.0068	0.0068	0.05	ug/l		8270C-S	04/12/13	1
Benzo(a)anthracene	0.057	0.012	0.012	0.05	ug/l		8270C-S	04/12/13	1
Benzo(a)pyrene	0.013	0.012	0.012	0.05	ug/l	J	8270C-S	04/12/13	1
Benzo(b)fluoranthene	0.023	0.014	0.014	0.05	ug/l	J	8270C-S	04/12/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/12/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/12/13	1
Chrysene	0.030	0.011	0.011	0.05	ug/l	J	8270C-S	04/12/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/12/13	1
Fluoranthene	0.44	0.016	0.016	0.05	ug/l		8270C-S	04/12/13	1
Fluorene	1.4	0.0085	0.0085	0.05	ug/l		8270C-S	04/12/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/12/13	1
Naphthalene	1.0	0.020	0.02	0.25	ug/l		8270C-S	04/12/13	1
Phenanthrene	0.52	0.0082	0.0082	0.05	ug/l		8270C-S	04/12/13	1
Pyrene	0.42	0.012	0.012	0.05	ug/l		8270C-S	04/12/13	1
1-Methylnaphthalene	2.7	0.0082	0.0082	0.25	ug/l		8270C-S	04/12/13	1
2-Methylnaphthalene	1.5	0.0090	0.009	0.25	ug/l		8270C-S	04/12/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/12/13	1
Surrogate Recovery									
Nitrobenzene-d5	115.				% Rec.		8270C-S	04/12/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-14

Site ID : BNSF ALB

Project # : TT0069-N03

Date Received : April 05, 2013
Description : BNSF- ABQ

Sample ID : MW33-GW-0413

Collected By : Robert K. Stewart
Collection Date : 04/04/13 13:31

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	113.				% Rec.		8270C-S	04/12/13	1
p-Terphenyl-d14	106.				% Rec.		8270C-S	04/12/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-15

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW1-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 14:34

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	52000	770	770	50000	ug/l		9056	04/07/13	10
Alkalinity	330000	2600	2600	20000	ug/l		2320 B-	04/15/13	1
Methane	510	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	49.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	300	1.7	1.7	5	ug/l		6010B	04/11/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/11/13	1
Manganese,Dissolved	940	1.2	1.2	10	ug/l		6010B	04/11/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	103.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.45	0.0076	0.0076	0.05	ug/l		8270C-S	04/12/13	1
Acenaphthene	18.	0.082	0.082	0.5	ug/l		8270C-S	04/16/13	10
Acenaphthylene	1.4	0.0068	0.0068	0.05	ug/l		8270C-S	04/12/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/12/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/12/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/12/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/12/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/12/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/12/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/12/13	1
Fluoranthene	0.051	0.016	0.016	0.05	ug/l		8270C-S	04/12/13	1
Fluorene	7.2	0.0085	0.0085	0.05	ug/l		8270C-S	04/12/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/12/13	1
Naphthalene	0.93	0.020	0.02	0.25	ug/l		8270C-S	04/12/13	1
Phenanthrene	0.11	0.0082	0.0082	0.05	ug/l		8270C-S	04/12/13	1
Pyrene	0.11	0.012	0.012	0.05	ug/l		8270C-S	04/12/13	1
1-Methylnaphthalene	2.1	0.0082	0.0082	0.25	ug/l		8270C-S	04/12/13	1
2-Methylnaphthalene	0.16	0.0090	0.009	0.25	ug/l	J	8270C-S	04/12/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/12/13	1
Surrogate Recovery									
Nitrobenzene-d5	147.				% Rec.		8270C-S	04/12/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-15

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW1-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 14:34

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	117.				% Rec.		8270C-S	04/12/13	1
p-Terphenyl-d14	112.				% Rec.		8270C-S	04/12/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-16

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW11R-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 15:14

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	34000	77.	77	5000	ug/l		9056	04/09/13	1
Alkalinity	400000	2600	2600	20000	ug/l		2320 B-	04/15/13	1
Methane	200	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	130	23.	23	100	ug/l		353.2	04/12/13	1
Barium,Dissolved	360	1.7	1.7	5	ug/l		6010B	04/11/13	1
Iron,Dissolved	39.	14.	14	100	ug/l	J	6010B	04/11/13	1
Manganese,Dissolved	1000	1.2	1.2	10	ug/l		6010B	04/11/13	1
Benzene	0.34	0.19	0.19	0.5	ug/l	J	8021B	04/12/13	1
Toluene	0.24	0.18	0.18	5	ug/l	J	8021B	04/12/13	1
Ethylbenzene	0.36	0.16	0.16	0.5	ug/l	J	8021B	04/12/13	1
Total Xylene	1.3	0.51	0.51	1.5	ug/l	J	8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	104.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.74	0.0076	0.0076	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthene	14.	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthylene	1.6	0.0068	0.0068	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/11/13	1
Fluoranthene	0.019	0.016	0.016	0.05	ug/l	J	8270C-S	04/11/13	1
Fluorene	10.	0.0085	0.0085	0.05	ug/l		8270C-S	04/11/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/11/13	1
Naphthalene	150	0.40	0.4	5	ug/l		8270C-S	04/12/13	20
Phenanthrene	5.9	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
1-Methylnaphthalene	160	0.16	0.16	5	ug/l		8270C-S	04/12/13	20
2-Methylnaphthalene	140	0.18	0.18	5	ug/l		8270C-S	04/12/13	20
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/11/13	1
Surrogate Recovery									
Nitrobenzene-d5	0.833				% Rec.	J7	8270C-S	04/12/13	20

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-16

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW11R-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 15:14

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	101.				% Rec.		8270C-S	04/11/13	1
p-Terphenyl-d14	119.				% Rec.		8270C-S	04/11/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-17

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW3-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 15:56

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	210	77.	77	5000	ug/l	J	9056	04/09/13	1
Alkalinity	420000	13000	13000	100000	ug/l		2320 B-	04/15/13	5
Methane	1800	10.	10	50	ug/l		RSK175	04/09/13	5
Ethane	U	20.	20	65	ug/l		RSK175	04/09/13	5
Ethene	U	28.	28	65	ug/l		RSK175	04/09/13	5
Nitrate-Nitrite	48.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	530	1.7	1.7	5	ug/l		6010B	04/11/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/11/13	1
Manganese,Dissolved	820	1.2	1.2	10	ug/l		6010B	04/11/13	1
Benzene	0.52	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	0.30	0.18	0.18	5	ug/l	J	8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	0.71	0.51	0.51	1.5	ug/l	J	8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	104.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.15	0.0076	0.0076	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthene	9.2	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthylene	0.59	0.0068	0.0068	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)anthracene	0.012	0.012	0.012	0.05	ug/l	J	8270C-S	04/11/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Benzo(k)fluoranthene	0.033	0.014	0.014	0.05	ug/l	J	8270C-S	04/11/13	1
Chrysene	0.014	0.011	0.011	0.05	ug/l	J	8270C-S	04/11/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/11/13	1
Fluoranthene	0.083	0.016	0.016	0.05	ug/l		8270C-S	04/11/13	1
Fluorene	5.0	0.0085	0.0085	0.05	ug/l		8270C-S	04/11/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/11/13	1
Naphthalene	69.	0.020	0.02	0.25	ug/l		8270C-S	04/11/13	1
Phenanthrene	0.57	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Pyrene	0.15	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
1-Methylnaphthalene	210	0.16	0.16	5	ug/l		8270C-S	04/12/13	20
2-Methylnaphthalene	220	0.18	0.18	5	ug/l		8270C-S	04/12/13	20
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/11/13	1
Surrogate Recovery									
Nitrobenzene-d5	119.				% Rec.		8270C-S	04/11/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
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April 16, 2013

ESC Sample # : L629063-17

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW3-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 15:56

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	99.9				% Rec.		8270C-S	04/11/13	1
p-Terphenyl-d14	103.				% Rec.		8270C-S	04/11/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-18

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW37-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 16:35

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	U	77.	77	5000	ug/l		9056	04/09/13	1
Alkalinity	420000	13000	13000	100000	ug/l		2320 B-	04/15/13	5
Methane	4600	20.	20	100	ug/l		RSK175	04/09/13	10
Ethane	U	40.	40	130	ug/l		RSK175	04/09/13	10
Ethene	U	57.	57	130	ug/l		RSK175	04/09/13	10
Nitrate-Nitrite	140	23.	23	100	ug/l		353.2	04/12/13	1
Barium,Dissolved	720	1.7	1.7	5	ug/l		6010B	04/11/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/11/13	1
Manganese,Dissolved	1300	1.2	1.2	10	ug/l		6010B	04/11/13	1
Benzene	0.91	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	0.41	0.16	0.16	0.5	ug/l	J	8021B	04/12/13	1
Total Xylene	1.3	0.51	0.51	1.5	ug/l	J	8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	104.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	1.0	0.0076	0.0076	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthene	26.	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthylene	2.8	0.0068	0.0068	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/11/13	1
Fluoranthene	0.045	0.016	0.016	0.05	ug/l	J	8270C-S	04/11/13	1
Fluorene	22.	0.0085	0.0085	0.05	ug/l		8270C-S	04/11/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/11/13	1
Naphthalene	220	0.40	0.4	5	ug/l		8270C-S	04/12/13	20
Phenanthrene	18.	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Pyrene	0.057	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
1-Methylnaphthalene	350	0.16	0.16	5	ug/l		8270C-S	04/12/13	20
2-Methylnaphthalene	97.	0.0090	0.009	0.25	ug/l		8270C-S	04/11/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/11/13	1
Surrogate Recovery									
Nitrobenzene-d5	128.				% Rec.		8270C-S	04/11/13	1

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MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-18

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW37-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 16:35

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	99.8				% Rec.		8270C-S	04/11/13	1
p-Terphenyl-d14	104.				% Rec.		8270C-S	04/11/13	1

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ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-19

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW30-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 17:22

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	13000	77.	77	5000	ug/l		9056	04/09/13	1
Alkalinity	380000	13000	13000	100000	ug/l		2320 B-	04/15/13	5
Methane	2500	10.	10	50	ug/l		RSK175	04/09/13	5
Ethane	U	20.	20	65	ug/l		RSK175	04/09/13	5
Ethene	U	28.	28	65	ug/l		RSK175	04/09/13	5
Nitrate-Nitrite	75.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	570	1.7	1.7	5	ug/l		6010B	04/11/13	1
Iron,Dissolved	64.	14.	14	100	ug/l	J	6010B	04/11/13	1
Manganese,Dissolved	2000	1.2	1.2	10	ug/l		6010B	04/11/13	1
Benzene	4.6	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	0.29	0.18	0.18	5	ug/l	J	8021B	04/12/13	1
Ethylbenzene	0.41	0.16	0.16	0.5	ug/l	J	8021B	04/12/13	1
Total Xylene	1.9	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	104.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.48	0.0076	0.0076	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthene	8.8	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthylene	0.83	0.0068	0.0068	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)anthracene	0.014	0.012	0.012	0.05	ug/l	J	8270C-S	04/11/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/11/13	1
Fluoranthene	0.055	0.016	0.016	0.05	ug/l		8270C-S	04/11/13	1
Fluorene	5.6	0.0085	0.0085	0.05	ug/l		8270C-S	04/11/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/11/13	1
Naphthalene	150	0.20	0.2	2.5	ug/l		8270C-S	04/12/13	10
Phenanthrene	2.6	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Pyrene	0.075	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
1-Methylnaphthalene	100	0.082	0.082	2.5	ug/l		8270C-S	04/12/13	10
2-Methylnaphthalene	48.	0.0090	0.009	0.25	ug/l		8270C-S	04/11/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/11/13	1
Surrogate Recovery									
Nitrobenzene-d5	127.				% Rec.		8270C-S	04/11/13	1

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-19

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : MW30-GW-0413

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 17:22

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	93.6				% Rec.		8270C-S	04/11/13	1
p-Terphenyl-d14	106.				% Rec.		8270C-S	04/11/13	1

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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-20

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : DUP 2

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 00:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	14000	77.	77	5000	ug/l		9056	04/09/13	1
Alkalinity	380000	13000	13000	100000	ug/l		2320 B-	04/15/13	5
Methane	1400	10.	10	50	ug/l		RSK175	04/09/13	5
Ethane	U	20.	20	65	ug/l		RSK175	04/09/13	5
Ethene	U	28.	28	65	ug/l		RSK175	04/09/13	5
Nitrate-Nitrite	69.	23.	23	100	ug/l	J	353.2	04/12/13	1
Barium,Dissolved	620	1.7	1.7	5	ug/l		6010B	04/10/13	1
Iron,Dissolved	70.	14.	14	100	ug/l	J	6010B	04/10/13	1
Manganese,Dissolved	2100	1.2	1.2	10	ug/l		6010B	04/10/13	1
Benzene	2.7	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	0.30	0.18	0.18	5	ug/l	J	8021B	04/12/13	1
Ethylbenzene	0.21	0.16	0.16	0.5	ug/l	J	8021B	04/12/13	1
Total Xylene	1.1	0.51	0.51	1.5	ug/l	J	8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	104.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.19	0.0076	0.0076	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthene	4.8	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthylene	0.40	0.0068	0.0068	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/11/13	1
Fluoranthene	0.024	0.016	0.016	0.05	ug/l	J	8270C-S	04/11/13	1
Fluorene	2.9	0.0085	0.0085	0.05	ug/l		8270C-S	04/11/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/11/13	1
Naphthalene	120	0.20	0.2	2.5	ug/l		8270C-S	04/12/13	10
Phenanthrene	1.6	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Pyrene	0.035	0.012	0.012	0.05	ug/l	J	8270C-S	04/11/13	1
1-Methylnaphthalene	76.	0.0082	0.0082	0.25	ug/l		8270C-S	04/11/13	1
2-Methylnaphthalene	30.	0.0090	0.009	0.25	ug/l		8270C-S	04/11/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/11/13	1
Surrogate Recovery									
Nitrobenzene-d5	123.				% Rec.		8270C-S	04/11/13	1

