

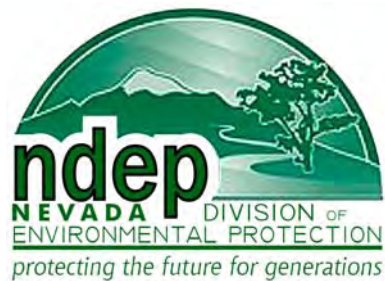
# Upgradient Wells Report

## BMI Common Areas

### Eastside Area

July 24, 2009

Submitted to:



Prepared for:

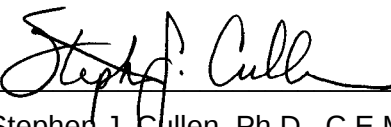


***Daniel B. Stephens & Associates, Inc.***

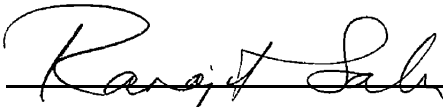
260 Newport Center Drive • Newport Beach, California 92660

### **Responsible CEM for this Project**

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and, to the best of my knowledge, comply with all applicable federal, state, and local statutes, regulations, and ordinances.

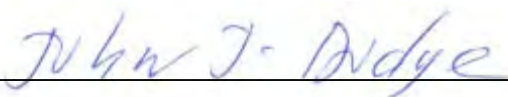
  
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July 24, 2009

  
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## **1. Introduction**

This report identifies and provides technical justification for the selection of upgradient wells in the Shallow Zone at the Eastside Area of the Basic Management, Incorporated (BMI) Common Areas/Complex (the "Site") in Clark County, Nevada (Figure 1). Proposed existing wells are identified to be used for upgradient purposes and the rationale and criteria used to propose the wells are presented and discussed.

The scope of work for this report has previously been discussed between Basic Remediation Company (BRC) and Nevada Division of Environmental Protection (NDEP) representatives, in a NDEP meeting on February 4, 2009 and in written correspondence to BRC dated February 20, 2009. NDEP comments dated June 26, 2009 regarding the draft upgradient wells report, dated June 12, 2009, are also addressed in this revised report (Appendix A).

### **1.1 Location and Setting**

The Site is located in Clark County, Nevada, and is situated approximately 2 miles west of the River Mountains and 1 mile north of the McCullough Range. As shown in Figure 1, the area surface topography slopes in a westerly to northwesterly direction from the River Mountains and in a northerly to northeasterly direction from the McCullough Range. Near the Site, the surface topography slopes in a northerly direction toward the Las Vegas Wash.

The uppermost water-bearing zone is unconfined and occurs primarily in alluvium (referred to as the Shallow Zone). At some locations on portions of the Site, Shallow Zone groundwater is first encountered in the uppermost portion of the Tertiary Muddy Creek Formation (TMCf). This unconfined Shallow Zone groundwater generally flows in a northerly direction toward Las Vegas Wash. The Shallow Zone groundwater is generally continuous across the Site, but there are areas where Shallow Zone wells are dry. Below the Shallow Zone, deeper groundwater occurs in sporadically encountered lenses under pressure in the Middle Zone, designated between approximately 90 and 270 feet below grade.

Deep Zone groundwater is generally continuous across the Site and is characterized with wells screened below 270 feet bgs to a maximum nominal depth of 400 ft bgs. Groundwater elevation data from the last several rounds of groundwater monitoring (2006, 2007, 2008) show that Deep Zone groundwater is confined, and the potentiometric surface of Deep Zone groundwater is oriented generally north towards Las Vegas Wash (MWH, 2008). Separate NDEP-approved project documents provide information regarding area geology and hydrogeology, soils, history, and investigations completed to-date (e.g., BRC, 2007).

## **1.2 Objective**

The objective of this report is to present and justify the criteria used in the selection of the upgradient wells for the Eastside. Upgradient wells need to be designated at the Site in order to document and evaluate the quality of groundwater flowing onto the Site from offsite areas. Data from the upgradient wells can then be compared to data from onsite wells, along with comparison to state and federal water quality standards, to assist in the evaluation of Site impacts. Upgradient well data will also be used, in part, for remedial decision-making. As discussed below in Section 2.1, it is not possible to install background monitoring wells at this Site. As a result, proposed upgradient wells will be used for data evaluation.

## **2. Upgradient Well Selection**

The upgradient wells are located according to the following selection criteria:

- Hydraulically upgradient;
- Along the majority of the upgradient site boundary;
- Where offsite upgradient groundwater impacts, if present, are well characterized.

Proposed upgradient wells must also be properly constructed to represent the hydrogeologic zone of interest. To qualify as Shallow Zone upgradient wells at the BRC Site, the proposed wells must be adequately screened in the Shallow Zone. At the Eastside Area, the following wells meet the criteria listed above (Figure 2) (Appendix B):

- AA-01
- AA-27
- AA-UW-1
- AA-UW-2
- AA-UW-3
- AA-UW-4
- AA-UW-5
- AA-UW-6

## **2.1 Groundwater Occurrence and Flow Direction**

Figure 2 presents a map of the Shallow Zone potentiometric surface at the Site. As discussed above in Section 1.1, Shallow Zone groundwater occurs in the Qal and the uppermost TMCf at the Site. Flow direction in the Shallow Zone is directed generally to the north towards the Las Vegas wash.

Flow direction has been approximately consistent over the last several rounds of water level measurement at the Site completed in 2006, 2007, and 2008 (MWH, 2008). As shown on Figure 2, the proposed upgradient wells are located at the southern, southwestern, and southeastern boundary of the Eastside area, and are well distributed along the Site perimeter in this area. This portion of the Site perimeter is the upgradient boundary of the Eastside Area.

Appendix C contains a regional groundwater flow map prepared by TIMET (2004) that covers the Eastside area as well as adjacent properties upgradient to the south and west. The direction of groundwater flow in the regional flow map is also oriented generally to the north towards Las Vegas Wash.

Several soil borings were completed in the offsite upgradient areas as part of the background metals investigation (ERM, 2008). Based on these borings, it appears that Shallow Zone groundwater occurs at much deeper depths further upgradient, or the Shallow Zone is absent further upgradient to the east. As identified by wet soil logged in the field, groundwater was encountered in only two of the 23 borings. Groundwater was encountered at 140 ft below grade in boring DBSA-17 and at 84.7 feet below grade in boring DBSA-20.

The other background metals soil borings (except DBSA-33) were drilled between 80 and 160 feet below grade but only moist soil was logged (boring DBSA-33 was terminated at 32.5 feet when the TMCf was encountered). Since groundwater occurs at deeper depths further

upgradient and offsite, additional wells installed in these areas would likely be screened in a different hydrogeologic unit than the existing onsite wells. The proposed upgradient wells are screened in the same hydrogeologic unit as onsite Shallow Zone wells (Table 1, Appendix B).

## ***2.2 Historical Site Use and Facility Operations***

Historical site use and facility operations are detailed for the Eastside Area in the 2006 Closure Plan (BRC, 2006) and in other related BRC documents. As described in BRC (2006), the Eastside Area covers approximately 2,321 contiguous acres. The Eastside Area lies to the east of Boulder Highway and to the north of Lake Mead Parkway and consists of land on which:

- Unlined wastewater effluent evaporation/infiltration ponds (and associated conveyance ditches) were built and into which various plant wastewaters were discharged from 1942 through 1976;
- Effluent from the adjacent TIMET plant was disposed of through the use of a spray irrigation wheel used between 1985 and 1990;
- Lined wastewater effluent ponds were constructed and into which effluent from the TIMET plant was discharged from 1976 to 2005;
- The City of Henderson constructed municipal wastewater infiltration basins (e.g., the Southern RIBs);
- Unlined wastewater effluent ponds were constructed but which were never used; and,
- Land that has remained desert.

The proposed upgradient wells are generally located within those areas of the Site that were not used for the operations described above. The land in the vicinity of the upgradient wells has remained primarily open desert with relatively minor adjacent property development for residential or commercial (non-industrial) use. Upgradient wells AA-UW-5 and AA-UW-6 are relatively close to the southern boundary of the upper ponds. In addition, wells AA-01 and AA-UW1 are relatively close to the now-closed TIMET ponds that were built on top of former upper ponds. Also, wells AA-01, AA-UW1, and AA-27 are adjacent to the active BMI Complex.

## **2.3 Modeling Results**

BRC recently completed and submitted a draft groundwater flow model calibration report to the NDEP (BRC, 2009). An evaluation of the potential historical mounding was completed with the updated flow model. Pond recharge was estimated at 48.18 inches per year (Figure 3). Heads were simulated for this condition to produce a groundwater flow map representing the period of time that the lower ponds were in use (Figure 4). The simulation indicates that groundwater flow was oriented primarily to the north near the locations of upgradient wells AA-01, AA-UW-1, AA-27, AA-UW-2, AA-UW-3, A-UW-4, and AA-UW-5. The simulation also indicates that localized mounding is present at the lower ponds and flow is radial for a small area around the ponds. The location of well AA-UW-6 appears to be marginally within the area of the localized mounding.

The remaining upgradient wells are located outside of the area of modeled localized mounding caused by pond use. Flow direction near the former ponds and at well AA-UW-6 has since returned to its original northwesterly direction (Figure 2, Appendix C). As discussed below (Section 2.4), the soil and groundwater data from well AA-UW-6 do not appear to reflect unique impacts due to former pond use. That is, the analytical data (nonmetals) from AA-UW-6 do not appear to be substantially different from the other well locations.

## **2.4 Soil and Groundwater Impacts**

Selected analytical data for the upgradient well locations is discussed below in the following sections. Further, more detailed analysis of these data will be presented in the upcoming Conceptual Site Model (CSM) Report for the Eastside area.

### **2.4.1 Soil Data - Metals**

The currently available background metals dataset for the Eastside area (ERM, 2009) was compared to the range of metals concentrations data collected from the upgradient well locations (Table 2) (excluding duplicates).

In accordance with the BRC Closure Plan (BRC, 2007), Background metals comparisons were performed using the Quantile test, Slippage test, the t-test, and the Wilcoxon Rank Sum test with Gehan modification. The Quantile test, Slippage test, and Wilcoxon Rank Sum test are

nonparametric. That is, the tests are distribution free; thus an assumption of whether the data are normally or lognormally distributed is not necessary. The computer statistical software program, Guided Interactive Statistical Decision Tools (GISdT®; Neptune and Company 2007), was used to perform all statistical comparisons, with a decision error of alpha equal to 0.025.

The Wilcoxon Rank Sum test performs a test for a difference between the sum of the ranks for two populations. This is a nonparametric method for assessing differences in the centers of the distributions that relies on the relative rankings of data values. Knowledge of the precise form of the population distributions is not necessary. The Wilcoxon Rank Sum test has less power than the two-sample t-test when the data are normally distributed, but the assumptions are not as restrictive. The GISdT® version of the Wilcoxon Rank Sum test uses the Mantel approach which is equivalent to using the Gehan ranking system.

The Quantile test addresses tail effects which are not addressed in the Wilcoxon rank-sum test. The Quantile test looks for differences in the right tails (upper-end of the data set) rather than central tendency like the Wilcoxon rank-sum test. The Quantile test was performed using a defined quantile equal to 0.80.

The Slippage test looks for a shift to the right in the extreme right-tail of the background data set versus the extreme right-tail of the site data set. This is equivalent to asking if a set of the largest values of the site distribution are significantly larger (in a statistical sense) than the maximum value of the background distribution.

Typically an alpha equal to 0.05 is used to evaluate a statistically significant result. Since several correlated tests were conducted, a lower alpha was selected. As more tests are performed, it is more likely that a statistically significant result will be obtained purely by chance. Given the use of multiple statistical tests, an alpha equal to 0.025 was selected as a reasonable significance level (p).

If an individual test p-value is less than 0.025 then the test result is interpreted to indicate that the metal exceeds background. Additional factors, such as detection frequency, mean, or median values may also be reviewed to determine if a metal exceeds background.

This preliminary comparison was completed to document soil conditions at the upgradient well locations. Further background metals analysis will be presented in a separate background metals evaluation report.

Metals data from the upgradient well borings and nearby soil borings SB-01 and SB-27 were sorted into the following groups based on sample depth and the geographic location of the boring:

- Shallow Qal (samples from less than 20 feet below grade) - data compared to “Shallow McCullough” dataset, the “Shallow Mixed” dataset, or the “Shallow River” dataset;
- Deep Qal (samples from greater than or equal to 20 feet below grade, but collected above the Qal/UMCf contact) - data compared to “Deep McCullough” dataset, the “Deep Mixed” dataset, or the “Deep River” dataset; and
- TMC (samples collected from the UMCf (below the Qal/TMC contact) - data compared to “TMC” dataset.

The “River” datasets represent background metals characterized from soils collected in the shallow alluvial fan system originating in the River Range mountains to the east of the Site. The “McCullough” datasets represent background metals characterized from soils collected in the shallow alluvial system originating in the McCullough Range mountains to the south/southwest of the Site. The “Mixed” datasets represent background metals characterized from soils collected in the shallow alluvial system originating from both the River Range and the McCullough Range mountains where the two fan systems coalesce.

Data from upgradient well boring AA-UW-5 were compared to the “Mixed” datasets since this boring is located where the River Range alluvial fan system and the McCullough fan system coalesce. Data from upgradient well boring AA-UW-6 were compared to the “River” datasets since this boring is located within the River Range alluvial fan system. All other borings (including soil borings SB-01 and SB-27) fall within the McCullough fan system so these remaining data were compared to the “McCullough” datasets (ERM, 2009). Deep data below the Qal/UMCf contact were compared to the “TMC” dataset.

#### Shallow Metals (less than 20 feet below grade)

The shallow background metals comparison for upgradient well borings AA-UW-5 (“Shallow Mixed” dataset) and AA-UW-6 (“Shallow River” dataset) could not be completed because, with only two samples per boring, there is an insufficient amount of detections to use for the statistical calculations.

The background metals comparison for the upgradient well borings falling into the “McCollough” grouping (all borings except AA-UW-5 and AA-UW-6) indicates that the following metals were detected above background:

- Boron, chromium VI, total chromium, iron, niobium, silver, sodium, strontium, titanium, tungsten, and vanadium.

#### Deep Metals (greater than 20 feet below grade and above the Qal-UMCf contact)

The deep background metals comparison for upgradient well boring AA-UW-6 (“Deep River” dataset) could not be completed because, with only two samples in the boring, there is an insufficient amount of detections to use for the statistical calculations.

The background metals comparison for the upgradient borings falling into the “McCollough” grouping (all borings except AA-UW-5 and AA-UW-6) indicates that the following metals were detected above background:

- Aluminum, barium, boron, chromium VI, total chromium, iron, lead, manganese, selenium, silicon, thallium, titanium, and zinc.

The background metals comparison for the upgradient well boring AA-UW-5 falling into the “Mixed Deep” grouping indicates that the following metals were detected above background:

- Silicon, sodium and strontium.

#### Deep Metals (below the Qal-UMCf contact)

The background metals comparison for the upgradient boring data collected below the Qal/UMCf contact (all borings) indicates that the following metals were detected above background:

- Beryllium, boron, cadmium, chromium VI, total chromium, copper, magnesium, molybdenum, selenium, silicon, sodium, thallium, tungsten, uranium, zinc, radium-226, thorium-230, uranium-233/234, and uranium-238.

#### 2.4.2 Soil Data - Nonmetals

Table 3 presents a statistical summary of nonmetals detected in the upgradient well borings and adjacent borings SB-01 and SB-27. Several compounds were detected in the upgradient borings, including organochlorine pesticides, organophosphate pesticides, and volatile organic compounds (VOCs). None of the detections, however, exceed Nevada Basic Comparison Levels (BCLs). Table 4 presents a summary of selected analyte detections for each well boring.

Up to 2.5 milligrams per kilogram (milligrams per kilogram [mg/kg]) (60 feet bgs) perchlorate was detected in soil boring SB-01 drilled near upgradient well AA-01 (Table 3). Perchlorate was also detected at more shallow depths in this boring. Perchlorate is also detected in groundwater samples from well AA-01 and the other upgradient wells. The detected concentrations may not be Site-related and may be due to historical perchlorate use and release at adjacent upgradient and cross gradient facilities (such as Tronox and AMPAC).

Similarly, relatively low concentrations of volatile organic compounds (less than 60 micrograms per kilogram [ug/kg]) have been detected in soil samples from the well borings (Table 3). Tetrachloroethene (PCE) is detected in soil samples from borings completed near wells AA-01 and AA-UW-5 (up to 7.7 ug/kg). Trichloroethene (TCE), a degradation daughter compound of PCE, is not detected in soil samples from the upgradient well locations. However, both PCE and TCE are detected in the upgradient groundwater well samples. The soil data from well boring AA-UW-6 do not appear to reflect unique historical impacts from former pond use. As shown on Table 4, some VOCs, gross alpha/beta activity, dioxins/furans and pesticides were detected in other soil borings but not at AA-UW-6. In addition, nitrate in soil at 50 feet in well boring AA-UW-6 (0.39 mg/kg) is among the lowest nitrate detections. Soil from AA-UW-6 at 40 feet, however, has among the highest detected U 233/234 and U 238 activity.

### 2.4.3 Groundwater Data

#### Piper and Stiff Diagrams

Piper trilinear diagrams and Stiff polygonal diagrams of major cation and anion data from the 5th round event (MWH, 2008) for BRC wells are provided as Figures 3, 4, 5, and 6. As shown on these figures, the ion data show that the hydrogeochemical signature of groundwater in the upgradient wells is consistent with other Shallow Zone wells screened in the same hydrogeologic unit. A relatively few Site wells, however, have a relatively distinct hydrogeochemical signature, such as wells POU-3 (relatively low sulfate content and relatively high chloride content; located in the southern portion of the Site in an area of groundwater potentially impacted by offsite sources) and AA-22 (anomalously high calcium and low magnesium content; located just down gradient from the Northern RIBs).

BRC is currently reviewing the results of the cation-anion balance (CAB) data for the 5th round sampling event. Currently, it appears that variability imbedded in the approved methodology and associated with relatively high concentrations of some analytes may be causing a portion of the CAB checks to fail the 5 percent balance criteria specified in the Standard Methods for the Examination of Water and Wastewater (Section E). Sulfate, for example, was detected up to 84,700 mg/L in the 5th round data. A relatively small variance in these high sodium and sulfate detections, for example, would lead to a CAB result that exceeds the 5 percent criteria.

In addition, the 5 percent criterion is noted to be applicable to solutions with an anion sum between 10 and 800 meq/L. Thus, the Standards Methods calculation does not apply to constituents with an meq/L value over 800. The anion sum for the 5th round BRC data range up to 3,577 meq/L.

BRC will modify the Piper and Stiff diagrams for the upgradient wells if needed with groundwater data from the upcoming 2009 sampling event. The 2009 sampling event will be completed in accordance with the NDEP-approved Eastside groundwater sampling plan dated June 26, 2009 (as subsequently revised in correspondence with NDEP).

#### Basic Comparison Levels (BCLs)

Groundwater samples collected from the Shallow Zone upgradient wells over the five monitoring events (MWH, 2008) were compared to Basic Comparison Levels (BCLs) established by the

Nevada Division of Environmental Protection (NDEP) to determine the level of chemical impact to the upgradient wells. Each of the proposed upgradient wells appear to have been impacted above the BCLs for various individual chemical constituents (Table 5), including:

- 1,4-Dichlorobenzene
- Acetaldehyde
- Arsenic
- Bromodichloromethane
- Chlorine
- Chloroform
- Chromium (VI)
- Dimethyl phosphorodithioic acid
- Fluoride
- Formaldehyde
- Iron
- Nitrate (as N)
- Octachlorodibenzodioxin
- Perchlorate
- Phosphorus (as P)
- Tetrachloroethylene
- Thallium
- Trichloroethylene

For the five monitoring events, the most frequent detections above the BCLs by the greatest number of chemicals have been observed in wells AA-01 and AA-27. Chemicals detected above the respective BCLs in these two wells include:

- Arsenic (As), tetrachloroethylene (PCE), chlorine, trichloroethylene (TCE), chloroform, formaldehyde, acetaldehyde, perchlorate, fluoride, thallium, dimethyl phosphorodithioic acid, nitrate, and hexavalent chromium (Cr VI).

Based on isoconcentration plots of chemicals presented in the monitoring reports for the five monitoring events (MWH, 2008), the chemical distribution data appear to indicate that these chemicals may be moving from offsite locations onto the Site. The source of these chemicals in groundwater samples from the upgradient wells may be the historic operations in the offsite upgradient BMI Plants area. TCE was detected at less than 1 ug/L (in wells AA-01 and AA-UW-01) and PCE was detected at a maximum of 84 ug/L in well AA-01 (Table 5). PCE and TCE are also documented to have been released at upgradient sites to the southwest (e.g. TIMET and Tronox).

Chemical impacts to the remaining wells (AA-UW1, AA-UW2, AA-UW3, AA-UW4, AA-UW5, and AA-UW6) include:

- As, PCE, chlorine, chloroform, TCE, perchlorate, 1,4-dichlorobenzene, and iron.

The general spatial trends of the data indicate that the concentrations are greater in wells to the south of the Site and decrease with increasing distance to the north-northeast. An exception to this spatial trend is for As, where the concentration in well AA-UW6 (102 ug/L), located to the northeast, was greater than in well AA-UW1 (69.8 ug/L) located farther to the south towards the plants area. This anomaly in the data spatial trend may be attributable to the spatial variability of the natural As content of geologic materials in the Site vicinity. The detected arsenic may, potentially, be due to former pond discharge and historical mounding that potentially impacted soil and/or groundwater in the vicinity of well AA-UW-6.

As with wells AA-01 and AA-27 discussed above, the chemical distribution data appear to indicate that (with the possible exception of As) these chemicals may be moving from offsite locations onto the Site. The source of these chemicals in groundwater may be the historic operations in the BMI Plants area.

#### Secondary Maximum Contaminant Levels

Groundwater samples collected from the proposed upgradient wells over the five monitoring events were also compared to federal secondary maximum contaminant levels (MCLs) (Table 5). Total dissolved solids (TDS), sulfate, and chloride are the primary analytes detected above secondary MCLs; aluminum (one detection), iron (one detection), and manganese (two detections) were also measured over the secondary MCL but at a much lower frequency.

Monitoring wells AA-UW4 and AA-UW6 exceed ten times the secondary MCL (i.e. greater than 5,000 mg/L) for TDS. Wells AA-27, AA-UW1, AA-UW2, AA-UW3, and AA-UW5 had lower concentrations of TDS but exceeded the secondary MCL during one or more monitoring events (Table 5). Total dissolved solids (TDS) concentrations are relatively consistent between sampling rounds (for wells AA-01 and AA-27 sampled more than once), although some nominal increase in TDS concentrations are evident in AA-01 and AA-27 (Table 5).

The groundwater data from well boring AA-UW-6 do not appear to reflect unique historical impacts from former pond use. As shown on Table 5, the detected perchlorate and chlorine concentrations are among the lowest measured. Chloroform was detected at its lowest concentration in well AA-UW-6. The measured sulfate is roughly average for the background wells. The TDS detection in this well, however, is among the highest TDS detections. In addition, the arsenic was detected at 102 ug/L, which is the highest among the upgradient wells.

### **3. Summary and Conclusion**

Proposed upgradient wells AA-01, AA-27, and AA-UW-1 to AA-UW-6 meet the criteria listed above in Section 2 for designation as Shallow Zone upgradient wells for the Eastside Area. Given the location of the Site boundaries relative to the direction of groundwater flow and the physiographic and hydrogeologic features in the Site vicinity, there appear to be no alternative locations suitable for siting of Site upgradient wells.

Existing BRC data and modeling results that characterize groundwater flow conditions, current and historical site use, soil quality, site location, and groundwater quality support the selection of these wells for use as upgradient wells.

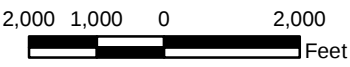
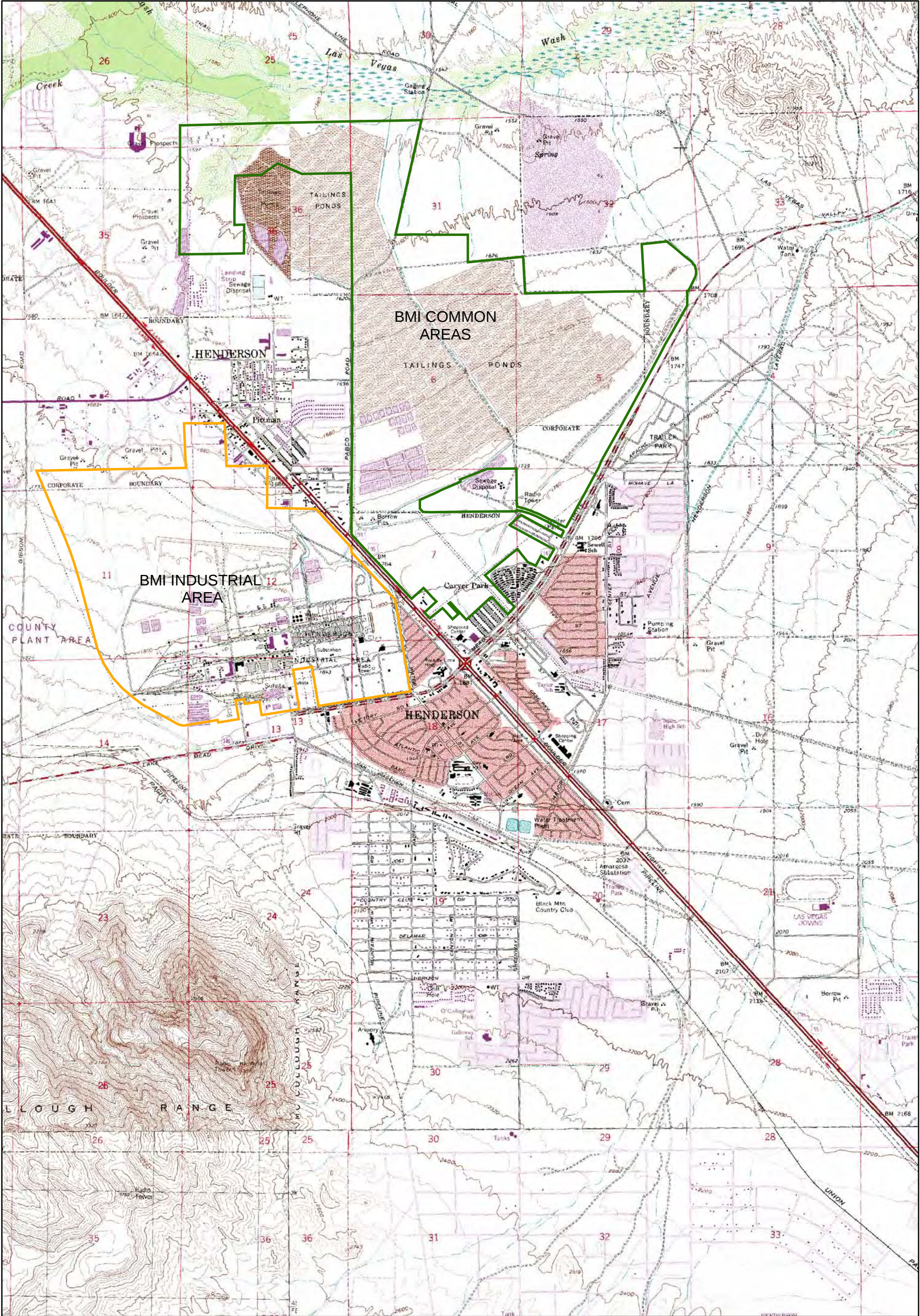
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MWH, 2008. *Fifth round groundwater monitoring report, April - July 2008, BMI Common Areas (Eastside), Clark County, Henderson, Nevada*. Prepared for Basic Remediation Company (BRC), Henderson, Nevada. December 2008.

Neptune and Company. 2007. Guided Interactive Statistical Decision Tools (GISdT). [www.gisdT.org](http://www.gisdT.org).

