Dear Ms. Hunter,

Attached please find attached the Initial Corrective Action Report for the KAFB-106239 Development Water Release associated with the Bulk Fuels Facility Spill, Solid Waste Management Unit ST-106/SS-111, Kirtland Air Force Base (KAFB), New Mexico. This report is submitted pursuant to 20.6.2.1203.A(6) NMAC, "Notification of Discharge-Removal". This report also satisfies the requirements in Part 1.27 of KAFB's 2010 Hazardous Waste Treatment Facility Operating Permit (HWTF Permit No. NM9570024423). The 150-gallon water release was originally reported to NMED via email on January 8, 2017, a few hours after the release occurred. The Air Force has implemented all planned corrective action activities identified in that notification. At this time, the final post-soil removal data are pending. Following receipt of these analytical data, a Final Corrective Action Report will be submitted.

If you have any questions or concerns, please contact Mr. Scott Clark at (505) 846-9017 or at scott.clark@us.af.mil.

Sincerely,

[Signature]

ERIC H. FROEHLICH, Colonel, USAF
Commander

Attachment:
Initial Corrective Action Report, KAFB-106239 Development Water Release

cc:
NMED-EHD (Keiling, McQuillan)
NMED-HWB (Agnew)
NMED-GWQB (Pullen)
EPA Region 6 (King, Ellinger)
SAF-IEE (Lynnes)
COA-EHD (Faris, Leonard)
AFCEC/CZ (Bodour, Clark, Devergie)
USACE-ABQ District Office (Simpler, Phaneuf, Dreeland; Sanchez; Salazar)
Public Info Repository, AR/IR, and File
Description of the Release

On 8 January 2017, Kirtland Air Force Base (AFB) was performing well development activities on extraction well KAFB-106239 located on Ridgecrest Drive SE just east of San Pedro Drive (Figure 1). KAFB-106239 is being constructed to extract dissolved-phase organic contaminated groundwater for treatment at the Kirtland AFB Bulk Fuels Facility Groundwater Treatment System. During well development, groundwater was pumped from the well as part of the well screen cleaning process to enhance well performance. All water pumped from the well was pumped directly into 21,000-gallon capacity, onsite storage tanks. The storage tanks were placed on portable, heavy duty vinyl, secondary containment structures with 1-foot (ft) high sides to capture leaks and small releases from the tank.

During pumping of the deepest portion of the well screen interval on 8 January 2017, the storage tank overflowed water from the top port of the tank (Attachment 1, Photograph 1). The overflow began at 4:15 p.m. just as the pump was shut down to end the pumping cycle. The cover of the port was closed, but not locked down. Pressure in the pump line feeding the tank forced water to shoot outward from the port for approximately 15-20 seconds into the secondary containment structure and directly onto the ground (i.e.: release was not direct overflow from the secondary containment structure). The secondary containment structure captured some of the overflow; however, due to the pumping pressure, it was limited to a few gallons that ran down the side of the tank. Most of the water overshot the edge of the secondary containment and was released onto the ground (Attachment 1, Photograph 2). An estimated 150 gallons of water was released onto the soil adjacent to the tank. Water then flowed westward in the dirt right-of-way adjacent to the south side of Ridgecrest Drive SE, following the existing soil drainage contours for a measured distance of 170 ft to the west (toward San Pedro Drive SE). Figure 2 shows the approximate area of the impacted soil from the release. The width of the flow was contained in a 2- to 3-ft wide path for most of the flow length. At the spill point, water did cover a 9-ft wide area (Attachment 1, Photograph 3; Figure 2). None of the released water reached any City of Albuquerque storm drains on either Ridgecrest Drive SE or San Pedro Drive SE. In addition no private property was impacted.

Corrective Actions

Field personnel immediately responded by first ensuring the well pump was turned off. A small earthen berm was then constructed downslope of the flow near San Pedro Drive SE to prevent any water from leaving the dirt area south of Ridgecrest Drive SE or east of San Pedro Drive SE. Once the site spill was secured, Mr. Steve Pullen of the New Mexico Environment Department (NMED) Ground Water Quality Bureau was notified regarding the incident via email on 8 January 2017.

One soil sample (SP-001) was collected on 8 January 2017 at the distal extent of the surface flow where water was ponding on the surface (Figure 2). The sample was collected within 2 hours of the release and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by U.S. Environmental Protection Agency (EPA) Method 8021B, ethylene dibromide (EDB) by EPA Method 8011, and Resource Conservation and Recovery Act (RCRA) metals by EPA Methods 6010B/7471A at Hall Environmental
Laboratories in Albuquerque, New Mexico. Soil sample results and project screening levels are provided in Table 1. Laboratory analytical reports are provided in Attachment 2.

**Characterization Sampling and Soil Removal on 9 January 2017**

On the morning of 9 January 2017, the area of the surface release was first pin-flagged to clearly identify the impacted area in preparation for soil removal (Attachment 1, Photograph 4). Two additional samples (pre-excavation) were then collected: one from the spill area near the storage tank (SP-002; Figure 2) and one liquid sample collected from the development water in tank (SP; Table 2). Samples were delivered to Hall Environmental Laboratories and analyzed for BTEX, EDB, and RCRA metals as described above for the soil sample. The water sample was analyzed for BTEX by EPA Method 8260B, EDB by EPA Method 8011, and RCRA metals by EPA Methods 6010B/7470A.