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629063-20

Date Received : April 05, 2013
Description : BNSF- ABQ

Site ID : BNSF ALB

Sample ID : DUP 2

Project # : TT0069-N03

Collected By : Robert K. Stewart
Collection Date : 04/04/13 00:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	65.0				% Rec.		8270C-S	04/11/13	1
p-Terphenyl-d14	101.				% Rec.		8270C-S	04/11/13	1

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L629063-01	WG654943	SAMP	Benzo(a)pyrene	R2612241	J
	WG654943	SAMP	Benzo(b)fluoranthene	R2612241	J
	WG654943	SAMP	Benzo(k)fluoranthene	R2612241	J
	WG654943	SAMP	2-Methylnaphthalene	R2612241	J
L629063-02	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG654943	SAMP	Fluoranthene	R2612241	J
	WG654943	SAMP	Naphthalene	R2612241	J
	WG654943	SAMP	1-Methylnaphthalene	R2612241	J
	WG654943	SAMP	2-Methylnaphthalene	R2612241	J
L629063-03	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG655458	SAMP	Iron,Dissolved	R2612640	J
	WG654943	SAMP	Benzo(g,h,i)perylene	R2612241	J
	WG654943	SAMP	Benzo(k)fluoranthene	R2612241	J
	WG654943	SAMP	Dibenz(a,h)anthracene	R2612241	J
	WG654943	SAMP	Indeno(1,2,3-cd)pyrene	R2612241	J
	WG654943	SAMP	1-Methylnaphthalene	R2612241	J
	WG654943	SAMP	2-Methylnaphthalene	R2612241	J
L629063-04	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG655458	SAMP	Iron,Dissolved	R2612640	J
	WG654943	SAMP	Anthracene	R2612241	J
	WG654943	SAMP	Acenaphthylene	R2612241	J
	WG654943	SAMP	Fluorene	R2612241	J
	WG654943	SAMP	Naphthalene	R2612241	J
	WG654943	SAMP	Phenanthrene	R2612241	J
	WG654943	SAMP	Pyrene	R2612241	J
	WG654943	SAMP	1-Methylnaphthalene	R2612241	J
	WG654943	SAMP	2-Methylnaphthalene	R2612241	J
L629063-05	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG654891	SAMP	Benzene	R2610862	J
	WG655458	SAMP	Iron,Dissolved	R2612640	J
	WG654943	SAMP	Benzo(a)anthracene	R2612241	J
	WG656263	SAMP	Alkalinity	R2619900	J6
L629063-06	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG654891	SAMP	Ethylbenzene	R2610862	J
	WG654891	SAMP	Total Xylene	R2610862	J
	WG654943	SAMP	Phenanthrene	R2612241	J
	WG654943	SAMP	Pyrene	R2612241	J
	WG654943	SAMP	2-Methylnaphthalene	R2612241	J
L629063-07	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG654943	SAMP	Benzo(a)anthracene	R2612241	J
	WG654943	SAMP	Fluoranthene	R2612241	J
L629063-08	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG654943	SAMP	Naphthalene	R2618021	J
	WG654943	SAMP	Pyrene	R2618021	J
	WG654943	SAMP	1-Methylnaphthalene	R2618021	J
	WG654943	SAMP	2-Methylnaphthalene	R2618021	J
	WG654943	SAMP	Nitrobenzene-d5	R2618021	J2
L629063-09	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG655008	SAMP	Benzo(a)anthracene	R2618022	J
	WG655008	SAMP	Naphthalene	R2618022	J
	WG655008	SAMP	Phenanthrene	R2618022	J
	WG655008	SAMP	1-Methylnaphthalene	R2618022	J
	WG655008	SAMP	2-Methylnaphthalene	R2618022	J
L629063-12	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG655518	SAMP	Ethylbenzene	R2615240	J
	WG655518	SAMP	Total Xylene	R2615240	J
	WG655458	SAMP	Iron,Dissolved	R2612640	J
	WG655008	SAMP	Benzo(a)anthracene	R2612940	J
	WG655008	SAMP	Chrysene	R2612940	J
L629063-13	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
L629063-14	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG655008	SAMP	Benzo(a)pyrene	R2618022	J
	WG655008	SAMP	Benzo(b)fluoranthene	R2618022	J
	WG655008	SAMP	Chrysene	R2618022	J
L629063-15	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG655008	SAMP	2-Methylnaphthalene	R2618022	J
L629063-16	WG655518	SAMP	Benzene	R2615240	J
	WG655518	SAMP	Toluene	R2615240	J
	WG655518	SAMP	Ethylbenzene	R2615240	J

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
	WG655518	SAMP	Total Xylene	R2615240	J
	WG655458	SAMP	Iron,Dissolved	R2612640	J
	WG655008	SAMP	Fluoranthene	R2612940	J
	WG655008	SAMP	Nitrobenzene-d5	R2618022	J7
L629063-17	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG655518	SAMP	Toluene	R2615240	J
	WG655518	SAMP	Total Xylene	R2615240	J
	WG655008	SAMP	Benzo(a)anthracene	R2612940	J
	WG655008	SAMP	Benzo(k)fluoranthene	R2612940	J
	WG655008	SAMP	Chrysene	R2612940	J
	WG655278	SAMP	Sulfate	R2610340	J
L629063-18	WG655518	SAMP	Ethylbenzene	R2615240	J
	WG655518	SAMP	Total Xylene	R2615240	J
	WG655008	SAMP	Fluoranthene	R2612940	J
L629063-19	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG655518	SAMP	Toluene	R2615240	J
	WG655518	SAMP	Ethylbenzene	R2615240	J
	WG655458	SAMP	Iron,Dissolved	R2612640	J
	WG655008	SAMP	Benzo(a)anthracene	R2612940	J
L629063-20	WG655793	SAMP	Nitrate-Nitrite	R2616060	J
	WG655518	SAMP	Toluene	R2615240	J
	WG655518	SAMP	Ethylbenzene	R2615240	J
	WG655518	SAMP	Total Xylene	R2615240	J
	WG655458	SAMP	Iron,Dissolved	R2612640	J
	WG655008	SAMP	Fluoranthene	R2612940	J
	WG655008	SAMP	Pyrene	R2612940	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/16/13 at 15:41:15

TSR Signing Reports: 134
RX - Priority Rush

Sample: L629063-01 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-02 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-03 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-04 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-05 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-06 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-07 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-08 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-09 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-10 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-11 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-12 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-13 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-14 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-15 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-16 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-17 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-18 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-19 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

Sample: L629063-20 Account: BNSF6ERM Received: 04/05/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 15:39

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Quality Control Summary
SDG: L629206

For: ERM - BNSF Region 6
Project: BNSF- ABQ
April 17, 2013

Sample Receiving and Handling

All sample aliquots were received at the correct temperature, in the proper containers, and with the appropriate preservatives. All method specified holding times were met.

Anions by Method 9056

Laboratory Control Sample

Samples L629206-01 and 03 were analyzed in analytical batch WG655289. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Sample Duplicate Analysis

For analytical batch WG655289 sample duplicate analysis was performed on sample L629046-03. The relative percent differences were within the method limits.

For analytical batch WG655289 sample duplicate analysis was performed on sample L629063-08. The relative percent differences were within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG655289 matrix spike/matrix spike duplicate analysis was performed on sample L629063-05. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Ethane by Method RSK175

Laboratory Control Sample

Samples L629206-03 and 01 were analyzed in analytical batch WG655308. The laboratory control sample associated with these samples was within the laboratory control limits.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG655308 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Nitrate-Nitrite by Method 353.2

Laboratory Control Sample

Samples L629206-01 and 03 were analyzed in analytical batch WG655794. The laboratory control sample associated with these samples was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG655794 sample duplicate analysis was performed on sample L629212-02. The relative percent differences were within the method limits.

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Quality Control Summary
SDG: L629206

For: ERM - BNSF Region 6
Project: BNSF- ABQ
April 17, 2013

For analytical batch WG655794 sample duplicate analysis was performed on sample L629099-01. The relative percent differences were within the method limits.

Matrix Spike/Matrix Spike Duplicate
For analytical batch WG655794, matrix spike/matrix spike duplicate analysis was performed on sample L629203-01. The spike recoveries were below the laboratory control limits. The relative percent difference was within control limits.

Blank Analysis
The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Alkalinity by Method 2320 B-2011
Laboratory Control Sample
Samples L629206-03 and 01 were analyzed in analytical batch WG656110. The laboratory control sample associated with these samples was within the laboratory control limits.

Sample Duplicate Analysis
For analytical batch WG656110 sample duplicate analysis was performed on sample L628837-07. The relative percent differences were within the method limits.

For analytical batch WG656110 sample duplicate analysis was performed on sample L628837-05. The relative percent differences were within the method limits.

Matrix Spike/Matrix Spike Duplicate
For analytical batch WG656110, matrix spike/matrix spike duplicate analysis was performed on sample L629203-02. The spike recoveries were below the laboratory control limits. The relative percent difference was within control limits.

Blank Analysis
The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Trace Metals by Method 6010B
Laboratory Control Sample
Samples L629206-01 and 03 were analyzed in analytical batch WG655827. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Sample Duplicate Analysis
For analytical batch WG655827 sample duplicate analysis was performed on sample L628997-08. The relative percent differences were within the method limits.

Matrix Spike/Matrix Spike Duplicate
For analytical batch WG655827 matrix spike/matrix spike duplicate analysis was performed on sample L628997-08. The high concentration of Iron,Dissolved and Manganese,Dissolved interfered with the ability to make an accurate spike determination for these analytes. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

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Quality Control Summary
SDG: L629206

For: ERM - BNSF Region 6
Project: BNSF- ABQ
April 17, 2013

Blank Analysis
The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Method 8021B
Laboratory Control Sample
Samples L629206-01 and 02 were analyzed in analytical batch WG655071. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Sample L629206-03 was analyzed in analytical batch WG655945. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate
For analytical batch WG655071 matrix spike/matrix spike duplicate analysis was performed on sample L629194-04. The matrix spike recoveries were below laboratory control limits for Benzene. The spike recoveries for the remaining target compounds were within limits. The relative percent difference was within laboratory limits for all compounds.

For analytical batch WG655945 matrix spike/matrix spike duplicate analysis was performed on sample L629203-07. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

Blank Analysis
The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Semi-volatile Organic Compounds by Method 8270C-SIM
Laboratory Control Sample
Samples L629206-03 and 01 were analyzed in analytical batch WG655337. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate
Precision for batch WG655337 was evaluated using the LCS / LCSD. The RPDs exceeded laboratory control limits for 1-Methylnaphthalene, 2-Chloronaphthalene, 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene. The other target analytes were within limits

Blank Analysis
The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Nancy F. McLain
ESC Representative
ESC Lab Sciences

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Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

Report Summary

Wednesday April 17, 2013

Report Number: L629206
Samples Received: 04/06/13
Client Project: TT0069-N03

Description: BNSF- ABQ

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Mark W. Beasley , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 17, 2013

ESC Sample # : L629206-01

Date Received : April 06, 2013
Description : BNSF- ABQ

Site ID : BNSF- ABQ

Sample ID : MW38-GW-0413

Project # : TT0069-N03

Collected By : Carly Qualler
Collection Date : 04/05/13 10:41

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	180000	150	150	10000	ug/l		9056	04/09/13	2
Alkalinity	490000	26000	26000	200000	ug/l		2320 B-	04/14/13	10
Methane	62.	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	140	23.	23	100	ug/l		353.2	04/13/13	1
Barium,Dissolved	120	1.7	1.7	5	ug/l		6010B	04/12/13	1
Iron,Dissolved	46.	14.	14	100	ug/l	J	6010B	04/12/13	1
Manganese,Dissolved	1700	1.2	1.2	10	ug/l		6010B	04/12/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	99.9				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.033	0.0076	0.0076	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Acenaphthene	0.54	0.0082	0.0082	0.05	ug/l	J3	8270C-S	04/10/13	1
Acenaphthylene	0.040	0.0068	0.0068	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l	J3	8270C-S	04/10/13	1
Chrysene	U	0.011	0.011	0.05	ug/l	J3	8270C-S	04/10/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l	J3	8270C-S	04/10/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l	J3	8270C-S	04/10/13	1
Fluorene	0.31	0.0085	0.0085	0.05	ug/l	J3	8270C-S	04/10/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l	J3	8270C-S	04/10/13	1
Naphthalene	0.22	0.020	0.02	0.25	ug/l	J	8270C-S	04/10/13	1
Phenanthrene	0.061	0.0082	0.0082	0.05	ug/l	J3	8270C-S	04/10/13	1
Pyrene	U	0.012	0.012	0.05	ug/l	J3	8270C-S	04/10/13	1
1-Methylnaphthalene	6.1	0.0082	0.0082	0.25	ug/l	J3	8270C-S	04/10/13	1
2-Methylnaphthalene	0.27	0.0090	0.009	0.25	ug/l	J3	8270C-S	04/10/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l	J3	8270C-S	04/10/13	1
Surrogate Recovery									
Nitrobenzene-d5	127.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 04/17/13 09:41 Printed: 04/17/13 09:41