## Figures



BMI Site  
Henderson, Nevada

FIGURE 1

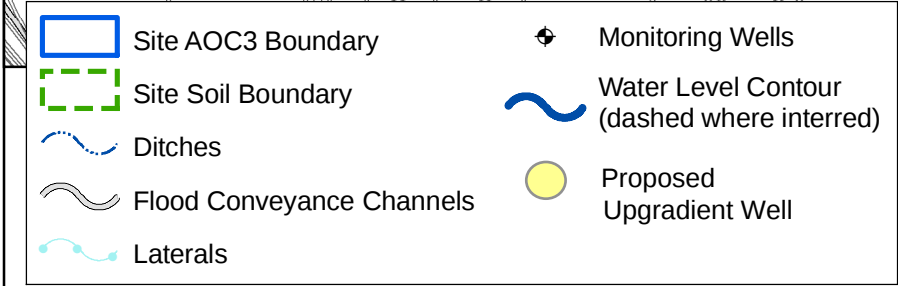
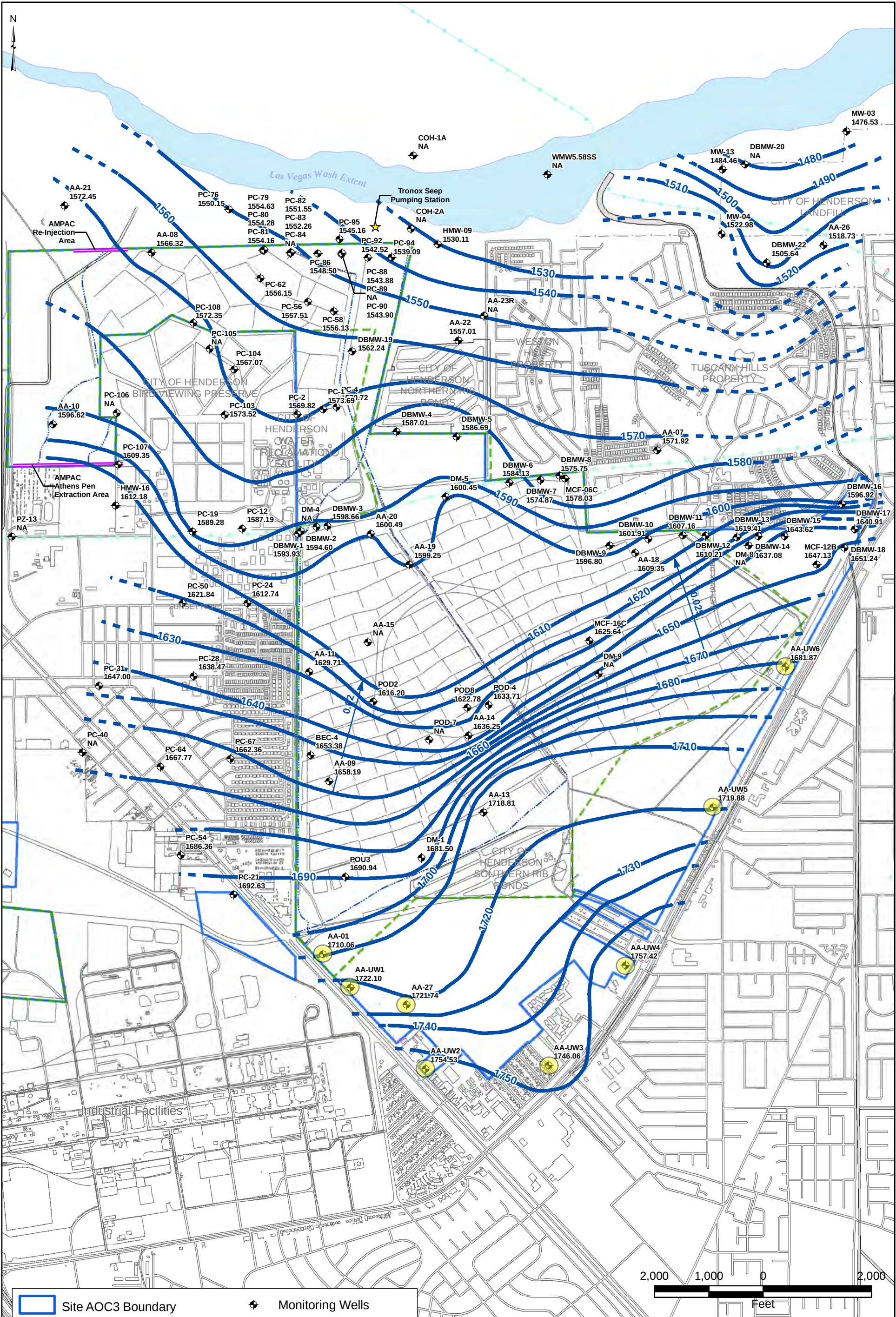
SITE LOCATION AND  
TOPOGRAPHIC MAP



Nevada-Clark Co. 7.5 Minute Series (Topographic)  
Henderson, Nevada SE, Boulder City NW, and Sloan NE Quadrangles

Prepared by: Date  
MKJ 09/28/06

JOB No. 1881262  
FILE: GIS/BRC/BKGD\_FIGURE1.MXD



FIFTH ROUND  
GROUNDWATER EVENT  
(APRIL-JULY 2008)

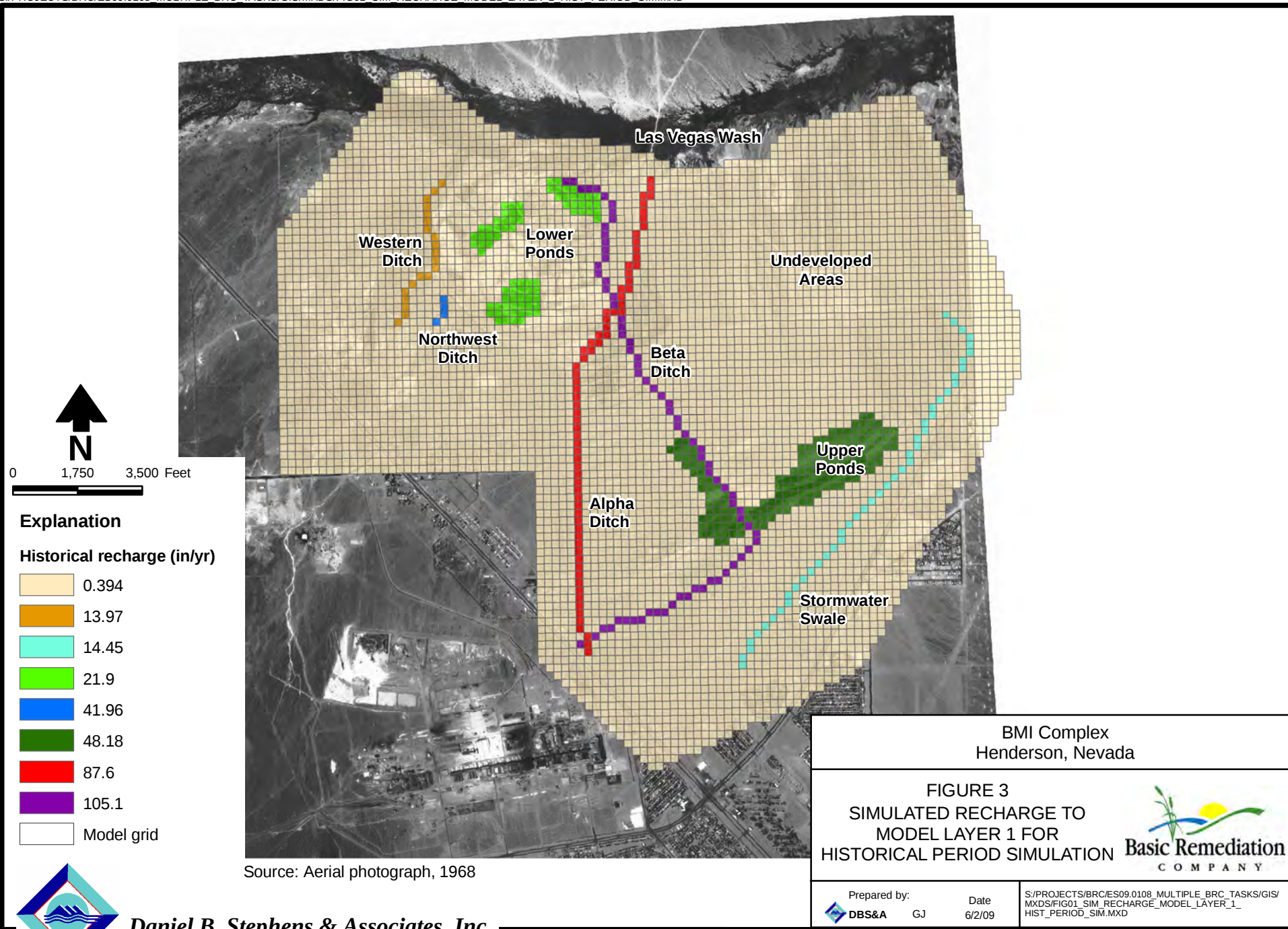
Notes:  
NA - Not available.  
Measurements are in feet  
above mean sea level (ft msl).

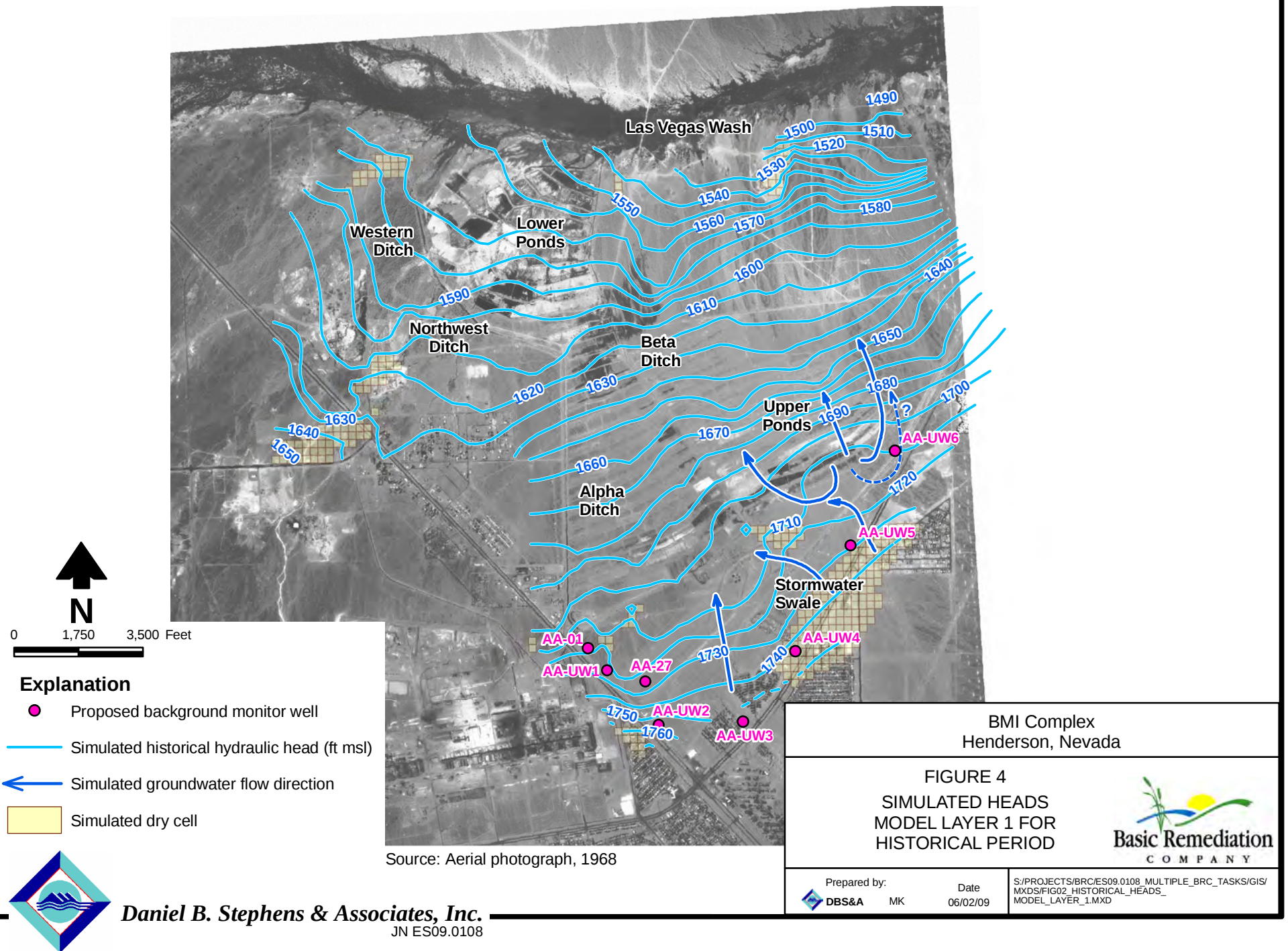
BMI Common Areas (Eastside)  
Clark County, Nevada

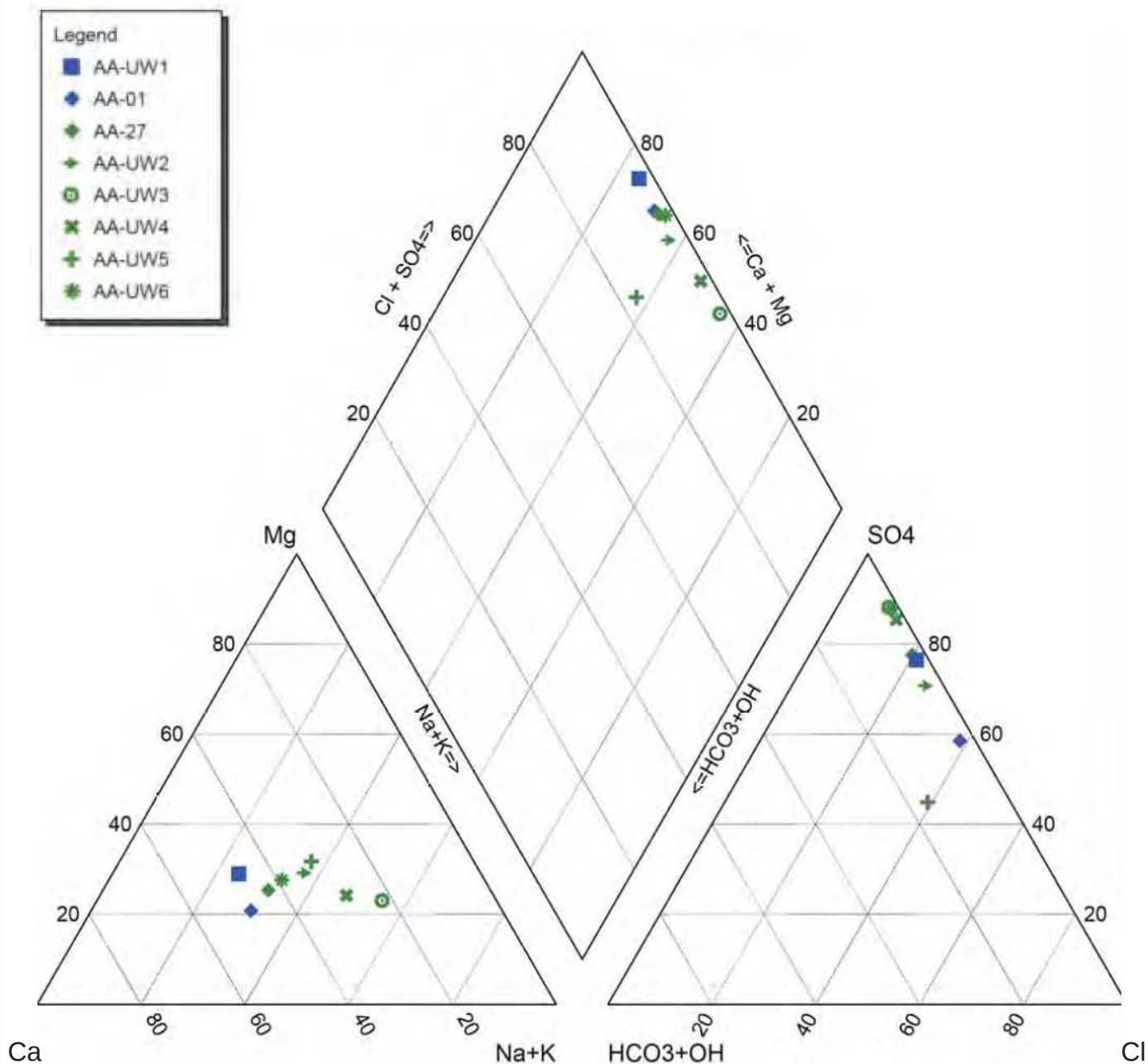
FIGURE 2

POTENTIOMETRIC SURFACE  
MAP OF THE SHALLOW WATER-  
BEARING ZONE WELLS









Note: 1. Data from 5th round sampling event (April-July 2008).  
 2. Figure includes some data that may not meet cation-anion balance (CAB) criteria - see text for discussion.

BMI COMMON AREAS (EASTSIDE)  
 HENDERSON, NEVADA

**Piper Trilinear Diagrams  
 Upgradient Wells**

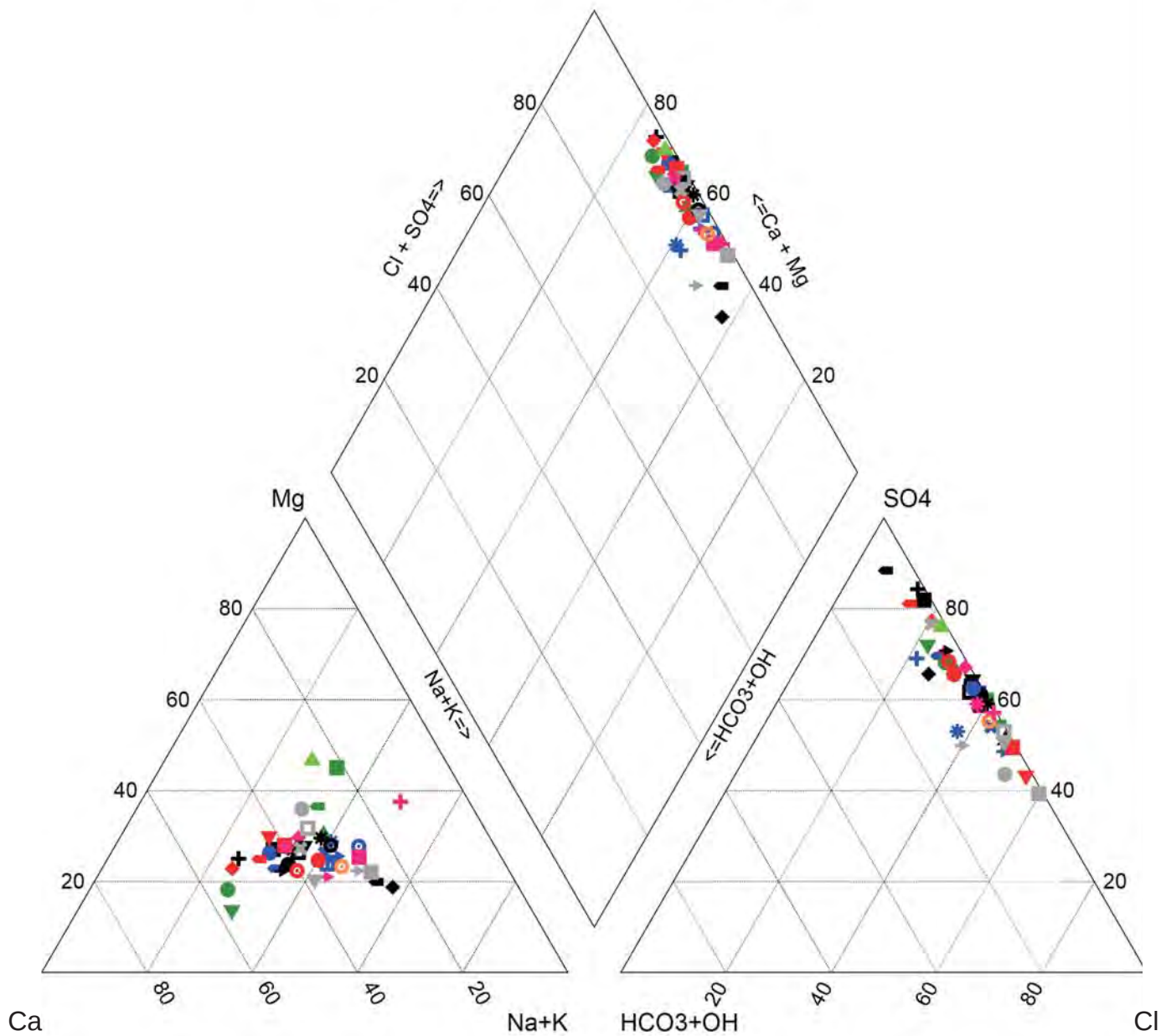


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7-21-09

JN ES09.0013

Figure 5



- Note: 1. Data from 5th round sampling event (April-July 2008)  
 2. The PC well series is not included on this map for clarity.  
 3. Figure includes some data that may not meet cation-anion balance (CAB) criteria - see text for discussion.

BMI COMMON AREAS (EASTSIDE)  
 HENDERSON, NEVADA

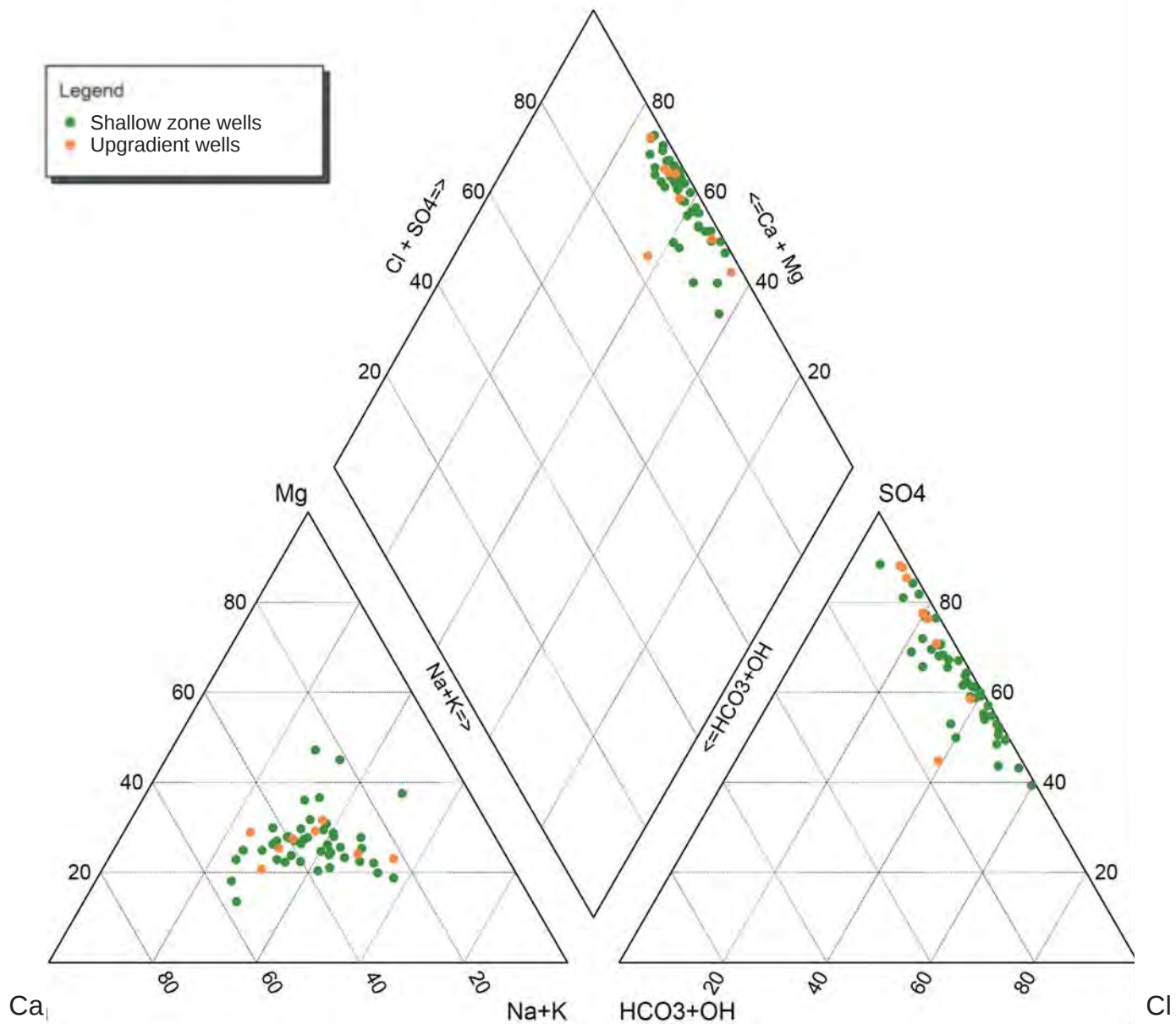
## Piper Trilinear Diagrams Selected Shallow Zone Wells



**Daniel B. Stephens & Associates, Inc.**

7-21-09

JN ES09.0013



Note: 1. Data from 5th round sampling event (April-July 2008)  
 2. Figure includes some data that may not meet cation-anion balance (CAB) criteria - see text for discussion.

BMI COMMON AREAS (EASTSIDE)  
 HENDERSON, NEVADA

**Piper Trilinear Diagrams  
 Upgradient Wells and  
 Selected Shallow Zone Wells**



**Daniel B. Stephens & Associates, Inc.**

7-21-09

JN ES09.0013

Figure 7



## Tables

**Table 1. Summary of Well Construction Data - Upgradient Wells**

| Well ID | Top of Casing Elevation (amsl) | Surface Elevation (amsl) | Total Boring Depth (feet bgs) | Casing Material | Diameter of Casing (inches) | Depth to Top of Screen (feet bgs) | Depth to Bottom of Screen (feet bgs) | Screen Interval (ft) | Screen Slot Size (inches) | Well Installation Date | Water-bearing Zone | Date Measured | Measured Depth to Water (ft. - btoc) | Groundwater Elevation (ft. - amsl) | Comments       |
|---------|--------------------------------|--------------------------|-------------------------------|-----------------|-----------------------------|-----------------------------------|--------------------------------------|----------------------|---------------------------|------------------------|--------------------|---------------|--------------------------------------|------------------------------------|----------------|
| AA-01   | 1757.13                        | 1754.93                  | 401                           | Sch 80 PVC      | 4                           | 29                                | 49                                   | 20                   | 0.01                      | 2/25/04                | Shallow            | 4/8/04        | 45.10                                | 1712.03                            |                |
|         |                                |                          |                               |                 |                             |                                   |                                      |                      |                           |                        |                    | 4/18/06       | 44.78                                | 1712.35                            |                |
|         |                                |                          |                               |                 |                             |                                   |                                      |                      |                           |                        |                    | 7/27/06       | 45.44                                | 1711.69                            |                |
|         |                                |                          |                               |                 |                             |                                   |                                      |                      |                           |                        |                    | 10/16/06      | 45.63                                | 1711.50                            |                |
|         |                                |                          |                               |                 |                             |                                   |                                      |                      |                           |                        |                    | 1/22/07       | 45.68                                | 1711.45                            | Solinst #36573 |
|         |                                |                          |                               |                 |                             |                                   |                                      |                      |                           |                        |                    | 6/3/08        | 47.07                                | 1710.06                            |                |
| AA-27   | 1789.43                        | 1787.03                  | 143                           | Sch 80 PVC      | 4                           | 61.5                              | 81.5                                 | 20                   | 0.01                      | 7/7/04                 | Shallow            | 7/13/04       | 59.45                                | 1729.98                            |                |
|         |                                |                          |                               |                 |                             |                                   |                                      |                      |                           |                        |                    | 4/19/06       | 65.85                                | 1723.58                            |                |
|         |                                |                          |                               |                 |                             |                                   |                                      |                      |                           |                        |                    | 7/26/06       | 66.77                                | 1722.66                            |                |
|         |                                |                          |                               |                 |                             |                                   |                                      |                      |                           |                        |                    | 10/16/06      | 66.82                                | 1722.61                            |                |
|         |                                |                          |                               |                 |                             |                                   |                                      |                      |                           |                        |                    | 1/22/07       | 66.97                                | 1722.46                            | Solinst #36573 |
|         |                                |                          |                               |                 |                             |                                   |                                      |                      |                           |                        |                    | 6/3/08        | 67.69                                | 1721.74                            |                |
| AA-UW1  | 1774.45                        | 1771.22                  | 69.4                          | Sch 40 PVC      | 4                           | 54.5                              | 64.5                                 | 10                   | 0.02                      | 7/30/07                | Shallow            | 6/3/08        | 52.35                                | 1722.10                            | Keck 82050088  |
| AA-UW2  | 1821.36                        | 1817.63                  | 82.72                         | Sch 40 PVC      | 4                           | 55                                | 75                                   | 20                   | 0.02                      | 8/3/07                 | Shallow            | 6/3/08        | 66.83                                | 1754.53                            | Keck 82050088. |
| AA-UW3  | 1812.72                        | 1809.07                  | 88.53                         | Sch 40 PVC      | 4                           | 60                                | 80                                   | 20                   | 0.02                      | 8/6/07                 | Shallow            | 6/3/08        | 66.66                                | 1746.06                            | Keck 82050088  |
| AA-UW4  | 1800.28                        | 1796.79                  | 60.7                          | Sch 40 PVC      | 4                           | 35                                | 55                                   | 20                   | 0.02                      | 8/7/07                 | Shallow            | 6/5/08        | 42.86                                | 1757.42                            | Keck 82050088  |
| AA-UW5  | 1768.68                        | 1765.05                  | 63.62                         | Sch 40 PVC      | 4                           | 37                                | 57                                   | 20                   | 0.02                      | 8/8/07                 | Shallow            | 6/5/08        | 48.80                                | 1719.88                            | Keck 82050088  |
| AA-UW6  | 1740.81                        | 1737.01                  | 68.66                         | Sch 40 PVC      | 4                           | 37                                | 57                                   | 20                   | 0.02                      | 8/8/07                 | Shallow            | 6/5/08        | 58.94                                | 1681.87                            | Keck 82050088  |