In order to determine how much soil should be removed in the release area, a shovel was used to dig into the soil to determine a visual depth of water infiltration. It was determined that along most of the primary flow path (approximately 150 linear ft) and at the base of the storage tank, the depth of water infiltration was within 1 inch of the surface. At the far distal (western) extent of the surface flow, previous snow melt infiltration combined with the release resulted in saturated soil approximately two inches in depth. Based on the saturation depth, a 2-inch depth of soil removal was initiated in this area (approximately 20 linear ft).

A buried utility line mark was observed along the path of the proposed excavation. Although the buried utility was deeper than 2 inches, to mitigate any risk, four, 2-inch deep trenches were hand-dug along the length of the proposed removal area and perpendicular to the utility trace. The trenches confirmed that the utility was not present at these depths.

Soil removal was performed using a Bobcat excavator with a 5-ft wide bucket (Attachment 1, Photographs 5 and 6). A 1-inch deep cut was made into the soil the width of the bucket along the pathway of the spill. A second linear cut of approximately 3 ft was done to ensure capture of all the impacted area along the length of the spill.

At the release point at the storage tank, an area of approximately 9 × 9 ft was removed to 1-inch deep. At the downslope end of the flow, an area 20 ft long ranging from 3 to 8 ft wide was removed to a depth of 2 inches. The soil removal area is shown on Figure 3.

All excavated soil was placed in a lined, 20-yard roll-off bin. Approximately 2 yards of soil was removed during the excavation. The soil will be characterized for waste management purposes and properly disposed of upon receipt of analytical results.

**Post-Excavation Confirmation Soil Sampling on 9 January 2017**

Upon completion of the soil excavation activities, six soil samples were collected along the length of the excavated area on 9 January 2017 (Figure 4; and Attachment 1, Photographs 7 and 8). The purpose of the post-excavation sampling was to confirm all impacted soil was removed and that no soil contamination remained at the site or associated with the release. The samples were sent Eurofins Lancaster Laboratories Environmental, Lancaster, Pennsylvania for BTEX, EDB, and RCRA metals analysis. These analytical results are pending and will be submitted with a final report.
**Sample Analytical Results**

Table 1 provides the analytical results for two pre-excavation soil samples. Table 2 presents the analytical results for the well development water collected from the storage tank. Table 3 provides a summary of all the samples collected as part of this soil removal activity.

**Development Water**

The data results from the development water released from the tank document the sample to be non-hazardous. EDB was reported at 0.056 micrograms per liter (µg/L), which is slightly above the EPA Maximum Contaminant Level (MCL) of 0.05 µg/L. For the BTEX compounds analyzed, only toluene was detected at 3.9 µg/L, well below the New Mexico Water Quality Control Commission (NMWQCC) standard of 750 µg/L. The only metal detected in the development water was barium at 0.12 milligrams per liter, less than the EPA MCL. Water data were conservatively compared to EPA MCLs/NMWQCC Standards, but no surface, storm, or groundwater was impacted.

**Pre-Removal Soil Samples**

Laboratory results for the two soil samples (SP001 and SP002) collected prior to excavation activities indicate the soil did not contain EDB or BTEX compounds above the method detection limit as all results were non-detect for these compounds. Metals in soil showed detected concentrations of barium, chromium, and lead that were below NMED residential soil screening levels.

**Post-Removal Soil Samples**

These analytical data are pending and will be provided in a final report.
FIGURES

Figure 1  Location of Extraction Well KAFB-106239
Figure 2  Extent of Water Release and Location of Pre-Removal Soil Samples
Figure 3  Impacted Soil Removal Action
Figure 4  Location of Post-Removal Action Soil Samples
Kirtland AFB

LOCATION OF EXTRACTION WELL
KAFB-106239

FIGURE 1

WATER STORAGE TANK RELEASE REPORT
BULK FUELS FACILITY
SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO

Notes:
Aerial Imagery from ESRI Online Map Service 2016

Legend
- Extraction Well
- Storage Tank

EXTRACTION WELL KAFB-106239
LOCATION OF EXTRACTION WELL KAFB-106239
FIGURE 2

EXTENT OF WATER RELEASE
AND LOCATION OF PRE-REMOVAL
SOIL SAMPLES

Legend
- Pre-Removal Soil Sample Location
  January 8, 2017
- Development Water Sample
- Reference Point
- Impacted Soil Area

Notes:
Aerial Imagery from ESRI Online Map Service 2016

EXTRACTION WELL KAFB-106239
WATER STORAGE TANK RELEASE REPORT
BULK FUELS FACILITY
SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 2

EXTR.

Kirtland AFB

SITE LOCATION

SP-001

San Pedro Dr. SE

Ridgecrest Dr. SE

Storage Tank

SP-002

SP

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
FIGURE 3

- Area of 1" Soil Removal
  January 9, 2017
- Area of 2" Soil Removal
  January 9, 2017

Notes:
Aerial Imagery from ESRI Online Map Service 2016

Legend

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Projection: NAD83 State Plane New Mexico Central FIPS3002 Feet

EXTRACTION WELL KAFB-106239
WATER STORAGE TANK RELEASE REPORT
BULK FUELS FACILITY
SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 3