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 17, 2013

ESC Sample # : L629206-01

Date Received : April 06, 2013
Description : BNSF- ABQ

Site ID : BNSF- ABQ

Sample ID : MW38-GW-0413

Project # : TT0069-N03

Collected By : Carly Qualler
Collection Date : 04/05/13 10:41

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	132.				% Rec.		8270C-S	04/10/13	1
p-Terphenyl-d14	127.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 04/17/13 09:41 Printed: 04/17/13 09:41

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REPORT OF ANALYSIS

Carly Qualler
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April 17, 2013

ESC Sample # : L629206-02

Date Received : April 06, 2013
Description : BNSF- ABQ

Site ID : BNSF- ABQ

Sample ID : TRIP BLANK

Project # : TT0069-N03

Collected By : Carly Qualler
Collection Date : 04/05/13 00:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/11/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/11/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/11/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/11/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	99.5				% Rec.		8021B	04/11/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 04/17/13 09:41 Printed: 04/17/13 09:41

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
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Albuquerque, NM 87106

April 17, 2013

ESC Sample # : L629206-03

Date Received : April 06, 2013
Description : BNSF- ABQ

Site ID : BNSF- ABQ

Sample ID : MW28-GW-0413

Project # : TT0069-N03

Collected By : Carly Qualler
Collection Date : 04/05/13 11:17

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	1700	77.	77	5000	ug/l	J	9056	04/09/13	1
Alkalinity	430000	13000	13000	100000	ug/l		2320 B-	04/14/13	5
Methane	1800	10.	10	50	ug/l		RSK175	04/09/13	5
Ethane	U	20.	20	65	ug/l		RSK175	04/09/13	5
Ethene	U	28.	28	65	ug/l		RSK175	04/09/13	5
Nitrate-Nitrite	70.	23.	23	100	ug/l	J	353.2	04/13/13	1
Barium,Dissolved	440	1.7	1.7	5	ug/l		6010B	04/12/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/12/13	1
Manganese,Dissolved	1000	1.2	1.2	10	ug/l		6010B	04/12/13	1
Benzene	10.	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	0.55	0.18	0.18	5	ug/l	J	8021B	04/12/13	1
Ethylbenzene	0.88	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	2.7	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	105.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	3.2	0.038	0.038	0.25	ug/l	J3	8270C-S	04/11/13	5
Acenaphthene	26.	0.041	0.041	0.25	ug/l	J3	8270C-S	04/11/13	5
Acenaphthylene	3.8	0.034	0.034	0.25	ug/l	J3	8270C-S	04/11/13	5
Benzo(a)anthracene	0.14	0.059	0.059	0.25	ug/l	JJ3	8270C-S	04/11/13	5
Benzo(a)pyrene	U	0.058	0.058	0.25	ug/l	J3	8270C-S	04/11/13	5
Benzo(b)fluoranthene	U	0.069	0.069	0.25	ug/l		8270C-S	04/11/13	5
Benzo(g,h,i)perylene	U	0.057	0.057	0.25	ug/l	J3	8270C-S	04/11/13	5
Benzo(k)fluoranthene	U	0.068	0.068	0.25	ug/l	J3	8270C-S	04/11/13	5
Chrysene	0.099	0.054	0.054	0.25	ug/l	JJ3	8270C-S	04/11/13	5
Dibenz(a,h)anthracene	U	0.020	0.02	0.25	ug/l	J3	8270C-S	04/11/13	5
Fluoranthene	0.79	0.078	0.078	0.25	ug/l	J3	8270C-S	04/11/13	5
Fluorene	29.	0.042	0.042	0.25	ug/l	J3	8270C-S	04/11/13	5
Indeno(1,2,3-cd)pyrene	U	0.074	0.074	0.25	ug/l	J3	8270C-S	04/11/13	5
Naphthalene	340	0.099	0.099	1.25	ug/l		8270C-S	04/11/13	5
Phenanthrene	39.	0.041	0.041	0.25	ug/l	J3	8270C-S	04/11/13	5
Pyrene	1.4	0.058	0.058	0.25	ug/l	J3	8270C-S	04/11/13	5
1-Methylnaphthalene	480	0.041	0.041	1.25	ug/l	J3	8270C-S	04/11/13	5
2-Methylnaphthalene	440	0.090	0.09	2.5	ug/l	J3	8270C-S	04/12/13	10
2-Chloronaphthalene	U	0.032	0.032	1.25	ug/l	J3	8270C-S	04/11/13	5
Surrogate Recovery									
Nitrobenzene-d5	113.				% Rec.		8270C-S	04/11/13	5

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 04/17/13 09:41 Printed: 04/17/13 09:41

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 17, 2013

ESC Sample # : L629206-03

Date Received : April 06, 2013
Description : BNSF- ABQ

Site ID : BNSF- ABQ

Sample ID : MW28-GW-0413

Project # : TT0069-N03

Collected By : Carly Qualler
Collection Date : 04/05/13 11:17

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	129.				% Rec.		8270C-S	04/11/13	5
p-Terphenyl-d14	119.				% Rec.		8270C-S	04/11/13	5

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 04/17/13 09:41 Printed: 04/17/13 09:41

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L629206-01	WG655827	SAMP	Iron,Dissolved	R2615481	J
	WG655337	SAMP	Anthracene	R2611823	JJ3
	WG655337	SAMP	Acenaphthene	R2611823	J3
	WG655337	SAMP	Acenaphthylene	R2611823	JJ3
	WG655337	SAMP	Benzo(a)anthracene	R2611823	J3
	WG655337	SAMP	Benzo(a)pyrene	R2611823	J3
	WG655337	SAMP	Benzo(g,h,i)perylene	R2611823	J3
	WG655337	SAMP	Benzo(k)fluoranthene	R2611823	J3
	WG655337	SAMP	Chrysene	R2611823	J3
	WG655337	SAMP	Dibenz(a,h)anthracene	R2611823	J3
	WG655337	SAMP	Fluoranthene	R2611823	J3
	WG655337	SAMP	Fluorene	R2611823	J3
	WG655337	SAMP	Indeno(1,2,3-cd)pyrene	R2611823	J3
	WG655337	SAMP	Naphthalene	R2611823	J
	WG655337	SAMP	Phenanthrene	R2611823	J3
	WG655337	SAMP	Pyrene	R2611823	J3
	WG655337	SAMP	1-Methylnaphthalene	R2611823	J3
	WG655337	SAMP	2-Methylnaphthalene	R2611823	J3
	WG655337	SAMP	2-Chloronaphthalene	R2611823	J3
L629206-03	WG655794	SAMP	Nitrate-Nitrite	R2616420	J
	WG655945	SAMP	Toluene	R2616160	J
	WG655337	SAMP	Anthracene	R2611823	J3
	WG655337	SAMP	Acenaphthene	R2611823	J3
	WG655337	SAMP	Acenaphthylene	R2611823	J3
	WG655337	SAMP	Benzo(a)anthracene	R2611823	JJ3
	WG655337	SAMP	Benzo(a)pyrene	R2611823	J3
	WG655337	SAMP	Benzo(g,h,i)perylene	R2611823	J3
	WG655337	SAMP	Benzo(k)fluoranthene	R2611823	J3
	WG655337	SAMP	Chrysene	R2611823	JJ3
	WG655337	SAMP	Dibenz(a,h)anthracene	R2611823	J3
	WG655337	SAMP	Fluoranthene	R2611823	J3
	WG655337	SAMP	Fluorene	R2611823	J3
	WG655337	SAMP	Indeno(1,2,3-cd)pyrene	R2611823	J3
	WG655337	SAMP	Phenanthrene	R2611823	J3
	WG655337	SAMP	Pyrene	R2611823	J3
	WG655337	SAMP	1-Methylnaphthalene	R2611823	J3
	WG655337	SAMP	2-Methylnaphthalene	R2618023	J3
	WG655337	SAMP	2-Chloronaphthalene	R2611823	J3
	WG655289	SAMP	Sulfate	R2610660	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J3	The associated batch QC was outside the established quality control range for precision.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/17/13 at 09:41:27

TSR Signing Reports: 134
R5 - Desired TAT

Sample: L629206-01 Account: BNSF6ERM Received: 04/06/13 09:30 Due Date: 04/12/13 00:00 RPT Date: 04/17/13 09:41

Sample: L629206-02 Account: BNSF6ERM Received: 04/06/13 09:30 Due Date: 04/12/13 00:00 RPT Date: 04/17/13 09:41

Sample: L629206-03 Account: BNSF6ERM Received: 04/06/13 09:30 Due Date: 04/12/13 00:00 RPT Date: 04/17/13 09:41

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Anions by Method 9056		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655289**
Analysis Date:	4/9/2013	Analyst:	477
Instrument ID:	IC-10		
Sample Numbers:	L629206-01, -03		

Method Blank

Analyte	CAS	PQL	Qualifiers
Sulfate		<5.00	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Sulfate	40.0	39.2	98.0	90 - 110	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Sulfate	40.0	40.0	100	90 - 110	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Anions by Method 9056		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655289**
Analysis Date:	4/9/2013	Analyst:	477
Instrument ID:	IC-10		
Sample Numbers:	L629206-01, -03		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Sulfate	40.0	39.2	98.0	40.0	100	90-110		2.0	20	

Sample Duplicate
L629046-03

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Sulfate	98.0	98.0	0.0	20	

Sample Duplicate
L629063-08

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Sulfate	28.0	29.0	3.5	20	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Anions by Method 9056		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655289**
Analysis Date:	4/9/2013	Analyst:	477
Instrument ID:	IC-10		
Sample Numbers:	L629206-01, -03		

Matrix Spike/Matrix Spike Duplicate

L629063-05

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Sulfate	50.0	25.0	73.9	97.8	71.5	93.0	80-120		3.3	20	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Alkalinity by Method 2320 B-2011		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG656110**
Analysis Date:	4/14/2013 5:38:00 AM	Analyst:	183
Instrument ID:	TITRATION	Extraction Date:	4/13/2013
Sample Numbers:	L629206-03, -01		

Method Blank

Analyte	CAS	PQL	Qualifiers
Alkalinity		<20.0	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Alkalinity	100	107	107	85 - 115	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Alkalinity	100	107	107	85 - 115	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Alkalinity by Method 2320 B-2011		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG656110**
Analysis Date:	4/14/2013 5:38:00 AM	Analyst:	183
Instrument ID:	TITRATION	Extraction Date:	4/13/2013
Sample Numbers:	L629206-03, -01		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Alkalinity	100	107	107	107	107	85-115		0.0	20	

Sample Duplicate
L628837-07

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Alkalinity	560	529	5.7	20	

Sample Duplicate
L628837-05

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Alkalinity	630	634	0.6	20	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Alkalinity by Method 2320 B-2011		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG656110**
Analysis Date:	4/14/2013 5:38:00 AM	Analyst:	183
Instrument ID:	TITRATION	Extraction Date:	4/13/2013
Sample Numbers:	L629206-03, -01		

Matrix Spike/Matrix Spike Duplicate

L629203-02

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Alkalinity	100	270	341	71.0	337	67.0	80-120	J6	1.2	20	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Ethane by Method RSK175		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655308**
Analysis Date:	4/9/2013 2:53:00 PM	Analyst:	564
Instrument ID:	AIRGC2	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Method Blank

Analyte	CAS	PQL	Qualifiers
Ethane		<0.0130	
Ethene		<0.0130	
Methane		<0.0100	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Ethane	0.645	0.650	101	70 - 130	
Ethene	0.635	0.618	97.3	70 - 130	
Methane	0.339	0.322	95.0	70 - 130	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Ethane	0.645	0.669	104	70 - 130	
Ethene	0.635	0.636	100	70 - 130	
Methane	0.339	0.326	96.3	70 - 130	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Ethane by Method RSK175		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655308**
Analysis Date:	4/9/2013 2:53:00 PM	Analyst:	564
Instrument ID:	AIRGC2	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Ethane	0.645	0.650	101	0.669	104	70-130		2.9	25	
Ethene	0.635	0.618	97.3	0.636	100	70-130		2.9	25	
Methane	0.339	0.322	95.0	0.326	96.3	70-130		1.4	25	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Nitrate-Nitrite by Method 353.2		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655794**
Analysis Date:	4/13/2013 8:18:00 AM	Analyst:	508
Instrument ID:	LACHAT6	Extraction Date:	4/11/2013
Sample Numbers:	L629206-01, -03		