Table 2  
Summary of Background Metals Evaluation  
Shallow McCollough Dataset

| Chemical         | McCullough Site at 0-20 ft bgs (Shallow) |                  |              |                   |                   |        |       |                       | McCullough Background at 0-20 ft bgs (Shallow) |                  |              |                   |                   |        |        |                       | t         | Quantile  | Slippage  | WRS       | Greater         | Units | Basis                                                                      |
|------------------|------------------------------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|------------------------------------------------|------------------|--------------|-------------------|-------------------|--------|--------|-----------------------|-----------|-----------|-----------|-----------|-----------------|-------|----------------------------------------------------------------------------|
|                  | No. of<br>Detects                        | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation | No. of<br>Detects                              | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean   | Standard<br>Deviation | Test<br>p | Test<br>p | Test<br>p | Test<br>p | than<br>Bckrnd? |       |                                                                            |
| Aluminum         | 15                                       | 15               | 100%         | 9360              | 13800             | 11400  | 11630 | 1023                  | 101                                            | 101              | 100%         | 3740              | 15300             | 8470   | 9131   | 2668                  | 1.0 E-8   | 9.8 E-2   | 1.0 E+0   | 3.4 E-4   | NO              | mg/kg | Quantile and Slippage; max background > max site                           |
| Antimony         | 15                                       | 15               | 100%         | 0.12              | 0.53              | 0.15   | 0.25  | 0.16                  | 43                                             | 101              | 43%          | 0.12              | 0.50              | 0.16   | 0.19   | 0.085                 | 7.1 E-2   | 4.9 E-2   | 1.6 E-2   | 9.3 E-1   | NO              | mg/kg | Multiple tests                                                             |
| Arsenic          | 15                                       | 15               | 100%         | 2.4               | 4.6               | 3.3    | 3.3   | 0.58                  | 101                                            | 101              | 100%         | 2.1               | 7.2               | 3.9    | 4.1    | 1.1                   | 1.0 E+0   | 1.0 E+0   | 1.0 E+0   | 1.0 E+0   | NO              | mg/kg | Multiple tests                                                             |
| Barium           | 15                                       | 15               | 100%         | 137               | 609               | 214    | 242   | 107                   | 101                                            | 101              | 100%         | 73                | 465               | 175    | 182    | 65                    | 2.7 E-2   | 3.6 E-2   | 1.3 E-1   | 1.4 E-3   | NO              | mg/kg | Multiple tests                                                             |
| Beryllium        | 15                                       | 15               | 100%         | 0.62              | 0.89              | 0.71   | 0.72  | 0.084                 | 101                                            | 101              | 100%         | 0.16              | 0.89              | 0.54   | 0.58   | 0.16                  | 4.8 E-6   | 2.5 E-1   | 1.0 E+0   | 7.2 E-4   | NO              | mg/kg | Quantile and Slippage; max background and site are equal                   |
| Boron            | 4                                        | 15               | 27%          | 4.6               | 13                | 10     | 8.2   | 3.6                   | 34                                             | 95               | 36%          | 5.2               | 12                | 1.6    | 3.6    | 2.8                   | 8.9 E-5   | 8.0 E-1   | 6.9 E-2   | 9.1 E-8   | YES             | mg/kg | Low detection frequency; Site median and mean are greater than background  |
| Cadmium          | 9                                        | 15               | 60%          | 0.094             | 0.13              | 0.13   | 0.38  | 0.47                  | 6                                              | 101              | 6%           | 0.095             | 0.16              | 0.065  | 0.068  | 0.013                 | 1.2 E-2   | 2.8 E-11  | 1.0 E+0   | 2.3 E-2   | YES             | mg/kg | Low detection frequency; Site median and mean are greater than background  |
| Calcium          | 15                                       | 15               | 100%         | 15100             | 41700             | 24800  | 26330 | 7898                  | 95                                             | 95               | 100%         | 9440              | 82800             | 24500  | 29030  | 14960                 | 8.5 E-1   | 9.4 E-1   | 1.0 E+0   | 4.5 E-1   | NO              | mg/kg | Multiple tests                                                             |
| Chromium (VI)    | 1                                        | 13               | 8%           | 0.22              | 0.22              | 0.22   | 0.35  | 0.16                  | 0                                              | 95               | 0%           | NA                | NA                | 0.13   | 0.13   | 0.0043                | 1.6 E-4   | 1.0 E+0   | NA        | 3.5 E-8   | YES             | mg/kg | ND in background.                                                          |
| Chromium (Total) | 15                                       | 15               | 100%         | 11                | 19                | 14     | 14    | 2.7                   | 101                                            | 101              | 100%         | 2.6               | 17                | 9.0    | 9.0    | 3.0                   | 1.0 E-6   | 2.1 E-4   | 1.8 E-3   | 5.2 E-7   | YES             | mg/kg | Multiple tests                                                             |
| Cobalt           | 15                                       | 15               | 100%         | 8.1               | 11                | 9.5    | 9.5   | 0.82                  | 101                                            | 101              | 100%         | 3.7               | 16                | 8.8    | 8.7    | 2.3                   | 6.3 E-3   | 7.3 E-1   | 1.0 E+0   | 4.0 E-2   | NO              | mg/kg | Multiple tests                                                             |
| Copper           | 15                                       | 15               | 100%         | 16                | 54                | 18     | 24    | 12                    | 101                                            | 101              | 100%         | 10                | 26                | 18     | 17     | 3.6                   | 3.0 E-2   | 3.1 E-1   | 1.8 E-3   | 3.1 E-2   | NO              | mg/kg | Multiple tests                                                             |
| Iron             | 15                                       | 15               | 100%         | 18000             | 25100             | 20700  | 21270 | 2528                  | 101                                            | 101              | 100%         | 5410              | 19700             | 13500  | 13200  | 3320                  | 1.0 E-10  | 1.4 E-11  | 6.6 E-10  | 6.1 E-10  | YES             | mg/kg | Multiple tests                                                             |
| Lead             | 15                                       | 15               | 100%         | 8.0               | 18                | 9.5    | 10    | 2.2                   | 101                                            | 101              | 100%         | 3.0               | 35                | 7.3    | 8.5    | 4.3                   | 1.6 E-2   | 3.1 E-1   | 1.0 E+0   | 6.3 E-4   | NO              | mg/kg | Quantile and slippage; max background is greater than max site.            |
| Lithium          | 9                                        | 15               | 60%          | 9.6               | 29                | 13     | 15    | 5.4                   | 95                                             | 95               | 100%         | 7.5               | 27                | 13     | 14     | 4.4                   | 2.9 E-1   | 5.6 E-1   | 1.3 E-1   | 1.8 E-3   | NO              | mg/kg | Multiple tests                                                             |
| Magnesium        | 15                                       | 15               | 100%         | 9690              | 12700             | 10300  | 10620 | 906                   | 101                                            | 101              | 100%         | 4690              | 17500             | 10200  | 10180  | 2799                  | 1.1 E-1   | 9.3 E-1   | 1.0 E+0   | 2.2 E-1   | NO              | mg/kg | Multiple tests                                                             |
| Manganese        | 15                                       | 15               | 100%         | 390               | 604               | 468    | 477   | 69                    | 101                                            | 101              | 100%         | 151               | 863               | 409    | 416    | 127                   | 4.7 E-3   | 1.3 E-1   | 1.0 E+0   | 1.5 E-2   | NO              | mg/kg | Quantile and slippage; max background is greater than max site.            |
| Mercury          | 6                                        | 15               | 40%          | 0.0087            | 0.024             | 0.018  | 0.017 | 0.0049                | 79                                             | 101              | 78%          | 0.0084            | 0.11              | 0.014  | 0.018  | 0.016                 | NA        | 9.9 E-1   | 1.0 E+0   | 2.3 E-3   | NO              | mg/kg | Low detection frequency; background max and mean are greater than at site. |
| Molybdenum       | 15                                       | 15               | 100%         | 0.32              | 1.7               | 0.49   | 0.59  | 0.33                  | 101                                            | 101              | 100%         | 0.17              | 2.0               | 0.48   | 0.53   | 0.25                  | 2.6 E-1   | 2.8 E-1   | 1.0 E+0   | 2.9 E-1   | NO              | mg/kg | Multiple tests                                                             |
| Nickel           | 15                                       | 15               | 100%         | 14                | 19                | 18     | 17    | 1.8                   | 101                                            | 101              | 100%         | 7.9               | 30                | 16     | 16     | 4.1                   | 3.4 E-2   | 3.1 E-1   | 1.0 E+0   | 8.8 E-2   | NO              | mg/kg | Multiple tests                                                             |
| Niobium          | 2                                        | 15               | 13%          | 1.7               | 1.8               | 1.3    | 1.4   | 0.72                  | 0                                              | 95               | 0%           | NA                | NA                | 0.51   | 0.51   | 0                     | 9.2 E-5   | 1.1 E-9   | NA        | 0.0 E+0   | YES             | mg/kg | ND in background.                                                          |
| Palladium        | 15                                       | 15               | 100%         | 0.38              | 0.76              | 0.62   | 0.60  | 0.12                  | 95                                             | 95               | 100%         | 0.16              | 1.5               | 0.42   | 0.48   | 0.24                  | 3.6 E-3   | 1.0 E-1   | 1.0 E+0   | 2.8 E-3   | NO              | mg/kg | Quantile and slippage; max background is greater than max site             |
| Phosphorus       | 15                                       | 15               | 100%         | 1010              | 2130              | 1520   | 1519  | 294                   | 95                                             | 95               | 100%         | 862               | 2010              | 1490   | 1474   | 278                   | 2.9 E-1   | 5.6 E-1   | 1.4 E-1   | 3.4 E-1   | NO              | mg/kg | Multiple tests                                                             |
| Platinum         | 0                                        | 15               | 0%           | NA                | NA                | 0.010  | 0.027 | 0.021                 | 5                                              | 95               | 5%           | 0.045             | 0.099             | 0.022  | 0.024  | 0.012                 | 3.4 E-1   | 7.3 E-4   | 1.0 E+0   | 9.7 E-1   | NO              | mg/kg | ND at Site                                                                 |
| Potassium        | 15                                       | 15               | 100%         | 1140              | 2920              | 1690   | 1846  | 550                   | 95                                             | 95               | 100%         | 625               | 3890              | 1580   | 1754   | 759                   | 2.9 E-1   | 5.6 E-1   | 1.0 E+0   | 1.6 E-1   | NO              | mg/kg | Multiple tests                                                             |
| Selenium         | 3                                        | 15               | 20%          | 0.32              | 0.58              | 0.16   | 0.23  | 0.12                  | 39                                             | 101              | 39%          | 0.10              | 0.60              | 0.079  | 0.17   | 0.12                  | 2.8 E-2   | 7.6 E-1   | 1.0 E+0   | 5.0 E-8   | NO              | mg/kg | Low detection frequency; site and background datasets similar              |
| Silicon          | 15                                       | 15               | 100%         | 181               | 1210              | 818    | 758   | 270                   | 95                                             | 95               | 100%         | 335               | 4150              | 721    | 1007   | 811                   | 9.9 E-1   | 9.9 E-1   | 1.0 E+0   | 5.7 E-1   | NO              | mg/kg | Multiple tests                                                             |
| Silver           | 12                                       | 15               | 80%          | 0.095             | 0.27              | 0.14   | 0.15  | 0.067                 | 6                                              | 101              | 6%           | 0.043             | 0.083             | 0.13   | 0.13   | 0.018                 | 9.2 E-2   | 1.3 E-1   | 5.4 E-5   | 1.0 E+0   | YES             | mg/kg | Low detection frequency; max site is greater than max background.          |
| Sodium           | 15                                       | 15               | 100%         | 450               | 2650              | 853    | 942   | 507                   | 95                                             | 95               | 100%         | 128               | 1320              | 487    | 498    | 285                   | 2.3 E-3   | 3.4 E-5   | 1.4 E-1   | 8.9 E-6   | YES             | mg/kg | Multiple tests                                                             |
| Strontium        | 15                                       | 15               | 100%         | 194               | 448               | 332    | 327   | 63                    | 95                                             | 95               | 100%         | 76                | 808               | 192    | 233    | 133                   | 4.0 E-5   | 9.6 E-3   | 1.0 E+0   | 1.6 E-4   | YES             | mg/kg | Multiple tests                                                             |
| Thallium         | 1                                        | 15               | 7%           | 1.8               | 1.8               | 0.10   | 0.63  | 0.91                  | 27                                             | 101              | 27%          | 0.13              | 1.8               | 0.27   | 0.51   | 0.48                  | 3.1 E-1   | 7.6 E-1   | 1.0 E+0   | 9.7 E-1   | NO              | mg/kg | Low detection frequency; site and background datasets similar              |
| Tin              | 12                                       | 15               | 80%          | 0.36              | 0.73              | 0.60   | 0.58  | 0.096                 | 95                                             | 95               | 100%         | 0.24              | 0.80              | 0.51   | 0.50   | 0.11                  | 4.1 E-3   | 2.5 E-2   | 1.0 E+0   | 1.4 E-4   | NO              | mg/kg | Quantile and slippage; site and background data are similar.               |
| Titanium         | 15                                       | 15               | 100%         | 688               | 1360              | 1120   | 1106  | 163                   | 101                                            | 101              | 100%         | 262               | 1010              | 533    | 552    | 150                   | 1.9 E-10  | 2.5 E-9   | 1.9 E-15  | 6.1 E-10  | YES             | mg/kg | Multiple tests                                                             |
| Tungsten         | 9                                        | 15               | 60%          | 0.22              | 0.74              | 0.30   | 0.37  | 0.17                  | 0                                              | 95               | 0%           | NA                | NA                | 0.0088 | 0.0088 | 0                     | 5.5 E-7   | 8.2 E-17  | NA        | 0.0 E+0   | YES             | mg/kg | ND in background.                                                          |
| Uranium          | 15                                       | 15               | 100%         | 0.86              | 1.5               | 1.1    | 1.1   | 0.19                  | 94                                             | 94               | 100%         | 0.62              | 2.7               | 0.97   | 1.0    | 0.31                  | 5.4 E-2   | 4.1 E-2   | 1.0 E+0   | 1.2 E-2   | NO              | mg/kg | Multiple tests                                                             |
| Vanadium         | 15                                       | 15               | 100%         | 49                | 68                | 57     | 57    | 5.7                   | 101                                            | 101              | 100%         | 20                | 59                | 37     | 38     | 8.8                   | 1.5 E-11  | 2.8 E-11  | 1.9 E-5   | 2.9 E-9   | YES             | mg/kg | Multiple tests                                                             |

Table 2  
Summary of Background Metals Evaluation  
Shallow McCollough Dataset

| Chemical        | McCullough Site at 0-20 ft bgs (Shallow) |                  |              |                   |                   |        |       |                       | McCullough Background at 0-20 ft bgs (Shallow) |                  |              |                   |                   |        |       |                       | t<br>Test<br><i>p</i> | Quantile<br>Test<br><i>p</i> | Slippage<br>Test<br><i>p</i> | WRS<br>Test<br><i>p</i> | Greater<br>than<br>Bckrnd? | Units | Basis                                                           |
|-----------------|------------------------------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|------------------------------------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|-----------------------|------------------------------|------------------------------|-------------------------|----------------------------|-------|-----------------------------------------------------------------|
|                 | No. of<br>Detects                        | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation | No. of<br>Detects                              | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation | 3.6 E-3               | 1.3 E-1                      | 1.0 E+0                      | 1.3 E-3                 | NO                         | mg/kg | Quantile and slippage; max background is greater than max site. |
| Zinc            | 15                                       | 15               | 100%         | 38                | 76                | 43     | 49    | 12                    | 101                                            | 101              | 100%         | 15                | 121               | 39     | 38    | 13                    |                       |                              |                              |                         |                            |       |                                                                 |
| Zirconium       | 14                                       | 15               | 93%          | 13                | 30                | 27     | 24    | 7.0                   | 95                                             | 95               | 100%         | 86                | 179               | 129    | 131   | 22                    | 1.0 E+0               | 1.0 E+0                      | 1.0 E+0                      | 1.0 E+0                 | NO                         | mg/kg | Multiple tests                                                  |
| Radium-226      | 15                                       | 15               | 100%         | 0.69              | 1.3               | 0.88   | 0.93  | 0.21                  | 91                                             | 95               | 96%          | 0.49              | 2.4               | 1.1    | 1.1   | 0.34                  | 1.0 E+0               | 8.0 E-1                      | 1.0 E+0                      | 1.0 E+0                 | NO                         | pCi/g | Multiple tests                                                  |
| Radium-228      | 14                                       | 15               | 93%          | 1.0               | 2.0               | 1.5    | 1.5   | 0.26                  | 65                                             | 81               | 80%          | 1.2               | 2.9               | 1.9    | 1.9   | 0.39                  | 1.0 E+0               | 1.0 E+0                      | 1.0 E+0                      | 1.0 E+0                 | NO                         | pCi/g | Multiple tests                                                  |
| Thorium-228     | 15                                       | 15               | 100%         | 1.3               | 1.9               | 1.6    | 1.6   | 0.18                  | 101                                            | 101              | 100%         | 1.2               | 2.3               | 1.8    | 1.7   | 0.26                  | 1.0 E+0               | 9.9 E-1                      | 1.0 E+0                      | 1.0 E+0                 | NO                         | pCi/g | Multiple tests                                                  |
| Thorium-230     | 13                                       | 15               | 87%          | 0.95              | 2.3               | 1.2    | 1.2   | 0.34                  | 101                                            | 101              | 100%         | 0.73              | 3.0               | 1.2    | 1.3   | 0.39                  | 9.0 E-1               | 9.3 E-1                      | 1.0 E+0                      | 6.9 E-1                 | NO                         | pCi/g | Multiple tests                                                  |
| Thorium-232     | 15                                       | 15               | 100%         | 1.1               | 1.9               | 1.5    | 1.5   | 0.20                  | 101                                            | 101              | 100%         | 1.2               | 2.2               | 1.7    | 1.7   | 0.26                  | 9.9 E-1               | 9.2 E-1                      | 1.0 E+0                      | 9.6 E-1                 | NO                         | pCi/g | Multiple tests                                                  |
| Uranium-233/234 | 13                                       | 15               | 87%          | 0.31              | 1.2               | 0.60   | 0.61  | 0.24                  | 51                                             | 101              | 50%          | 0.70              | 2.8               | 1.1    | 1.2   | 0.46                  | 1.0 E+0               | 1.0 E+0                      | 1.0 E+0                      | 1.0 E+0                 | NO                         | pCi/g | Multiple tests                                                  |
| Uranium-235/236 | 4                                        | 15               | 27%          | 0.019             | 0.078             | 0.013  | 0.027 | 0.027                 | 45                                             | 101              | 45%          | 0.037             | 0.21              | 0.060  | 0.070 | 0.038                 | 1.0 E+0               | 9.9 E-1                      | 1.0 E+0                      | 1.0 E+0                 | NO                         | pCi/g | Multiple tests                                                  |
| Uranium-238     | 13                                       | 15               | 87%          | 0.19              | 1.1               | 0.60   | 0.56  | 0.30                  | 101                                            | 101              | 100%         | 0.65              | 2.4               | 1.1    | 1.2   | 0.36                  | 1.0 E+0               | 1.0 E+0                      | 1.0 E+0                      | 1.0 E+0                 | NO                         | pCi/g | Multiple tests                                                  |

Note: Summary and background comparison statistics were performed using one-half the detection limit for metals and using GISdT® (Neptune and Company 2007).

**BOLD with Highlight indicates Site concentrations are greater than background.**

WRS = Wilcoxon Rank Sum Test with the Gehan Modification

mg/kg - milligrams per kilogram

pCi/g - picoCuries per gram

Table 2  
Summary of Background Metals Evaluation  
Deep McCollough Dataset

| Chemical         | McCullough Site at >= 20 ft bgs (Deep) |                  |              |                   |                   |        |       |                       | McCullough Background at >= 20 ft bgs (Deep) |                  |              |                   |                   |        |        |                       | t         | Quantile  | Slippage  | WRS       | Greater         | Units | Basis                                                         |
|------------------|----------------------------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|----------------------------------------------|------------------|--------------|-------------------|-------------------|--------|--------|-----------------------|-----------|-----------|-----------|-----------|-----------------|-------|---------------------------------------------------------------|
|                  | No. of<br>Detects                      | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation | No. of<br>Detects                            | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean   | Standard<br>Deviation | Test<br>p | Test<br>p | Test<br>p | Test<br>p | than<br>Bckrnd? |       |                                                               |
| Aluminum         | 24                                     | 24               | 100%         | 7660              | 13000             | 10750  | 10730 | 1429                  | 79                                           | 79               | 100%         | 5060              | 15100             | 8790   | 8693   | 1814                  | 3.6 E-7   | 5.3 E-4   | 1.0 E+0   | 1.1 E-6   | YES             | mg/kg | Multiple tests                                                |
| Antimony         | 19                                     | 24               | 79%          | 0.11              | 0.50              | 0.14   | 0.18  | 0.14                  | 73                                           | 79               | 92%          | 0.089             | 0.22              | 0.14   | 0.14   | 0.036                 | 7.1 E-2   | 8.2 E-1   | 2.1 E-3   | 6.0 E-1   | NO              | mg/kg | Multiple tests                                                |
| Arsenic          | 24                                     | 24               | 100%         | 2.8               | 13                | 4.0    | 4.5   | 1.9                   | 79                                           | 79               | 100%         | 2.2               | 13                | 3.8    | 4.4    | 2.0                   | 3.9 E-1   | 7.6 E-1   | 1.0 E+0   | 2.1 E-1   | NO              | mg/kg | Multiple tests                                                |
| Barium           | 24                                     | 24               | 100%         | 107               | 368               | 193    | 199   | 57                    | 79                                           | 79               | 100%         | 85                | 539               | 138    | 156    | 70                    | 1.9 E-3   | 4.6 E-4   | 1.0 E+0   | 3.3 E-5   | YES             | mg/kg | Multiple tests                                                |
| Beryllium        | 24                                     | 24               | 100%         | 0.50              | 0.86              | 0.64   | 0.65  | 0.083                 | 79                                           | 79               | 100%         | 0.29              | 0.67              | 0.55   | 0.56   | 0.063                 | 1.5 E-5   | 6.7 E-5   | 1.7 E-5   | 1.5 E-6   | YES             | mg/kg | Multiple tests                                                |
| Boron            | 3                                      | 24               | 13%          | 3.8               | 6.3               | 10     | 9.3   | 2.8                   | 20                                           | 79               | 25%          | 3.0               | 7.6               | 1.4    | 2.4    | 1.9                   | 9.8 E-13  | 9.5 E-1   | 1.0 E+0   | 3.6 E-15  | NO              | mg/kg | Low detection frequency; max background greater than max site |
| Cadmium          | 19                                     | 24               | 79%          | 0.065             | 0.12              | 0.11   | 0.22  | 0.35                  | 73                                           | 79               | 92%          | 0.050             | 0.13              | 0.083  | 0.081  | 0.027                 | 2.9 E-2   | 2.2 E-2   | 1.0 E+0   | 3.8 E-6   | NO              | mg/kg | Site and background datasets similar.                         |
| Calcium          | 24                                     | 24               | 100%         | 18200             | 47500             | 24350  | 25490 | 5913                  | 79                                           | 79               | 100%         | 10700             | 46600             | 24500  | 24970  | 7156                  | 3.6 E-1   | 9.7 E-1   | 2.3 E-1   | 3.5 E-1   | NO              | mg/kg | Multiple tests                                                |
| Chromium (VI)    | 1                                      | 18               | 6%           | 0.40              | 0.40              | 0.50   | 0.43  | 0.15                  | 18                                           | 80               | 23%          | 0.18              | 1.6               | 0.085  | 0.16   | 0.23                  | 7.9 E-8   | 9.9 E-1   | 1.0 E+0   | 9.6 E-12  | NO              | mg/kg | Low detection frequency; background max 4x the site max       |
| Chromium (Total) | 24                                     | 24               | 100%         | 7.5               | 23                | 13     | 13    | 3.3                   | 79                                           | 79               | 100%         | 7.1               | 17                | 10     | 11     | 1.8                   | 1.8 E-3   | 4.6 E-4   | 5.3 E-2   | 3.0 E-4   | YES             | mg/kg | Multiple tests                                                |
| Cobalt           | 24                                     | 24               | 100%         | 5.6               | 10                | 8.7    | 8.4   | 1.1                   | 79                                           | 79               | 100%         | 5.3               | 11                | 7.5    | 7.8    | 1.3                   | 1.3 E-2   | 3.5 E-1   | 1.0 E+0   | 5.2 E-3   | NO              | mg/kg | Site and background datasets similar.                         |
| Copper           | 24                                     | 24               | 100%         | 12                | 38                | 17     | 18    | 4.7                   | 79                                           | 79               | 100%         | 8.8               | 24                | 16     | 16     | 2.1                   | 3.6 E-2   | 3.5 E-2   | 2.3 E-1   | 4.1 E-3   | NO              | mg/kg | Multiple tests                                                |
| Iron             | 24                                     | 24               | 100%         | 11600             | 26600             | 19200  | 19050 | 3420                  | 79                                           | 79               | 100%         | 11200             | 22500             | 14700  | 15350  | 2815                  | 1.6 E-5   | 6.7 E-5   | 5.3 E-2   | 5.7 E-6   | YES             | mg/kg | Multiple tests                                                |
| Lead             | 24                                     | 24               | 100%         | 7.0               | 11                | 9.0    | 8.9   | 1.1                   | 79                                           | 79               | 100%         | 4.9               | 16                | 7.1    | 7.4    | 1.6                   | 2.5 E-6   | 4.6 E-4   | 1.0 E+0   | 5.7 E-6   | YES             | mg/kg | Multiple tests                                                |
| Lithium          | 12                                     | 24               | 50%          | 11                | 49                | 13     | 17    | 7.9                   | 67                                           | 79               | 85%          | 7.5               | 124               | 17     | 17     | 14                    | 6.3 E-1   | 9.2 E-1   | 1.0 E+0   | 1.3 E-4   | NO              | mg/kg | Multiple tests                                                |
| Magnesium        | 24                                     | 24               | 100%         | 8710              | 21600             | 10300  | 10610 | 2478                  | 79                                           | 79               | 100%         | 4990              | 12500             | 9530   | 9553   | 1455                  | 2.8 E-2   | 5.6 E-1   | 2.3 E-1   | 1.2 E-2   | NO              | mg/kg | Multiple tests                                                |
| Manganese        | 24                                     | 24               | 100%         | 295               | 513               | 436    | 422   | 57                    | 79                                           | 79               | 100%         | 217               | 579               | 319    | 343    | 84                    | 1.3 E-6   | 2.4 E-3   | 1.0 E+0   | 1.6 E-5   | YES             | mg/kg | Multiple tests                                                |
| Mercury          | 8                                      | 24               | 33%          | 0.0075            | 0.015             | 0.014  | 0.012 | 0.0059                | 35                                           | 79               | 44%          | 0.0072            | 0.024             | 0.0033 | 0.0075 | 0.0054                | NA        | 9.8 E-1   | 1.0 E+0   | 4.6 E-5   | NO              | mg/kg | Low detection frequency; max background greater than max site |
| Molybdenum       | 24                                     | 24               | 100%         | 0.31              | 1.5               | 0.43   | 0.52  | 0.27                  | 62                                           | 79               | 78%          | 0.31              | 1.9               | 0.50   | 0.54   | 0.37                  | 5.9 E-1   | 9.0 E-1   | 1.0 E+0   | 8.0 E-1   | NO              | mg/kg | Multiple tests                                                |
| Nickel           | 24                                     | 24               | 100%         | 9.9               | 20                | 15     | 15    | 2.1                   | 79                                           | 79               | 100%         | 8.5               | 28                | 15     | 16     | 2.4                   | 7.4 E-1   | 6.1 E-1   | 1.0 E+0   | 5.7 E-1   | NO              | mg/kg | Multiple tests                                                |
| Niobium          | 0                                      | 24               | 0%           | NA                | NA                | 0.76   | 0.99  | 0.56                  | 6                                            | 79               | 8%           | 1.7               | 3.8               | 0.76   | 0.94   | 0.66                  | 3.6 E-1   | 7.7 E-2   | 1.0 E+0   | 3.4 E-2   | NO              | mg/kg | ND at site.                                                   |
| Palladium        | 24                                     | 24               | 100%         | 0.31              | 0.88              | 0.47   | 0.52  | 0.16                  | 79                                           | 79               | 100%         | 0.20              | 2.2               | 0.61   | 0.67   | 0.37                  | 1.0 E+0   | 9.8 E-1   | 1.0 E+0   | 9.6 E-1   | NO              | mg/kg | Multiple tests                                                |
| Phosphorus       | 24                                     | 24               | 100%         | 988               | 1940              | 1400   | 1435  | 251                   | 79                                           | 79               | 100%         | 649               | 1930              | 1390   | 1369   | 208                   | 1.2 E-1   | 3.5 E-2   | 2.3 E-1   | 1.9 E-1   | NO              | mg/kg | Multiple tests                                                |
| Platinum         | 0                                      | 24               | 0%           | NA                | NA                | 0.010  | 0.019 | 0.018                 | 7                                            | 79               | 9%           | 0.022             | 0.049             | 0.010  | 0.012  | 0.0071                | 3.7 E-2   | 1.1 E-1   | 1.0 E+0   | 3.3 E-2   | NO              | mg/kg | ND at site.                                                   |
| Potassium        | 24                                     | 24               | 100%         | 925               | 2430              | 1445   | 1445  | 338                   | 79                                           | 79               | 100%         | 850               | 2450              | 1430   | 1499   | 357                   | 7.5 E-1   | 9.2 E-1   | 1.0 E+0   | 7.0 E-1   | NO              | mg/kg | Multiple tests                                                |
| Selenium         | 2                                      | 24               | 8%           | 0.29              | 0.40              | 0.16   | 0.19  | 0.061                 | 0                                            | 79               | 0%           | NA                | NA                | 0.16   | 0.16   | 0                     | 1.5 E-2   | 2.4 E-3   | NA        | 1.2 E-3   | YES             | mg/kg | ND in background.                                             |
| Silicon          | 24                                     | 24               | 100%         | 197               | 1310              | 814    | 772   | 245                   | 79                                           | 79               | 100%         | 139               | 1080              | 617    | 591    | 282                   | 1.9 E-3   | 9.7 E-2   | 2.3 E-1   | 2.9 E-3   | YES             | mg/kg | Site max, mean and median are greater than background         |
| Silver           | 21                                     | 24               | 88%          | 0.063             | 0.45              | 0.15   | 0.16  | 0.091                 | 79                                           | 79               | 100%         | 0.074             | 2.2               | 0.15   | 0.25   | 0.38                  | 9.7 E-1   | 4.0 E-1   | 1.0 E+0   | 5.2 E-1   | NO              | mg/kg | Multiple tests                                                |
| Sodium           | 24                                     | 24               | 100%         | 619               | 1230              | 988    | 967   | 185                   | 79                                           | 79               | 100%         | 428               | 3250              | 776    | 864    | 378                   | 3.7 E-2   | 7.6 E-2   | 1.0 E+0   | 2.7 E-3   | NO              | mg/kg | Multiple tests                                                |
| Strontium        | 24                                     | 24               | 100%         | 213               | 429               | 286    | 298   | 55                    | 79                                           | 79               | 100%         | 123               | 793               | 250    | 275    | 104                   | 7.6 E-2   | 5.1 E-1   | 1.0 E+0   | 8.4 E-3   | NO              | mg/kg | Multiple tests                                                |
| Thallium         | 1                                      | 24               | 4%           | 1.9               | 1.9               | 0.10   | 0.25  | 0.39                  | 4                                            | 79               | 5%           | 0.15              | 0.34              | 0.10   | 0.11   | 0.032                 | 4.6 E-2   | 1.6 E-2   | 2.0 E-1   | 7.9 E-4   | YES             | mg/kg | Low detection frequency; site max > 5 times max background    |
| Tin              | 21                                     | 24               | 88%          | 0.35              | 0.70              | 0.57   | 0.54  | 0.12                  | 76                                           | 79               | 96%          | 0.25              | 0.78              | 0.55   | 0.53   | 0.14                  | 3.9 E-1   | 2.1 E-1   | 1.0 E+0   | 1.2 E-1   | NO              | mg/kg | Multiple tests                                                |
| Titanium         | 24                                     | 24               | 100%         | 424               | 1310              | 1030   | 982   | 223                   | 79                                           | 79               | 100%         | 445               | 912               | 671    | 680    | 110                   | 3.9 E-7   | 1.8 E-12  | 3.0 E-14  | 2.7 E-8   | YES             | mg/kg | Multiple tests                                                |
| Tungsten         | 9                                      | 24               | 38%          | 0.24              | 0.35              | 0.25   | 0.27  | 0.17                  | 25                                           | 79               | 32%          | 0.19              | 3.6               | 0.10   | 0.21   | 0.40                  | 1.7 E-1   | 5.6 E-1   | 1.0 E+0   | 6.1 E-4   | NO              | mg/kg | Low detection frequency; max background greater than max site |
| Uranium          | 24                                     | 24               | 100%         | 1.0               | 4.0               | 1.5    | 1.6   | 0.56                  | 79                                           | 79               | 100%         | 0.89              | 2.8               | 1.4    | 1.6    | 0.42                  | 3.5 E-1   | 9.5 E-1   | 2.3 E-1   | 2.7 E-1   | NO              | mg/kg | Quantile and Slippage                                         |
| Vanadium         | 24                                     | 24               | 100%         | 31                | 69                | 55     | 52    | 9.6                   | 79                                           | 79               | 100%         | 27                | 73                | 43     | 46     | 10                    | 4.2 E-3   | 3.5 E-2   | 1.0 E+0   | 3.2 E-3   | NO              | mg/kg | Slippage and quantile; site and background datasets similar   |