IMPACTED SOIL REMOVAL ACTION
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Soil Analytical Results, 8-9 January 2017</td>
<td></td>
</tr>
<tr>
<td>Table 2</td>
<td>Development Water Analytical Results, 9 January 2017</td>
<td></td>
</tr>
<tr>
<td>Table 3</td>
<td>Sampling Locations, 8-9 January 2017</td>
<td></td>
</tr>
</tbody>
</table>
### Table 1
**Soil Analytical Results**
**January 8-9, 2017**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>EPA Method</th>
<th>Analyte</th>
<th>CAS RN</th>
<th>NMED Residential SSL</th>
<th>Result (mg/kg)</th>
<th>PQL</th>
<th>Result (mg/kg)</th>
<th>PQL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EDB</strong></td>
<td>SW8011</td>
<td>1,2-dibromoethane</td>
<td>106-93-4</td>
<td></td>
<td>0.672</td>
<td>ND</td>
<td>0.0001</td>
<td>ND</td>
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<tr>
<td><strong>BTEX</strong></td>
<td>SW8021B</td>
<td>Benzene</td>
<td>71-43-2</td>
<td></td>
<td>17.8</td>
<td>ND</td>
<td>0.024</td>
<td>ND</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td></td>
<td>75.1</td>
<td>ND</td>
<td>0.048</td>
<td>ND</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toluene</td>
<td>108-88-3</td>
<td></td>
<td>5,230</td>
<td>ND</td>
<td>0.048</td>
<td>ND</td>
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<td></td>
<td></td>
<td>Xylenes, total</td>
<td>1330-20-7</td>
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<td>871</td>
<td>ND</td>
<td>0.096</td>
<td>ND</td>
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<td><strong>Total Metals</strong></td>
<td>SW6010B</td>
<td>Arsenic</td>
<td>7440-38-2</td>
<td></td>
<td>4.25</td>
<td>ND</td>
<td>2.5</td>
<td>ND</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Barium</td>
<td>7440-39-3</td>
<td></td>
<td>15,600</td>
<td>71</td>
<td>0.10</td>
<td>95</td>
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<tr>
<td></td>
<td></td>
<td>Cadmium</td>
<td>7440-43-9</td>
<td></td>
<td>70.5</td>
<td>ND</td>
<td>0.10</td>
<td>ND</td>
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<tr>
<td></td>
<td></td>
<td>Chromium</td>
<td>7440-47-3</td>
<td></td>
<td>96.6</td>
<td>3.2</td>
<td>0.30</td>
<td>5.1</td>
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<tr>
<td></td>
<td></td>
<td>Lead</td>
<td>7439-92-1</td>
<td></td>
<td>400</td>
<td>5.3</td>
<td>0.25</td>
<td>9.8</td>
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<tr>
<td></td>
<td></td>
<td>Selenium</td>
<td>7782-49-2</td>
<td></td>
<td>391</td>
<td>ND</td>
<td>2.5</td>
<td>ND</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Silver</td>
<td>7440-22-4</td>
<td></td>
<td>391</td>
<td>ND</td>
<td>0.25</td>
<td>ND</td>
</tr>
<tr>
<td></td>
<td>SW7471A</td>
<td>Mercury</td>
<td>7439-97-6</td>
<td></td>
<td>23.8</td>
<td>ND</td>
<td>0.031</td>
<td>ND</td>
</tr>
</tbody>
</table>

**Notes:**
- EPA RSLs for residential use scenario for hazard index = 1.0 for noncarcinogens and a 10⁻⁵ cancer risk level for carcinogens. May 2016.
- mg/kg = Milligram(s) per kilogram.
- CASRN = Chemical Abstracts Service Registry Number.
- EPA = U.S. Environmental Protection Agency.
- ND = Not detected above the method detection limit.
- NMED = New Mexico Environment Department.
- PQL = Practical quantification limit.
- RSL = Regional Screening Level.
- SSL = Soil Screening Level.
## Table 2
### Development Water Analytical Results

January 9, 2017

<table>
<thead>
<tr>
<th>Parameter</th>
<th>EPA Method</th>
<th>Analyte</th>
<th>CAS RN</th>
<th>NMWQCC(a) (µg/L)</th>
<th>EPA MCL(b)</th>
<th>Result (µg/L)</th>
<th>PQL</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDB</td>
<td>SW8011</td>
<td>1,2-dibromoethane</td>
<td>106-93-4</td>
<td>0.1</td>
<td>0.05</td>
<td>0.056</td>
<td>0.010</td>
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<tr>
<td>BTEX</td>
<td>SW8260B</td>
<td>Benzene</td>
<td>71-43-2</td>
<td>10</td>
<td>5.0</td>
<td>ND</td>
<td>1.0</td>
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<tr>
<td></td>
<td></td>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>750</td>
<td>700</td>
<td>ND</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toluene</td>
<td>108-88-3</td>
<td>750</td>
<td>1000</td>
<td>3.9</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Xylenes, total</td>
<td>1330-20-7</td>
<td>620</td>
<td>10,000</td>
<td>ND</td>
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</tr>
<tr>
<td>Total Metals</td>
<td>SW6010B</td>
<td>Arsenic</td>
<td>7440-38-2</td>
<td>0.1</td>
<td>0.01</td>
<td>ND</td>
<td>0.020</td>
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<tr>
<td></td>
<td></td>
<td>Barium</td>
<td>7440-39-3</td>
<td>1.0</td>
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<td></td>
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<td>Cadmium</td>
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<td>0.005</td>
<td>ND</td>
<td>0.0020</td>
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<tr>
<td></td>
<td></td>
<td>Chromium</td>
<td>7440-47-3</td>
<td>0.05</td>
<td>0.1</td>
<td>ND</td>
<td>0.0060</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lead</td>
<td>7439-92-1</td>
<td>0.05</td>
<td>0.015</td>
<td>ND</td>
<td>0.0050</td>
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<td></td>
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<td>Selenium</td>
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<tr>
<td></td>
<td></td>
<td>Silver</td>
<td>7440-22-4</td>
<td>0.05</td>
<td>NS</td>
<td>ND</td>
<td>0.0050</td>
</tr>
<tr>
<td></td>
<td>SW7470A</td>
<td>Mercury</td>
<td>7439-97-6</td>
<td>0.002</td>
<td>0.002</td>
<td>ND</td>
<td>0.00020</td>
</tr>
</tbody>
</table>

### Notes:
- **NMWQCC** = New Mexico Water Quality Control Commission.
- **SED** = ethylene dibromide (1,2-dibromoethane).
- **EPA** = U.S. Environmental Protection Agency.
- **MCL** = maximum contaminant level.
- **ND** = not detected above the method detection limit.
- **NS** = not specified.
- **PQL** = practical quantification limit.