Method Blank

Analyte	CAS	PQL	Qualifiers
Nitrate-Nitrite		<0.100	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Nitrate-Nitrite	5.00	4.66	93.2	90 - 110	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Nitrate-Nitrite	5.00	4.66	93.2	90 - 110	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Nitrate-Nitrite by Method 353.2		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655794**
Analysis Date:	4/13/2013 8:18:00 AM	Analyst:	508
Instrument ID:	LACHAT6	Extraction Date:	4/11/2013
Sample Numbers:	L629206-01, -03		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Nitrate-Nitrite	5.00	4.66	93.2	4.66	93.2	90-110		0.0	20	

Sample Duplicate
L629212-02

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Nitrate-Nitrite	0.830	0.840	1.2	20	

Sample Duplicate
L629099-01

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Nitrate-Nitrite	0.570	0.580	1.7	20	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Nitrate-Nitrite by Method 353.2		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655794**
Analysis Date:	4/13/2013 8:18:00 AM	Analyst:	508
Instrument ID:	LACHAT6	Extraction Date:	4/11/2013
Sample Numbers:	L629206-01, -03		

Matrix Spike/Matrix Spike Duplicate

L629203-01

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Nitrate-Nitrite	5.00	0.0280	4.03	80.0	4.07	80.8	90-110	J6	1.0	20	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Trace Metals by Method 6010B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655827**
Analysis Date:	4/11/2013	Analyst:	447
Instrument ID:	ICP7	Extraction Date:	4/11/2013
Sample Numbers:	L629206-01, -03		

Method Blank

Analyte	CAS	PQL	Qualifiers
Barium,Dissolved	7440-39-3	<0.00500	
Iron,Dissolved	7439-89-6	<0.100	
Manganese,Dissolved	7439-96-5	<0.0100	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Barium,Dissolved	1.11	1.10	99.1	85 - 115	
Iron,Dissolved	1.11	1.15	104	85 - 115	
Manganese,Dissolved	1.11	1.11	100	85 - 115	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Trace Metals by Method 6010B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655827**
Analysis Date:	4/11/2013	Analyst:	447
Instrument ID:	ICP7	Extraction Date:	4/11/2013
Sample Numbers:	L629206-01, -03		

Sample Duplicate
L628997-08

Name	Sample Results	Duplic Results	%RPD	Limit	Qualifiers
Barium,Dissolved	0.00000	0.0000			
Iron,Dissolved	7400	7210	2.6	20	
Manganese,Dissolved	180	185	2.7	20	

Matrix Spike/Matrix Spike Duplicate
L628997-08

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Barium,Dissolved	1.11	0.00000	0.965	86.9	0.954	85.9	75-125		1.1	20	
Iron,Dissolved	11.1	7210	7300	811	6980	-	75-125	V	4.5	20	
Manganese,Dissolved	11.1	185	180	-45.0	205	180	75-125	V	13	20	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655071**
Analysis Date:	4/11/2013	Analyst:	589
Instrument ID:	VOCGC6		
Sample Numbers:	L629206-01, -02		

Method Blank

Analyte	CAS	PQL	Qualifiers
Benzene	71-43-2	<0.0005	
Toluene	108-88-3	<0.0050	
Ethylbenzene	100-41-4	<0.0005	
m&p-Xylene	1330-20-7	<0.0015	
o-Xylene	1330-20-7	<0.0015	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Benzene	0.0500	0.0437	87.4	79 - 114	
Toluene	0.0500	0.0442	88.3	79 - 112	
Ethylbenzene	0.0500	0.0455	91.0	80 - 116	
m&p-Xylene	0.100	0.0925	92.5	85 - 120	
o-Xylene	0.0500	0.0466	93.2	82 - 116	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Benzene	0.0500	0.0469	93.9	79 - 114	
Toluene	0.0500	0.0468	93.5	79 - 112	
Ethylbenzene	0.0500	0.0476	95.2	80 - 116	
m&p-Xylene	0.100	0.0973	97.3	85 - 120	
o-Xylene	0.0500	0.0489	97.7	82 - 116	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655945**
Analysis Date:	4/12/2013	Analyst:	403
Instrument ID:	VOCGC4		
Sample Numbers:	L629206-03		

Method Blank

Analyte	CAS	PQL	Qualifiers
Benzene	71-43-2	<0.0005	
Toluene	108-88-3	<0.0050	
Ethylbenzene	100-41-4	<0.0005	
m&p-Xylene	1330-20-7	<0.0015	
o-Xylene	1330-20-7	<0.0015	

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Benzene	0.0500	0.0504	101	79 - 114	
Toluene	0.0500	0.0502	100	79 - 112	
Ethylbenzene	0.0500	0.0507	101	80 - 116	
m&p-Xylene	0.100	0.103	103	85 - 120	
o-Xylene	0.0500	0.0524	105	82 - 116	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Benzene	0.0500	0.0495	99.0	79 - 114	
Toluene	0.0500	0.0498	99.7	79 - 112	
Ethylbenzene	0.0500	0.0507	101	80 - 116	
m&p-Xylene	0.100	0.103	103	85 - 120	
o-Xylene	0.0500	0.0522	104	82 - 116	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655071**
Analysis Date:	4/11/2013	Analyst:	589
Instrument ID:	VOCGC6		
Sample Numbers:	L629206-01, -02		

Surrogate Summary

Laboratory Sample ID	a,a,a-Trifluorotoluene - FID ppb	a,a,a-Trifluorotoluene - FID % Rec	a,a,a-Trifluorotoluene - PID ppb	a,a,a-Trifluorotoluene - PID % Rec
LCS WG655071	198	99.0	196	98.1
LCSD WG655071	198	99.2	198	99.1
MS WG655071	172	86.2	214	107
MSD WG655071	172	85.9	222	111
Blank WG655071	200	100	199	99.4
L629206-02	201	100	199	99.5
L629206-01	200	99.8	200	99.9

a,a,a-Trifluorotoluene (FID)	200 ppb	Limits - 62 - 128
a,a,a-Trifluorotoluene (PID)	200 ppb	Limits - 55 - 122

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655945**
Analysis Date:	4/12/2013	Analyst:	403
Instrument ID:	VOCGC4		
Sample Numbers:	L629206-03		

Surrogate Summary

Laboratory Sample ID	a,a,a-Trifluorotoluene - FID ppb	% Rec	a,a,a-Trifluorotoluene - PID ppb	% Rec
LCS WG655945	193	96.7	207	103
LCSD WG655945	193	96.4	206	103
MS WG655945	193	96.3	207	103
MSD WG655945	193	96.5	207	103
Blank WG655945	194	97.1	209	104
L629206-03	200	100	211	105

a,a,a-Trifluorotoluene (FID)	200 ppb	Limits - 62 - 128
a,a,a-Trifluorotoluene (PID)	200 ppb	Limits - 55 - 122

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655071**
Analysis Date:	4/11/2013	Analyst:	589
Instrument ID:	VOCGC6		
Sample Numbers:	L629206-01, -02		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Benzene	0.0500	0.0437	87.4	0.0469	93.9	79-114		7.2	20	
Toluene	0.0500	0.0442	88.3	0.0468	93.5	79-112		5.7	20	
Ethylbenzene	0.0500	0.0455	91.0	0.0476	95.2	80-116		4.5	20	
m&p-Xylene	0.100	0.0925	92.5	0.0973	97.3	85-120		5.1	20	
o-Xylene	0.0500	0.0466	93.2	0.0489	97.7	82-116		4.7	20	

Matrix Spike/Matrix Spike Duplicate

L629194-04

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Benzene	0.0500	0.311	0.305	-11.7	0.320	17.6	35-147	J6	4.7	20	
Toluene	0.0500	0.0015	0.0581	113	0.0589	115	35-148		1.5	20	
Ethylbenzene	0.0500	0.0419	0.0869	90.1	0.0895	95.2	39-141		2.9	20	
m&p-Xylene	0.100	0.0271	0.132	105	0.133	105	26-157		0.5	20	
o-Xylene	0.0500	0.0029	0.0573	109	0.0572	108	40-145		0.2	20	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655945**
Analysis Date:	4/12/2013	Analyst:	403
Instrument ID:	VOCGC4		
Sample Numbers:	L629206-03		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
Benzene	0.0500	0.0504	101	0.0495	99.0	79-114		1.8	20	
Toluene	0.0500	0.0502	100	0.0498	99.7	79-112		0.8	20	
Ethylbenzene	0.0500	0.0507	101	0.0507	101	80-116		0.0	20	
m&p-Xylene	0.100	0.103	103	0.103	103	85-120		0.1	20	
o-Xylene	0.0500	0.0524	105	0.0522	104	82-116		0.3	20	

Matrix Spike/Matrix Spike Duplicate

L629203-07

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Rec Qualifier	% RPD	Control Limits	RPD Qual
Benzene	0.0500	0.0003	0.0516	102	0.0522	104	35-147		1.2	20	
Toluene	0.0500	0.0000	0.0524	105	0.0535	107	35-148		1.9	20	
Ethylbenzene	0.0500	0.0002	0.0539	107	0.0550	110	39-141		1.9	20	
m&p-Xylene	0.100	0.0000	0.111	111	0.112	112	26-157		1.7	20	
o-Xylene	0.0500	0.0007	0.0562	111	0.0573	113	40-145		2.0	20	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655071**
Analysis Date:	4/11/2013	Analyst:	589
Instrument ID:	VOCGC6		
Sample Numbers:	L629206-01, -02		

Internal Standard Response and Retention Time Summary

FileID:0411_02.D Date:4/11/2013 Time:2:37 PM

	IS - FID		IS - PID	
	Response	RT	Response	RT
12 Hour Std	5049987	6.57	1152248	6.57
Upper Limit	10099974	7.07	2304496	7.07
Lower Limit	2524993.5	6.07	576124	6.07
Sample ID	Response	RT	Response	RT
Blank WG655071	4774943	6.57	1075911	6.57
L629206-02	4579473	6.57	1028262	6.57
LCS WG655071	4992781	6.57	1129083	6.57
LCSD WG655071	4739570	6.57	1070103	6.57
MS WG655071	5005606	6.57	837192	6.57
MSD WG655071	5564771	6.57	890300	6.57

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655071**
Analysis Date:	4/11/2013	Analyst:	589
Instrument ID:	VOCGC6		
Sample Numbers:	L629206-01, -02		

Internal Standard Response and Retention Time Summary

FileID:0411_21.D Date:4/11/2013 Time:10:40 PM

	IS - FID		IS - PID	
	Response	RT	Response	RT
12 Hour Std	4891600	6.57	1103695	6.57
Upper Limit	9783200	7.07	2207390	7.07
Lower Limit	2445800	6.07	551847.5	6.07
Sample ID	Response	RT	Response	RT
L629206-01	4365821	6.56	976656	6.56

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Method 8021B		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655945**
Analysis Date:	4/12/2013	Analyst:	403
Instrument ID:	VOCGC4		
Sample Numbers:	L629206-03		

Internal Standard Response and Retention Time Summary

FileID:0412_02.D Date:4/12/2013 Time:12:13 PM

	IS - FID		IS - PID	
	Response	RT	Response	RT
12 Hour Std	21609004	7.67	30235339	7.67
Upper Limit	43218008	8.17	60470678	8.17
Lower Limit	10804502	7.17	15117669.5	7.17
Sample ID	Response	RT	Response	RT
Blank WG655945	20453860	7.67	27193499	7.67
L629206-03	20169575	7.68	28033014	7.68
LCS WG655945	21240332	7.67	29559034	7.67
LCSD WG655945	21186892	7.67	28765516	7.67
MS WG655945	18998248	7.67	25751716	7.67
MSD WG655945	18910272	7.67	25164350	7.67

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655337**
Analysis Date:	4/10/2013	Analyst:	377
Instrument ID:	BNAMS16	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Method Blank