Table 2  
Summary of Background Metals Evaluation  
Deep McCollough Dataset

| Chemical        | McCullough Site at >= 20 ft bgs (Deep) |                  |              |                   |                   |        |       |                       | McCullough Background at >= 20 ft bgs (Deep) |                  |              |                   |                   |        |       |                       | <i>t</i><br>Test<br><i>p</i> | Quantile<br>Test<br><i>p</i> | Slippage<br>Test<br><i>p</i> | WRS<br>Test<br><i>p</i> | Greater<br>than<br>Bckrnd? | Units | Basis |
|-----------------|----------------------------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|----------------------------------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|------------------------------|------------------------------|------------------------------|-------------------------|----------------------------|-------|-------|
|                 | No. of<br>Detects                      | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation | No. of<br>Detects                            | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation |                              |                              |                              |                         |                            |       |       |
| Zinc            | 24                                     | 24               | 100%         | 32                | 70                | 40     | 42    | 7.4                   | 79                                           | 79               | 100%         | 18                | 41                | 32     | 32    | 3.8                   |                              |                              |                              |                         |                            |       |       |
| Zirconium       | 21                                     | 24               | 88%          | 12                | 32                | 27     | 24    | 7.3                   | 79                                           | 79               | 100%         | 16                | 34                | 26     | 25    | 3.7                   |                              |                              |                              |                         |                            |       |       |
| Radium-226      | 24                                     | 24               | 100%         | 0.57              | 1.8               | 0.92   | 1.0   | 0.25                  | 65                                           | 65               | 100%         | 0.98              | 2.3               | 1.6    | 1.7   | 0.33                  |                              |                              |                              |                         |                            |       |       |
| Radium-228      | 23                                     | 24               | 96%          | 1.2               | 2.0               | 1.6    | 1.6   | 0.15                  | 64                                           | 64               | 100%         | 0.86              | 2.3               | 1.4    | 1.5   | 0.30                  |                              |                              |                              |                         |                            |       |       |
| Thorium-228     | 24                                     | 24               | 100%         | 1.1               | 2.0               | 1.7    | 1.6   | 0.21                  | 79                                           | 79               | 100%         | 1.1               | 2.3               | 1.8    | 1.8   | 0.25                  |                              |                              |                              |                         |                            |       |       |
| Thorium-230     | 21                                     | 24               | 88%          | 0.92              | 2.4               | 1.3    | 1.4   | 0.34                  | 79                                           | 79               | 100%         | 1.1               | 2.7               | 1.6    | 1.7   | 0.36                  |                              |                              |                              |                         |                            |       |       |
| Thorium-232     | 24                                     | 24               | 100%         | 1.1               | 2.1               | 1.5    | 1.5   | 0.21                  | 79                                           | 79               | 100%         | 0.91              | 2.0               | 1.5    | 1.6   | 0.21                  |                              |                              |                              |                         |                            |       |       |
| Uranium-233/234 | 23                                     | 24               | 96%          | 0.21              | 3.2               | 0.63   | 0.75  | 0.56                  | 76                                           | 76               | 100%         | 0.87              | 2.6               | 1.6    | 1.6   | 0.37                  |                              |                              |                              |                         |                            |       |       |
| Uranium-235/236 | 12                                     | 24               | 50%          | 0.013             | 0.13              | 0.020  | 0.027 | 0.026                 | 68                                           | 76               | 89%          | 0.029             | 0.12              | 0.065  | 0.063 | 0.022                 |                              |                              |                              |                         |                            |       |       |
| Uranium-238     | 21                                     | 24               | 88%          | 0.18              | 1.7               | 0.46   | 0.57  | 0.32                  | 76                                           | 76               | 100%         | 0.99              | 2.8               | 1.5    | 1.5   | 0.37                  |                              |                              |                              |                         |                            |       |       |

Note: Summary and background comparison statistics were performed using one-half the detection limit for metals and using GISdT® (Neptune and Company 2007).

**BOLD with Highlight indicates Site concentrations are greater than background.**

WRS = Wilcoxon Rank Sum Test with the Gehan Modification

mg/kg - milligrams per kilogram

pCi/g - picoCuries per gram

Table 2  
Summary of Background Metals Evaluation  
Shallow River Dataset

| Chemical         | River Site at 0-20 ft bgs (Shallow) |               |           |                |                |        |        |                    | River Background at 0-20 ft bgs (Shallow) |               |           |                |                |        |        |                    | <i>t</i>      | Quantile      | Slippage      | WRS           | Greater      | Units | Basis                                          |
|------------------|-------------------------------------|---------------|-----------|----------------|----------------|--------|--------|--------------------|-------------------------------------------|---------------|-----------|----------------|----------------|--------|--------|--------------------|---------------|---------------|---------------|---------------|--------------|-------|------------------------------------------------|
|                  | No. of Detects                      | Total Samples | % Detects | Minimum Detect | Maximum Detect | Median | Mean   | Standard Deviation | No. of Detects                            | Total Samples | % Detects | Minimum Detect | Maximum Detect | Median | Mean   | Standard Deviation | Test <i>p</i> | Test <i>p</i> | Test <i>p</i> | Test <i>p</i> | than Bckrnd? |       |                                                |
| Aluminum         | 2                                   | 2             | 100%      | 7600           | 7910           | 7755   | 7755   | 219                | 33                                        | 33            | 100%      | 5330           | 15500          | 9260   | 9742   | 2812               | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 8.6 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Antimony         | 2                                   | 2             | 100%      | 0.22           | 0.26           | 0.24   | 0.24   | 0.028              | 13                                        | 33            | 39%       | 0.19           | 0.61           | 0.063  | 0.16   | 0.14               | 2.7 E-2       | 1.0 E+0       | 1.0 E+0       | 1.7 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Arsenic          | 2                                   | 2             | 100%      | 6.7            | 10             | 8.5    | 8.5    | 2.5                | 33                                        | 33            | 100%      | 4.5            | 28             | 7.7    | 8.6    | 4.4                | 5.3 E-1       | 4.5 E-1       | 1.0 E+0       | 3.3 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Barium           | 2                                   | 2             | 100%      | 453            | 546            | 500    | 500    | 66                 | 33                                        | 33            | 100%      | 211            | 755            | 428    | 466    | 173                | 3.0 E-1       | 1.0 E+0       | 1.0 E+0       | 2.8 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Beryllium        | 2                                   | 2             | 100%      | 0.36           | 0.39           | 0.38   | 0.38   | 0.021              | 33                                        | 33            | 100%      | 0.28           | 0.78           | 0.40   | 0.44   | 0.13               | 9.8 E-1       | 1.0 E+0       | 1.0 E+0       | 7.6 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Boron            | 0                                   | 2             | 0%        | NA             | NA             | 10     | 10     | 0.035              | 15                                        | 33            | 45%       | 7.1            | 57             | 3.3    | 7.8    | 9.7                | 7.4 E-2       | 1.0 E+0       | 1.0 E+0       | 8.9 E-3       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Cadmium          | 2                                   | 2             | 100%      | 0.080          | 0.082          | 0.081  | 0.081  | 0.0014             | 21                                        | 33            | 64%       | 0.053          | 0.26           | 0.079  | 0.084  | 0.064              | 5.9 E-1       | 1.0 E+0       | 1.0 E+0       | 4.6 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Calcium          | 2                                   | 2             | 100%      | 16500          | 34300          | 25400  | 25400  | 12590              | 33                                        | 33            | 100%      | 3430           | 71300          | 25400  | 27830  | 13950              | 5.8 E-1       | 4.5 E-1       | 1.0 E+0       | 5.8 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Chromium (VI)    | 0                                   | 2             | 0%        | NA             | NA             | 0.50   | 0.50   | 0                  | 0                                         | 33            | 0%        | NA             | NA             | 0.21   | 0.22   | 0.019              | 1.6 E-39      | 1.0 E+0       | NA            | 8.5 E-3       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Chromium (Total) | 2                                   | 2             | 100%      | 9.4            | 11             | 10     | 10     | 1.1                | 33                                        | 33            | 100%      | 3.2            | 24             | 9.9    | 11     | 4.6                | 7.2 E-1       | 1.0 E+0       | 1.0 E+0       | 5.0 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Cobalt           | 2                                   | 2             | 100%      | 4.2            | 5.0            | 4.6    | 4.6    | 0.57               | 33                                        | 33            | 100%      | 3.7            | 8.9            | 4.7    | 5.0    | 1.2                | 7.7 E-1       | 1.0 E+0       | 1.0 E+0       | 6.3 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Copper           | 2                                   | 2             | 100%      | 8.9            | 9.7            | 9.3    | 9.3    | 0.57               | 33                                        | 33            | 100%      | 8.0            | 36             | 11     | 13     | 5.7                | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 9.1 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Iron             | 2                                   | 2             | 100%      | 9110           | 10100          | 9605   | 9605   | 700                | 33                                        | 33            | 100%      | 6210           | 21700          | 9310   | 10260  | 3488               | 7.8 E-1       | 1.0 E+0       | 1.0 E+0       | 4.4 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Lead             | 2                                   | 2             | 100%      | 16             | 16             | 16     | 16     | 0.14               | 33                                        | 33            | 100%      | 7.6            | 53             | 12     | 15     | 9.6                | 2.7 E-1       | 4.5 E-1       | 1.0 E+0       | 1.0 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Lithium          | 2                                   | 2             | 100%      | 19             | 34             | 27     | 27     | 10                 | 6                                         | 33            | 18%       | 26             | 42             | 7.3    | 10     | 12                 | 1.2 E-1       | 6.1 E-2       | 1.0 E+0       | 4.2 E-2       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Magnesium        | 2                                   | 2             | 100%      | 4850           | 6930           | 5890   | 5890   | 1471               | 33                                        | 33            | 100%      | 1550           | 15000          | 7580   | 8206   | 2706               | 8.9 E-1       | 1.0 E+0       | 1.0 E+0       | 9.3 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Manganese        | 2                                   | 2             | 100%      | 315            | 427            | 371    | 371    | 79                 | 33                                        | 33            | 100%      | 178            | 2070           | 295    | 411    | 368                | 6.7 E-1       | 4.5 E-1       | 1.0 E+0       | 2.2 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Mercury          | 0                                   | 2             | 0%        | NA             | NA             | 0.0067 | 0.0067 | 0                  | 0                                         | 33            | 0%        | NA             | NA             | 0.0067 | 0.0067 | NA                 | NA            | NA            | NA            | NA            | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Molybdenum       | 2                                   | 2             | 100%      | 0.52           | 0.90           | 0.71   | 0.71   | 0.27               | 33                                        | 33            | 100%      | 0.28           | 2.3            | 0.64   | 0.79   | 0.42               | 6.2 E-1       | 1.0 E+0       | 1.0 E+0       | 5.0 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Nickel           | 2                                   | 2             | 100%      | 10             | 13             | 11     | 11     | 2.0                | 33                                        | 33            | 100%      | 9.1            | 22             | 12     | 13     | 2.9                | 7.3 E-1       | 1.0 E+0       | 1.0 E+0       | 6.8 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Niobium          | 0                                   | 2             | 0%        | NA             | NA             | 0.76   | 0.76   | 0                  | 1                                         | 33            | 3%        | 4.6            | 4.6            | 1.5    | 1.6    | 0.54               | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Palladium        | 2                                   | 2             | 100%      | 0.38           | 0.44           | 0.41   | 0.41   | 0.042              | 33                                        | 33            | 100%      | 0.35           | 1.6            | 0.73   | 0.79   | 0.28               | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 9.9 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Phosphorus       | 2                                   | 2             | 100%      | 821            | 982            | 902    | 902    | 114                | 33                                        | 33            | 100%      | 296            | 1710           | 754    | 806    | 277                | 2.1 E-1       | 4.5 E-1       | 1.0 E+0       | 1.6 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Platinum         | 0                                   | 2             | 0%        | NA             | NA             | 0.020  | 0.020  | 0                  | 0                                         | 33            | 0%        | NA             | NA             | 0.048  | 0.048  | 0                  | NA            | NA            | NA            | NA            | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Potassium        | 2                                   | 2             | 100%      | 1710           | 2960           | 2335   | 2335   | 884                | 33                                        | 33            | 100%      | 1090           | 9000           | 2820   | 3525   | 2038               | 8.7 E-1       | 1.0 E+0       | 1.0 E+0       | 7.7 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Selenium         | 0                                   | 2             | 0%        | NA             | NA             | 0.32   | 0.32   | 0                  | 0                                         | 33            | 0%        | NA             | NA             | 0.32   | 0.32   | 0                  | NA            | NA            | NA            | NA            | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Silicon          | 2                                   | 2             | 100%      | 557            | 844            | 701    | 701    | 203                | 33                                        | 33            | 100%      | 344            | 7480           | 1190   | 1433   | 1246               | 9.9 E-1       | 1.0 E+0       | 1.0 E+0       | 9.3 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Silver           | 2                                   | 2             | 100%      | 0.079          | 0.080          | 0.080  | 0.080  | 0.00071            | 14                                        | 33            | 42%       | 0.054          | 0.17           | 0.055  | 0.072  | 0.032              | 9.6 E-2       | 1.0 E+0       | 1.0 E+0       | 9.1 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Sodium           | 2                                   | 2             | 100%      | 502            | 621            | 562    | 562    | 84                 | 33                                        | 33            | 100%      | 274            | 4210           | 1370   | 1576   | 966                | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 9.7 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Strontium        | 2                                   | 2             | 100%      | 265            | 323            | 294    | 294    | 41                 | 33                                        | 33            | 100%      | 172            | 761            | 379    | 392    | 144                | 9.6 E-1       | 1.0 E+0       | 1.0 E+0       | 8.6 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Thallium         | 0                                   | 2             | 0%        | NA             | NA             | 0.21   | 0.21   | 0                  | 6                                         | 33            | 18%       | 0.43           | 2.0            | 0.15   | 0.25   | 0.33               | 7.9 E-1       | 1.0 E+0       | 1.0 E+0       | 2.1 E-2       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Tin              | 0                                   | 2             | 0%        | NA             | NA             | 0.21   | 0.21   | 0                  | 16                                        | 33            | 48%       | 0.32           | 1.0            | 0.15   | 0.31   | 0.21               | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 1.5 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Titanium         | 2                                   | 2             | 100%      | 440            | 449            | 445    | 445    | 6.4                | 33                                        | 33            | 100%      | 215            | 611            | 380    | 408    | 114                | 4.1 E-2       | 1.0 E+0       | 1.0 E+0       | 3.1 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Tungsten         | 2                                   | 2             | 100%      | 0.40           | 0.51           | 0.46   | 0.46   | 0.078              | 2                                         | 33            | 6%        | 0.96           | 1.0            | 0.25   | 0.29   | 0.18               | 7.3 E-2       | 1.7 E-1       | 1.0 E+0       | 6.0 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Uranium          | 2                                   | 2             | 100%      | 0.69           | 1.2            | 0.95   | 0.95   | 0.36               | 33                                        | 33            | 100%      | 0.56           | 4.3            | 0.92   | 1.2    | 0.74               | 7.4 E-1       | 1.0 E+0       | 1.0 E+0       | 6.1 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |
| Vanadium         | 2                                   | 2             | 100%      | 24             | 30             | 27     | 27     | 4.7                | 33                                        | 33            | 100%      | 19             | 55             | 29     | 30     | 7.1                | 7.6 E-1       | 1.0 E+0       | 1.0 E+0       | 7.6 E-1       | NA           | mg/kg | Insufficient data for statistical comparisons. |

Table 2  
Summary of Background Metals Evaluation  
Shallow River Dataset

| Chemical        | River Site at 0-20 ft bgs (Shallow) |                  |              |                   |                   |        |       |                       | River Background at 0-20 ft bgs (Shallow) |                  |              |                   |                   |        |      |                       | <i>t</i>         | Quantile         | Slippage         | WRS              | Greater         | Units | Basis                                          |
|-----------------|-------------------------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|-------------------------------------------|------------------|--------------|-------------------|-------------------|--------|------|-----------------------|------------------|------------------|------------------|------------------|-----------------|-------|------------------------------------------------|
|                 | No. of<br>Detects                   | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation | No. of<br>Detects                         | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean | Standard<br>Deviation | Test<br><i>p</i> | Test<br><i>p</i> | Test<br><i>p</i> | Test<br><i>p</i> | than<br>Bckrnd? |       |                                                |
| Zinc            | 2                                   | 2                | 100%         | 35                | 46                | 40     | 40    | 7.6                   | 33                                        | 33               | 100%         | 25                | 71                | 35     | 37   | 9.9                   | 3.2 E-1          | 4.5 E-1          | 1.0 E+0          | 1.8 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Zirconium       | 2                                   | 2                | 100%         | 9.6               | 11                | 10     | 10    | 0.99                  | 13                                        | 33               | 39%          | 9.1               | 17                | 0.40   | 4.8  | 5.7                   | 9.8 E-4          | 4.5 E-1          | 1.0 E+0          | 1.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Radium-226      | 1                                   | 2                | 50%          | 0.80              | 0.80              | 0.77   | 0.77  | 0.033                 | 31                                        | 33               | 94%          | 0.57              | 2.8               | 0.99   | 1.1  | 0.51                  | 9.0 E-1          | 1.0 E+0          | 1.0 E+0          | 9.1 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Radium-228      | 2                                   | 2                | 100%         | 1.1               | 1.2               | 1.1    | 1.1   | 0.11                  | 28                                        | 33               | 85%          | 1.1               | 2.9               | 1.4    | 1.5  | 0.55                  | 9.9 E-1          | 1.0 E+0          | 1.0 E+0          | 9.2 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Thorium-228     | 2                                   | 2                | 100%         | 1.0               | 1.3               | 1.2    | 1.2   | 0.23                  | 33                                        | 33               | 100%         | 1.1               | 3.4               | 1.6    | 1.8  | 0.51                  | 9.5 E-1          | 1.0 E+0          | 1.0 E+0          | 9.7 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Thorium-230     | 2                                   | 2                | 100%         | 1.0               | 1.5               | 1.3    | 1.3   | 0.36                  | 27                                        | 33               | 82%          | 1.0               | 3.6               | 1.3    | 1.5  | 0.57                  | 6.4 E-1          | 1.0 E+0          | 1.0 E+0          | 5.6 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Thorium-232     | 2                                   | 2                | 100%         | 1.2               | 1.3               | 1.2    | 1.2   | 0.071                 | 33                                        | 33               | 100%         | 1.1               | 2.8               | 1.5    | 1.5  | 0.32                  | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.7 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Uranium-233/234 | 2                                   | 2                | 100%         | 0.27              | 0.50              | 0.38   | 0.38  | 0.16                  | 33                                        | 33               | 100%         | 0.70              | 4.8               | 1.2    | 1.5  | 0.81                  | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.9 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Uranium-235/236 | 0                                   | 2                | 0%           | NA                | NA                | 0.012  | 0.012 | 0.0054                | 11                                        | 33               | 33%          | 0.088             | 0.24              | 0.088  | 0.10 | 0.057                 | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.9 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Uranium-238     | 2                                   | 2                | 100%         | 0.24              | 0.37              | 0.31   | 0.31  | 0.093                 | 33                                        | 33               | 100%         | 0.55              | 4.0               | 0.94   | 1.2  | 0.67                  | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.9 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |

Note: Summary and background comparison statistics were performed using one-half the detection limit for metals and using GISdT® (Neptune and Company 2007).

**BOLD with Highlight indicates Site concentrations are greater than background.**

WRS = Wilcoxon Rank Sum Test with the Gehan Modification

mg/kg - milligrams per kilogram

pCi/g - picoCuries per gram

Table 2  
Summary of Background Metals Evaluation  
Deep River Dataset

| Chemical         | River Site at >= 20 ft bgs (Deep) |                  |              |                   |                   |        |        |                       | River Background at >= 20 ft bgs (Deep) |                  |              |                   |                   |        |        |                       | <i>t</i>         | Quantile         | Slippage         | WRS              | Greater         | Units | Basis                                          |
|------------------|-----------------------------------|------------------|--------------|-------------------|-------------------|--------|--------|-----------------------|-----------------------------------------|------------------|--------------|-------------------|-------------------|--------|--------|-----------------------|------------------|------------------|------------------|------------------|-----------------|-------|------------------------------------------------|
|                  | No. of<br>Detects                 | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean   | Standard<br>Deviation | No. of<br>Detects                       | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean   | Standard<br>Deviation | Test<br><i>p</i> | Test<br><i>p</i> | Test<br><i>p</i> | Test<br><i>p</i> | than<br>Bckrnd? |       |                                                |
| Aluminum         | 2                                 | 2                | 100%         | 5830              | 6280              | 6055   | 6055   | 318                   | 36                                      | 36               | 100%         | 5680              | 13400             | 8355   | 8613   | 1504                  | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.9 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Antimony         | 2                                 | 2                | 100%         | 0.19              | 0.21              | 0.20   | 0.20   | 0.014                 | 36                                      | 36               | 100%         | 0.14              | 0.37              | 0.21   | 0.22   | 0.052                 | 9.0 E-1          | 1.0 E+0          | 1.0 E+0          | 7.3 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Arsenic          | 2                                 | 2                | 100%         | 6.3               | 6.5               | 6.4    | 6.4    | 0.14                  | 36                                      | 36               | 100%         | 4.7               | 14                | 7.2    | 7.5    | 2.1                   | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 7.5 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Barium           | 2                                 | 2                | 100%         | 259               | 277               | 268    | 268    | 13                    | 36                                      | 36               | 100%         | 188               | 1350              | 329    | 399    | 215                   | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.0 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Beryllium        | 2                                 | 2                | 100%         | 0.31              | 0.31              | 0.31   | 0.31   | 0                     | 36                                      | 36               | 100%         | 0.34              | 0.72              | 0.46   | 0.47   | 0.073                 | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.9 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Boron            | 0                                 | 2                | 0%           | NA                | NA                | 10     | 10     | 0.035                 | 8                                       | 36               | 22%          | 5.0               | 24                | 1.4    | 3.0    | 4.1                   | 4.6 E-13         | 6.4 E-2          | 1.0 E+0          | 2.1 E-3          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Cadmium          | 2                                 | 2                | 100%         | 0.076             | 0.081             | 0.079  | 0.079  | 0.0035                | 26                                      | 36               | 72%          | 0.034             | 0.16              | 0.079  | 0.071  | 0.049                 | 1.9 E-1          | 1.0 E+0          | 1.0 E+0          | 5.0 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Calcium          | 2                                 | 2                | 100%         | 23800             | 40000             | 31900  | 31900  | 11460                 | 36                                      | 36               | 100%         | 4680              | 45600             | 21950  | 21740  | 8709                  | 2.1 E-1          | 4.6 E-1          | 1.0 E+0          | 7.5 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Chromium (VI)    | 0                                 | 2                | 0%           | NA                | NA                | 0.50   | 0.50   | 0                     | 16                                      | 41               | 39%          | 0.16              | 1.1               | 0.085  | 0.21   | 0.22                  | 9.5 E-11         | 1.0 E+0          | 1.0 E+0          | 1.1 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Chromium (Total) | 2                                 | 2                | 100%         | 7.7               | 7.8               | 7.8    | 7.8    | 0.071                 | 36                                      | 36               | 100%         | 7.2               | 24                | 10     | 11     | 3.1                   | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.9 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Cobalt           | 2                                 | 2                | 100%         | 3.7               | 4.4               | 4.1    | 4.1    | 0.50                  | 36                                      | 36               | 100%         | 3.5               | 5.7               | 4.6    | 4.6    | 0.58                  | 8.3 E-1          | 1.0 E+0          | 1.0 E+0          | 9.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Copper           | 2                                 | 2                | 100%         | 8.7               | 11                | 9.7    | 9.7    | 1.3                   | 36                                      | 36               | 100%         | 8.0               | 14                | 10     | 10     | 1.3                   | 6.9 E-1          | 1.0 E+0          | 1.0 E+0          | 7.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Iron             | 2                                 | 2                | 100%         | 8050              | 8480              | 8265   | 8265   | 304                   | 36                                      | 36               | 100%         | 7250              | 13100             | 10900  | 10540  | 1518                  | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.8 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Lead             | 2                                 | 2                | 100%         | 12                | 13                | 12     | 12     | 0.71                  | 36                                      | 36               | 100%         | 9.5               | 35                | 12     | 14     | 5.9                   | 9.5 E-1          | 1.0 E+0          | 1.0 E+0          | 4.1 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Lithium          | 2                                 | 2                | 100%         | 39                | 40                | 40     | 40     | 0.85                  | 36                                      | 36               | 100%         | 20                | 47                | 30     | 31     | 7.1                   | 3.2 E-6          | 6.4 E-2          | 1.0 E+0          | 5.1 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Magnesium        | 2                                 | 2                | 100%         | 5100              | 5920              | 5510   | 5510   | 580                   | 36                                      | 36               | 100%         | 5210              | 13900             | 7210   | 7629   | 1884                  | 9.8 E-1          | 1.0 E+0          | 1.0 E+0          | 9.8 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Manganese        | 2                                 | 2                | 100%         | 285               | 430               | 358    | 358    | 103                   | 36                                      | 36               | 100%         | 88                | 777               | 162    | 213    | 124                   | 1.4 E-1          | 6.4 E-2          | 1.0 E+0          | 3.9 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Mercury          | 0                                 | 2                | 0%           | NA                | NA                | 0.0033 | 0.0033 | 0                     | 5                                       | 28               | 18%          | 0.0070            | 0.010             | 0.0033 | 0.0042 | 0.0020                | NA               | 1.0 E+0          | 1.0 E+0          | 7.4 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Molybdenum       | 2                                 | 2                | 100%         | 0.37              | 0.65              | 0.51   | 0.51   | 0.20                  | 31                                      | 36               | 86%          | 0.26              | 0.72              | 0.39   | 0.38   | 0.17                  | 2.6 E-1          | 4.6 E-1          | 1.0 E+0          | 1.6 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Nickel           | 2                                 | 2                | 100%         | 10                | 12                | 11     | 11     | 1.1                   | 36                                      | 36               | 100%         | 9.2               | 18                | 13     | 13     | 2.1                   | 9.0 E-1          | 1.0 E+0          | 1.0 E+0          | 9.3 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Niobium          | 0                                 | 2                | 0%           | NA                | NA                | 0.76   | 0.76   | 0                     | 3                                       | 36               | 8%           | 2.5               | 3.0               | 0.76   | 0.92   | 0.55                  | 9.6 E-1          | 1.0 E+0          | 1.0 E+0          | 6.6 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Palladium        | 2                                 | 2                | 100%         | 0.36              | 0.41              | 0.39   | 0.39   | 0.035                 | 36                                      | 36               | 100%         | 0.24              | 1.1               | 0.60   | 0.58   | 0.22                  | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 8.7 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Phosphorus       | 2                                 | 2                | 100%         | 763               | 818               | 791    | 791    | 39                    | 36                                      | 36               | 100%         | 511               | 1320              | 820    | 829    | 152                   | 8.2 E-1          | 1.0 E+0          | 1.0 E+0          | 7.0 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Platinum         | 0                                 | 2                | 0%           | NA                | NA                | 0.010  | 0.010  | 0                     | 0                                       | 36               | 0%           | NA                | NA                | 0.010  | 0.010  | 0.00025               | 8.4 E-1          | 1.0 E+0          | NA               | 5.9 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Potassium        | 2                                 | 2                | 100%         | 1750              | 1940              | 1845   | 1845   | 134                   | 36                                      | 36               | 100%         | 2560              | 12600             | 3325   | 4368   | 2340                  | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.9 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Selenium         | 0                                 | 2                | 0%           | NA                | NA                | 0.16   | 0.16   | 0                     | 0                                       | 36               | 0%           | NA                | NA                | 0.16   | 0.16   | 0.0033                | 8.4 E-1          | 1.0 E+0          | NA               | 5.9 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Silicon          | 2                                 | 2                | 100%         | 771               | 852               | 812    | 812    | 57                    | 36                                      | 36               | 100%         | 224               | 1340              | 618    | 634    | 244                   | 1.9 E-2          | 4.2 E-1          | 1.0 E+0          | 8.5 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Silver           | 2                                 | 2                | 100%         | 0.091             | 0.14              | 0.12   | 0.12   | 0.035                 | 36                                      | 36               | 100%         | 0.046             | 1.4               | 0.12   | 0.19   | 0.23                  | 9.4 E-1          | 1.0 E+0          | 1.0 E+0          | 5.5 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Sodium           | 2                                 | 2                | 100%         | 794               | 924               | 859    | 859    | 92                    | 36                                      | 36               | 100%         | 600               | 2770              | 1250   | 1401   | 597                   | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Strontium        | 2                                 | 2                | 100%         | 255               | 256               | 256    | 256    | 0.71                  | 36                                      | 36               | 100%         | 146               | 559               | 252    | 270    | 95                    | 8.2 E-1          | 1.0 E+0          | 1.0 E+0          | 4.5 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Thallium         | 0                                 | 2                | 0%           | NA                | NA                | 0.10   | 0.10   | 0                     | 0                                       | 36               | 0%           | NA                | NA                | 0.10   | 0.10   | 0.0025                | 8.4 E-1          | 1.0 E+0          | NA               | 5.9 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Tin              | 0                                 | 2                | 0%           | NA                | NA                | 0.21   | 0.21   | 0.0035                | 16                                      | 36               | 44%          | 0.25              | 0.49              | 0.026  | 0.18   | 0.18                  | 1.6 E-1          | 1.0 E+0          | 1.0 E+0          | 2.5 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Titanium         | 2                                 | 2                | 100%         | 470               | 513               | 492    | 492    | 30                    | 36                                      | 36               | 100%         | 309               | 712               | 525    | 516    | 98                    | 7.7 E-1          | 1.0 E+0          | 1.0 E+0          | 6.6 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Tungsten         | 2                                 | 2                | 100%         | 0.41              | 0.48              | 0.45   | 0.45   | 0.050                 | 9                                       | 36               | 25%          | 0.26              | 0.60              | 0.10   | 0.17   | 0.15                  | 9.8 E-3          | 5.1 E-2          | 1.0 E+0          | 8.7 E-3          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Uranium          | 2                                 | 2                | 100%         | 1.2               | 1.6               | 1.4    | 1.4    | 0.28                  | 36                                      | 36               | 100%         | 0.64              | 2.2               | 1.2    | 1.2    | 0.34                  | 2.1 E-1          | 4.6 E-1          | 1.0 E+0          | 1.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Vanadium         | 2                                 | 2                | 100%         | 27                | 28                | 27     | 27     | 0.50                  | 36                                      | 36               | 100%         | 25                | 41                | 31     | 32     | 4.4                   | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.4 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |

Table 2  
Summary of Background Metals Evaluation  
Deep River Dataset

| Chemical        | River Site at >= 20 ft bgs (Deep) |                  |              |                   |                   |        |       |                       | River Background at >= 20 ft bgs (Deep) |                  |              |                   |                   |        |       |                       | <i>t</i>         | Quantile         | Slippage         | WRS              | Greater         | Units | Basis                                          |
|-----------------|-----------------------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|-----------------------------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|------------------|------------------|------------------|------------------|-----------------|-------|------------------------------------------------|
|                 | No. of<br>Detects                 | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation | No. of<br>Detects                       | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation | Test<br><i>p</i> | Test<br><i>p</i> | Test<br><i>p</i> | Test<br><i>p</i> | than<br>Bckrnd? |       |                                                |
| Zinc            | 2                                 | 2                | 100%         | 32                | 44                | 38     | 38    | 7.9                   | 36                                      | 36               | 100%         | 26                | 68                | 38     | 40    | 9.3                   | 5.9 E-1          | 4.6 E-1          | 1.0 E+0          | 5.3 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Zirconium       | 2                                 | 2                | 100%         | 12                | 13                | 13     | 13    | 1.1                   | 29                                      | 36               | 81%          | 10                | 21                | 15     | 13    | 6.6                   | 5.4 E-1          | 1.0 E+0          | 1.0 E+0          | 8.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Radium-226      | 2                                 | 2                | 100%         | 0.91              | 1.3               | 1.1    | 1.1   | 0.26                  | 28                                      | 28               | 100%         | 0.49              | 1.4               | 0.98   | 0.97  | 0.23                  | 3.1 E-1          | 4.7 E-1          | 1.0 E+0          | 2.5 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Radium-228      | 2                                 | 2                | 100%         | 1.2               | 1.4               | 1.3    | 1.3   | 0.11                  | 28                                      | 28               | 100%         | 0.88              | 1.8               | 1.4    | 1.3   | 0.24                  | 5.3 E-1          | 1.0 E+0          | 1.0 E+0          | 6.0 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Thorium-228     | 2                                 | 2                | 100%         | 1.3               | 1.5               | 1.4    | 1.4   | 0.20                  | 33                                      | 33               | 100%         | 0.94              | 1.7               | 1.4    | 1.4   | 0.17                  | 4.5 E-1          | 4.5 E-1          | 1.0 E+0          | 4.4 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Thorium-230     | 2                                 | 2                | 100%         | 1.5               | 2.2               | 1.8    | 1.8   | 0.48                  | 33                                      | 33               | 100%         | 0.55              | 1.9               | 1.0    | 1.0   | 0.30                  | 1.3 E-1          | 6.1 E-2          | 5.7 E-2          | 1.6 E-2          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Thorium-232     | 2                                 | 2                | 100%         | 1.1               | 1.3               | 1.2    | 1.2   | 0.13                  | 33                                      | 33               | 100%         | 0.90              | 1.7               | 1.4    | 1.3   | 0.20                  | 8.5 E-1          | 1.0 E+0          | 1.0 E+0          | 8.9 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Uranium-233/234 | 2                                 | 2                | 100%         | 0.46              | 0.72              | 0.59   | 0.59  | 0.18                  | 31                                      | 34               | 91%          | 0.64              | 2.1               | 1.0    | 1.1   | 0.30                  | 9.4 E-1          | 1.0 E+0          | 1.0 E+0          | 9.9 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Uranium-235/236 | 0                                 | 2                | 0%           | NA                | NA                | 0.012  | 0.012 | 0.0013                | 19                                      | 34               | 56%          | 0.035             | 0.096             | 0.038  | 0.037 | 0.022                 | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.6 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |
| Uranium-238     | 2                                 | 2                | 100%         | 0.33              | 0.57              | 0.45   | 0.45  | 0.17                  | 30                                      | 34               | 88%          | 0.57              | 2.2               | 1.0    | 1.1   | 0.30                  | 9.6 E-1          | 1.0 E+0          | 1.0 E+0          | 9.9 E-1          | NA              | pCi/g | Insufficient data for statistical comparisons. |

Note: Summary and background comparison statistics were performed using one-half the detection limit for metals and using GISdT® (Neptune and Company 2007).

**BOLD with Highlight indicates Site concentrations are greater than background.**

WRS = Wilcoxon Rank Sum Test with the Gehan Modification

mg/kg - milligrams per kilogram

pCi/g - picoCuries per gram

Table 2  
Summary of Background Metals Evaluation  
Shallow Mixed Dataset

| Chemical         | Mixed Site at 0-20 ft bgs (Shallow) |                  |              |                   |                   |        |        |                       | Mixed Background at 0-20 ft bgs (Shallow) |                  |              |                   |                   |        |        |                       | <i>t</i>         | Quantile         | Slippage         | WRS              | Greater         | Units | Basis                                          |
|------------------|-------------------------------------|------------------|--------------|-------------------|-------------------|--------|--------|-----------------------|-------------------------------------------|------------------|--------------|-------------------|-------------------|--------|--------|-----------------------|------------------|------------------|------------------|------------------|-----------------|-------|------------------------------------------------|
|                  | No. of<br>Detects                   | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean   | Standard<br>Deviation | No. of<br>Detects                         | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean   | Standard<br>Deviation | Test<br><i>p</i> | Test<br><i>p</i> | Test<br><i>p</i> | Test<br><i>p</i> | than<br>Bckrnd? |       |                                                |
| Aluminum         | 2                                   | 2                | 100%         | 6410              | 8190              | 7300   | 7300   | 1259                  | 11                                        | 11               | 100%         | 4840              | 10900             | 6180   | 6698   | 2069                  | 3.2 E-1          | 4.2 E-1          | 1.0 E+0          | 8.4 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Antimony         | 2                                   | 2                | 100%         | 0.17              | 0.20              | 0.19   | 0.19   | 0.021                 | 6                                         | 11               | 55%          | 0.13              | 0.44              | 0.16   | 0.17   | 0.11                  | 3.8 E-1          | 1.0 E+0          | 1.0 E+0          | 6.9 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Arsenic          | 2                                   | 2                | 100%         | 3.5               | 4.6               | 4.1    | 4.1    | 0.78                  | 11                                        | 11               | 100%         | 2.9               | 5.9               | 5.3    | 4.9    | 1.0                   | 8.3 E-1          | 1.0 E+0          | 1.0 E+0          | 8.8 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Barium           | 2                                   | 2                | 100%         | 447               | 520               | 484    | 484    | 52                    | 11                                        | 11               | 100%         | 211               | 836               | 424    | 468    | 190                   | 4.1 E-1          | 1.0 E+0          | 1.0 E+0          | 2.8 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Beryllium        | 2                                   | 2                | 100%         | 0.48              | 0.57              | 0.53   | 0.53   | 0.064                 | 11                                        | 11               | 100%         | 0.38              | 0.62              | 0.52   | 0.50   | 0.081                 | 3.6 E-1          | 4.2 E-1          | 1.0 E+0          | 3.1 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Boron            | 0                                   | 2                | 0%           | NA                | NA                | 21     | 21     | 0                     | 0                                         | 9                | 0%           | NA                | NA                | 3.2    | 3.2    | 0                     | NA               | NA               | NA               | NA               | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Cadmium          | 2                                   | 2                | 100%         | 0.090             | 0.11              | 0.10   | 0.10   | 0.014                 | 2                                         | 11               | 18%          | 0.11              | 0.14              | 0.065  | 0.076  | 0.025                 | 8.4 E-2          | 1.0 E+0          | 1.0 E+0          | 9.9 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Calcium          | 2                                   | 2                | 100%         | 24700             | 27000             | 25850  | 25850  | 1626                  | 9                                         | 9                | 100%         | 8160              | 36400             | 16100  | 18640  | 10070                 | 3.6 E-2          | 4.9 E-1          | 1.0 E+0          | 1.7 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Chromium (VI)    | 0                                   | 2                | 0%           | NA                | NA                | 0.50   | 0.50   | 0                     | 0                                         | 9                | 0%           | NA                | NA                | 0.13   | 0.13   | 0.0025                | 3.6 E-19         | 1.0 E+0          | NA               | 9.5 E-3          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Chromium (Total) | 2                                   | 2                | 100%         | 8.0               | 11                | 9.7    | 9.7    | 2.4                   | 11                                        | 11               | 100%         | 5.0               | 12                | 8.8    | 8.9    | 1.9                   | 3.5 E-1          | 4.2 E-1          | 1.0 E+0          | 2.8 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Cobalt           | 2                                   | 2                | 100%         | 5.5               | 6.9               | 6.2    | 6.2    | 0.99                  | 11                                        | 11               | 100%         | 5.1               | 12                | 6.1    | 6.9    | 2.3                   | 7.4 E-1          | 1.0 E+0          | 1.0 E+0          | 4.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Copper           | 2                                   | 2                | 100%         | 13                | 14                | 13     | 13     | 0.64                  | 11                                        | 11               | 100%         | 11                | 31                | 18     | 19     | 5.6                   | 9.9 E-1          | 1.0 E+0          | 1.0 E+0          | 9.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Iron             | 2                                   | 2                | 100%         | 10900             | 13900             | 12400  | 12400  | 2121                  | 11                                        | 11               | 100%         | 9180              | 14000             | 11200  | 11700  | 1710                  | 3.6 E-1          | 4.2 E-1          | 1.0 E+0          | 3.5 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Lead             | 2                                   | 2                | 100%         | 12                | 12                | 12     | 12     | 0.071                 | 11                                        | 11               | 100%         | 8.9               | 21                | 9.9    | 13     | 4.7                   | 6.9 E-1          | 1.0 E+0          | 1.0 E+0          | 2.8 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Lithium          | 2                                   | 2                | 100%         | 12                | 18                | 15     | 15     | 4.3                   | 9                                         | 9                | 100%         | 9.1               | 15                | 12     | 12     | 1.9                   | 2.5 E-1          | 4.9 E-1          | 1.8 E-1          | 1.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Magnesium        | 2                                   | 2                | 100%         | 6660              | 7370              | 7015   | 7015   | 502                   | 11                                        | 11               | 100%         | 4580              | 9090              | 5450   | 6059   | 1348                  | 7.1 E-2          | 4.2 E-1          | 1.0 E+0          | 1.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Manganese        | 2                                   | 2                | 100%         | 342               | 661               | 502    | 502    | 226                   | 11                                        | 11               | 100%         | 345               | 1090              | 469    | 507    | 200                   | 5.1 E-1          | 4.2 E-1          | 1.0 E+0          | 5.8 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Mercury          | 1                                   | 2                | 50%          | 0.0084            | 0.0084            | 0.0059 | 0.0059 | 0.0036                | 6                                         | 11               | 55%          | 0.0097            | 0.019             | 0.0097 | 0.010  | 0.0068                | NA               | 1.0 E+0          | 1.0 E+0          | 8.9 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Molybdenum       | 2                                   | 2                | 100%         | 0.38              | 0.59              | 0.49   | 0.49   | 0.15                  | 11                                        | 11               | 100%         | 0.22              | 1.3               | 0.90   | 0.86   | 0.35                  | 9.6 E-1          | 1.0 E+0          | 1.0 E+0          | 9.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Nickel           | 2                                   | 2                | 100%         | 13                | 14                | 13     | 13     | 0.35                  | 11                                        | 11               | 100%         | 8.9               | 14                | 11     | 11     | 1.3                   | 1.3 E-3          | 3.8 E-2          | 1.0 E+0          | 3.8 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Niobium          | 0                                   | 2                | 0%           | NA                | NA                | 1.5    | 1.5    | 0                     | 0                                         | 9                | 0%           | NA                | NA                | 1      | 1      | 0                     | NA               | NA               | NA               | NA               | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Palladium        | 2                                   | 2                | 100%         | 0.24              | 0.39              | 0.32   | 0.32   | 0.11                  | 9                                         | 9                | 100%         | 0.14              | 0.48              | 0.22   | 0.27   | 0.11                  | 3.2 E-1          | 4.9 E-1          | 1.0 E+0          | 1.7 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Phosphorus       | 2                                   | 2                | 100%         | 845               | 1060              | 953    | 953    | 152                   | 9                                         | 9                | 100%         | 636               | 984               | 804    | 798    | 105                   | 1.9 E-1          | 4.9 E-1          | 1.8 E-1          | 4.9 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Platinum         | 0                                   | 2                | 0%           | NA                | NA                | 0.02   | 0.02   | 0                     | 0                                         | 9                | 0%           | NA                | NA                | 0.043  | 0.043  | 0                     | NA               | NA               | NA               | NA               | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Potassium        | 2                                   | 2                | 100%         | 1230              | 1470              | 1350   | 1350   | 170                   | 9                                         | 9                | 100%         | 1240              | 1840              | 1380   | 1473   | 241                   | 7.6 E-1          | 1.0 E+0          | 1.0 E+0          | 8.3 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Selenium         | 0                                   | 2                | 0%           | NA                | NA                | 0.16   | 0.16   | 0                     | 8                                         | 11               | 73%          | 0.17              | 0.59              | 0.26   | 0.26   | 0.17                  | 9.6 E-1          | 1.0 E+0          | 1.0 E+0          | 2.8 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Silicon          | 2                                   | 2                | 100%         | 825               | 970               | 898    | 898    | 103                   | 9                                         | 9                | 100%         | 527               | 883               | 690    | 708    | 114                   | 8.8 E-2          | 5.5 E-2          | 1.8 E-1          | 2.9 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Silver           | 2                                   | 2                | 100%         | 0.076             | 0.086             | 0.081  | 0.081  | 0.0071                | 2                                         | 11               | 18%          | 0.048             | 0.056             | 0.13   | 0.12   | 0.032                 | 1.0 E+0          | 1.0 E+0          | 1.7 E-1          | 9.5 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Sodium           | 2                                   | 2                | 100%         | 386               | 539               | 463    | 463    | 108                   | 9                                         | 9                | 100%         | 111               | 901               | 265    | 352    | 280                   | 2.0 E-1          | 4.9 E-1          | 1.0 E+0          | 1.7 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Strontium        | 2                                   | 2                | 100%         | 159               | 258               | 209    | 209    | 70                    | 9                                         | 9                | 100%         | 69                | 219               | 92     | 122    | 56                    | 1.5 E-1          | 4.9 E-1          | 1.8 E-1          | 7.9 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Thallium         | 0                                   | 2                | 0%           | NA                | NA                | 0.10   | 0.10   | 0                     | 7                                         | 11               | 64%          | 0.12              | 1.4               | 0.27   | 0.66   | 0.51                  | 1.0 E+0          | 1.0 E+0          | 1.0 E+0          | 9.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Tin              | 0                                   | 2                | 0%           | NA                | NA                | 0.21   | 0.21   | 0                     | 8                                         | 9                | 89%          | 0.20              | 0.34              | 0.22   | 0.24   | 0.075                 | 8.8 E-1          | 1.0 E+0          | 1.0 E+0          | 1.7 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Titanium         | 2                                   | 2                | 100%         | 473               | 479               | 476    | 476    | 4.2                   | 11                                        | 11               | 100%         | 200               | 398               | 244    | 272    | 70                    | 9.6 E-7          | 3.8 E-2          | 1.3 E-2          | 1.5 E-2          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Tungsten         | 1                                   | 2                | 50%          | 0.22              | 0.22              | 0.16   | 0.16   | 0.085                 | 0                                         | 9                | 0%           | NA                | NA                | 0.0088 | 0.0088 | 0                     | 1.2 E-1          | 1.8 E-1          | NA               | 8.3 E-4          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Uranium          | 2                                   | 2                | 100%         | 0.79              | 0.79              | 0.79   | 0.79   | 0                     | 9                                         | 9                | 100%         | 0.43              | 0.84              | 0.71   | 0.68   | 0.14                  | 2.0 E-2          | 1.0 E+0          | 1.0 E+0          | 1.2 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |
| Vanadium         | 2                                   | 2                | 100%         | 23                | 35                | 29     | 29     | 8.8                   | 11                                        | 11               | 100%         | 19                | 26                | 23     | 23     | 1.9                   | 2.6 E-1          | 4.2 E-1          | 1.5 E-1          | 2.1 E-1          | NA              | mg/kg | Insufficient data for statistical comparisons. |

Table 2  
Summary of Background Metals Evaluation  
Shallow Mixed Dataset

| Chemical        | Mixed Site at 0-20 ft bgs (Shallow) |                  |              |                   |                   |        |        |                       | Mixed Background at 0-20 ft bgs (Shallow) |                  |              |                   |                   |        |       |                       | <i>t</i><br>Test<br><i>p</i> | Quantile<br>Test<br><i>p</i> | Slippage<br>Test<br><i>p</i> | WRS<br>Test<br><i>p</i> | Greater<br>than<br>Bckrnd? | Units | Basis |
|-----------------|-------------------------------------|------------------|--------------|-------------------|-------------------|--------|--------|-----------------------|-------------------------------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|------------------------------|------------------------------|------------------------------|-------------------------|----------------------------|-------|-------|
|                 | No. of<br>Detects                   | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean   | Standard<br>Deviation | No. of<br>Detects                         | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation |                              |                              |                              |                         |                            |       |       |
| Zinc            | 2                                   | 2                | 100%         | 25                | 31                | 28     | 28     | 4.3                   | 11                                        | 11               | 100%         | 21                | 52                | 25     | 31    | 11                    |                              |                              |                              |                         |                            |       |       |
| Zirconium       | 2                                   | 2                | 100%         | 11                | 11                | 11     | 11     | 0.071                 | 9                                         | 9                | 100%         | 60                | 93                | 69     | 75    | 13                    |                              |                              |                              |                         |                            |       |       |
| Radium-226      | 2                                   | 2                | 100%         | 0.80              | 1.1               | 0.95   | 0.95   | 0.22                  | 5                                         | 9                | 56%          | 0.58              | 0.93              | 0.76   | 0.74  | 0.13                  |                              |                              |                              |                         |                            |       |       |
| Radium-228      | 2                                   | 2                | 100%         | 1.4               | 1.9               | 1.6    | 1.6    | 0.32                  | 3                                         | 3                | 100%         | 2.1               | 2.9               | 2.4    | 2.5   | 0.41                  |                              |                              |                              |                         |                            |       |       |
| Thorium-228     | 2                                   | 2                | 100%         | 1.3               | 1.6               | 1.4    | 1.4    | 0.20                  | 11                                        | 11               | 100%         | 1.2               | 1.9               | 1.4    | 1.5   | 0.22                  |                              |                              |                              |                         |                            |       |       |
| Thorium-230     | 2                                   | 2                | 100%         | 1.0               | 1.4               | 1.2    | 1.2    | 0.27                  | 11                                        | 11               | 100%         | 0.66              | 1.4               | 0.84   | 0.91  | 0.20                  |                              |                              |                              |                         |                            |       |       |
| Thorium-232     | 2                                   | 2                | 100%         | 1.1               | 1.5               | 1.3    | 1.3    | 0.27                  | 11                                        | 11               | 100%         | 1.1               | 1.9               | 1.4    | 1.4   | 0.23                  |                              |                              |                              |                         |                            |       |       |
| Uranium-233/234 | 2                                   | 2                | 100%         | 0.22              | 0.23              | 0.23   | 0.23   | 0.0092                | 2                                         | 11               | 18%          | 0.76              | 0.79              | 0.76   | 0.74  | 0.13                  |                              |                              |                              |                         |                            |       |       |
| Uranium-235/236 | 0                                   | 2                | 0%           | NA                | NA                | 0.0015 | 0.0015 | 0.00046               | 5                                         | 11               | 45%          | 0.054             | 0.13              | 0.053  | 0.059 | 0.031                 |                              |                              |                              |                         |                            |       |       |
| Uranium-238     | 2                                   | 2                | 100%         | 0.17              | 0.22              | 0.20   | 0.20   | 0.034                 | 11                                        | 11               | 100%         | 0.57              | 0.94              | 0.66   | 0.72  | 0.13                  |                              |                              |                              |                         |                            |       |       |

Note: Summary and background comparison statistics were performed using one-half the detection limit for metals and using GISdT® (Neptune and Company 2007).