---

## Notes:

- **New Mexico Administrative Code Title 20.6.2.3103, Standards for Ground Water of 10,000 mg/L Total Dissolved Solids Concentration or Less (NMAC 2004).**
- **For metals, the NMWQCC applies to dissolved metals and total mercury.**
- **USEPA National Primary Drinking Water Regulations, Maximum Contaminant Levels (MCLs) and Secondary MCLs, Title 40CFR Part 141, 143 (May 2009); µg/L = microgram per liter.**
- **mg/L = milligrams per liter.**
- **CASRN = Chemical Abstracts Service Registry Number.**
- **CFR = Code of Federal Regulations.**
- **EDB = ethylene dibromide (1,2-dibromoethane).**
- **MCL = maximum contaminant level.**
- **NMWQCC = New Mexico Water Quality Control Commission.**
<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Date Collected</th>
<th>Collection Timing</th>
<th>Reference Location&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Type</th>
<th>Laboratory</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>106239 SP-001</td>
<td>1/8/2017</td>
<td>Pre-soil removal</td>
<td>52'/2'</td>
<td>Soil</td>
<td>Hall&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Initial post-spill sample</td>
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<tr>
<td>106239 SP-002</td>
<td>1/9/2017</td>
<td>Pre-soil removal</td>
<td>210'/8.5'</td>
<td>Soil</td>
<td>Hall</td>
<td>At spill point at storage tank</td>
</tr>
<tr>
<td>106239 SP-003</td>
<td>1/9/2017</td>
<td>Post-soil removal</td>
<td>50'/2'</td>
<td>Soil</td>
<td>Eurofins&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Western most point of release flow</td>
</tr>
<tr>
<td>106239 SP-004</td>
<td>1/9/2017</td>
<td>Post-soil removal</td>
<td>57.5'/3.5'</td>
<td>Soil</td>
<td>Eurofins</td>
<td>Observed water ponded area on 1-8-17</td>
</tr>
<tr>
<td>106239 SP-005</td>
<td>1/9/2017</td>
<td>Post-soil removal</td>
<td>132'/2'</td>
<td>Soil</td>
<td>Eurofins</td>
<td>Along flow path</td>
</tr>
<tr>
<td>106239 SP-006</td>
<td>1/9/2017</td>
<td>Post-soil removal</td>
<td>178'/3'</td>
<td>Soil</td>
<td>Eurofins</td>
<td>Along flow path</td>
</tr>
<tr>
<td>106239 SP-007</td>
<td>1/9/2017</td>
<td>Post-soil removal</td>
<td>210'/5.5'</td>
<td>Soil</td>
<td>Eurofins</td>
<td>Flow path from tank to Ridgecrest Dr.</td>
</tr>
<tr>
<td>106239 SP-008</td>
<td>1/9/2017</td>
<td>Post-soil removal</td>
<td>215.5'/5.5'</td>
<td>Soil</td>
<td>Eurofins</td>
<td>Flow path from tank to Ridgecrest Dr.</td>
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<td>106239 SP</td>
<td>1/9/2017</td>
<td>Pre-soil removal</td>
<td>na</td>
<td>Water</td>
<td>Hall</td>
<td>Water sample from the storage tank</td>
</tr>
</tbody>
</table>

NOTES:

<sup>a</sup>Reference location: Distance east from edge of concrete gutter strip on San Pedro/Distance south from edge of Ridgecrest Drive (see Figures 2 and 4)

<sup>b</sup>Hall Environmental Analysis Laboratory Inc., Albuquerque, NM

<sup>c</sup>Eurofins Lancaster Laboratories Environmental, LLC., Lancaster, Pennsylvania
ATTACHMENT 1

PHOTOGRAPHS
<table>
<thead>
<tr>
<th>Photograph</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photograph 1</td>
<td>Storage Tank Port that Overflowed, V</td>
</tr>
<tr>
<td>Photograph 2</td>
<td>Impacted Soil Immediately after Release, 8 January 2017</td>
</tr>
<tr>
<td>Photograph 3</td>
<td>Impacted Soil Area near the Storage Tank, 9 January 2017</td>
</tr>
<tr>
<td>Photograph 4</td>
<td>Flagged Impacted Soil Area, 9 January 2017</td>
</tr>
<tr>
<td>Photograph 5</td>
<td>Soil Removal Activities – 1-Inch Layer, 9 January 2017</td>
</tr>
<tr>
<td>Photograph 6</td>
<td>Soil Excavation in Progress; 9 January 2017</td>
</tr>
<tr>
<td>Photograph 7</td>
<td>Post-Soil Removal Site Conditions, 9 January 2017</td>
</tr>
<tr>
<td>Photograph 8</td>
<td>Impacted Soil Area after Removal Activities; 9 January 2017</td>
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</table>
Photograph 1 – Storage Tank Port That Overflowed

Photograph 2 – Impacted Soil Immediately After Release, January 8, 2017
Photograph 3 – Impacted Soil Area Near the Storage Tank, January 9, 2017

Photograph 4 – Flagged Impacted Soil Area, January 9, 2017
Photograph 5 – Soil Removal Activities – One-Inch Layer, January 9, 2017

Photograph 6 – Soil Excavation in Progress; January 9, 2017
January 12, 2017

Devon Jercinovic
EA Engineering Science & Technology
320 Gold Ave SW Suite 1210
Albuquerque, NM 87102
TEL:
FAX

RE: Kirtland BFF 106239
OrderNo.: 1701251

Dear Devon Jercinovic:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109
## Hall Environmental Analysis Laboratory, Inc.