Analyte	CAS	PQL	Qualifiers
Naphthalene	91-20-3	<0.000250	
2-Methylnaphthalene	91-57-6	<0.000250	
1-Methylnaphthalene	90-12-0	<0.000250	
2-Chloronaphthalene	91-58-7	<0.0000500	
Acenaphthylene	208-96-8	<0.0000500	
Acenaphthene	83-32-9	<0.0000500	
Fluorene	86-73-7	<0.0000500	
Phenanthrene	85-01-8	<0.0000500	
Anthracene	120-12-7	<0.0000500	
Fluoranthene	206-44-0	<0.0000500	
Pyrene	129-00-0	<0.0000500	
Benzo(a)anthracene	56-55-3	<0.0000500	
Chrysene	218-01-9	<0.0000500	
Benzo(b)fluoranthene	205-99-2	<0.0000500	
Benzo(k)fluoranthene	207-08-9	<0.0000500	
Benzo(a)pyrene	50-32-8	<0.0000500	
Indeno(1,2,3-cd)pyrene	193-39-5	<0.0000500	
Dibenz(a,h)anthracene	53-70-3	<0.0000500	
Benzo(g,h,i)perylene	191-24-2	<0.0000500	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Semi-volatile Organic Compounds by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655337**
Analysis Date:	4/11/2013 2:44:00 AM	Analyst:	377
Instrument ID:	BNAMS16	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
1-Methylnaphthalene	0.00200	0.00186	93.2	71.2 - 137	
2-Chloronaphthalene	0.00200	0.00176	87.8	81.1 - 129	
2-Methylnaphthalene	0.00200	0.00184	92.2	69.8 - 134	
Acenaphthene	0.00200	0.00180	90.1	80.8 - 128	
Acenaphthylene	0.00200	0.00188	94.2	77.2 - 132	
Anthracene	0.00200	0.00192	96.0	78.4 - 136	
Benzo(a)anthracene	0.00200	0.00191	95.5	69.2 - 141	
Benzo(a)pyrene	0.00200	0.00182	91.1	71.1 - 135	
Benzo(b)fluoranthene	0.00200	0.00184	92.2	69.5 - 140	
Benzo(g,h,i)perylene	0.00200	0.00178	88.9	64.6 - 138	
Benzo(k)fluoranthene	0.00200	0.00165	82.4	69.3 - 144	
Chrysene	0.00200	0.00175	87.7	75.6 - 138	
Dibenz(a,h)anthracene	0.00200	0.00177	88.7	64.1 - 139	
Fluoranthene	0.00200	0.00186	93.0	78.6 - 135	
Fluorene	0.00200	0.00190	94.8	78.3 - 131	
Indeno(1,2,3-cd)pyrene	0.00200	0.00179	89.4	64.8 - 140	
Naphthalene	0.00200	0.00176	87.8	80.2 - 126	
Phenanthrene	0.00200	0.00174	87.1	79.6 - 130	
Pyrene	0.00200	0.00171	85.6	76.6 - 134	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Semi-volatile Organic Compounds by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655337**
Analysis Date:	4/11/2013 2:44:00 AM	Analyst:	377
Instrument ID:	BNAMS16	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
1-Methylnaphthalene	0.00200	0.00231	116	71.2 - 137	
2-Chloronaphthalene	0.00200	0.00216	108	81.1 - 129	
2-Methylnaphthalene	0.00200	0.00228	114	69.8 - 134	
Acenaphthene	0.00200	0.00225	112	80.8 - 128	
Acenaphthylene	0.00200	0.00237	118	77.2 - 132	
Anthracene	0.00200	0.00241	121	78.4 - 136	
Benzo(a)anthracene	0.00200	0.00238	119	69.2 - 141	
Benzo(a)pyrene	0.00200	0.00233	116	71.1 - 135	
Benzo(b)fluoranthene	0.00200	0.00222	111	69.5 - 140	
Benzo(g,h,i)perylene	0.00200	0.00229	114	64.6 - 138	
Benzo(k)fluoranthene	0.00200	0.00227	114	69.3 - 144	
Chrysene	0.00200	0.00221	110	75.6 - 138	
Dibenz(a,h)anthracene	0.00200	0.00226	113	64.1 - 139	
Fluoranthene	0.00200	0.00236	118	78.6 - 135	
Fluorene	0.00200	0.00239	119	78.3 - 131	
Indeno(1,2,3-cd)pyrene	0.00200	0.00231	116	64.8 - 140	
Naphthalene	0.00200	0.00214	107	80.2 - 126	
Phenanthrene	0.00200	0.00221	111	79.6 - 130	
Pyrene	0.00200	0.00218	109	76.6 - 134	

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Semi-volatile Organic Compounds by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655337**
Analysis Date:	4/11/2013 2:44:00 AM	Analyst:	377
Instrument ID:	BNAMS16	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Surrogate Summary

			FBP		NBZ		TPH	
Laboratory Sample ID	Instrument	File ID	ppm	% Rec	ppm	% Rec	ppm	% Rec
L629206-01	BNAMS16	0409A_59	0.00265	132	0.00253	127	0.00254	127
L629206-03 5x	BNAMS16	0410_25	0.00257	129	0.00227	113	0.00238	119
LCS WG655337	BNAMS16	0409A_32	0.00171	85.7	0.00171	85.4	0.00169	84.6
LCSD WG655337	BNAMS16	0409A_33	0.00223	112	0.0022	110	0.00221	111
BLANK WG655337	BNAMS16	0409A_34	0.00206	103	0.00206	103	0.00207	103

FBP --2-FLUOROBIPHENYL	True Value: 0.002 ppm	Limits: 64.4 - 143
NBZ --NITROBENZENE-D5	True Value: 0.002 ppm	Limits: 61.3 - 162
TPH --P-TERPHENYL-D14	True Value: 0.002 ppm	Limits: 55.30 - 145

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Semi-volatile Organic Compounds by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655337**
Analysis Date:	4/11/2013 2:44:00 AM	Analyst:	377
Instrument ID:	BNAMS16	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	Qualifier	% RPD	Control Limits	Qualifier
1-Methylnaphthalene	0.00200	0.00186	93.2	0.00231	116	71.2-137		21	20	J3
2-Chloronaphthalene	0.00200	0.00176	87.8	0.00216	108	81.1-129		21	20	J3
2-Methylnaphthalene	0.00200	0.00184	92.2	0.00228	114	69.8-134		21	20	J3
Acenaphthene	0.00200	0.00180	90.1	0.00225	112	80.8-128		22	20	J3
Acenaphthylene	0.00200	0.00188	94.2	0.00237	118	77.2-132		23	20	J3
Anthracene	0.00200	0.00192	96.0	0.00241	121	78.4-136		23	20	J3
Benzo(a)anthracene	0.00200	0.00191	95.5	0.00238	119	69.2-141		22	20	J3
Benzo(a)pyrene	0.00200	0.00182	91.1	0.00233	116	71.1-135		24	20	J3
Benzo(b)fluoranthene	0.00200	0.00184	92.2	0.00222	111	69.5-140		19	20	
Benzo(g,h,i)perylene	0.00200	0.00178	88.9	0.00229	114	64.6-138		25	20	J3
Benzo(k)fluoranthene	0.00200	0.00165	82.4	0.00227	114	69.3-144		32	20	J3
Chrysene	0.00200	0.00175	87.7	0.00221	110	75.6-138		23	20	J3
Dibenz(a,h)anthracene	0.00200	0.00177	88.7	0.00226	113	64.1-139		24	20	J3
Fluoranthene	0.00200	0.00186	93.0	0.00236	118	78.6-135		24	20	J3
Fluorene	0.00200	0.00190	94.8	0.00239	119	78.3-131		23	20	J3
Indeno(1,2,3-cd)pyrene	0.00200	0.00179	89.4	0.00231	116	64.8-140		26	20	J3
Naphthalene	0.00200	0.00176	87.8	0.00214	107	80.2-126		20	20	
Phenanthrene	0.00200	0.00174	87.1	0.00221	111	79.6-130		24	20	J3
Pyrene	0.00200	0.00171	85.6	0.00218	109	76.6-134		24	20	J3

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Est. 1970

Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655337**
Analysis Date:	4/10/2013	Analyst:	377
Instrument ID:	BNAMS16	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Internal Standard Response and Retention Time Summary

FileID:0409A_31.D Date:4/10/2013 Time:4:36 AM

	IS1		IS2		IS3	
	Response	RT	Response	RT	Response	RT
12 Hour Std			107676	5.42	85066	7.34
Upper Limit			215352	5.92	170132	7.84
Lower Limit			53838	4.92	42533	6.84
Sample ID	Response	RT	Response	RT	Response	RT
Blank WG655337			119507	5.42	95388	7.34
L629206-01			91582	5.41	72850	7.34
LCS WG655337			131475	5.41	105251	7.34
LCSD WG655337			105898	5.41	85060	7.34

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655337**
Analysis Date:	4/10/2013	Analyst:	377
Instrument ID:	BNAMS16	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Internal Standard Response and Retention Time Summary

FileID:0409A_31.D Date:4/10/2013 Time:4:36 AM

	IS4		IS5		IS6	
	Response	RT	Response	RT	Response	RT
12 Hour Std	172702	8.88	209602	11.56	217526	13.11
Upper Limit	345404	9.38	419204	12.06	435052	13.61
Lower Limit	86351	8.38	104801	11.06	108763	12.61
Sample ID	Response	RT	Response	RT	Response	RT
Blank WG655337	196305	8.88	229928	11.56	226713	13.11
L629206-01	151702	8.88	181334	11.57	184301	13.12
LCS WG655337	214615	8.88	266912	11.56	276854	13.11
LCSD WG655337	172890	8.88	214087	11.56	219043	13.11

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655337**
Analysis Date:	4/10/2013	Analyst:	377
Instrument ID:	BNAMS13	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Internal Standard Response and Retention Time Summary

FileID:0412_04.D Date:4/12/2013 Time:11:54 AM

	IS1		IS2		IS3	
	Response	RT	Response	RT	Response	RT
12 Hour Std			79979	7.46	55019	9.18
Upper Limit			159958	7.96	110038	9.68
Lower Limit			39989.5	6.96	27509.5	8.68
Sample ID	Response	RT	Response	RT	Response	RT
L629206-03			86803	7.45	59886	9.18

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655337**
Analysis Date:	4/10/2013	Analyst:	377
Instrument ID:	BNAMS13	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Internal Standard Response and Retention Time Summary

FileID:0412_04.D Date:4/12/2013 Time:11:54 AM

	IS4		IS5		IS6	
	Response	RT	Response	RT	Response	RT
12 Hour Std	95341	10.66	103895	13.3	105416	14.67
Upper Limit	190682	11.16	207790	13.8	210832	15.17
Lower Limit	47670.5	10.16	51947.5	12.8	52708	14.17
Sample ID	Response	RT	Response	RT	Response	RT
L629206-03	104513	10.66	116896	13.31	131445	14.67

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655337**
Analysis Date:	4/10/2013	Analyst:	377
Instrument ID:	BNAMS16	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Internal Standard Response and Retention Time Summary

FileID:0410_02.D Date:4/10/2013 Time:5:28 PM

	IS1		IS2		IS3	
	Response	RT	Response	RT	Response	RT
12 Hour Std			98302	5.41	79079	7.34
Upper Limit			196604	5.91	158158	7.84
Lower Limit			49151	4.91	39539.5	6.84
Sample ID	Response	RT	Response	RT	Response	RT
L629206-03			71115	5.41	63000	7.34

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Quality Control Summary
SDG: L629206
ERM - BNSF Region 6

Test:	Semi-Volatiles by Method 8270C-SIM		
Project No:	TT0069-N03	Matrix:	Water - mg/L
Project:	BNSF- ABQ	EPA ID:	TN00003
Collection Date:	4/5/2013	**Analytic Batch:**	**WG655337**
Analysis Date:	4/10/2013	Analyst:	377
Instrument ID:	BNAMS16	Extraction Date:	4/9/2013
Sample Numbers:	L629206-03, -01		

Internal Standard Response and Retention Time Summary

FileID:0410_02.D Date:4/10/2013 Time:5:28 PM

	IS4		IS5		IS6	
	Response	RT	Response	RT	Response	RT
12 Hour Std	162534	8.88	195228	11.56	203301	13.11
Upper Limit	325068	9.38	390456	12.06	406602	13.61
Lower Limit	81267	8.38	97614	11.06	101650.5	12.61
Sample ID	Response	RT	Response	RT	Response	RT
L629206-03	129372	8.87	152527	11.56	138104	13.11

ERM - BNSF Region 6

2201 Buena Vista Dr. SE. Suite 305
Albuquerque,NM 87106

Billing information:

BNSF Railway Company
Charles Thomas
4200 Deen Rd

Fort Worth,TX 76106

G028

Chain of Custody
Page 1 of 1

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Report to: Carly Qualler

Email: carly.qualler@erm.com

Project Description: BNSF- ABQ

City/State Collected: Albuquerque

Phone: (505) 243-3330
FAX:

Client Project #: TT0069-N03

Lab Project #: BNSF6ERM-ABQ

Collected by (print): Carly Qualler

Site/Facility ID#: BNSF ABQ

P.O.#:

Collected by (signature): Carly Qualler

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day.....100%
___ Two Day.....50%
___ Three Day.....25%

Date Results Needed: BNSF Normal

Email? ___No X Yes
FAX? ___No ___Yes

Acctnum: BNSF6ERM (lab use only)
Template/Prelogin: T85339/ P423917
Cooler #: 3-15 MG
Shipped Via: FedEx Ground

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	ALK 500mlHDPE-NoPres	BTEX 40mlAmb-HCl	BTEX- Trip Blank 40mlAmb-HCl-Blk	Dissolved Ba, Fe, Mn 500mlHDPE-NoPres	NO2NO3 250mlHDPE-H2SO4	PAHSIMLVI 40mlAmb-NoPres-WT	RSK175 40mlAmb-NoPres	SULFATE 125mlHDPE-NoPres	Remarks/Contaminant	Sample # (lab only)
MW38-GW-0413	Grab	GW	—	4/5/13	1041	10	X	X		X	X	X	X	X		L629206-01
TRIP BLANK	↓	GW		—	—	1			X							-02
MW28-GW-0413	↓	GW		4/5/13	1117	10	X	X		X	X	X	X	X		-03

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks: Filter metals @ lab

pH _____ Temp _____

Flow _____ Other _____

5547 0234 7327

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Carly Qualler	4/5/13	1730	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)
			Thomas Wilson

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐

Temp: 3.1 Bottles Received: 21

Date: 4/6/13 Time: 0900

Condition: OK (lab use only) MS

COC Seal Intact: ___ Y ___ N ___ NA

pH Checked: 42 NCF:

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Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

Report Summary

Tuesday April 16, 2013

Report Number: L629203
Samples Received: 04/06/13
Client Project: TT0069-N04

Description: BNSF- ABQ FBC

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Mark W. Beasley , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-01

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : FBCMW7-GW-0413

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 12:50

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	300000	390	390	25000	ug/l		9056	04/09/13	5
Alkalinity	260000	2600	2600	20000	ug/l		2320 B-	04/15/13	1
Methane	U	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	28.	23.	23	100	ug/l	JJ6	353.2	04/13/13	1
Barium,Dissolved	35.	1.7	1.7	5	ug/l		6010B	04/12/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/12/13	1
Manganese,Dissolved	500	1.2	1.2	10	ug/l		6010B	04/12/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	100.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	U	0.0076	0.0076	0.05	ug/l	J3	8270C-S	04/10/13	1
Acenaphthene	0.019	0.0082	0.0082	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Acenaphthylene	U	0.0068	0.0068	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l	J3	8270C-S	04/10/13	1
Chrysene	U	0.011	0.011	0.05	ug/l	J3	8270C-S	04/10/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l	J3	8270C-S	04/10/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l	J3	8270C-S	04/10/13	1
Fluorene	0.018	0.0085	0.0085	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l	J3	8270C-S	04/10/13	1
Naphthalene	0.095	0.020	0.02	0.25	ug/l	J	8270C-S	04/10/13	1
Phenanthrene	0.030	0.0082	0.0082	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Pyrene	U	0.012	0.012	0.05	ug/l	J3	8270C-S	04/10/13	1
1-Methylnaphthalene	0.12	0.0082	0.0082	0.25	ug/l	JJ3	8270C-S	04/10/13	1
2-Methylnaphthalene	0.13	0.0090	0.009	0.25	ug/l	JJ3	8270C-S	04/10/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l	J3	8270C-S	04/10/13	1
Surrogate Recovery									
Nitrobenzene-d5	111.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 04/16/13 10:00 Printed: 04/16/13 10:01

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-01

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : FBCMW7-GW-0413

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 12:50

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	119.				% Rec.		8270C-S	04/10/13	1
p-Terphenyl-d14	118.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 04/16/13 10:00 Printed: 04/16/13 10:01

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-02

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : FBCMW3-GW-0413

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 13:30

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	210000	390	390	25000	ug/l		9056	04/09/13	5
Alkalinity	270000	2600	2600	20000	ug/l	J6	2320 B-	04/14/13	1
Methane	37.	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	U	23.	23	100	ug/l		353.2	04/13/13	1
Barium,Dissolved	120	1.7	1.7	5	ug/l		6010B	04/12/13	1
Iron,Dissolved	59.	14.	14	100	ug/l	J	6010B	04/12/13	1
Manganese,Dissolved	950	1.2	1.2	10	ug/l		6010B	04/12/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	99.2				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.32	0.0076	0.0076	0.05	ug/l	J3	8270C-S	04/10/13	1
Acenaphthene	1.6	0.0082	0.0082	0.05	ug/l	J3	8270C-S	04/10/13	1
Acenaphthylene	U	0.0068	0.0068	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(a)anthracene	0.023	0.012	0.012	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Benzo(a)pyrene	0.018	0.012	0.012	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Benzo(b)fluoranthene	0.035	0.014	0.014	0.05	ug/l	J	8270C-S	04/10/13	1
Benzo(g,h,i)perylene	0.021	0.011	0.011	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l	J3	8270C-S	04/10/13	1
Chrysene	0.021	0.011	0.011	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Dibenz(a,h)anthracene	0.0041	0.0040	0.004	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l	J3	8270C-S	04/10/13	1
Fluorene	0.017	0.0085	0.0085	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l	J3	8270C-S	04/10/13	1
Naphthalene	0.18	0.020	0.02	0.25	ug/l	J	8270C-S	04/10/13	1
Phenanthrene	U	0.0082	0.0082	0.05	ug/l	J3	8270C-S	04/10/13	1
Pyrene	0.33	0.012	0.012	0.05	ug/l	J3	8270C-S	04/10/13	1
1-Methylnaphthalene	0.13	0.0082	0.0082	0.25	ug/l	JJ3	8270C-S	04/10/13	1
2-Methylnaphthalene	0.13	0.0090	0.009	0.25	ug/l	JJ3	8270C-S	04/10/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l	J3	8270C-S	04/10/13	1
Surrogate Recovery									
Nitrobenzene-d5	114.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-02

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : FBCMW3-GW-0413

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 13:30

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	124.				% Rec.		8270C-S	04/10/13	1
p-Terphenyl-d14	111.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-03

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : FBCMW4-GW-0413

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 14:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	110000	150	150	10000	ug/l		9056	04/09/13	2
Alkalinity	330000	2600	2600	20000	ug/l		2320 B-	04/14/13	1
Methane	220	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	38.	23.	23	100	ug/l	J	353.2	04/13/13	1
Barium,Dissolved	300	1.7	1.7	5	ug/l		6010B	04/12/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/12/13	1
Manganese,Dissolved	960	1.2	1.2	10	ug/l		6010B	04/12/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	99.5				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	1.5	0.038	0.038	0.25	ug/l	J3	8270C-S	04/11/13	5
Acenaphthene	7.4	0.041	0.041	0.25	ug/l	J3	8270C-S	04/11/13	5
Acenaphthylene	1.5	0.034	0.034	0.25	ug/l	J3	8270C-S	04/11/13	5
Benzo(a)anthracene	0.065	0.059	0.059	0.25	ug/l	JJ3	8270C-S	04/11/13	5
Benzo(a)pyrene	0.090	0.058	0.058	0.25	ug/l	JJ3	8270C-S	04/11/13	5
Benzo(b)fluoranthene	0.19	0.069	0.069	0.25	ug/l	J	8270C-S	04/11/13	5
Benzo(g,h,i)perylene	0.21	0.057	0.057	0.25	ug/l	JJ3	8270C-S	04/11/13	5
Benzo(k)fluoranthene	U	0.068	0.068	0.25	ug/l	J3	8270C-S	04/11/13	5
Chrysene	0.068	0.054	0.054	0.25	ug/l	JJ3	8270C-S	04/11/13	5
Dibenz(a,h)anthracene	0.030	0.020	0.02	0.25	ug/l	JJ3	8270C-S	04/11/13	5
Fluoranthene	0.16	0.078	0.078	0.25	ug/l	JJ3	8270C-S	04/11/13	5
Fluorene	1.5	0.042	0.042	0.25	ug/l	J3	8270C-S	04/11/13	5
Indeno(1,2,3-cd)pyrene	0.14	0.074	0.074	0.25	ug/l	JJ3	8270C-S	04/11/13	5
Naphthalene	0.78	0.099	0.099	1.25	ug/l	J	8270C-S	04/11/13	5
Phenanthrene	U	0.041	0.041	0.25	ug/l	J3	8270C-S	04/11/13	5
Pyrene	0.22	0.058	0.058	0.25	ug/l	JJ3	8270C-S	04/11/13	5
1-Methylnaphthalene	1.5	0.041	0.041	1.25	ug/l	J3	8270C-S	04/11/13	5
2-Methylnaphthalene	0.76	0.045	0.045	1.25	ug/l	JJ3	8270C-S	04/11/13	5
2-Chloronaphthalene	U	0.032	0.032	1.25	ug/l	J3	8270C-S	04/11/13	5
Surrogate Recovery									
Nitrobenzene-d5	119.				% Rec.		8270C-S	04/11/13	5

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-03

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : FBCMW4-GW-0413

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 14:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	122.				% Rec.		8270C-S	04/11/13	5
p-Terphenyl-d14	120.				% Rec.		8270C-S	04/11/13	5

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

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Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-04

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : FBCMW8-GW-0413

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 15:25

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	89000	77.	77	5000	ug/l		9056	04/09/13	1
Alkalinity	340000	2600	2600	20000	ug/l		2320 B-	04/14/13	1
Methane	84.	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	38.	23.	23	100	ug/l	J	353.2	04/13/13	1
Barium,Dissolved	370	1.7	1.7	5	ug/l		6010B	04/12/13	1
Iron,Dissolved	14.	14.	14	100	ug/l	J	6010B	04/12/13	1
Manganese,Dissolved	640	1.2	1.2	10	ug/l		6010B	04/12/13	1
Benzene	0.26	0.19	0.19	0.5	ug/l	J	8021B	04/12/13	1
Toluene	0.22	0.18	0.18	5	ug/l	J	8021B	04/12/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/12/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	98.6				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	1.5	0.038	0.038	0.25	ug/l	J3	8270C-S	04/11/13	5
Acenaphthene	13.	0.041	0.041	0.25	ug/l	J3	8270C-S	04/11/13	5
Acenaphthylene	2.7	0.034	0.034	0.25	ug/l	J3	8270C-S	04/11/13	5
Benzo(a)anthracene	U	0.059	0.059	0.25	ug/l	J3	8270C-S	04/11/13	5
Benzo(a)pyrene	U	0.058	0.058	0.25	ug/l	J3	8270C-S	04/11/13	5
Benzo(b)fluoranthene	U	0.069	0.069	0.25	ug/l		8270C-S	04/11/13	5
Benzo(g,h,i)perylene	U	0.057	0.057	0.25	ug/l	J3	8270C-S	04/11/13	5
Benzo(k)fluoranthene	U	0.068	0.068	0.25	ug/l	J3	8270C-S	04/11/13	5
Chrysene	U	0.054	0.054	0.25	ug/l	J3	8270C-S	04/11/13	5
Dibenz(a,h)anthracene	U	0.020	0.02	0.25	ug/l	J3	8270C-S	04/11/13	5
Fluoranthene	U	0.078	0.078	0.25	ug/l	J3	8270C-S	04/11/13	5
Fluorene	12.	0.042	0.042	0.25	ug/l	J3	8270C-S	04/11/13	5
Indeno(1,2,3-cd)pyrene	U	0.074	0.074	0.25	ug/l	J3	8270C-S	04/11/13	5
Naphthalene	0.38	0.099	0.099	1.25	ug/l	J	8270C-S	04/11/13	5
Phenanthrene	0.047	0.041	0.041	0.25	ug/l	JJ3	8270C-S	04/11/13	5
Pyrene	0.20	0.058	0.058	0.25	ug/l	JJ3	8270C-S	04/11/13	5
1-Methylnaphthalene	0.48	0.041	0.041	1.25	ug/l	JJ3	8270C-S	04/11/13	5
2-Methylnaphthalene	U	0.045	0.045	1.25	ug/l	J3	8270C-S	04/11/13	5
2-Chloronaphthalene	U	0.032	0.032	1.25	ug/l	J3	8270C-S	04/11/13	5
Surrogate Recovery									
Nitrobenzene-d5	119.				% Rec.		8270C-S	04/11/13	5

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-04

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : FBCMW8-GW-0413

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 15:25

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	125.				% Rec.		8270C-S	04/11/13	5
p-Terphenyl-d14	129.				% Rec.		8270C-S	04/11/13	5

U = ND (Not Detected) = Less than SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-05

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : FBCMW2-GW-0413

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 16:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	U	77.	77	5000	ug/l		9056	04/09/13	1
Alkalinity	520000	26000	26000	200000	ug/l		2320 B-	04/14/13	10
Methane	570	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	82.	23.	23	100	ug/l	J	353.2	04/13/13	1
Barium,Dissolved	720	1.7	1.7	5	ug/l		6010B	04/12/13	1
Iron,Dissolved	84.	14.	14	100	ug/l	J	6010B	04/12/13	1
Manganese,Dissolved	1200	1.2	1.2	10	ug/l		6010B	04/12/13	1
Benzene	0.55	0.19	0.19	0.5	ug/l		8021B	04/12/13	1
Toluene	0.47	0.18	0.18	5	ug/l	J	8021B	04/12/13	1
Ethylbenzene	0.22	0.16	0.16	0.5	ug/l	J	8021B	04/12/13	1
Total Xylene	1.1	0.51	0.51	1.5	ug/l	J	8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	98.2				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	1.3	0.0076	0.0076	0.05	ug/l	J3	8270C-S	04/10/13	1
Acenaphthene	9.4	0.0082	0.0082	0.05	ug/l	J3	8270C-S	04/10/13	1
Acenaphthylene	1.6	0.0068	0.0068	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(a)anthracene	0.030	0.012	0.012	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l	J3	8270C-S	04/10/13	1
Chrysene	0.024	0.011	0.011	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l	J3	8270C-S	04/10/13	1
Fluoranthene	0.22	0.016	0.016	0.05	ug/l	J3	8270C-S	04/10/13	1
Fluorene	12.	0.0085	0.0085	0.05	ug/l	J3	8270C-S	04/10/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l	J3	8270C-S	04/10/13	1
Naphthalene	5.0	0.020	0.02	0.25	ug/l		8270C-S	04/10/13	1
Phenanthrene	13.	0.0082	0.0082	0.05	ug/l	J3	8270C-S	04/10/13	1
Pyrene	0.44	0.012	0.012	0.05	ug/l	J3	8270C-S	04/10/13	1
1-Methylnaphthalene	260	0.16	0.16	5	ug/l	J3	8270C-S	04/10/13	20
2-Methylnaphthalene	240	0.18	0.18	5	ug/l	J3	8270C-S	04/10/13	20
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l	J3	8270C-S	04/10/13	1
Surrogate Recovery									
Nitrobenzene-d5	118.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