**BOLD with Highlight indicates Site concentrations are greater than background.**

WRS = Wilcoxon Rank Sum Test with the Gehan Modification

mg/kg - milligrams per kilogram

pCi/g - picoCuries per gram

Table 2  
Summary of Background Metals Evaluation  
Deep Mixed Dataset

| Chemical         | Mixed Site at >= 20 ft bgs (Deep) |               |           |                |                |        |        |                    | Mixed Background at >= 20 ft bgs (Deep) |               |           |                |                |        |        |                    | <i>t</i>      | Quantile      | Slippage      | WRS           | Greater      | Units | Basis                                                         |
|------------------|-----------------------------------|---------------|-----------|----------------|----------------|--------|--------|--------------------|-----------------------------------------|---------------|-----------|----------------|----------------|--------|--------|--------------------|---------------|---------------|---------------|---------------|--------------|-------|---------------------------------------------------------------|
|                  | No. of Detects                    | Total Samples | % Detects | Minimum Detect | Maximum Detect | Median | Mean   | Standard Deviation | No. of Detects                          | Total Samples | % Detects | Minimum Detect | Maximum Detect | Median | Mean   | Standard Deviation | Test <i>p</i> | Test <i>p</i> | Test <i>p</i> | Test <i>p</i> | than Bckrnd? |       |                                                               |
| Aluminum         | 4                                 | 4             | 100%      | 7600           | 13400          | 9540   | 10020  | 2474               | 24                                      | 24            | 100%      | 7060           | 12300          | 9375   | 9514   | 1391               | 3.6 E-1       | 7.1 E-1       | 1.4 E-1       | 4.7 E-1       | NO           | mg/kg | Multiple tests                                                |
| Antimony         | 4                                 | 4             | 100%      | 0.17           | 0.20           | 0.19   | 0.19   | 0.013              | 23                                      | 24            | 96%       | 0.12           | 0.26           | 0.16   | 0.17   | 0.043              | 3.5 E-2       | 1.0 E+0       | 1.0 E+0       | 1.0 E-1       | NO           | mg/kg | Multiple tests                                                |
| Arsenic          | 4                                 | 4             | 100%      | 4.7            | 6.0            | 5.2    | 5.3    | 0.56               | 24                                      | 24            | 100%      | 4.4            | 10             | 7.0    | 7.1    | 1.4                | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 9.9 E-1       | NO           | mg/kg | Multiple tests                                                |
| Barium           | 4                                 | 4             | 100%      | 560            | 869            | 663    | 689    | 130                | 24                                      | 24            | 100%      | 262            | 743            | 488    | 500    | 127                | 2.7 E-2       | 2.5 E-1       | 1.4 E-1       | 1.1 E-2       | NO           | mg/kg | Multiple tests                                                |
| Beryllium        | 4                                 | 4             | 100%      | 0.44           | 0.65           | 0.50   | 0.52   | 0.090              | 24                                      | 24            | 100%      | 0.44           | 0.73           | 0.56   | 0.56   | 0.070              | 7.5 E-1       | 7.1 E-1       | 1.0 E+0       | 8.0 E-1       | NO           | mg/kg | Multiple tests                                                |
| Boron            | 0                                 | 4             | 0%        | NA             | NA             | 10     | 10     | 0.025              | 3                                       | 24            | 13%       | 4.0            | 5.0            | 1.4    | 1.8    | 1.1                | 3.3 E-23      | 1.7 E-3       | 1.0 E+0       | 1.7 E-5       | NO           | mg/kg | ND at Site.                                                   |
| Cadmium          | 4                                 | 4             | 100%      | 0.065          | 0.080          | 0.077  | 0.075  | 0.0067             | 22                                      | 24            | 92%       | 0.051          | 0.13           | 0.097  | 0.087  | 0.032              | 9.5 E-1       | 1.0 E+0       | 1.0 E+0       | 9.6 E-1       | NO           | mg/kg | Multiple tests                                                |
| Calcium          | 4                                 | 4             | 100%      | 13100          | 23600          | 22400  | 20380  | 4916               | 24                                      | 24            | 100%      | 0.43           | 40500          | 23100  | 22760  | 9662               | 7.6 E-1       | 1.0 E+0       | 1.0 E+0       | 7.2 E-1       | NO           | mg/kg | Multiple tests                                                |
| Chromium (VI)    | 0                                 | 4             | 0%        | NA             | NA             | 0.50   | 0.50   | 0                  | 2                                       | 14            | 14%       | 0.18           | 0.34           | 0.088  | 0.11   | 0.070              | 1.2 E-11      | 1.0 E+0       | 1.0 E+0       | 9.2 E-4       | NO           | mg/kg | ND at Site.                                                   |
| Chromium (Total) | 4                                 | 4             | 100%      | 7.5            | 15             | 8.0    | 9.6    | 3.5                | 24                                      | 24            | 100%      | 1.1            | 18             | 15     | 14     | 3.5                | 9.6 E-1       | 1.0 E+0       | 1.0 E+0       | 9.9 E-1       | NO           | mg/kg | Multiple tests                                                |
| Cobalt           | 4                                 | 4             | 100%      | 3.9            | 5.0            | 4.2    | 4.3    | 0.48               | 24                                      | 24            | 100%      | 4.7            | 13             | 7.5    | 7.5    | 1.5                | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | NO           | mg/kg | Multiple tests                                                |
| Copper           | 4                                 | 4             | 100%      | 9.0            | 13             | 11     | 11     | 1.7                | 24                                      | 24            | 100%      | 9.9            | 19             | 15     | 15     | 2.1                | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | NO           | mg/kg | Multiple tests                                                |
| Iron             | 4                                 | 4             | 100%      | 9600           | 10900          | 10140  | 10190  | 577                | 24                                      | 24            | 100%      | 11900          | 17200          | 15400  | 15120  | 1528               | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | NO           | mg/kg | Multiple tests                                                |
| Lead             | 4                                 | 4             | 100%      | 9.7            | 14             | 12     | 12     | 1.7                | 24                                      | 24            | 100%      | 7.4            | 21             | 11     | 12     | 2.9                | 5.1 E-1       | 7.1 E-1       | 1.0 E+0       | 3.1 E-1       | NO           | mg/kg | Multiple tests                                                |
| Lithium          | 4                                 | 4             | 100%      | 14             | 17             | 15     | 15     | 1.463              | 24                                      | 24            | 100%      | 13             | 33             | 21     | 21     | 4.1                | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | NO           | mg/kg | Multiple tests                                                |
| Magnesium        | 4                                 | 4             | 100%      | 5230           | 6390           | 5725   | 5768   | 477                | 24                                      | 24            | 100%      | 5920           | 12800          | 9435   | 9386   | 1697               | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | NO           | mg/kg | Multiple tests                                                |
| Manganese        | 4                                 | 4             | 100%      | 263            | 413            | 302    | 320    | 69                 | 24                                      | 24            | 100%      | 158            | 836            | 328    | 368    | 189                | 8.2 E-1       | 7.1 E-1       | 1.0 E+0       | 5.3 E-1       | NO           | mg/kg | Multiple tests                                                |
| Mercury          | 1                                 | 4             | 25%       | 0.0078         | 0.0078         | 0.0033 | 0.0045 | 0.0022             | 10                                      | 24            | 42%       | 0.0076         | 0.025          | 0.0033 | 0.0068 | 0.0054             | NA            | 1.0 E+0       | 1.0 E+0       | 8.1 E-1       | NO           | mg/kg | Low detection frequency; site and background datasets similar |
| Molybdenum       | 4                                 | 4             | 100%      | 0.31           | 0.59           | 0.45   | 0.45   | 0.12               | 24                                      | 24            | 100%      | 0.28           | 1.8            | 0.56   | 0.61   | 0.30               | 9.6 E-1       | 1.0 E+0       | 1.0 E+0       | 9.1 E-1       | NO           | mg/kg | Multiple tests                                                |
| Nickel           | 4                                 | 4             | 100%      | 9.1            | 10             | 9.3    | 9.5    | 0.61               | 24                                      | 24            | 100%      | 9.7            | 17             | 15     | 15     | 1.9                | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | NO           | mg/kg | Multiple tests                                                |
| Niobium          | 0                                 | 4             | 0%        | NA             | NA             | 0.76   | 0.76   | 0                  | 3                                       | 24            | 13%       | 2.8            | 3.6            | 0.76   | 1.0    | 0.80               | 9.6 E-1       | 1.0 E+0       | 1.0 E+0       | 7.7 E-1       | NO           | mg/kg | Multiple tests                                                |
| Palladium        | 4                                 | 4             | 100%      | 0.33           | 0.81           | 0.57   | 0.57   | 0.20               | 24                                      | 24            | 100%      | 0.41           | 1.1            | 0.71   | 0.69   | 0.20               | 8.4 E-1       | 1.0 E+0       | 1.0 E+0       | 8.0 E-1       | NO           | mg/kg | Multiple tests                                                |
| Phosphorus       | 4                                 | 4             | 100%      | 598            | 828            | 622    | 668    | 109                | 24                                      | 24            | 100%      | 594            | 1200           | 920    | 930    | 124                | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | NO           | mg/kg | Multiple tests                                                |
| Platinum         | 0                                 | 4             | 0%        | NA             | NA             | 0.02   | 0.02   | 0                  | 0                                       | 24            | 0%        | NA             | NA             | 0.02   | 0.02   | 0                  | NA            | NA            | NA            | NA            | NO           | mg/kg | ND in both datasets                                           |
| Potassium        | 4                                 | 4             | 100%      | 2100           | 3000           | 2430   | 2490   | 426                | 24                                      | 24            | 100%      | 1220           | 3440           | 1960   | 2038   | 550                | 6.1 E-2       | 2.5 E-1       | 1.0 E+0       | 3.8 E-2       | NO           | mg/kg | Multiple tests                                                |
| Selenium         | 0                                 | 4             | 0%        | NA             | NA             | 0.32   | 0.32   | 0                  | 0                                       | 24            | 0%        | NA             | NA             | 0.32   | 0.32   | 0                  | NA            | NA            | NA            | NA            | NO           | mg/kg | ND in both datasets                                           |
| Silicon          | 4                                 | 4             | 100%      | 974            | 1120           | 1052   | 1050   | 82                 | 24                                      | 24            | 100%      | 109            | 516            | 193    | 213    | 85                 | 1.7 E-5       | 1.7 E-3       | 4.9 E-5       | 8.1 E-4       | YES          | mg/kg | Multiple tests                                                |
| Silver           | 4                                 | 4             | 100%      | 0.056          | 0.12           | 0.089  | 0.089  | 0.026              | 24                                      | 24            | 100%      | 0.077          | 0.35           | 0.11   | 0.14   | 0.070              | 9.8 E-1       | 1.0 E+0       | 1.0 E+0       | 9.5 E-1       | NO           | mg/kg | Multiple tests                                                |
| Sodium           | 4                                 | 4             | 100%      | 677            | 1650           | 1190   | 1176   | 430                | 24                                      | 24            | 100%      | 235            | 537            | 319    | 337    | 78                 | 1.5 E-2       | 1.7 E-3       | 4.9 E-5       | 8.1 E-4       | YES          | mg/kg | Multiple tests                                                |
| Strontium        | 4                                 | 4             | 100%      | 231            | 564            | 392    | 395    | 139                | 24                                      | 24            | 100%      | 153            | 362            | 219    | 230    | 53                 | 4.8 E-2       | 3.8 E-2       | 1.6 E-2       | 9.1 E-3       | YES          | mg/kg | t-Test and Quantile.                                          |
| Thallium         | 0                                 | 4             | 0%        | NA             | NA             | 0.2    | 0.2    | 0                  | 0                                       | 24            | 0%        | NA             | NA             | 0.2    | 0.2    | 0                  | NA            | NA            | NA            | NA            | NO           | mg/kg | ND in both datasets                                           |
| Tin              | 0                                 | 4             | 0%        | NA             | NA             | 0.21   | 0.21   | 0                  | 15                                      | 24            | 63%       | 0.43           | 0.60           | 0.45   | 0.32   | 0.24               | 9.9 E-1       | 1.0 E+0       | 1.0 E+0       | 7.9 E-1       | NO           | mg/kg | ND at Site.                                                   |
| Titanium         | 4                                 | 4             | 100%      | 441            | 468            | 445    | 450    | 12                 | 24                                      | 24            | 100%      | 323            | 638            | 500    | 495    | 71                 | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 9.7 E-1       | NO           | mg/kg | Multiple tests                                                |
| Tungsten         | 0                                 | 4             | 0%        | NA             | NA             | 0.10   | 0.10   | 0                  | 15                                      | 24            | 63%       | 0.24           | 0.76           | 0.26   | 0.28   | 0.19               | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 9.8 E-1       | NO           | mg/kg | ND at Site.                                                   |
| Uranium          | 4                                 | 4             | 100%      | 0.86           | 0.98           | 0.92   | 0.92   | 0.057              | 24                                      | 24            | 100%      | 0.75           | 1.6            | 1.1    | 1.1    | 0.18               | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 9.9 E-1       | NO           | mg/kg | Multiple tests                                                |
| Vanadium         | 4                                 | 4             | 100%      | 22             | 27             | 22     | 23     | 2.7                | 24                                      | 24            | 100%      | 29             | 45             | 39     | 39     | 4.2                | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | 1.0 E+0       | NO           | mg/kg | Multiple tests                                                |

Table 2  
Summary of Background Metals Evaluation  
Deep Mixed Dataset

| Chemical        | Mixed Site at >= 20 ft bgs (Deep) |                  |              |                   |                   |        |        |                       | Mixed Background at >= 20 ft bgs (Deep) |                  |              |                   |                   |        |       |                       | <i>t</i><br>Test<br><i>p</i> | Quantile<br>Test<br><i>p</i> | Slippage<br>Test<br><i>p</i> | WRS<br>Test<br><i>p</i> | Greater<br>than<br>Bckrnd? | Units | Basis                                                            |
|-----------------|-----------------------------------|------------------|--------------|-------------------|-------------------|--------|--------|-----------------------|-----------------------------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|------------------------------|------------------------------|------------------------------|-------------------------|----------------------------|-------|------------------------------------------------------------------|
|                 | No. of<br>Detects                 | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean   | Standard<br>Deviation | No. of<br>Detects                       | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation |                              |                              |                              |                         |                            |       |                                                                  |
| Zinc            | 4                                 | 4                | 100%         | 26                | 28                | 27     | 27     | 1.0                   | 24                                      | 24               | 100%         | 27                | 46                | 33     | 33    | 4.4                   | 1.0 E+0                      | 1.0 E+0                      | 1.0 E+0                      | 1.0 E+0                 | NO                         | mg/kg | Multiple tests                                                   |
| Zirconium       | 4                                 | 4                | 100%         | 10                | 11                | 11     | 11     | 0.38                  | 15                                      | 24               | 63%          | 7.7               | 18                | 12     | 9.0   | 7.3                   | 1.1 E-1                      | 1.0 E+0                      | 1.0 E+0                      | 5.8 E-1                 | NO                         | mg/kg | Multiple tests                                                   |
| Radium-226      | 4                                 | 4                | 100%         | 0.70              | 1.3               | 0.75   | 0.87   | 0.28                  | 14                                      | 14               | 100%         | 0.39              | 1.3               | 0.98   | 1.0   | 0.25                  | 8.0 E-1                      | 7.7 E-1                      | 1.0 E+0                      | 9.3 E-1                 | NO                         | pCi/g | Multiple tests                                                   |
| Radium-228      | 4                                 | 4                | 100%         | 1.3               | 1.5               | 1.4    | 1.4    | 0.11                  | 13                                      | 14               | 93%          | 1.1               | 1.8               | 1.3    | 1.3   | 0.32                  | 2.1 E-1                      | 7.7 E-1                      | 1.0 E+0                      | 2.4 E-1                 | NO                         | pCi/g | Multiple tests                                                   |
| Thorium-228     | 4                                 | 4                | 100%         | 1.2               | 1.6               | 1.3    | 1.3    | 0.22                  | 23                                      | 23               | 100%         | 1.1               | 1.9               | 1.6    | 1.6   | 0.20                  | 9.5 E-1                      | 1.0 E+0                      | 1.0 E+0                      | 9.7 E-1                 | NO                         | pCi/g | Multiple tests                                                   |
| Thorium-230     | 4                                 | 4                | 100%         | 1.1               | 1.9               | 1.2    | 1.4    | 0.36                  | 23                                      | 23               | 100%         | 0.60              | 1.5               | 1.1    | 1.1   | 0.20                  | 9.8 E-2                      | 2.7 E-1                      | 1.5 E-1                      | 4.1 E-2                 | NO                         | pCi/g | Multiple tests                                                   |
| Thorium-232     | 4                                 | 4                | 100%         | 1.1               | 1.4               | 1.1    | 1.2    | 0.14                  | 23                                      | 23               | 100%         | 1.1               | 1.9               | 1.5    | 1.5   | 0.21                  | 1.0 E+0                      | 1.0 E+0                      | 1.0 E+0                      | 9.9 E-1                 | NO                         | pCi/g | Multiple tests                                                   |
| Uranium-233/234 | 4                                 | 4                | 100%         | 0.23              | 1.0               | 0.31   | 0.46   | 0.36                  | 7                                       | 11               | 64%          | 0.98              | 1.3               | 1.0    | 1.1   | 0.12                  | 9.6 E-1                      | 1.0 E+0                      | 1.0 E+0                      | 9.9 E-1                 | NO                         | pCi/g | Multiple tests                                                   |
| Uranium-235/236 | 1                                 | 4                | 25%          | 0.027             | 0.027             | 0.0035 | 0.0084 | 0.013                 | 10                                      | 11               | 91%          | 0.029             | 0.062             | 0.039  | 0.041 | 0.013                 | 1.0 E+0                      | 1.0 E+0                      | 1.0 E+0                      | 1.0 E+0                 | NO                         | pCi/g | Low detection frequency; max background<br>greater than site max |
| Uranium-238     | 4                                 | 4                | 100%         | 0.21              | 1.0               | 0.24   | 0.43   | 0.41                  | 7                                       | 11               | 64%          | 0.90              | 1.2               | 1.0    | 1.0   | 0.070                 | 9.4 E-1                      | 1.0 E+0                      | 1.0 E+0                      | 9.8 E-1                 | NO                         | pCi/g | Multiple tests                                                   |

Note: Summary and background comparison statistics were performed using one-half the detection limit for metals and using GISdT® (Neptune and Company 2007).

**BOLD with Highlight indicates Site concentrations are greater than background.**

WRS = Wilcoxon Rank Sum Test with the Gehan Modification

mg/kg - milligrams per kilogram

pCi/g - picoCuries per gram

Table 2  
Summary of Background Metals Evaluation  
Upper Muddy Creek Formation (UMCf) Dataset

| Chemical         | UMCf Site         |                  |              |                   |                   |        |       |                       | UMCf Background   |                  |              |                   |                   |        |        |                       | <i>t</i>         | Quantile         | Slippage         | WRS              | Greater         | Units | Basis                                                                      |
|------------------|-------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|-------------------|------------------|--------------|-------------------|-------------------|--------|--------|-----------------------|------------------|------------------|------------------|------------------|-----------------|-------|----------------------------------------------------------------------------|
|                  | No. of<br>Detects | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation | No. of<br>Detects | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean   | Standard<br>Deviation | Test<br><i>p</i> | Test<br><i>p</i> | Test<br><i>p</i> | Test<br><i>p</i> | than<br>Bckrnd? |       |                                                                            |
| Aluminum         | 10                | 10               | 100%         | 7090              | 18100             | 13700  | 13410 | 3967                  | 24                | 24               | 100%         | 3190              | 19700             | 9335   | 9847   | 4171                  | 1.5 E-2          | 6.0 E-2          | 1.0 E+0          | 1.6 E-2          | NO              | mg/kg | Quantile and Slippage; site and background datasets similar                |
| Antimony         | 6                 | 10               | 60%          | 0.15              | 0.55              | 0.20   | 0.25  | 0.20                  | 23                | 24               | 96%          | 0.066             | 0.34              | 0.16   | 0.17   | 0.064                 | 1.3 E-1          | 1.5 E-1          | 6.8 E-2          | 2.3 E-1          | NO              | mg/kg | Multiple tests                                                             |
| Arsenic          | 10                | 10               | 100%         | 5.6               | 27                | 12     | 13    | 5.9                   | 24                | 24               | 100%         | 2.1               | 25                | 7.7    | 8.8    | 5.4                   | 3.7 E-2          | 2.3 E-1          | 2.9 E-1          | 1.5 E-2          | NO              | mg/kg | Multiple tests                                                             |
| Barium           | 10                | 10               | 100%         | 39                | 873               | 124    | 195   | 253                   | 24                | 24               | 100%         | 65                | 620               | 203    | 264    | 166                   | 7.8 E-1          | 8.3 E-1          | 2.9 E-1          | 9.8 E-1          | NO              | mg/kg | Multiple tests                                                             |
| Beryllium        | 10                | 10               | 100%         | 0.38              | 1.1               | 0.84   | 0.79  | 0.26                  | 24                | 24               | 100%         | 0.17              | 1.1               | 0.59   | 0.56   | 0.24                  | 1.2 E-2          | 8.8 E-3          | 1.0 E+0          | 9.0 E-3          | YES             | mg/kg | Multiple tests                                                             |
| Boron            | 6                 | 10               | 60%          | 11                | 29                | 19     | 20    | 7.2                   | 7                 | 24               | 29%          | 4.4               | 23                | 1.4    | 5.7    | 8.0                   | 5.2 E-5          | 6.0 E-2          | 5.5 E-4          | 2.4 E-6          | YES             | mg/kg | Low detection frequency; site max, mean and median greater than background |
| Cadmium          | 6                 | 10               | 60%          | 0.066             | 0.55              | 0.37   | 0.42  | 0.43                  | 18                | 24               | 75%          | 0.060             | 0.20              | 0.099  | 0.083  | 0.054                 | 1.8 E-2          | 2.3 E-1          | 4.9 E-3          | 3.9 E-4          | YES             | mg/kg | Multiple tests                                                             |
| Calcium          | 10                | 10               | 100%         | 5280              | 153000            | 27200  | 51500 | 54110                 | 24                | 24               | 100%         | 4190              | 38600             | 22150  | 22610  | 10060                 | 6.4 E-2          | 2.3 E-1          | 2.0 E-2          | 8.1 E-2          | NO              | mg/kg | Multiple tests                                                             |
| Chromium (VI)    | 1                 | 10               | 10%          | 0.25              | 0.25              | 0.40   | 0.42  | 0.16                  | 2                 | 23               | 9%           | 0.18              | 0.19              | 0.090  | 0.098  | 0.028                 | 6.3 E-5          | 6.8 E-1          | 5.0 E-2          | 2.6 E-6          | YES             | mg/kg | Low detection frequency; site max, mean and median greater than background |
| Chromium (Total) | 10                | 10               | 100%         | 11                | 42                | 23     | 23    | 9.8                   | 24                | 24               | 100%         | 2.9               | 28                | 13     | 13     | 7.5                   | 5.4 E-3          | 6.0 E-2          | 2.0 E-2          | 2.6 E-3          | YES             | mg/kg | Multiple tests                                                             |
| Cobalt           | 10                | 10               | 100%         | 2.9               | 11                | 7.6    | 7.2   | 2.4                   | 24                | 24               | 100%         | 1.6               | 9.7               | 6.5    | 5.8    | 2.7                   | 6.9 E-2          | 5.4 E-1          | 2.9 E-1          | 5.2 E-2          | NO              | mg/kg | Multiple tests                                                             |
| Copper           | 10                | 10               | 100%         | 6.1               | 39                | 22     | 21    | 10                    | 24                | 24               | 100%         | 4.1               | 21                | 14     | 12     | 5.4                   | 1.4 E-2          | 8.8 E-3          | 1.6 E-4          | 2.3 E-3          | YES             | mg/kg | Multiple tests                                                             |
| Iron             | 10                | 10               | 100%         | 6610              | 20900             | 16400  | 15740 | 5074                  | 24                | 24               | 100%         | 3620              | 20100             | 12800  | 12550  | 5283                  | 5.9 E-2          | 5.4 E-1          | 2.0 E-2          | 5.2 E-2          | NO              | mg/kg | Multiple tests                                                             |
| Lead             | 10                | 10               | 100%         | 5.4               | 13                | 8.5    | 9.1   | 2.7                   | 24                | 24               | 100%         | 4.4               | 16                | 11     | 11     | 3.5                   | 9.3 E-1          | 9.8 E-1          | 1.0 E+0          | 9.2 E-1          | NO              | mg/kg | Multiple tests                                                             |
| Lithium          | 10                | 10               | 100%         | 32                | 131               | 52     | 61    | 30                    | 24                | 24               | 100%         | 18                | 189               | 32     | 53     | 52                    | 2.8 E-1          | 6.0 E-2          | 1.0 E+0          | 1.8 E-2          | NO              | mg/kg | Multiple tests                                                             |
| Magnesium        | 10                | 10               | 100%         | 15200             | 75000             | 36850  | 41640 | 21990                 | 24                | 24               | 100%         | 2780              | 31000             | 10250  | 11300  | 6175                  | 8.7 E-4          | 2.1 E-5          | 2.2 E-5          | 1.6 E-5          | YES             | mg/kg | Multiple tests                                                             |
| Manganese        | 10                | 10               | 100%         | 252               | 462               | 323    | 331   | 70                    | 24                | 24               | 100%         | 126               | 786               | 295    | 307    | 157                   | 2.7 E-1          | 5.4 E-1          | 1.0 E+0          | 1.8 E-1          | NO              | mg/kg | Multiple tests                                                             |
| Mercury          | 3                 | 10               | 30%          | 0.0086            | 0.012             | 0.011  | 0.014 | 0.0093                | 5                 | 20               | 25%          | 0.0080            | 0.012             | 0.0033 | 0.0050 | 0.0031                | NA               | 5.5 E-1          | 1.0 E+0          | 2.5 E-3          | NO              | mg/kg | Low detection frequency; site and background datasets similar              |
| Molybdenum       | 10                | 10               | 100%         | 0.34              | 3.8               | 1.3    | 1.6   | 1.2                   | 23                | 24               | 96%          | 0.12              | 1.1               | 0.50   | 0.50   | 0.27                  | 1.0 E-2          | 8.8 E-3          | 1.6 E-4          | 1.1 E-3          | YES             | mg/kg | Multiple tests                                                             |
| Nickel           | 10                | 10               | 100%         | 9.9               | 23                | 20     | 18    | 5.0                   | 24                | 24               | 100%         | 4.5               | 31                | 14     | 14     | 6.3                   | 2.7 E-2          | 6.0 E-2          | 1.0 E+0          | 2.8 E-2          | NO              | mg/kg | Multiple tests                                                             |
| Niobium          | 0                 | 10               | 0%           | NA                | NA                | 0.76   | 1.6   | 1.2                   | 1                 | 24               | 4%           | 4.0               | 4.0               | 0.76   | 0.90   | 0.66                  | 6.6 E-2          | 6.7 E-2          | 1.0 E+0          | 9.9 E-3          | NO              | mg/kg | ND at Site.                                                                |
| Palladium        | 10                | 10               | 100%         | 0.18              | 0.73              | 0.38   | 0.42  | 0.19                  | 24                | 24               | 100%         | 0.16              | 1.0               | 0.62   | 0.55   | 0.24                  | 9.5 E-1          | 9.8 E-1          | 1.0 E+0          | 9.3 E-1          | NO              | mg/kg | Multiple tests                                                             |
| Phosphorus       | 10                | 10               | 100%         | 434               | 1350              | 949    | 894   | 283                   | 24                | 24               | 100%         | 299               | 1370              | 843    | 794    | 295                   | 1.8 E-1          | 8.3 E-1          | 1.0 E+0          | 2.5 E-1          | NO              | mg/kg | Multiple tests                                                             |
| Platinum         | 0                 | 10               | 0%           | NA                | NA                | 0.010  | 0.034 | 0.031                 | 2                 | 24               | 8%           | 0.027             | 0.033             | 0.010  | 0.012  | 0.0057                | 2.6 E-2          | 4.8 E-2          | 1.0 E+0          | 1.8 E-2          | NO              | mg/kg | ND at Site.                                                                |
| Potassium        | 10                | 10               | 100%         | 2160              | 7340              | 3715   | 3837  | 1593                  | 24                | 24               | 100%         | 1030              | 6190              | 2820   | 3070   | 1421                  | 1.0 E-1          | 6.0 E-2          | 2.9 E-1          | 9.0 E-2          | NO              | mg/kg | Multiple tests                                                             |
| Selenium         | 2                 | 10               | 20%          | 0.30              | 0.52              | 0.16   | 0.25  | 0.13                  | 0                 | 24               | 0%           | NA                | NA                | 0.16   | 0.16   | 0.0082                | 2.8 E-2          | 2.0 E-2          | NA               | 9.9 E-2          | YES             | mg/kg | ND in background.                                                          |
| Silicon          | 10                | 10               | 100%         | 548               | 1620              | 990    | 1040  | 304                   | 24                | 24               | 100%         | 188               | 1000              | 304    | 373    | 207                   | 1.4 E-5          | 2.1 E-5          | 9.1 E-4          | 1.2 E-5          | YES             | mg/kg | Multiple tests                                                             |
| Silver           | 9                 | 10               | 90%          | 0.11              | 0.33              | 0.20   | 0.21  | 0.082                 | 24                | 24               | 100%         | 0.051             | 0.82              | 0.14   | 0.21   | 0.18                  | 4.8 E-1          | 4.4 E-1          | 1.0 E+0          | 8.7 E-2          | NO              | mg/kg | Multiple tests                                                             |
| Sodium           | 10                | 10               | 100%         | 541               | 1310              | 1050   | 1037  | 240                   | 24                | 24               | 100%         | 259               | 1200              | 460    | 610    | 290                   | 1.2 E-4          | 3.1 E-2          | 2.0 E-2          | 4.7 E-4          | YES             | mg/kg | Multiple tests                                                             |
| Strontium        | 10                | 10               | 100%         | 118               | 555               | 166    | 203   | 128                   | 24                | 24               | 100%         | 69                | 324               | 224    | 207    | 71                    | 5.3 E-1          | 9.8 E-1          | 2.9 E-1          | 9.5 E-1          | NO              | mg/kg | Multiple tests                                                             |
| Thallium         | 2                 | 10               | 20%          | 0.28              | 0.53              | 0.41   | 0.65  | 0.91                  | 0                 | 24               | 0%           | NA                | NA                | 0.10   | 0.10   | 0.0051                | 4.4 E-2          | 1.6 E-4          | NA               | 9.0 E-5          | YES             | mg/kg | ND in background.                                                          |
| Tin              | 6                 | 10               | 60%          | 0.58              | 0.90              | 0.68   | 0.64  | 0.23                  | 20                | 24               | 83%          | 0.24              | 0.96              | 0.52   | 0.47   | 0.28                  | 3.9 E-2          | 6.0 E-2          | 1.0 E+0          | 1.9 E-3          | NO              | mg/kg | Multiple tests                                                             |
| Titanium         | 10                | 10               | 100%         | 260               | 1190              | 647    | 649   | 277                   | 24                | 24               | 100%         | 175               | 1000              | 565    | 503    | 200                   | 7.6 E-2          | 6.0 E-2          | 2.9 E-1          | 3.2 E-2          | NO              | mg/kg | Multiple tests                                                             |
| Tungsten         | 4                 | 10               | 40%          | 0.28              | 0.93              | 0.25   | 0.33  | 0.31                  | 5                 | 24               | 21%          | 0.26              | 0.58              | 0.10   | 0.16   | 0.13                  | 6.4 E-2          | 2.3 E-1          | 8.0 E-2          | 1.1 E-2          | YES             | mg/kg | Low detection frequency; site max, mean and median greater than background |
| Uranium          | 10                | 10               | 100%         | 2.2               | 14                | 3.6    | 4.7   | 3.5                   | 24                | 24               | 100%         | 0.31              | 4.4               | 1.2    | 1.3    | 0.85                  | 7.0 E-3          | 2.1 E-5          | 8.0 E-2          | 1.3 E-5          | YES             | mg/kg | Multiple tests                                                             |
| Vanadium         | 10                | 10               | 100%         | 22                | 61                | 37     | 38    | 12                    | 24                | 24               | 100%         | 10                | 46                | 33     | 31     | 13                    | 5.8 E-2          | 2.3 E-1          | 4.5 E-3          | 8.1 E-2          | NO              | mg/kg | Multiple tests                                                             |

Table 2  
Summary of Background Metals Evaluation  
Upper Muddy Creek Formation (UMCf) Dataset

| Chemical        | UMCf Site         |                  |              |                   |                   |        |       |                       | UMCf Background   |                  |              |                   |                   |        |       |                       | <i>t</i>         | Quantile         | Slippage         | WRS              | Greater         | Units | Basis                              |
|-----------------|-------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|-------------------|------------------|--------------|-------------------|-------------------|--------|-------|-----------------------|------------------|------------------|------------------|------------------|-----------------|-------|------------------------------------|
|                 | No. of<br>Detects | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation | No. of<br>Detects | Total<br>Samples | %<br>Detects | Minimum<br>Detect | Maximum<br>Detect | Median | Mean  | Standard<br>Deviation | Test<br><i>p</i> | Test<br><i>p</i> | Test<br><i>p</i> | Test<br><i>p</i> | than<br>Bckrnd? |       |                                    |
| Zinc            | 10                | 10               | 100%         | 24                | 177               | 52     | 61    | 44                    | 24                | 24               | 100%         | 16                | 61                | 34     | 34    | 12                    | 4.2 E-2          | 8.8 E-3          | 8.0 E-2          | 4.3 E-3          | YES             | mg/kg | Site max > 2 times max background. |
| Zirconium       | 9                 | 10               | 90%          | 12                | 40                | 26     | 24    | 9.6                   | 24                | 24               | 100%         | 6.2               | 37                | 18     | 20    | 8.5                   | 1.1 E-1          | 2.3 E-1          | 2.9 E-1          | 4.4 E-2          | NO              | mg/kg | Multiple tests                     |
| Radium-226      | 10                | 10               | 100%         | 1.1               | 2.9               | 1.7    | 1.8   | 0.67                  | 14                | 18               | 78%          | 0.75              | 1.6               | 1.0    | 1.0   | 0.21                  | 8.9 E-4          | 3.3 E-3          | 2.6 E-3          | 8.8 E-5          | YES             | pCi/g | Multiple tests                     |
| Radium-228      | 9                 | 10               | 90%          | 0.54              | 1.7               | 1.4    | 1.3   | 0.36                  | 17                | 18               | 94%          | 0.99              | 1.6               | 1.3    | 1.3   | 0.17                  | 5.2 E-1          | 1.8 E-1          | 1.2 E-1          | 3.2 E-1          | NO              | pCi/g | Multiple tests                     |
| Thorium-228     | 10                | 10               | 100%         | 0.47              | 1.7               | 1.4    | 1.3   | 0.42                  | 24                | 24               | 100%         | 1.0               | 2.2               | 1.3    | 1.4   | 0.25                  | 7.9 E-1          | 8.3 E-1          | 1.0 E+0          | 5.8 E-1          | NO              | pCi/g | Multiple tests                     |
| Thorium-230     | 10                | 10               | 100%         | 1.2               | 9.6               | 2.4    | 2.9   | 2.4                   | 24                | 24               | 100%         | 0.50              | 2.1               | 0.98   | 1.0   | 0.33                  | 1.9 E-2          | 2.1 E-5          | 1.6 E-4          | 8.2 E-6          | YES             | pCi/g | Multiple tests                     |
| Thorium-232     | 10                | 10               | 100%         | 0.47              | 18                | 1.2    | 2.8   | 5.4                   | 24                | 24               | 100%         | 0.97              | 2.1               | 1.3    | 1.3   | 0.23                  | 2.1 E-1          | 5.4 E-1          | 2.9 E-1          | 7.9 E-1          | NO              | pCi/g | Multiple tests                     |
| Uranium-233/234 | 10                | 10               | 100%         | 0.44              | 2.7               | 1.4    | 1.6   | 0.82                  | 12                | 20               | 60%          | 0.63              | 1.8               | 1.0    | 1.1   | 0.25                  | 1.5 E-2          | 5.6 E-2          | 7.7 E-3          | 2.0 E-1          | YES             | pCi/g | t-Test and slippage.               |
| Uranium-235/236 | 7                 | 10               | 70%          | 0.029             | 0.17              | 0.044  | 0.071 | 0.049                 | 14                | 20               | 70%          | 0.029             | 0.10              | 0.039  | 0.043 | 0.024                 | 9.0 E-2          | 2.3 E-1          | 3.0 E-2          | 5.7 E-2          | NO              | pCi/g | Multiple tests                     |
| Uranium-238     | 10                | 10               | 100%         | 0.34              | 2.7               | 1.3    | 1.6   | 0.88                  | 11                | 20               | 55%          | 0.84              | 1.8               | 1.0    | 1.1   | 0.22                  | 1.5 E-2          | 5.6 E-2          | 7.7 E-3          | 2.1 E-1          | YES             | pCi/g | t-Test and slippage.               |

Note: Summary and background comparison statistics were performed using one-half the detection limit for metals and using GISdT® (Neptune and Company 2007).