### Project: Kirtland BFF 106239

**Client Sample ID:** 106239SP-001  
**Collection Date:** 1/8/2017 6:20:00 PM

### Lab ID: 1701251-001  
**Matrix:** SOIL  
**Received Date:** 1/9/2017 9:25:00 AM

### Analyses

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### Qualifiers:

- **A** Value exceeds Maximum Contaminant Level.
- **B** Analyte detected in the associated Method Blank
- **C** Value above quantitation range
- **D** Sample Diluted Due to Matrix
- **E** Value below quantitation limits
- **F** Analyte detected below quantitation limits
- **G** Sample pH Not In Range
- **H** Reporting Detection Limit
- **I** Reporting Detection Limit
- **J** Sample container temperature is out of limit as specified

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.
**QC SUMMARY REPORT**

**Hall Environmental Analysis Laboratory, Inc.**

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**Qualifiers:**

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified
## QC SUMMARY REPORT

**Hall Environmental Analysis Laboratory, Inc.**

**WO#: 1701251**

**Date:** 12-Jan-17

### Sample ID MB-29591

**SampType:** MBLK  
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### Sample ID 1701251-001AMS

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### Qualifiers:

- **A** Value exceeds Maximum Contaminant Level.
- **B** Analyte detected in the associated Method Blank
- **C** Value above quantitation range
- **D** Analyte detected below quantitation limits
- **E** Sample pH Not In Range
- **F** Sample container temperature is out of limit as specified
- **G** Sample not diluted due to matrix
- **H** Sample tempered for preparation or analysis exceeded
- **I** Holding times for preparation or analysis exceeded
- **J** Analyte detected below quantitation limits
- **K** % Recovery outside of range due to dilution or matrix
- **L** Reporting Detection Limit
- **M** Sample pH Not In Range
- **N** Sample container temperature is out of limit as specified
- **O** RPD outside accepted recovery limits
- **P** Sample pH Not In Range

---

*Page 3 of 7*
### QC SUMMARY REPORT

**Hall Environmental Analysis Laboratory, Inc.**

**Client:** EA Engineering Science & Technology  
**Project:** Kirtland BFF 106239  
**WO#:** 1701251  
**Date:** 12-Jan-17

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**Qualifiers:**

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified
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Qualifiers:
- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified
### QC SUMMARY REPORT

**Client:** EA Engineering Science & Technology  
**Project:** Kirtland BFF 106239  
**WO#:** 1701251  
**12-Jan-17**

#### Sample ID: LCS-29595  
**SampType:** LCS  
**TestCode:** EPA Method 6010B: Soil Metals  
**Client ID:** LCSS  
**Batch ID:** 29595  
**RunNo:** 39935  
**Prep Date:** 1/9/2017  
**Analysis Date:** 1/10/2017  
**SeqNo:** 1251459  
**Units:** mg/Kg

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**TestCode:** EPA Method 6010B: Soil Metals  
**Client ID:** 106239SP-001  
**Batch ID:** 29595  
**RunNo:** 39935  
**Prep Date:** 1/9/2017  
**Analysis Date:** 1/10/2017  
**SeqNo:** 1251461  
**Units:** mg/Kg

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**TestCode:** EPA Method 6010B: Soil Metals  
**Client ID:** 106239SP-001  
**Batch ID:** 29595  
**RunNo:** 39935  
**Prep Date:** 1/9/2017  
**Analysis Date:** 1/10/2017  
**SeqNo:** 1251462  
**Units:** mg/Kg

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**TestCode:** EPA Method 6010B: Soil Metals  
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**Batch ID:** 29595  
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**SeqNo:** 1251463  
**Units:** mg/Kg

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**Qualifiers:**

- **A**: Value exceeds Maximum Contaminant Level.
- **B**: Analyte detected in the associated Method Blank
- **C**: Analyte detected below quantitation limits
- **D**: Sample Diluted Due to Matrix
- **E**: Value above quantitation range
- **F**: Analyte detected below quantitation limits
- **H**: Holding times for preparation or analysis exceeded
- **I**: Analyte detected below quantitation limits
- **J**: Not Detected at the Reporting Limit
- **K**: Reporting Detection Limit
- **L**: Sample pH Not In Range
- **M**: Sample container temperature is out of limit as specified

---

*Page 6 of 7*
QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

Client: EA Engineering Science & Technology
Project: Kirtland BFF 106239

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Qualifiers:
* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix
B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified
Client Name: EA Engineering Alb
Work Order Number: 1701251
RptNo: 1

Received by date: 1/11/17
Logged By: Andy Jansson 1/9/2017 9:25:00 AM
Completed By: Andy Jansson 1/11/17
Reviewed By: LK 01/09/17

Chain of Custody
1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☑
3. How was the sample delivered? Client

Log In
4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☑
5. Were all samples received at a temperature of >0°C to 6.0°C Yes ☑ No ☐ NA ☑
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☑ No ☚ NA ☑
10. VOA viats have zero headspace? Yes ☑ No ☚ No VOA Viats ☑
11. Were any sample containers received broken? Yes ☚ No ☑
12. Does paperwork match bottle labels? Yes ☑ No ☐
(Note discrepancies on chain of custody)
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? Yes ☑ No ☐
(If no, notify customer for authorization.)