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Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-05

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : FBCMW2-GW-0413

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 16:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	112.				% Rec.		8270C-S	04/10/13	1
p-Terphenyl-d14	109.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
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Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-06

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : TRIP BLANK

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 00:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/11/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/11/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/11/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/11/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	99.7				% Rec.		8021B	04/11/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Carly Qualler
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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-07

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : DUP3-0413

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 00:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	U	77.	77	5000	ug/l		9056	04/09/13	1
Alkalinity	510000	26000	26000	200000	ug/l		2320 B-	04/14/13	10
Methane	580	2.0	2	10	ug/l		RSK175	04/09/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/09/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/09/13	1
Nitrate-Nitrite	74.	23.	23	100	ug/l	J	353.2	04/13/13	1
Barium,Dissolved	720	1.7	1.7	5	ug/l		6010B	04/12/13	1
Iron,Dissolved	190	14.	14	100	ug/l		6010B	04/12/13	1
Manganese,Dissolved	1200	1.2	1.2	10	ug/l		6010B	04/12/13	1
Benzene	0.34	0.19	0.19	0.5	ug/l	J	8021B	04/12/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/12/13	1
Ethylbenzene	0.18	0.16	0.16	0.5	ug/l	J	8021B	04/12/13	1
Total Xylene	1.1	0.51	0.51	1.5	ug/l	J	8021B	04/12/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	104.				% Rec.		8021B	04/12/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	1.4	0.0076	0.0076	0.05	ug/l	J3	8270C-S	04/10/13	1
Acenaphthene	9.9	0.0082	0.0082	0.05	ug/l	J3	8270C-S	04/10/13	1
Acenaphthylene	1.6	0.0068	0.0068	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(a)anthracene	0.031	0.012	0.012	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/10/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l	J3	8270C-S	04/10/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l	J3	8270C-S	04/10/13	1
Chrysene	0.028	0.011	0.011	0.05	ug/l	JJ3	8270C-S	04/10/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l	J3	8270C-S	04/10/13	1
Fluoranthene	0.25	0.016	0.016	0.05	ug/l	J3	8270C-S	04/10/13	1
Fluorene	13.	0.0085	0.0085	0.05	ug/l	J3	8270C-S	04/10/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l	J3	8270C-S	04/10/13	1
Naphthalene	5.2	0.020	0.02	0.25	ug/l		8270C-S	04/10/13	1
Phenanthrene	14.	0.0082	0.0082	0.05	ug/l	J3	8270C-S	04/10/13	1
Pyrene	0.48	0.012	0.012	0.05	ug/l	J3	8270C-S	04/10/13	1
1-Methylnaphthalene	280	0.16	0.16	5	ug/l	J3	8270C-S	04/10/13	20
2-Methylnaphthalene	270	0.18	0.18	5	ug/l	J3	8270C-S	04/10/13	20
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l	J3	8270C-S	04/10/13	1
Surrogate Recovery									
Nitrobenzene-d5	118.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 04/16/13 10:00 Printed: 04/16/13 10:01

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Est. 1970

REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 16, 2013

ESC Sample # : L629203-07

Date Received : April 06, 2013
Description : BNSF- ABQ FBC

Site ID : BNSF- ABQ FBC

Sample ID : DUP3-0413

Project # : TT0069-N04

Collected By : Carly Qualler
Collection Date : 04/05/13 00:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	113.				% Rec.		8270C-S	04/10/13	1
p-Terphenyl-d14	108.				% Rec.		8270C-S	04/10/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 04/16/13 10:00 Printed: 04/16/13 10:01

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L629203-01	WG655794	SAMP	Nitrate-Nitrite	R2616420	JJ6
	WG655337	SAMP	Anthracene	R2611823	J3
	WG655337	SAMP	Acenaphthene	R2611823	JJ3
	WG655337	SAMP	Acenaphthylene	R2611823	J3
	WG655337	SAMP	Benzo(a)anthracene	R2611823	J3
	WG655337	SAMP	Benzo(a)pyrene	R2611823	J3
	WG655337	SAMP	Benzo(g,h,i)perylene	R2611823	J3
	WG655337	SAMP	Benzo(k)fluoranthene	R2611823	J3
	WG655337	SAMP	Chrysene	R2611823	J3
	WG655337	SAMP	Dibenz(a,h)anthracene	R2611823	J3
	WG655337	SAMP	Fluoranthene	R2611823	J3
	WG655337	SAMP	Fluorene	R2611823	JJ3
	WG655337	SAMP	Indeno(1,2,3-cd)pyrene	R2611823	J3
	WG655337	SAMP	Naphthalene	R2611823	J
	WG655337	SAMP	Phenanthrene	R2611823	JJ3
	WG655337	SAMP	Pyrene	R2611823	J3
	WG655337	SAMP	1-Methylnaphthalene	R2611823	JJ3
	WG655337	SAMP	2-Methylnaphthalene	R2611823	JJ3
	WG655337	SAMP	2-Chloronaphthalene	R2611823	J3
L629203-02	WG655827	SAMP	Iron,Dissolved	R2615481	J
	WG655337	SAMP	Anthracene	R2611823	J3
	WG655337	SAMP	Acenaphthene	R2611823	J3
	WG655337	SAMP	Acenaphthylene	R2611823	J3
	WG655337	SAMP	Benzo(a)anthracene	R2611823	JJ3
	WG655337	SAMP	Benzo(a)pyrene	R2611823	JJ3
	WG655337	SAMP	Benzo(b)fluoranthene	R2611823	J
	WG655337	SAMP	Benzo(g,h,i)perylene	R2611823	JJ3
	WG655337	SAMP	Benzo(k)fluoranthene	R2611823	J3
	WG655337	SAMP	Chrysene	R2611823	JJ3
	WG655337	SAMP	Dibenz(a,h)anthracene	R2611823	JJ3
	WG655337	SAMP	Fluoranthene	R2611823	J3
	WG655337	SAMP	Fluorene	R2611823	JJ3
	WG655337	SAMP	Indeno(1,2,3-cd)pyrene	R2611823	J3
	WG655337	SAMP	Naphthalene	R2611823	J
	WG655337	SAMP	Phenanthrene	R2611823	J3
	WG655337	SAMP	Pyrene	R2611823	J3
	WG655337	SAMP	1-Methylnaphthalene	R2611823	JJ3
	WG655337	SAMP	2-Methylnaphthalene	R2611823	JJ3
	WG655337	SAMP	2-Chloronaphthalene	R2611823	J3
	WG656110	SAMP	Alkalinity	R2619160	J6
L629203-03	WG655794	SAMP	Nitrate-Nitrite	R2616420	J
	WG655337	SAMP	Anthracene	R2611823	J3
	WG655337	SAMP	Acenaphthene	R2611823	J3
	WG655337	SAMP	Acenaphthylene	R2611823	J3
	WG655337	SAMP	Benzo(a)anthracene	R2611823	JJ3
	WG655337	SAMP	Benzo(a)pyrene	R2611823	JJ3
	WG655337	SAMP	Benzo(b)fluoranthene	R2611823	J
	WG655337	SAMP	Benzo(g,h,i)perylene	R2611823	JJ3
	WG655337	SAMP	Benzo(k)fluoranthene	R2611823	J3
	WG655337	SAMP	Chrysene	R2611823	JJ3
	WG655337	SAMP	Dibenz(a,h)anthracene	R2611823	JJ3
	WG655337	SAMP	Fluoranthene	R2611823	JJ3
	WG655337	SAMP	Fluorene	R2611823	J3
	WG655337	SAMP	Indeno(1,2,3-cd)pyrene	R2611823	JJ3
	WG655337	SAMP	Naphthalene	R2611823	J
	WG655337	SAMP	Phenanthrene	R2611823	J3
	WG655337	SAMP	Pyrene	R2611823	JJ3
	WG655337	SAMP	1-Methylnaphthalene	R2611823	J3
	WG655337	SAMP	2-Methylnaphthalene	R2611823	JJ3
	WG655337	SAMP	2-Chloronaphthalene	R2611823	J3
L629203-04	WG655794	SAMP	Nitrate-Nitrite	R2616420	J
	WG655915	SAMP	Benzene	R2616180	J
	WG655915	SAMP	Toluene	R2616180	J
	WG655827	SAMP	Iron,Dissolved	R2615481	J
	WG655337	SAMP	Anthracene	R2611823	J3
	WG655337	SAMP	Acenaphthene	R2611823	J3
	WG655337	SAMP	Acenaphthylene	R2611823	J3
	WG655337	SAMP	Benzo(a)anthracene	R2611823	J3
	WG655337	SAMP	Benzo(a)pyrene	R2611823	J3

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
	WG655337	SAMP	Benzo(g,h,i)perylene	R2611823	J3
	WG655337	SAMP	Benzo(k)fluoranthene	R2611823	J3
	WG655337	SAMP	Chrysene	R2611823	J3
	WG655337	SAMP	Dibenz(a,h)anthracene	R2611823	J3
	WG655337	SAMP	Fluoranthene	R2611823	J3
	WG655337	SAMP	Fluorene	R2611823	J3
	WG655337	SAMP	Indeno(1,2,3-cd)pyrene	R2611823	J3
	WG655337	SAMP	Naphthalene	R2611823	J
	WG655337	SAMP	Phenanthrene	R2611823	JJ3
	WG655337	SAMP	Pyrene	R2611823	JJ3
	WG655337	SAMP	1-Methylnaphthalene	R2611823	JJ3
	WG655337	SAMP	2-Methylnaphthalene	R2611823	J3
	WG655337	SAMP	2-Chloronaphthalene	R2611823	J3
L629203-05	WG655794	SAMP	Nitrate-Nitrite	R2616420	J
	WG655915	SAMP	Toluene	R2616180	J
	WG655915	SAMP	Ethylbenzene	R2616180	J
	WG655915	SAMP	Total Xylene	R2616180	J
	WG655827	SAMP	Iron,Dissolved	R2615481	J
	WG655337	SAMP	Anthracene	R2611823	J3
	WG655337	SAMP	Acenaphthene	R2611823	J3
	WG655337	SAMP	Acenaphthylene	R2611823	J3
	WG655337	SAMP	Benzo(a)anthracene	R2611823	JJ3
	WG655337	SAMP	Benzo(a)pyrene	R2611823	J3
	WG655337	SAMP	Benzo(g,h,i)perylene	R2611823	J3
	WG655337	SAMP	Benzo(k)fluoranthene	R2611823	J3
	WG655337	SAMP	Chrysene	R2611823	JJ3
	WG655337	SAMP	Dibenz(a,h)anthracene	R2611823	J3
	WG655337	SAMP	Fluoranthene	R2611823	J3
	WG655337	SAMP	Fluorene	R2611823	J3
	WG655337	SAMP	Indeno(1,2,3-cd)pyrene	R2611823	J3
	WG655337	SAMP	Phenanthrene	R2611823	J3
	WG655337	SAMP	Pyrene	R2611823	J3
	WG655337	SAMP	1-Methylnaphthalene	R2611823	J3
	WG655337	SAMP	2-Methylnaphthalene	R2611823	J3
	WG655337	SAMP	2-Chloronaphthalene	R2611823	J3
L629203-07	WG655794	SAMP	Nitrate-Nitrite	R2616420	J
	WG655945	SAMP	Benzene	R2616160	J
	WG655945	SAMP	Ethylbenzene	R2616160	J
	WG655945	SAMP	Total Xylene	R2616160	J
	WG655337	SAMP	Anthracene	R2611823	J3
	WG655337	SAMP	Acenaphthene	R2611823	J3
	WG655337	SAMP	Acenaphthylene	R2611823	J3
	WG655337	SAMP	Benzo(a)anthracene	R2611823	JJ3
	WG655337	SAMP	Benzo(a)pyrene	R2611823	J3
	WG655337	SAMP	Benzo(g,h,i)perylene	R2611823	J3
	WG655337	SAMP	Benzo(k)fluoranthene	R2611823	J3
	WG655337	SAMP	Chrysene	R2611823	JJ3
	WG655337	SAMP	Dibenz(a,h)anthracene	R2611823	J3
	WG655337	SAMP	Fluoranthene	R2611823	J3
	WG655337	SAMP	Fluorene	R2611823	J3
	WG655337	SAMP	Indeno(1,2,3-cd)pyrene	R2611823	J3
	WG655337	SAMP	Phenanthrene	R2611823	J3
	WG655337	SAMP	Pyrene	R2611823	J3
	WG655337	SAMP	1-Methylnaphthalene	R2611823	J3
	WG655337	SAMP	2-Methylnaphthalene	R2611823	J3
	WG655337	SAMP	2-Chloronaphthalene	R2611823	J3

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/16/13 at 10:01:18

TSR Signing Reports: 134
RX - Priority Rush

Sample: L629203-01 Account: BNSF6ERM Received: 04/06/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 10:00

Sample: L629203-02 Account: BNSF6ERM Received: 04/06/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 10:00