**BOLD with Highlight indicates Site concentrations are greater than background.**

WRS = Wilcoxon Rank Sum Test with the Gehan Modification

mg/kg - milligrams per kilogram

pCi/g - picoCuries per gram

**Table 2**  
**Summary of Background Metals Evaluation**  
**Borings within each Dataset**

| Depth   | Dataset       | Borings                                                        |
|---------|---------------|----------------------------------------------------------------|
| < 20 ft | McC Shallow   | AA-UW-1<br>AA-UW-2<br>AA-UW-3<br>AA-UW-4<br>SB-01-B<br>SB-27-A |
| < 20 ft | Mixed Shallow | AA-UW-5                                                        |
| < 20 ft | River Shallow | AA-UW-6                                                        |

| Depth    | Dataset    | Wells                                                          |
|----------|------------|----------------------------------------------------------------|
| >= 20 ft | McC Deep   | AA-UW-1<br>AA-UW-2<br>AA-UW-3<br>AA-UW-4<br>SB-01-B<br>SB-27-A |
| >= 20 ft | Mixed Deep | AA-UW-5                                                        |
| >= 20 ft | River Deep | AA-UW-6                                                        |

| Depth     | Dataset | Wells                                                                     |
|-----------|---------|---------------------------------------------------------------------------|
| > contact | TMC     | AA-UW-1<br>AA-UW-3<br>AA-UW-4<br>AA-UW-5<br>AA-UW-6<br>SB-01-B<br>SB-27-A |

Table 3  
Summary of Soil Analytical Results - Nonmetals  
Detected analytes only-Statistics

| Parameter of Interest | Compound List                 | Units | Total Count | No. of Detects | Detect Freq. | Min Detect | Max Detect | Resident Soil BCL | Count of Detects > BCL |
|-----------------------|-------------------------------|-------|-------------|----------------|--------------|------------|------------|-------------------|------------------------|
| Aldehydes             | Formaldehyde                  | mg/kg | 14          | 6              | 43%          | 0.081      | 0.15       | 10.6              | 0                      |
| Dioxins/Furans        | TCDD TEQ                      | mg/kg | 11          | 11             | 100%         | 0.14       | 8          | 50 <sup>a</sup>   | 0                      |
| General Chemistry     | Cyanide (Total)               | mg/kg | 26          | 1              | 4%           | 1.9        | 1.9        | 1220              | 0                      |
|                       | Sulfide                       | mg/kg | 26          | 1              | 4%           | 12.9       | 12.9       | --                | --                     |
|                       | Chlorate                      | mg/kg | 29          | 2              | 7%           | 1.5        | 1.8        | --                | --                     |
|                       | Bromide                       | mg/kg | 29          | 4              | 14%          | 0.91       | 1.3        | --                | --                     |
|                       | Orthophosphate as P           | mg/kg | 29          | 4              | 14%          | 0.89       | 3.2        | --                | --                     |
|                       | Bromine                       | mg/kg | 14          | 2              | 14%          | 2          | 2.6        | --                | --                     |
|                       | Nitrite (as N)                | mg/kg | 29          | 6              | 21%          | 0.25       | 3.6        | --                | --                     |
|                       | Total Kjeldahl Nitrogen (TKN) | mg/kg | 26          | 11             | 42%          | 23.5       | 104        | --                | --                     |
|                       | Perchlorate                   | mg/kg | 69          | 43             | 62%          | 0.0052     | 2.5        | 54.8              | 0                      |
|                       | Fluoride                      | mg/kg | 29          | 21             | 72%          | 0.44       | 7.1        | 3670              | 0                      |
|                       | Nitrate (as N)                | mg/kg | 29          | 26             | 90%          | 0.27       | 6          | --                | --                     |
|                       | Chloride                      | mg/kg | 29          | 29             | 100%         | 2.4        | 367        | --                | --                     |
|                       | Chlorine                      | mg/kg | 14          | 14             | 100%         | 12.2       | 734        | 7820              | 0                      |
|                       | Sulfate                       | mg/kg | 29          | 29             | 100%         | 15.2       | 2330       | --                | --                     |
| OCPs                  | 4,4-DDD                       | mg/kg | 55          | 4              | 7%           | 0.0019     | 0.0032     | 2.44              | 0                      |
|                       | 4,4-DDE                       | mg/kg | 55          | 4              | 7%           | 0.0021     | 0.0033     | 1.72              | 0                      |
|                       | 4,4-DDT                       | mg/kg | 55          | 5              | 9%           | 0.0065     | 0.012      | 1.72              | 0                      |
|                       | alpha-BHC                     | mg/kg | 55          | 6              | 11%          | 0.0054     | 0.022      | 0.0902            | 0                      |
|                       | beta-BHC                      | mg/kg | 55          | 6              | 11%          | 0.0022     | 0.034      | 0.316             | 0                      |
|                       | Lindane                       | mg/kg | 55          | 6              | 11%          | 0.004      | 0.0096     | 0.437             | 0                      |
|                       | Methoxychlor                  | mg/kg | 55          | 6              | 11%          | 0.036      | 0.11       | 306               | 0                      |
| OPPs                  | Disulfoton                    | mg/kg | 14          | 1              | 7%           | 0.004      | 0.004      | 2.44              | 0                      |
|                       | Chlorpyrifos                  | mg/kg | 13          | 1              | 8%           | 0.0042     | 0.0042     | 183               | 0                      |
|                       | Malathion                     | mg/kg | 13          | 1              | 8%           | 0.0053     | 0.0053     | 1220              | 0                      |
|                       | Dichlorvos                    | mg/kg | 13          | 2              | 15%          | 0.0074     | 0.0074     | 1.68              | 0                      |
|                       | Ethoprophos                   | mg/kg | 13          | 2              | 15%          | 0.005      | 0.0057     | --                | --                     |
|                       | Phorate                       | mg/kg | 13          | 2              | 15%          | 0.0046     | 0.0049     | --                | --                     |
|                       | Ronnel                        | mg/kg | 13          | 2              | 15%          | 0.0033     | 0.0037     | 3060              | 0                      |
| SVOCs                 | Sulfotep                      | mg/kg | 13          | 2              | 15%          | 0.0041     | 0.0051     | --                | --                     |
|                       | bis(2-Ethylhexyl) phthalate   | mg/kg | 50          | 1              | 2%           | 1.7        | 1.7        | 34.7              | 0                      |
| VOCs                  | Chloroform                    | mg/kg | 16          | 1              | 6%           | 0.0013     | 0.0013     | 0.245             | 0                      |
|                       | m,p-Xylene                    | mg/kg | 18          | 2              | 11%          | 0.0011     | 0.0025     | 195               | 0                      |
|                       | o-Xylene                      | mg/kg | 18          | 2              | 11%          | 0.00058    | 0.0011     | 282               | 0                      |
|                       | Xylenes (total)               | mg/kg | 18          | 2              | 11%          | 0.0017     | 0.0036     | 193               | 0                      |
|                       | Toluene                       | mg/kg | 29          | 4              | 14%          | 0.00043    | 0.0011     | 521               | 0                      |
|                       | 1,2,4-Trimethylbenzene        | mg/kg | 27          | 4              | 15%          | 0.00046    | 0.00073    | 8.94              | 0                      |
|                       | Ethylbenzene                  | mg/kg | 19          | 3              | 16%          | 0.00025    | 0.0008     | 234               | 0                      |
|                       | Methyl ethyl ketone           | mg/kg | 16          | 4              | 25%          | 0.0071     | 0.013      | 22600             | 0                      |
|                       | Acetonitrile                  | mg/kg | 21          | 6              | 29%          | 0.0067     | 0.013      | 623               | 0                      |
|                       | Tetrachloroethylene           | mg/kg | 18          | 8              | 44%          | 0.00023    | 0.0077     | 0.554             | 0                      |
|                       | Acetone                       | mg/kg | 26          | 12             | 46%          | 0.0052     | 0.058      | 14200             | 0                      |
|                       | Benzene                       | mg/kg | 16          | 8              | 50%          | 0.00049    | 0.0011     | 0.656             | 0                      |
|                       | Dichloromethane               | mg/kg | 34          | 25             | 74%          | 0.0027     | 0.045      | 8.9               | 0                      |

**Notes:**  
BCL = Basic Comparison Levels (BCLs) from NDEP 2008. Values used are residential soil BCLs (PRGs).  
SSL = Soil screening levels from NDEP 2008.  
Max = Maximum  
Min = Minimum  
a - ATSDR screening value of 50 parts per trillion (ppt).  
-- = Not applicable or no value has been established.

**Table 4**  
**Summary of Soil Analytical Results - Nonmetals**  
**Detected analytes only-Selected Parameters**

| BORING  | DATE      | DEPTH (FT) | ANALYTE                | RESULT  | UNIT  |
|---------|-----------|------------|------------------------|---------|-------|
| AA-UW-4 | 8/6/2007  | 10         | 1,2,4-Trimethylbenzene | 0.00046 | mg/kg |
| AA-UW-4 | 8/6/2007  | 20         | 1,2,4-Trimethylbenzene | 0.0005  | mg/kg |
| AA-UW-4 | 8/6/2007  | 40         | 1,2,4-Trimethylbenzene | 0.00073 | mg/kg |
| SB-01-B | 5/10/2004 | 7          | 1,2,4-Trimethylbenzene | 0.00072 | mg/kg |
| SB-01-B | 5/10/2004 | 0          | 4,4-DDD                | 0.0032  | mg/kg |
| SB-01-B | 5/10/2004 | 7          | 4,4-DDD                | 0.0023  | mg/kg |
| SB-27-A | 6/24/2004 | 0          | 4,4-DDD                | 0.0031  | mg/kg |
| SB-27-A | 6/24/2004 | 7          | 4,4-DDD                | 0.0019  | mg/kg |
| AA-UW-1 | 7/30/2007 | 0          | 4,4-DDE                | 0.0026  | mg/kg |
| SB-01-B | 5/10/2004 | 0          | 4,4-DDE                | 0.0021  | mg/kg |
| SB-01-B | 5/10/2004 | 7          | 4,4-DDE                | 0.0024  | mg/kg |
| SB-27-A | 6/24/2004 | 0          | 4,4-DDE                | 0.0033  | mg/kg |
| SB-01-B | 5/10/2004 | 0          | 4,4-DDT                | 0.009   | mg/kg |
| SB-01-B | 5/10/2004 | 7          | 4,4-DDT                | 0.0092  | mg/kg |
| SB-27-A | 6/24/2004 | 0          | 4,4-DDT                | 0.012   | mg/kg |
| SB-27-A | 6/24/2004 | 7          | 4,4-DDT                | 0.0094  | mg/kg |
| SB-27-A | 6/29/2004 | 107        | 4,4-DDT                | 0.0065  | mg/kg |
| AA-UW-1 | 7/30/2007 | 5          | Acetone                | 0.0068  | mg/kg |
| AA-UW-1 | 7/30/2007 | 10         | Acetone                | 0.0066  | mg/kg |
| AA-UW-1 | 7/30/2007 | 50         | Acetone                | 0.014   | mg/kg |
| AA-UW-1 | 7/30/2007 | 60         | Acetone                | 0.028   | mg/kg |
| AA-UW-4 | 8/6/2007  | 20         | Acetone                | 0.0052  | mg/kg |
| AA-UW-4 | 8/6/2007  | 30         | Acetone                | 0.0059  | mg/kg |
| AA-UW-4 | 8/6/2007  | 40         | Acetone                | 0.0053  | mg/kg |
| AA-UW-6 | 8/7/2007  | 10         | Acetone                | 0.014   | mg/kg |
| AA-UW-6 | 8/7/2007  | 40         | Acetone                | 0.0055  | mg/kg |
| SB-01-B | 5/10/2004 | 0          | Acetone                | 0.033   | mg/kg |
| SB-01-B | 5/10/2004 | 7          | Acetone                | 0.058   | mg/kg |
| SB-27-A | 6/24/2004 | 0          | Acetone                | 0.054   | mg/kg |
| SB-01-B | 5/10/2004 | 0          | alpha-BHC              | 0.022   | mg/kg |
| SB-01-B | 5/10/2004 | 0          | alpha-BHC              | 0.021   | mg/kg |
| SB-01-B | 5/10/2004 | 7          | alpha-BHC              | 0.013   | mg/kg |
| SB-01-B | 5/11/2004 | 93         | alpha-BHC              | 0.0054  | mg/kg |
| SB-27-A | 6/24/2004 | 0          | alpha-BHC              | 0.02    | mg/kg |
| SB-27-A | 6/24/2004 | 0          | alpha-BHC              | 0.02    | mg/kg |
| SB-27-A | 6/24/2004 | 7          | alpha-BHC              | 0.011   | mg/kg |
| SB-27-A | 6/29/2004 | 107        | alpha-BHC              | 0.0066  | mg/kg |

**Table 4**  
**Summary of Soil Analytical Results - Nonmetals**  
**Detected analytes only-Selected Parameters**

| BORING  | DATE      | DEPTH (FT) | ANALYTE        | RESULT  | UNIT  |
|---------|-----------|------------|----------------|---------|-------|
| AA-UW-1 | 7/30/2007 | 0          | beta-BHC       | 0.0065  | mg/kg |
| SB-01-B | 5/10/2004 | 0          | beta-BHC       | 0.034   | mg/kg |
| SB-01-B | 5/10/2004 | 0          | beta-BHC       | 0.03    | mg/kg |
| SB-01-B | 5/10/2004 | 7          | beta-BHC       | 0.012   | mg/kg |
| SB-01-B | 5/10/2004 | 17         | beta-BHC       | 0.0025  | mg/kg |
| SB-27-A | 6/24/2004 | 0          | beta-BHC       | 0.0052  | mg/kg |
| SB-27-A | 6/24/2004 | 7          | beta-BHC       | 0.0022  | mg/kg |
| SB-01-B | 5/10/2004 | 0          | Lindane        | 0.0091  | mg/kg |
| SB-01-B | 5/10/2004 | 7          | Lindane        | 0.0057  | mg/kg |
| SB-01-B | 5/11/2004 | 93         | Lindane        | 0.004   | mg/kg |
| SB-27-A | 6/24/2004 | 0          | Lindane        | 0.0096  | mg/kg |
| SB-27-A | 6/24/2004 | 7          | Lindane        | 0.0052  | mg/kg |
| SB-27-A | 6/29/2004 | 107        | Lindane        | 0.0048  | mg/kg |
| AA-UW-2 | 7/31/2007 | 10         | Ethylbenzene   | 0.00025 | mg/kg |
| AA-UW-3 | 8/5/2007  | 30         | Ethylbenzene   | 0.00028 | mg/kg |
| AA-UW-4 | 8/6/2007  | 5          | Ethylbenzene   | 0.00054 | mg/kg |
| AA-UW-4 | 8/6/2007  | 40         | Ethylbenzene   | 0.0008  | mg/kg |
| AA-UW-1 | 7/30/2007 | 10         | Nitrate (as N) | 6       | mg/kg |
| AA-UW-1 | 7/30/2007 | 10         | Nitrate (as N) | 4.8     | mg/kg |
| AA-UW-1 | 7/30/2007 | 30         | Nitrate (as N) | 1.6     | mg/kg |
| AA-UW-1 | 7/30/2007 | 40         | Nitrate (as N) | 1.4     | mg/kg |
| AA-UW-1 | 7/30/2007 | 50         | Nitrate (as N) | 0.83    | mg/kg |
| AA-UW-1 | 7/30/2007 | 60         | Nitrate (as N) | 0.27    | mg/kg |
| AA-UW-2 | 7/31/2007 | 10         | Nitrate (as N) | 1.6     | mg/kg |
| AA-UW-2 | 7/31/2007 | 70         | Nitrate (as N) | 2.2     | mg/kg |
| AA-UW-3 | 8/5/2007  | 10         | Nitrate (as N) | 8.5     | mg/kg |
| AA-UW-3 | 8/5/2007  | 80         | Nitrate (as N) | 1.4     | mg/kg |
| AA-UW-4 | 8/6/2007  | 10         | Nitrate (as N) | 0.6     | mg/kg |
| AA-UW-4 | 8/6/2007  | 50         | Nitrate (as N) | 2.7     | mg/kg |
| AA-UW-5 | 8/7/2007  | 10         | Nitrate (as N) | 2       | mg/kg |
| AA-UW-5 | 8/7/2007  | 60         | Nitrate (as N) | 2.6     | mg/kg |
| AA-UW-6 | 8/7/2007  | 10         | Nitrate (as N) | 2       | mg/kg |
| AA-UW-6 | 8/7/2007  | 50         | Nitrate (as N) | 0.39    | mg/kg |
| SB-01-B | 5/10/2004 | 0          | Nitrate (as N) | 3.2     | mg/kg |
| SB-01-B | 5/10/2004 | 7          | Nitrate (as N) | 3.6     | mg/kg |
| SB-01-B | 5/10/2004 | 17         | Nitrate (as N) | 1.9     | mg/kg |
| SB-01-B | 5/10/2004 | 27         | Nitrate (as N) | 0.54    | mg/kg |
| SB-01-B | 5/10/2004 | 47         | Nitrate (as N) | 0.52    | mg/kg |
| SB-01-B | 5/11/2004 | 77         | Nitrate (as N) | 0.64    | mg/kg |
| SB-01-B | 5/11/2004 | 93         | Nitrate (as N) | 1.5     | mg/kg |
| SB-27-A | 6/24/2004 | 7          | Nitrate (as N) | 0.88    | mg/kg |
| SB-27-A | 6/24/2004 | 27         | Nitrate (as N) | 0.82    | mg/kg |
| SB-27-A | 6/24/2004 | 57         | Nitrate (as N) | 0.87    | mg/kg |
| SB-27-A | 6/29/2004 | 97         | Nitrate (as N) | 3.3     | mg/kg |
| SB-27-A | 6/29/2004 | 107        | Nitrate (as N) | 2.4     | mg/kg |

**Table 4**  
**Summary of Soil Analytical Results - Nonmetals**  
**Detected analytes only-Selected Parameters**

| BORING  | DATE      | DEPTH (FT) | ANALYTE     | RESULT | UNIT  |
|---------|-----------|------------|-------------|--------|-------|
|         |           |            |             |        |       |
|         |           |            |             |        |       |
| AA-UW-1 | 7/30/2007 | 5          | Perchlorate | 0.272  | mg/kg |
| AA-UW-1 | 7/30/2007 | 10         | Perchlorate | 1.55   | mg/kg |
| AA-UW-1 | 7/30/2007 | 10         | Perchlorate | 1.41   | mg/kg |
| AA-UW-1 | 7/30/2007 | 30         | Perchlorate | 0.0449 | mg/kg |
| AA-UW-1 | 7/30/2007 | 40         | Perchlorate | 0.0447 | mg/kg |
| AA-UW-1 | 7/30/2007 | 50         | Perchlorate | 0.0716 | mg/kg |
| AA-UW-1 | 7/30/2007 | 60         | Perchlorate | 0.1    | mg/kg |
| AA-UW-2 | 7/31/2007 | 5          | Perchlorate | 0.0742 | mg/kg |
| AA-UW-2 | 7/31/2007 | 10         | Perchlorate | 0.142  | mg/kg |
| AA-UW-3 | 8/5/2007  | 5          | Perchlorate | 1.2    | mg/kg |
| AA-UW-3 | 8/5/2007  | 30         | Perchlorate | 0.0072 | mg/kg |
| AA-UW-3 | 8/5/2007  | 60         | Perchlorate | 0.0038 | mg/kg |
| AA-UW-3 | 8/5/2007  | 70         | Perchlorate | 0.0105 | mg/kg |
| AA-UW-4 | 8/6/2007  | 5          | Perchlorate | 0.0349 | mg/kg |
| AA-UW-4 | 8/6/2007  | 10         | Perchlorate | 0.0078 | mg/kg |
| AA-UW-4 | 8/6/2007  | 30         | Perchlorate | 0.0077 | mg/kg |
| AA-UW-4 | 8/6/2007  | 40         | Perchlorate | 0.0162 | mg/kg |
| AA-UW-5 | 8/7/2007  | 5          | Perchlorate | 0.222  | mg/kg |
| AA-UW-6 | 8/7/2007  | 5          | Perchlorate | 0.284  | mg/kg |
| AA-UW-6 | 8/7/2007  | 10         | Perchlorate | 0.0117 | mg/kg |
| AA-UW-6 | 8/7/2007  | 20         | Perchlorate | 0.138  | mg/kg |
| AA-UW-6 | 8/7/2007  | 40         | Perchlorate | 0.162  | mg/kg |
| AA-UW-6 | 8/7/2007  | 40         | Perchlorate | 0.107  | mg/kg |
| SB-01-B | 5/10/2004 | 0          | Perchlorate | 1.99   | mg/kg |
| SB-01-B | 5/10/2004 | 7          | Perchlorate | 0.19   | mg/kg |
| SB-01-B | 5/10/2004 | 27         | Perchlorate | 0.0052 | mg/kg |
| SB-01-B | 5/10/2004 | 47         | Perchlorate | 0.0088 | mg/kg |
| SB-01-B | 5/12/2004 | 60         | Perchlorate | 2.5    | mg/kg |
| SB-01-B | 5/11/2004 | 77         | Perchlorate | 0.0482 | mg/kg |
| SB-01-B | 5/11/2004 | 80         | Perchlorate | 0.17   | mg/kg |
| SB-01-B | 5/11/2004 | 93         | Perchlorate | 0.0249 | mg/kg |
| SB-01-B | 5/11/2004 | 120        | Perchlorate | 0.1    | mg/kg |
| SB-01-B | 5/12/2004 | 180        | Perchlorate | 0.095  | mg/kg |
| SB-01-B | 5/12/2004 | 214        | Perchlorate | 0.017  | mg/kg |
| SB-27-A | 6/24/2004 | 0          | Perchlorate | 0.295  | mg/kg |
| SB-27-A | 6/24/2004 | 7          | Perchlorate | 0.117  | mg/kg |
| SB-27-A | 6/24/2004 | 17         | Perchlorate | 0.132  | mg/kg |
| SB-27-A | 6/24/2004 | 27         | Perchlorate | 0.0892 | mg/kg |
| SB-27-A | 6/24/2004 | 47         | Perchlorate | 0.0487 | mg/kg |
| SB-27-A | 6/24/2004 | 57         | Perchlorate | 0.046  | mg/kg |
| SB-27-A | 6/29/2004 | 77         | Perchlorate | 0.0505 | mg/kg |
| SB-27-A | 6/29/2004 | 97         | Perchlorate | 0.106  | mg/kg |
| SB-27-A | 6/29/2004 | 102        | Perchlorate | 0.0611 | mg/kg |
| SB-27-A | 6/29/2004 | 107        | Perchlorate | 0.103  | mg/kg |
| SB-27-B | 7/7/2004  | 120        | Perchlorate | 0.0308 | mg/kg |
| SB-27-B | 7/7/2004  | 125        | Perchlorate | 0.0294 | mg/kg |
| SB-27-B | 7/7/2004  | 131        | Perchlorate | 0.0064 | mg/kg |
|         |           |            |             |        |       |

**Table 4**  
**Summary of Soil Analytical Results - Nonmetals**  
**Detected analytes only-Selected Parameters**

| BORING  | DATE      | DEPTH (FT) | ANALYTE             | RESULT  | UNIT  |
|---------|-----------|------------|---------------------|---------|-------|
| AA-UW-1 | 7/30/2007 | 10         | Sulfate             | 725     | mg/kg |
| AA-UW-1 | 7/30/2007 | 10         | Sulfate             | 511     | mg/kg |
| AA-UW-1 | 7/30/2007 | 30         | Sulfate             | 62      | mg/kg |
| AA-UW-1 | 7/30/2007 | 40         | Sulfate             | 69.6    | mg/kg |
| AA-UW-1 | 7/30/2007 | 50         | Sulfate             | 754     | mg/kg |
| AA-UW-1 | 7/30/2007 | 60         | Sulfate             | 271     | mg/kg |
| AA-UW-2 | 7/31/2007 | 10         | Sulfate             | 197     | mg/kg |
| AA-UW-2 | 7/31/2007 | 70         | Sulfate             | 424     | mg/kg |
| AA-UW-3 | 8/5/2007  | 10         | Sulfate             | 216     | mg/kg |
| AA-UW-3 | 8/5/2007  | 80         | Sulfate             | 589     | mg/kg |
| AA-UW-4 | 8/6/2007  | 10         | Sulfate             | 24.4    | mg/kg |
| AA-UW-4 | 8/6/2007  | 50         | Sulfate             | 746     | mg/kg |
| AA-UW-5 | 8/7/2007  | 10         | Sulfate             | 15.2    | mg/kg |
| AA-UW-5 | 8/7/2007  | 60         | Sulfate             | 89.3    | mg/kg |
| AA-UW-6 | 8/7/2007  | 10         | Sulfate             | 23.7    | mg/kg |
| AA-UW-6 | 8/7/2007  | 50         | Sulfate             | 567     | mg/kg |
| SB-01-B | 5/10/2004 | 0          | Sulfate             | 19.6    | mg/kg |
| SB-01-B | 5/10/2004 | 7          | Sulfate             | 54.9    | mg/kg |
| SB-01-B | 5/10/2004 | 17         | Sulfate             | 191     | mg/kg |
| SB-01-B | 5/10/2004 | 27         | Sulfate             | 59      | mg/kg |
| SB-01-B | 5/10/2004 | 47         | Sulfate             | 142     | mg/kg |
| SB-01-B | 5/11/2004 | 77         | Sulfate             | 408     | mg/kg |
| SB-01-B | 5/11/2004 | 93         | Sulfate             | 133     | mg/kg |
| SB-27-A | 6/24/2004 | 0          | Sulfate             | 69.4    | mg/kg |
| SB-27-A | 6/24/2004 | 7          | Sulfate             | 2330    | mg/kg |
| SB-27-A | 6/24/2004 | 17         | Sulfate             | 311     | mg/kg |
| SB-27-A | 6/24/2004 | 27         | Sulfate             | 308     | mg/kg |
| SB-27-A | 6/24/2004 | 47         | Sulfate             | 137     | mg/kg |
| SB-27-A | 6/24/2004 | 57         | Sulfate             | 241     | mg/kg |
| SB-27-A | 6/29/2004 | 97         | Sulfate             | 898     | mg/kg |
| SB-27-A | 6/29/2004 | 107        | Sulfate             | 856     | mg/kg |
| AA-UW-1 | 7/30/2007 | 50         | Tetrachloroethylene | 0.0018  | mg/kg |
| AA-UW-1 | 7/30/2007 | 60         | Tetrachloroethylene | 0.00068 | mg/kg |
| SB-01-B | 5/10/2004 | 0          | Tetrachloroethylene | 0.00029 | mg/kg |
| SB-01-B | 5/10/2004 | 7          | Tetrachloroethylene | 0.00027 | mg/kg |
| SB-01-B | 5/10/2004 | 27         | Tetrachloroethylene | 0.00023 | mg/kg |
| SB-01-B | 5/10/2004 | 47         | Tetrachloroethylene | 0.00068 | mg/kg |
| SB-01-B | 5/11/2004 | 77         | Tetrachloroethylene | 0.0077  | mg/kg |
| SB-01-B | 5/11/2004 | 93         | Tetrachloroethylene | 0.00043 | mg/kg |