Special Handling (if applicable)
16. Was client notified of all discrepancies with this order? Yes ☚ No ☑ NA ☑

# of preserved bottles checked for pH: (<2 or >12 unless noted)

Adjusted? __________

Checked by: __________

Person Notified: __________________________ Date: __________
By Whom: ____________________________
Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: ____________________________
Client Instructions: ____________________________

17. Additional remarks:

18. Cooler Information

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Page 1 of 1
### Chain-of-Custody Record

**Client:** EA Engineering  
**Mailing Address:** 320 Gold SW #1360, ABQ, NM 87102

**Phone #:** 505-715-4275  
**Email or Fax #:** emorse@eaest.com

**QA/QC Package:**  
- [ ] Standard  
- [ ] Level 4 (Full Validation)

**Accreditation:**  
- [ ] NELAP  
- [ ] Other

**Project Name:** Kirkland BFF 106239  
**Project #:** 62599DM01.1028

**Project Manager:** Devan Serevic

**Sample Request ID:** 106239SP-001  
**Date:** 1-8-17  
**Time:** 1820

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**Remarks:**
- **Date:** 1-9-17  
  **Time:** 0755  
  **Received by:**  
  **Date:** 1-9-17  
  **Time:** 0755  
  **Remarks:**

- **Date:** 1-9-17  
  **Time:** 0925  
  **Received by:**

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any subcontracted data will be clearly noted on the analytical report.
January 12, 2017

Devon Jercinovic
EA Engineering Science & Technology
320 Gold Ave SW Suite 1210
Albuquerque, NM 87102
TEL: 
FAX

RE: Kirtland BFF OrderNo.: 1701252

Dear Devon Jercinovic:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109
## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** EA Engineering Science & Technology  
**Project:** Kirtland BFF  
**Lab ID:** 1701252-001  
**Matrix:** SOIL

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Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

### Qualifiers:

- **A** Value exceeds Maximum Contaminant Level.
- **B** Analyte detected in the associated Method Blank.
- **C** Sample diluted due to matrix.
- **D** Value above quantitation range.
- **E** Analyte detected below quantitation limits.
- **F** Sample pH not in range.
- **G** Reporting detection limit.
- **H** Holding times for preparation or analysis exceeded.
- **J** Sample container temperature is out of limit as specified.
- **K** Reporting detection limit.
- **P** RPD outside accepted recovery limits.
- **R** % Recovery outside of range due to dilution or matrix.
### QC SUMMARY REPORT

**Hall Environmental Analysis Laboratory, Inc.**

- **Client:** EA Engineering Science & Technology
- **Project:** Kirtland BFF

**WO#: 1701252**

**12-Jan-17**

#### Sample ID MB-29590

- **Client ID:** PBS
- **Batch ID:** 29590
- **Run No:** 39904
- **Prep Date:** 1/9/2017
- **Analysis Date:** 1/9/2017
- **Seq No:** 1250677
- **Units:** µg/Kg

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#### Sample ID LCS-29590

- **Client ID:** LCSS
- **Batch ID:** 29590
- **Run No:** 39904
- **Prep Date:** 1/9/2017
- **Analysis Date:** 1/9/2017
- **Seq No:** 1250678
- **Units:** µg/Kg

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**Qualifiers:**

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

---

Page 2 of 5
# QC SUMMARY REPORT

**Hall Environmental Analysis Laboratory, Inc.**

**WO#: 1701252**

**12-Jan-17**

**Client:** EA Engineering Science & Technology  
**Project:** Kirtland BFF

## Sample ID: MB-29591

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## Sample ID: LCS-29591

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**Qualifiers:**

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified
### QC SUMMARY REPORT

**Hall Environmental Analysis Laboratory, Inc.**

**Client:** EA Engineering Science & Technology  
**Project:** Kirtland BFF

**Sample ID** | MB-29617  
**SampType:** MBLK  
**TestCode:** EPA Method 7471: Mercury

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**Sample ID** | LCS-29617  
**SampType:** LCS  
**TestCode:** EPA Method 7471: Mercury

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**Qualifiers:**

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified
## QC SUMMARY REPORT

### Hall Environmental Analysis Laboratory, Inc.

#### Client: EA Engineering Science & Technology
#### Project: Kirtland BFF

### Sample ID: LCS-29595
#### Client ID: LCSS
#### Batch ID: 29595
#### Prep Date: 1/9/2017
#### Analysis Date: 1/10/2017
#### SeqNo: 1251459
#### Analyte Result

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### Sample ID: MB-29595
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#### Batch ID: 29595
#### Prep Date: 1/9/2017
#### Analysis Date: 1/10/2017
#### SeqNo: 1251479
#### Analyte Result

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### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
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- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

---

*Page 5 of 5*
Sample Log-In Check List

Client Name: EA Engineering Alb  Work Order Number: 1701252  RcptNo: 1

Received by/date: 1/9/17
Logged By: Andy Jansson  1/9/2017 9:25:00 AM
Completed By: Andy Jansson  1/9/17
Reviewed By:  1/16/17