Sample: L629203-03 Account: BNSF6ERM Received: 04/06/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 10:00

Sample: L629203-04 Account: BNSF6ERM Received: 04/06/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 10:00

Sample: L629203-05 Account: BNSF6ERM Received: 04/06/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 10:00

Sample: L629203-06 Account: BNSF6ERM Received: 04/06/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 10:00

Sample: L629203-07 Account: BNSF6ERM Received: 04/06/13 09:30 Due Date: 04/16/13 00:00 RPT Date: 04/16/13 10:00

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Est. 1970

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

Report Summary

Thursday April 18, 2013

Report Number: L629485
Samples Received: 04/09/13
Client Project: TT0069-N04

Description: BNSF- ABQ FBC

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Mark W. Beasley , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

ESC LAB SCIENCES
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 18, 2013

ESC Sample # : L629485-01

Date Received : April 09, 2013
Description : BNSF- ABQ FBC

Site ID : ABQ, FBC

Sample ID : FBCMW5-GW-0413

Project # : TT0069-N04

Collected By : Robert K. Stewart
Collection Date : 04/08/13 10:04

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	U	77.	77	5000	ug/l		9056	04/10/13	1
Alkalinity	610000	13000	13000	100000	ug/l		2320 B-	04/14/13	5
Methane	2700	10.	10	50	ug/l		RSK175	04/11/13	5
Ethane	U	20.	20	65	ug/l		RSK175	04/11/13	5
Ethene	U	28.	28	65	ug/l		RSK175	04/11/13	5
Nitrate-Nitrite	300	23.	23	100	ug/l		353.2	04/16/13	1
Barium,Dissolved	720	1.7	1.7	5	ug/l		6010B	04/17/13	1
Iron,Dissolved	340	14.	14	100	ug/l		6010B	04/17/13	1
Manganese,Dissolved	940	1.2	1.2	10	ug/l		6010B	04/18/13	1
Benzene	2.0	0.19	0.19	0.5	ug/l		8021B	04/13/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/13/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/13/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/13/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	100.				% Rec.		8021B	04/13/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.84	0.0076	0.0076	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthene	7.3	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthylene	1.3	0.0068	0.0068	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)anthracene	0.018	0.012	0.012	0.05	ug/l	J	8270C-S	04/11/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Chrysene	0.019	0.011	0.011	0.05	ug/l	J	8270C-S	04/11/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/11/13	1
Fluoranthene	0.14	0.016	0.016	0.05	ug/l		8270C-S	04/11/13	1
Fluorene	9.9	0.0085	0.0085	0.05	ug/l		8270C-S	04/11/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/11/13	1
Naphthalene	0.59	0.020	0.02	0.25	ug/l		8270C-S	04/11/13	1
Phenanthrene	15.	0.16	0.16	1	ug/l		8270C-S	04/16/13	20
Pyrene	0.26	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
1-Methylnaphthalene	230	0.16	0.16	5	ug/l		8270C-S	04/16/13	20
2-Methylnaphthalene	250	0.18	0.18	5	ug/l		8270C-S	04/16/13	20
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/11/13	1
Surrogate Recovery									
Nitrobenzene-d5	73.2				% Rec.		8270C-S	04/11/13	1

U = ND (Not Detected) = Less than SDL
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 18, 2013

ESC Sample # : L629485-01

Date Received : April 09, 2013
Description : BNSF- ABQ FBC

Site ID : ABQ, FBC

Sample ID : FBCMW5-GW-0413

Project # : TT0069-N04

Collected By : Robert K. Stewart
Collection Date : 04/08/13 10:04

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	88.1				% Rec.		8270C-S	04/11/13	1
p-Terphenyl-d14	71.8				% Rec.		8270C-S	04/11/13	1

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 18, 2013

ESC Sample # : L629485-02

Date Received : April 09, 2013
Description : BNSF- ABQ FBC

Site ID : ABQ, FBC

Sample ID : FBCMW6-GW-0413

Project # : TT0069-N04

Collected By : Robert K. Stewart
Collection Date : 04/08/13 11:16

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	23000	77.	77	5000	ug/l		9056	04/10/13	1
Alkalinity	460000	13000	13000	100000	ug/l		2320 B-	04/17/13	5
Methane	1300	10.	10	50	ug/l		RSK175	04/11/13	5
Ethane	U	20.	20	65	ug/l		RSK175	04/11/13	5
Ethene	U	28.	28	65	ug/l		RSK175	04/11/13	5
Nitrate-Nitrite	65.	23.	23	100	ug/l	J	353.2	04/16/13	1
Barium,Dissolved	700	1.7	1.7	5	ug/l		6010B	04/17/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/17/13	1
Manganese,Dissolved	950	1.2	1.2	10	ug/l		6010B	04/18/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/16/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/16/13	1
Ethylbenzene	0.77	0.16	0.16	0.5	ug/l		8021B	04/16/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/16/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	99.5				% Rec.		8021B	04/16/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	3.5	0.0076	0.0076	0.05	ug/l		8270C-S	04/11/13	1
Acenaphthene	20.	0.16	0.16	1	ug/l		8270C-S	04/12/13	20
Acenaphthylene	2.7	0.0068	0.0068	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)anthracene	0.13	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)pyrene	0.029	0.012	0.012	0.05	ug/l	J	8270C-S	04/11/13	1
Benzo(b)fluoranthene	0.038	0.014	0.014	0.05	ug/l	J	8270C-S	04/11/13	1
Benzo(g,h,i)perylene	0.019	0.011	0.011	0.05	ug/l	J	8270C-S	04/11/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Chrysene	0.099	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/11/13	1
Fluoranthene	1.1	0.016	0.016	0.05	ug/l		8270C-S	04/11/13	1
Fluorene	33.	0.17	0.17	1	ug/l		8270C-S	04/12/13	20
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/11/13	1
Naphthalene	1.3	0.020	0.02	0.25	ug/l		8270C-S	04/11/13	1
Phenanthrene	58.	0.16	0.16	1	ug/l		8270C-S	04/12/13	20
Pyrene	2.3	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
1-Methylnaphthalene	310	0.16	0.16	5	ug/l		8270C-S	04/12/13	20
2-Methylnaphthalene	240	0.18	0.18	5	ug/l		8270C-S	04/12/13	20
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/11/13	1
Surrogate Recovery									
Nitrobenzene-d5	107.				% Rec.		8270C-S	04/11/13	1

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 18, 2013

ESC Sample # : L629485-02

Date Received : April 09, 2013
Description : BNSF- ABQ FBC

Site ID : ABQ, FBC

Sample ID : FBCMW6-GW-0413

Project # : TT0069-N04

Collected By : Robert K. Stewart
Collection Date : 04/08/13 11:16

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	85.0				% Rec.		8270C-S	04/11/13	1
p-Terphenyl-d14	91.7				% Rec.		8270C-S	04/11/13	1

U = ND (Not Detected) = Less than SDL
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Note:
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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 18, 2013

ESC Sample # : L629485-03

Date Received : April 09, 2013
Description : BNSF- ABQ FBC

Site ID : ABQ, FBC

Sample ID : TRIP BLANK

Project # : TT0069-N04

Collected By : Robert K. Stewart
Collection Date : 04/08/13 00:00

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/13/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/13/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/13/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/13/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	100.				% Rec.		8021B	04/13/13	1

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REPORT OF ANALYSIS

Carly Qualler
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2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 18, 2013

ESC Sample # : L629485-04

Date Received : April 09, 2013
Description : BNSF- ABQ FBC

Site ID : ABQ, FBC

Sample ID : RINSE-0413

Project # : TT0069-N04

Collected By : Robert K. Stewart
Collection Date : 04/08/13 13:28

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
Sulfate	U	77.	77	5000	ug/l		9056	04/10/13	1
Alkalinity	U	2600	2600	20000	ug/l		2320 B-	04/16/13	1
Methane	U	2.0	2	10	ug/l		RSK175	04/11/13	1
Ethane	U	4.0	4	13	ug/l		RSK175	04/11/13	1
Ethene	U	5.7	5.7	13	ug/l		RSK175	04/11/13	1
Nitrate-Nitrite	110	23.	23	100	ug/l		353.2	04/16/13	1
Barium,Dissolved	13.	1.7	1.7	5	ug/l		6010B	04/17/13	1
Iron,Dissolved	U	14.	14	100	ug/l		6010B	04/17/13	1
Manganese,Dissolved	13.	1.2	1.2	10	ug/l		6010B	04/18/13	1
Benzene	U	0.19	0.19	0.5	ug/l		8021B	04/16/13	1
Toluene	U	0.18	0.18	5	ug/l		8021B	04/16/13	1
Ethylbenzene	U	0.16	0.16	0.5	ug/l		8021B	04/16/13	1
Total Xylene	U	0.51	0.51	1.5	ug/l		8021B	04/16/13	1
Surrogate Recovery(%)									
a,a,a-Trifluorotoluene(PID)	100.				% Rec.		8021B	04/16/13	1
Polynuclear Aromatic Hydrocarbons									
Anthracene	0.011	0.0076	0.0076	0.05	ug/l	J	8270C-S	04/11/13	1
Acenaphthene	0.026	0.0082	0.0082	0.05	ug/l	J	8270C-S	04/11/13	1
Acenaphthylene	U	0.0068	0.0068	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)anthracene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(a)pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
Benzo(b)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Benzo(g,h,i)perylene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Benzo(k)fluoranthene	U	0.014	0.014	0.05	ug/l		8270C-S	04/11/13	1
Chrysene	U	0.011	0.011	0.05	ug/l		8270C-S	04/11/13	1
Dibenz(a,h)anthracene	U	0.0040	0.004	0.05	ug/l		8270C-S	04/11/13	1
Fluoranthene	U	0.016	0.016	0.05	ug/l		8270C-S	04/11/13	1
Fluorene	0.037	0.0085	0.0085	0.05	ug/l	J	8270C-S	04/11/13	1
Indeno(1,2,3-cd)pyrene	U	0.015	0.015	0.05	ug/l		8270C-S	04/11/13	1
Naphthalene	0.056	0.020	0.02	0.25	ug/l	J	8270C-S	04/11/13	1
Phenanthrene	0.11	0.0082	0.0082	0.05	ug/l		8270C-S	04/11/13	1
Pyrene	U	0.012	0.012	0.05	ug/l		8270C-S	04/11/13	1
1-Methylnaphthalene	0.19	0.0082	0.0082	0.25	ug/l	J	8270C-S	04/11/13	1
2-Methylnaphthalene	0.17	0.0090	0.009	0.25	ug/l	J	8270C-S	04/11/13	1
2-Chloronaphthalene	U	0.0065	0.0065	0.25	ug/l		8270C-S	04/11/13	1
Surrogate Recovery									
Nitrobenzene-d5	99.0				% Rec.		8270C-S	04/11/13	1

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REPORT OF ANALYSIS

Carly Qualler
ERM - BNSF Region 6
2201 Buena Vista Dr. SE, Suite 305
Albuquerque, NM 87106

April 18, 2013

ESC Sample # : L629485-04

Date Received : April 09, 2013
Description : BNSF- ABQ FBC

Site ID : ABQ, FBC

Sample ID : RINSE-0413

Project # : TT0069-N04

Collected By : Robert K. Stewart
Collection Date : 04/08/13 13:28

Parameter	Result	MDL	SDL	MQL	Units	Qual	Method	Date	Dil.
2-Fluorobiphenyl	99.2				% Rec.		8270C-S	04/11/13	1
p-Terphenyl-d14	99.6				% Rec.		8270C-S	04/11/13	1

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L629485-01	WG655587	SAMP	Benzo(a)anthracene	R2613304	J
	WG655587	SAMP	Chrysene	R2613304	J
L629485-02	WG656461	SAMP	Nitrate-Nitrite	R2621164	J
	WG655587	SAMP	Benzo(a)pyrene	R2613304	J
	WG655587	SAMP	Benzo(b)fluoranthene	R2613304	J
	WG655587	SAMP	Benzo(g,h,i)perylene	R2613304	J
L629485-04	WG655587	SAMP	Anthracene	R2613304	J
	WG655587	SAMP	Acenaphthene	R2613304	J
	WG655587	SAMP	Fluorene	R2613304	J
	WG655587	SAMP	Naphthalene	R2613304	J
	WG655587	SAMP	1-Methylnaphthalene	R2613304	J
	WG655587	SAMP	2-Methylnaphthalene	R2613304	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/18/13 at 15:39:56

TSR Signing Reports: 134
R5 - Desired TAT

Sample: L629485-01 Account: BNSF6ERM Received: 04/09/13 09:00 Due Date: 04/16/13 00:00 RPT Date: 04/18/13 15:39
Filter metals @ lab
Sample: L629485-02 Account: BNSF6ERM Received: 04/09/13 09:00 Due Date: 04/16/13 00:00 RPT Date: 04/18/13 15:39

Sample: L629485-03 Account: BNSF6ERM Received: 04/09/13 09:00 Due Date: 04/16/13 00:00 RPT Date: 04/18/13 15:39

Sample: L629485-04 Account: BNSF6ERM Received: 04/09/13 09:00 Due Date: 04/16/13 00:00 RPT Date: 04/18/13 15:39

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