Chain of Custody
1. Custody seals intact on sample bottles? Yes ☑  No ☐  Not Present ☑
2. Is Chain of Custody complete? Yes ☑  No ☐  Not Present ☐
3. How was the sample delivered? Client

Log in
4. Was an attempt made to cool the samples? Yes ☑  No ☐  NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑  No ☐  NA ☐
6. Sample(s) in proper container(s)? Yes ☑  No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑  No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑  No ☐
9. Was preservative added to bottles? Yes ☐  No ☑  NA ☐
10. VOA vials have zero headspace? Yes ☐  No ☑  No VOA Vials ☑
11. Were any sample containers received broken? Yes ☑  No ☐
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑  No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑  No ☐
14. Is it clear what analyses were requested? Yes ☑  No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑  No ☐

Special Handling (if applicable)
16. Was client notified of all discrepancies with this order? Yes ☑  No ☐  NA ☑

Person Notified:  Date:  By Whom:  Via:  eMail ☐  Phone ☐  Fax ☐  In Person ☐
Regarding:  Client Instructions:

17. Additional remarks:

18. Cooler Information

<table>
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<th>Temp °C</th>
<th>Condition</th>
<th>Seal intact</th>
<th>Seal No</th>
<th>Seal Date</th>
<th>Signed By</th>
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<tbody>
<tr>
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<td>Good</td>
<td>Not Present</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Page 1 of 1
January 12, 2017

Devon Jercinovic
EA Engineering Science & Technology
320 Gold Ave SW Suite 1210
Albuquerque, NM 87102
TEL: 
FAX

RE:  Kirtland BFF 106239
OrderNo.: 1701256

Dear Devon Jercinovic:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

[Signature]

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109
Hall Environmental Analysis Laboratory, Inc.

Analyst Report
Lab Order 1701256
Date Reported: 1/12/2017

CLIENT: EA Engineering Science & Technology
Project: Kirtland BFF 106239
Lab ID: 1701256-001
Matrix: AQUEOUS

Analytical Report

Analyses | Result | PQL | QualUnits | Date Analyzed | Batch
---|---|---|---|---|---
**EPA METHOD 7470: MERCURY**
Mercury | ND | 0.00020 | mg/L | 1/10/2017 12:20:49 PM | 29607

**EPA 6010B: TOTAL RECOVERABLE METALS**
Arsenic | ND | 0.020 | mg/L | 1/10/2017 6:25:50 PM | 29596
Barium | 0.12 | 0.020 | mg/L | 1/10/2017 6:25:50 PM | 29596
Cadmium | ND | 0.0020 | mg/L | 1/10/2017 6:25:50 PM | 29596
Chromium | ND | 0.0060 | mg/L | 1/10/2017 6:25:50 PM | 29596
Lead | ND | 0.0050 | mg/L | 1/10/2017 6:25:50 PM | 29596
Selenium | ND | 0.050 | mg/L | 1/10/2017 6:25:50 PM | 29596
Silver | ND | 0.0050 | mg/L | 1/10/2017 6:25:50 PM | 29596

**EPA METHOD 8011/504.1: EDB**
1,2-Dibromoethane | 0.056 | 0.010 | µg/L | 1/10/2017 10:40:55 AM | 29609

**EPA METHOD 8260: VOLATILES SHORT LIST**
Benzene | ND | 1.0 | µg/L | 1/10/2017 12:13:00 PM | R39923
Toluene | 3.9 | 1.0 | µg/L | 1/10/2017 12:13:00 PM | R39923
Ethylbenzene | ND | 1.0 | µg/L | 1/10/2017 12:13:00 PM | R39923
Xylenes, Total | ND | 1.5 | µg/L | 1/10/2017 12:13:00 PM | R39923
Surr: 1,2-Dichloroethane-d4 | 103 | 70-130 | %Rec | 1/10/2017 12:13:00 PM | R39923
Surr: 4-Bromofluorobenzene | 102 | 70-130 | %Rec | 1/10/2017 12:13:00 PM | R39923
Surr: Dibromofluoromethane | 102 | 70-130 | %Rec | 1/10/2017 12:13:00 PM | R39923
Surr: Toluene-d8 | 98.4 | 70-130 | %Rec | 1/10/2017 12:13:00 PM | R39923

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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<tr>
<th>Qualifiers</th>
<th>Description</th>
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<tr>
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<tr>
<td>C</td>
<td>Analyte detected above quantitation range</td>
</tr>
<tr>
<td>D</td>
<td>Analyte detected below quantitation limits</td>
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<tr>
<td>E</td>
<td>Sample pH not in range</td>
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<td>F</td>
<td>Reporting Detection Limit</td>
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<tr>
<td>G</td>
<td>Sample container temperature is out of limit as specified</td>
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Page 1 of 5
### QC SUMMARY REPORT

**Hall Environmental Analysis Laboratory, Inc.**  
**WO#:** 1701256  
**12-Jan-17**

**Client:** EA Engineering Science & Technology  
**Project:** Kirtland BFF 106239

<table>
<thead>
<tr>
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<th>Analyte</th>
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<td>1,2-Dibromoethane</td>
<td>ND</td>
<td>0.010</td>
<td>0.010</td>
<td>0.1000</td>
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**Qualifiers:**  
- * Value exceeds Maximum Contaminant Level.  
- D Sample Diluted Due to Matrix  
- H Holding times for preparation or analysis exceeded  
- ND Not Detected at the Reporting Limit  
- R RPD outside accepted recovery limits  
- S % Recovery outside of range due to dilution or matrix  
- B Analyte detected in the associated Method Blank  
- E Value above quantitation range  
- J Analyte detected below quantitation limits  
- P Sample pH Not In Range  
- RL Reporting Detection Limit  
- W Sample container temperature is out of limit as specified
### Sample ID: 100ng lcs

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### Sample ID: vsb deli

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**Qualifiers:**

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- W Sample container temperature is out of limit as specified
# QC SUMMARY REPORT

**Hall Environmental Analysis Laboratory, Inc.**

**Client:** EA Engineering Science & Technology

**Project:** Kirtland BFF 106239

**WO#:** 1701256

**12-Jan-17**

<table>
<thead>
<tr>
<th>Sample ID</th>
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- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified
**QC SUMMARY REPORT**

**Hall Environmental Analysis Laboratory, Inc.**

**Client:** EA Engineering Science & Technology  
**Project:** Kirtland BFF 106239

**Sample ID:** MB-29596  
**SampType:** MBLK  
**TestCode:** EPA 6010B: Total Recoverable Metals

<table>
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<th>Analyte</th>
<th>Result</th>
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<th>HighLimit</th>
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<tr>
<td>Arsenic</td>
<td>ND</td>
<td>0.020</td>
<td>0.5000</td>
<td>0</td>
<td>90.5</td>
<td>80</td>
<td>120</td>
<td></td>
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<tr>
<td>Barium</td>
<td>ND</td>
<td>0.020</td>
<td>0.5000</td>
<td>0</td>
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<td>80</td>
<td>120</td>
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<td>Cadmium</td>
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<td>80</td>
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<tr>
<td>Chromium</td>
<td>0.45</td>
<td>0.0060</td>
<td>0.5000</td>
<td>0</td>
<td>90.7</td>
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<tr>
<td>Selenium</td>
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**Sample ID:** LCS-29596  
**SampType:** LCS  
**TestCode:** EPA 6010B: Total Recoverable Metals

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RL Reporting Detection Limit  
S % Recovery outside of range due to dilution or matrix  
W Sample container temperature is out of limit as specified
**Sample Log-In Check List**

**Client Name:** EA Engineering Alb  
**Work Order Number:** 1701256  
**RptNo:** 1

**Received by/date:** 01/09/17

**Logged By:** Anne Thorne  
1/8/2017 9:25:00 AM

**Completed By:** Anne Thorne  
1/8/2017 10:06:08 AM

**Reviewed By:** 01/09/17

### Chain of Custody

1. Custody seals intact on sample bottles?  
   - Yes ☑  
   - No ☐  
   - Not Present ☑

2. Is Chain of Custody complete?  
   - Yes ☐  
   - No ☐  
   - Not Present ☐

3. How was the sample delivered?  
   - Client

### Log In

4. Was an attempt made to cool the samples?  
   - Yes ☑  
   - No ☐  
   - NA ☐

5. Were all samples received at a temperature of >0°C to 6.0°C?  
   - Yes ☑  
   - No ☐  
   - NA ☐

6. Sample(s) in proper container(s)?  
   - Yes ☑  
   - No ☐

7. Sufficient sample volume for indicated test(s)?  
   - Yes ☑  
   - No ☐

8. Are samples (except VOA and QNG) properly preserved?  
   - Yes ☑  
   - No ☐  
   - NA ☐

9. Was preservative added to bottles?  
   - Yes ☑  
   - No ☐  
   - NA ☑

10. VOA vials have zero headspace?  
    - Yes ☑  
    - No ☐  
    - No VOA Vials ☐

11. Were any sample containers received broken?  
    - Yes ☑  
    - No ☑

12. Does paperwork match bottle labels?  
    (Note discrepancies on chain of custody)  
    - Yes ☑  
    - No ☐

13. Are matrices correctly identified on Chain of Custody?  
    - Yes ☑  
    - No ☐

14. Is it clear what analyses were requested?  
    - Yes ☑  
    - No ☐

15. Were all holding times able to be met?  
    - Yes ☑  
    - No ☐  
    (If no, notify customer for authorization.)

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?  
    - Yes ☑  
    - No ☐  
    - NA ☑

### Additional remarks:

<table>
<thead>
<tr>
<th>Person Notified:</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>By Whom:</td>
<td></td>
</tr>
<tr>
<td>Regarding:</td>
<td></td>
</tr>
<tr>
<td>Client Instructions:</td>
<td></td>
</tr>
</tbody>
</table>

### Cooler Information

<table>
<thead>
<tr>
<th>Cooler No</th>
<th>Temp °C</th>
<th>Condition</th>
<th>Seal Intact</th>
<th>Seal No</th>
<th>Seal Date</th>
<th>Signed By</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.0</td>
<td>Good</td>
<td>Not Present</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Page 1 of 1
Chain-of-Custody Record

Client: EA Engineering

Mailing Address: 320 Cold SW 1300
              ABQ NM 87102

Phone #: 625-9010

QA/QC Package: [ ] Standard [ ] Level 4 (Full Validation)

Accreditation: [ ] NELAP [ ] Other

EDD (Type): [ ]

Date: 19170735

Matrix: Water

Sample Request ID: KAFB-106239528

Container Type and #: 170125L

Preservative Type: -001

HEAL No.

Analysis Request

Turn-Around Time:

Standard [ ] Rush [ ] 24 hr

Project #: 62590101 1628

Project Manager: [ ]

Sampler: [ ]

Sample Temperature: 1.0°C

Remarks:

Send analytical to jbrown@easest.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.