**Table 5. Summary of Groundwater Sampling Data - Upgradient Wells**  
**Detections exceeding Nevada Basic Comparison Levels (BCLs)**

| Event | Well  | Method      | Chemical                        | Result | Unit | Nevada BCL |
|-------|-------|-------------|---------------------------------|--------|------|------------|
| 1st   | AA-01 | SW6020      | Arsenic                         | 67.3   | ug/L | 0.0448     |
| 2nd   | AA-01 | SW6020      | Arsenic                         | 66.3   | ug/L | 0.0448     |
| 3rd   | AA-01 | SW6020      | Arsenic                         | 68.8   | ug/L | 0.0448     |
| 4th   | AA-01 | SW6020      | Arsenic                         | 78.3   | ug/L | 0.0448     |
| 1st   | AA-01 | SW8260      | Tetrachloroethylene             | 81     | ug/L | 0.105      |
| 2nd   | AA-01 | SW8260      | Tetrachloroethylene             | 45     | ug/L | 0.105      |
| 3rd   | AA-01 | SW8260      | Tetrachloroethylene             | 42     | ug/L | 0.105      |
| 4th   | AA-01 | SW8260      | Tetrachloroethylene             | 84     | ug/L | 0.105      |
| 5th   | AA-01 | SW8260      | Tetrachloroethylene             | 54     | ug/L | 0.105      |
| 1st   | AA-01 | SW8290      | Octachlorodibenzodioxin         | 49     | pg/l | 0.448      |
| 2nd   | AA-01 | SW6020      | Phosphorus (as P)               | 100    | ug/L | 0.73       |
| 1st   | AA-01 | E300.0      | Chlorine                        | 1780   | mg/L | 3.65       |
| 2nd   | AA-01 | E300.0      | Chlorine                        | 1700   | mg/L | 3.65       |
| 3rd   | AA-01 | E300.0      | Chlorine                        | 1510   | mg/L | 3.65       |
| 4th   | AA-01 | E300.0      | Chlorine                        | 1940   | mg/L | 3.65       |
| 5th   | AA-01 | E300.0      | Chlorine                        | 1420   | mg/L | 3.65       |
| 1st   | AA-01 | SW8260      | Trichloroethylene               | 0.34   | ug/L | 0.028      |
| 2nd   | AA-01 | SW8260      | Trichloroethylene               | 0.29   | ug/L | 0.028      |
| 3rd   | AA-01 | SW8260      | Trichloroethylene               | 0.46   | ug/L | 0.028      |
| 4th   | AA-01 | SW8260      | Trichloroethylene               | 0.44   | ug/L | 0.028      |
| 5th   | AA-01 | SW8260      | Trichloroethylene               | 0.41   | ug/L | 0.028      |
| 1st   | AA-01 | SW8260      | Chloroform                      | 4      | ug/L | 0.167      |
| 2nd   | AA-01 | SW8260      | Chloroform                      | 3.2    | ug/L | 0.167      |
| 3rd   | AA-01 | SW8260      | Chloroform                      | 7.9    | ug/L | 0.167      |
| 4th   | AA-01 | SW8260      | Chloroform                      | 5.5    | ug/L | 0.167      |
| 5th   | AA-01 | SW8260      | Chloroform                      | 5      | ug/L | 0.167      |
| 2nd   | AA-01 | EPA 8315A   | Acetaldehyde                    | 30     | ug/L | 1.75       |
| 1st   | AA-01 | E314.0      | Perchlorate                     | 1170   | ug/L | 18         |
| 2nd   | AA-01 | E314.0      | Perchlorate                     | 1530   | ug/L | 18         |
| 3rd   | AA-01 | E314.0      | Perchlorate                     | 1550   | ug/L | 18         |
| 4th   | AA-01 | E314.0      | Perchlorate                     | 1290   | ug/L | 18         |
| 3rd   | AA-01 | SW8260      | Bromodichloromethane            | 0.21   | ug/L | 0.181      |
| 2nd   | AA-01 | E300        | Fluoride                        | 3.5    | mg/L | 2.19       |
| 3rd   | AA-01 | E300        | Fluoride                        | 3.1    | mg/L | 2.19       |
| 2nd   | AA-01 | SW6020      | Thallium                        | 10     | ug/L | 2.56       |
| 2nd   | AA-01 | Alpha Acids | Dimethyl phosphorodithioic acid | 13     | mg/L | 3.65       |
| 1st   | AA-01 | E300        | Nitrate (as N)                  | 11.8   | mg/L | 10         |
| 2nd   | AA-01 | E300        | Nitrate (as N)                  | 12.4   | mg/L | 10         |
| 4th   | AA-01 | E300        | Nitrate (as N)                  | 20.7   | mg/L | 11         |
| 1st   | AA-27 | SW6020      | Arsenic                         | 38.7   | ug/L | 0.0448     |
| 2nd   | AA-27 | SW6020      | Arsenic                         | 35     | ug/L | 0.0448     |
| 1st   | AA-27 | E300.0      | Chlorine                        | 886    | mg/L | 3.65       |
| 2nd   | AA-27 | E300        | Chlorine                        | 2500   | mg/L | 3.65       |
| 3rd   | AA-27 | E300.0      | Chlorine                        | 868    | mg/L | 3.65       |
| 4th   | AA-27 | E300.0      | Chlorine                        | 1210   | mg/L | 3.65       |

**Table 5. Summary of Groundwater Sampling Data - Upgradient Wells**  
**Detections exceeding Nevada Basic Comparison Levels (BCLs)**

| Event | Well   | Method      | Chemical                        | Result | Unit | Nevada BCL |
|-------|--------|-------------|---------------------------------|--------|------|------------|
| 5th   | AA-27  | E300.0      | Chlorine                        | 900    | mg/L | 3.65       |
| 2nd   | AA-27  | SW8260      | Chloroform                      | 1.8    | ug/L | 0.167      |
| 3rd   | AA-27  | SW8260      | Chloroform                      | 2      | ug/L | 0.167      |
| 4th   | AA-27  | SW8260      | Chloroform                      | 1.7    | ug/L | 0.167      |
| 2nd   | AA-27  | EPA 8315A   | Formaldehyde                    | 60     | ug/L | 1.46       |
| 2nd   | AA-27  | EPA 8315A   | Acetaldehyde                    | 30     | ug/L | 1.75       |
| 1st   | AA-27  | E314.0      | Perchlorate                     | 247    | ug/L | 18         |
| 2nd   | AA-27  | E314.0      | Perchlorate                     | 246    | ug/L | 18         |
| 3rd   | AA-27  | E314.0      | Perchlorate                     | 261    | ug/L | 18         |
| 4th   | AA-27  | E314.0      | Perchlorate                     | 249    | ug/L | 18         |
| 5th   | AA-27  | EPA 314.0   | Perchlorate                     | 266    | ug/L | 18         |
| 1st   | AA-27  | SW8260      | Chloroform                      | 1.6    | ug/L | 0.167      |
| 5th   | AA-27  | SW8260      | Chloroform                      | 1.4    | ug/L | 0.167      |
| 1st   | AA-27  | EPA 8315A   | Acetaldehyde                    | 3.8    | ug/L | 1.75       |
| 2nd   | AA-27  | E300        | Fluoride                        | 3.3    | mg/L | 2.19       |
| 3rd   | AA-27  | E300        | Fluoride                        | 3      | mg/L | 2.19       |
| 2nd   | AA-27  | Alpha Acids | Dimethyl phosphorodithioic acid | 6.7    | mg/L | 3.65       |
| 1st   | AA-27  | E300        | Nitrate (as N)                  | 14.1   | mg/L | 10         |
| 2nd   | AA-27  | E300        | Nitrate (as N)                  | 39.3   | mg/L | 10         |
| 3rd   | AA-27  | E300        | Nitrate (as N)                  | 12     | mg/L | 10         |
| 4th   | AA-27  | E300        | Nitrate (as N)                  | 12.6   | mg/L | 12         |
| 2nd   | AA-27  | SM3500-CR D | Chromium (VI)                   | 260    | ug/L | 110        |
| 5th   | AA-UW1 | SW6020      | Arsenic                         | 69.8   | ug/L | 0.0448     |
| 5th   | AA-UW1 | SW8260      | Tetrachloroethylene             | 24     | ug/L | 0.105      |
| 5th   | AA-UW1 | E300.0      | Chlorine                        | 877    | mg/L | 3.65       |
| 5th   | AA-UW1 | EPA 314.0   | Perchlorate                     | 697    | ug/L | 18         |
| 5th   | AA-UW1 | SW8260      | Trichloroethylene               | 0.26   | ug/L | 0.028      |
| 5th   | AA-UW1 | SW8260      | Chloroform                      | 1.1    | ug/L | 0.167      |
| 5th   | AA-UW1 | SW8260      | 1,4-Dichlorobenzene             | 0.58   | ug/L | 0.467      |
| 5th   | AA-UW2 | E300.0      | Chlorine                        | 1040   | mg/L | 3.65       |
| 5th   | AA-UW2 | SW8260      | Chloroform                      | 1.2    | ug/L | 0.167      |
| 5th   | AA-UW2 | SW8260      | 1,4-Dichlorobenzene             | 1.1    | ug/L | 0.467      |
| 5th   | AA-UW2 | EPA 314.0   | Perchlorate                     | 108    | ug/L | 18         |
| 5th   | AA-UW2 | SW6020      | Iron                            | 793    | ug/L | 110        |
| 5th   | AA-UW3 | E300.0      | Chlorine                        | 528    | mg/L | 3.65       |
| 5th   | AA-UW3 | SW8260      | Chloroform                      | 3.6    | ug/L | 0.167      |
| 5th   | AA-UW3 | EPA 314.0   | Perchlorate                     | 80.2   | ug/L | 18         |
| 5th   | AA-UW4 | E300.0      | Chlorine                        | 663    | mg/L | 3.65       |
| 5th   | AA-UW4 | SW8260      | Chloroform                      | 2.6    | ug/L | 0.167      |
| 5th   | AA-UW4 | EPA 314.0   | Perchlorate                     | 90     | ug/L | 18         |
| 5th   | AA-UW5 | SW8260      | Chloroform                      | 1.9    | ug/L | 0.167      |
| 5th   | AA-UW5 | E300.0      | Chlorine                        | 353    | mg/L | 3.65       |
| 5th   | AA-UW5 | SW8260      | Tetrachloroethylene             | 0.45   | ug/L | 0.105      |
| 5th   | AA-UW5 | EPA 314.0   | Perchlorate                     | 57.2   | ug/L | 18         |
| 5th   | AA-UW6 | SW6020      | Arsenic                         | 102    | ug/L | 0.0448     |
| 5th   | AA-UW6 | E300.0      | Chlorine                        | 452    | mg/L | 3.65       |
| 5th   | AA-UW6 | SW8260      | Chloroform                      | 0.44   | ug/L | 0.167      |
| 5th   | AA-UW6 | EPA 314.0   | Perchlorate                     | 65.1   | ug/L | 18         |

**Table 5. Summary of Groundwater Sampling Data - Upgradient Wells**  
**Detections exceeding U.S. EPA Secondary Maximum Contaminant Levels (MCLs)**

| Event | Well   | Method | Chemical               | Result | unit | USEPA<br>Secondary<br>MCLs |
|-------|--------|--------|------------------------|--------|------|----------------------------|
| 1st   | AA-01  | E300   | Chloride               | 892    | mg/L | 250                        |
| 2nd   | AA-01  | E300   | Chloride               | 884    | mg/L | 250                        |
| 3rd   | AA-01  | E300   | Chloride               | 757    | mg/L | 250                        |
| 4th   | AA-01  | E300   | Chloride               | 970    | mg/L | 250                        |
| 5th   | AA-01  | E300   | Chloride               | 711    | mg/L | 250                        |
| 1st   | AA-01  | E300   | Sulfate                | 1500   | mg/L | 250                        |
| 2nd   | AA-01  | E300   | Sulfate                | 1700   | mg/L | 250                        |
| 3rd   | AA-01  | E300   | Sulfate                | 1600   | mg/L | 250                        |
| 4th   | AA-01  | E300   | Sulfate                | 2140   | mg/L | 250                        |
| 5th   | AA-01  | E300   | Sulfate                | 1460   | mg/L | 250                        |
| 1st   | AA-01  | E160.1 | Total Dissolved Solids | 3430   | mg/L | 500                        |
| 2nd   | AA-01  | E160.1 | Total Dissolved Solids | 3930   | mg/L | 500                        |
| 3rd   | AA-01  | E160.1 | Total Dissolved Solids | 3310   | mg/L | 500                        |
| 4th   | AA-01  | E160.1 | Total Dissolved Solids | 3730   | mg/L | 500                        |
| 5th   | AA-01  | E160.1 | Total Dissolved Solids | 3850   | mg/L | 500                        |
| 1st   | AA-27  | E300   | Chloride               | 443    | mg/L | 250                        |
| 2nd   | AA-27  | E300   | Chloride               | 1250   | mg/L | 250                        |
| 3rd   | AA-27  | E300   | Chloride               | 434    | mg/L | 250                        |
| 4th   | AA-27  | E300   | Chloride               | 605    | mg/L | 250                        |
| 5th   | AA-27  | E300   | Chloride               | 450    | mg/L | 250                        |
| 1st   | AA-27  | E300   | Sulfate                | 2410   | mg/L | 250                        |
| 2nd   | AA-27  | E300   | Sulfate                | 6870   | mg/L | 250                        |
| 3rd   | AA-27  | E300   | Sulfate                | 2700   | mg/L | 250                        |
| 4th   | AA-27  | E300   | Sulfate                | 2800   | mg/L | 250                        |
| 5th   | AA-27  | E300   | Sulfate                | 2380   | mg/L | 250                        |
| 1st   | AA-27  | E160.1 | Total Dissolved Solids | 4080   | mg/L | 500                        |
| 2nd   | AA-27  | E160.1 | Total Dissolved Solids | 4240   | mg/L | 500                        |
| 3rd   | AA-27  | E160.1 | Total Dissolved Solids | 4220   | mg/L | 500                        |
| 4th   | AA-27  | E160.1 | Total Dissolved Solids | 4340   | mg/L | 500                        |
| 5th   | AA-27  | E160.1 | Total Dissolved Solids | 4570   | mg/L | 500                        |
| 5th   | AA-UW1 | SW6020 | Aluminum               | 323    | ug/L | 200                        |
| 5th   | AA-UW1 | E300   | Chloride               | 439    | mg/L | 250                        |
| 5th   | AA-UW1 | SW6020 | Manganese              | 98.8   | ug/L | 50                         |
| 5th   | AA-UW1 | E300   | Sulfate                | 2120   | mg/L | 250                        |
| 5th   | AA-UW1 | E160.1 | Total Dissolved Solids | 4310   | mg/L | 500                        |
| 5th   | AA-UW2 | E300   | Chloride               | 522    | mg/L | 250                        |
| 5th   | AA-UW2 | SW6020 | Iron                   | 793    | ug/L | 300                        |
| 5th   | AA-UW2 | SW6020 | Manganese              | 164    | ug/L | 50                         |
| 5th   | AA-UW2 | E300   | Sulfate                | 1930   | mg/L | 250                        |
| 5th   | AA-UW2 | E160.1 | Total Dissolved Solids | 4460   | mg/L | 500                        |
| 5th   | AA-UW3 | E300   | Chloride               | 264    | mg/L | 250                        |
| 5th   | AA-UW3 | E300   | Sulfate                | 3070   | mg/L | 250                        |
| 5th   | AA-UW3 | E160.1 | Total Dissolved Solids | 4880   | mg/L | 500                        |
| 5th   | AA-UW4 | E300   | Chloride               | 331    | mg/L | 250                        |
| 5th   | AA-UW4 | E300   | Sulfate                | 2970   | mg/L | 250                        |
| 5th   | AA-UW4 | E160.1 | Total Dissolved Solids | 5990   | mg/L | 500                        |
| 5th   | AA-UW5 | E300   | Sulfate                | 271    | mg/L | 250                        |
| 5th   | AA-UW5 | E160.1 | Total Dissolved Solids | 1400   | mg/L | 500                        |
| 5th   | AA-UW6 | E300   | Sulfate                | 2480   | mg/L | 250                        |
| 5th   | AA-UW6 | E160.1 | Total Dissolved Solids | 5850   | mg/L | 500                        |

## **Appendix A**

**Response to Nevada Division of Environmental Protection (NDEP) Comments, dated June 26, 2009, to  
Upgradient Wells Report, BMI Common Areas, Eastside Area, dated June 12, 2009  
NDEP Facility ID# H-000688**

1. Section 2.2, page 6, last paragraph last sentence of the section. The last sentence should be corrected to state that "...are relatively close to the southern boundary of the *Upper Ponds*." It is equally significant to point out that wells AA-01 and AA-UW1 are relatively close to the now closed TIMET ponds that were built on top of former Upper Ponds. Also, wells AA-01, AA-UW1, and AA-27 are adjacent to the active BMI Complex.

**Response:** The report has been revised to include the suggested text.

2. Section 2.4.1 and Table 2, please be advised that NDEP has not evaluated the statistical analyses presented herein due to the apparent critical flaws in the document which are discussed below.

**Response:** Comment noted.

3. Section 2.4.3, page 12 and cation-anion balance (CAB) Attachment Table. The NDEP's goal for the CAB check is to require that inorganic chemical data be inspected and evaluated to improve overall inorganic data quality.

**Response:** Comment noted and appreciated.

- a. Section 2.4.3, page 12, 2<sup>nd</sup> paragraph. Obviously when a single constituent such as sulfate is elevated such that its meq/L concentration alone is greater than 800 meq/L; then, the Standard Methods calculation is assumed to not apply. Thus, there is no issue and the example provided is not an issue.

**Response:** Comment noted and appreciated. BRC has annotated the CAB calculation table to designate elevated meq/L values in excess of 800 (data flag A). In addition, the text of the report has been modified to note that the Standards Methods calculation does not apply to constituents with an meq/L value over 800.

- b. Section 2.4.3, page 12, 3<sup>rd</sup> paragraph. NDEP is aware of the anion sum requirement. Hence, some of our previous comments have indicated that the Standard Methods CAB is not applicable in those cases.

**Response:** Comment noted and appreciated.

- c. Please note the following for the data provided:
  - i. 85% of the analyses fall within the anion sum criterion;
  - ii. Not including those samples with anion sum > 800 meq/L → 60% of the samples passed the CAB;
  - iii. Not including those samples with anion sum > 800 meq/L → 40% of the samples failed the CAB;

**Response:** Comments noted and appreciated.

- iv. There is an apparent error in calculation of TDS by sum → therefore the Acceptable Ratio calculations are incorrect,
  - 1. For the two samples checked the ratio fell within acceptable limits, thus these samples passed instead of failing as indicated; and
- v. NDEP has not checked the Summary CAB Calculations for all possible errors but requests that BRC check and resubmit this table;

**Response:** The noted error has been corrected. A subset of the analytical results presented in this table (attached) were recognized by Microsoft Excel as 'text' values - and thus were not included in the summation calculation for calculated TDS. Calculations relating to the CAB were not impacted by this error. In addition, the value 0.6 was added to the TDS sum calculation to be consistent with Standard Methods. The entire table has been re-checked for other possible spreadsheet errors and no others have been identified.

- d. It is not standard practice to use ½ the detection limit for an analyte in a CAB calculation, this has no basis in chemistry. Assuming the charge balance of a solution is neutral, a better procedure would be to assume that sum cations (meq/L) equals sum anions (meq/L) then the imbalance can be assigned to specific ions to balance the sum. If the resulting value for an analyte is above the detection limit, then one would assume there is an analytical issue. The resulting analysis should be flagged as estimated.

**Response:** The suggested revision has been included in the revised CAB table.

- e. NDEP has not requested a measured : calculated EC ratio.

**Response:** This calculation has been omitted from the CAB table.

- f. As previously requested this Table should contain the appropriate data flags.

**Response:** As discussed with the NDEP, the footnotes are included on the last columns of the table as requested.

- 4. Section 2.4.3, page 13, last paragraph last sentence on page. Given BRC Figure 2 and TIMET Figure 2-5 (Appendix C), please explain how the TIMET and Tronox site-related chemicals (PCE in particular) arrive at well AA-01. The potentiometric surface maps (as depicted) do not appear to support this statement.

**Response:** As noted on Figure 4-44 of the TIMET conceptual site model report (attached), tetrachloroethene in offsite shallow groundwater extends to the north-northeast from relatively high concentrations in TIMET wells MW-4 (61 ug/L), J2D2 (110 ug/L), and J2U2 (68 ug/L) towards well AA-01 (81 ug/L). Groundwater flow from well MW-4 (and, to a lesser extent, wells J2U2 and J2D2) are directly generally towards well AA-01 in TIMET Figure 2-5. The report text notes that the detected PCE in well AA-01 may be due to offsite sources. A further evaluation of available flow maps from this area and analytical data trends will be used to make a final determination as to the source of the PCE in well AA-01. BRC will complete the further evaluation of PCE sources and contaminant transport in the upcoming Eastside Conceptual Site Model (CSM) report.

5. Figures 5, 6, 7, and 8, data are plotted without regard to or indication of data quality (CAB evaluation).

**Response:** A footnote has been added to these figures to note that some wells do not pass the CAB evaluation. Revised Piper and Stiff diagrams, if needed, will be created from the 2009 Eastside groundwater sampling data.

6. Appendix A, NDEP Comment 2(f) and BRC response-to-comment (RTC). Please look at the laboratory results in sufficient detail using Standard Methods to provide comments regarding reasons for CAB, Lab TDS : Calculated TDS, and/or Measured TDS:EC Ratio results. Please look at the example provided.

**Response:** As discussed with NDEP, the upper limit to the acceptable range for the Lab TDS and EC ratio (Analysis C) has been adjusted. As discussed by Hem (1985), the ratio of TDS to EC varies with chemical characteristics of the sampled water. Furthermore, for high-sulfate waters, such as those sampled here, the ratio is expected to be relatively large. As discussed with NDEP, we have graphed laboratory-measured TDS versus laboratory-measured EC, and plotted a best-fit line to the data, excluding outliers. The slope of this line (1.47) is representative of the Lab-TDS to EC ratio for this set of samples, and was used as the upper-limit of the acceptable range.

In addition, BRC is currently working with the laboratories to plan accordingly for the next sampling round to further evaluate these issues using specific tasks outlined in the 2009 Eastside sampling plan. The 2009 Eastside sampling report will contain a full review of these issues.

7. Electronic copy, in future versions of the report please include an executable copy of the data used in the evaluations.

**Response:** An executable copy of the data used in the evaluations will be included in future submittals.

## **Attachments**

Summary of Cation-Anion Balance and Related Calculations  
Fifth Round Sampling Data - BMI Common Areas - Eastside

| Well    | Zone    | pH  | Major Ion Chemistry Data Input |      |       |      |                  |                 |    |                 |       |      |                 |                  | meq/l Calculations |          |          |          |          |                  |                 |          |                 |          |          |                 |                  |                  |
|---------|---------|-----|--------------------------------|------|-------|------|------------------|-----------------|----|-----------------|-------|------|-----------------|------------------|--------------------|----------|----------|----------|----------|------------------|-----------------|----------|-----------------|----------|----------|-----------------|------------------|------------------|
|         |         |     | Ca                             | Mg   | Na    | K    | HCO <sub>3</sub> | CO <sub>3</sub> | OH | SO <sub>4</sub> | Cl    | F    | NO <sub>3</sub> | ClO <sub>3</sub> | ClO <sub>4</sub>   | Ca       | Mg       | Na       | K        | HCO <sub>3</sub> | CO <sub>3</sub> | OH       | SO <sub>4</sub> | Cl       | F        | NO <sub>3</sub> | ClO <sub>3</sub> | ClO <sub>4</sub> |
|         |         |     |                                |      |       |      |                  |                 |    |                 |       |      |                 |                  |                    | 20.04    | 12.16    | 22.99    | 39.1     | 61.02            | 30.01           | 17       | 48.03           | 35.5     | 19       | 61.91           | 83.4             | 99.5             |
|         |         |     |                                |      |       |      |                  |                 |    |                 |       |      |                 |                  |                    | (mg/meq) | (mg/meq) | (mg/meq) | (mg/meq) | (mg/meq)         | (mg/meq)        | (mg/meq) | (mg/meq)        | (mg/meq) | (mg/meq) | (mg/meq)        | (mg/meq)         | (mg/meq)         |
|         |         |     |                                |      |       |      |                  |                 |    |                 |       |      |                 |                  |                    | (meq/l)  | (meq/l)  | (meq/l)  | (meq/l)  | (meq/l)          | (meq/l)         | (meq/l)  | (meq/l)         | (meq/l)  | (meq/l)  | (meq/l)         | (meq/l)          | (meq/l)          |
| AA-01   | Shallow | 7.1 | 526                            | 135  | 377   | 7.02 | 101              |                 |    | 1460            | 711   | 1.7  | 8.3             | 4.2              | 0.00               | 26.25    | 11.10    | 16.40    | 0.18     | 1.66             | 0.00            | 0.00     | 30.40           | 20.03    | 0.09     | 0.13            | 0.05             | 0.00             |
| AA-07   | Shallow | 7.4 | 264                            | 81.8 | 199   | 39.8 | 95               |                 |    | 1010            | 273   | 0.8  | 10.5            | 0.79             | 0.48               | 13.17    | 6.73     | 8.66     | 1.02     | 1.56             | 0.00            | 0.00     | 21.03           | 7.69     | 0.04     | 0.17            | 0.01             | 0.00             |
| AA-08   | Shallow | 7.1 | 384                            | 191  | 601   | 27.9 | 144              |                 |    | 1820            | 1350  | 1.2  | 6.8             | 1.2              | 5.08               | 19.16    | 15.71    | 26.14    | 0.71     | 2.36             | 0.00            | 0.00     | 37.89           | 38.03    | 0.06     | 0.11            | 0.01             | 0.05             |
| AA-09   | Shallow | 7.1 | 531                            | 342  | 1070  | 33.6 | 73               |                 |    | 3050            | 1390  | 0.48 | 20              | 89               | 6.51               | 26.50    | 28.13    | 46.54    | 0.86     | 1.20             | 0.00            | 0.00     | 63.50           | 39.15    | 0.03     | 0.32            | 1.07             | 0.07             |
| AA-10   | Shallow | 7.5 | 470                            | 224  | 640   | 36.3 | 123              |                 |    | 1960            | 1170  | 0.9  | 6.9             | 0.48             | 3.43               | 23.45    | 18.42    | 27.84    | 0.93     | 2.02             | 0.00            | 0.00     | 40.81           | 32.96    | 0.05     | 0.11            | 0.01             | 0.03             |
| AA-13   | Shallow | 7.7 | 284                            | 125  | 398   | 21.1 | 233              |                 |    | 1370            | 322   | 0.92 | 26              |                  | 0.04               | 14.17    | 10.28    | 17.31    | 0.54     | 3.82             | 0.00            | 0.00     | 28.52           | 9.07     | 0.05     | 0.42            | 0.00             | 0.00             |
| AA-18   | Shallow | 7.9 | 96.4                           | 54.4 | 137   | 15.1 | 100              |                 |    | 429             | 225   | 0.71 | 10.8            |                  | 0.11               | 4.81     | 4.47     | 5.96     | 0.39     | 1.64             | 0.00            | 0.00     | 8.93            | 6.34     | 0.04     | 0.17            | 0.00             | 0.00             |
| AA-20   | Shallow | 7.4 | 483                            | 205  | 668   | 32.9 | 79               |                 |    | 2660            | 1200  | 0.31 | 20.5            | 97.5             | 7.18               | 24.10    | 16.86    | 29.06    | 0.84     | 1.29             | 0.00            | 0.00     | 55.38           | 33.80    | 0.02     | 0.33            | 1.17             | 0.07             |
| AA-21   | Shallow | 7.4 | 526                            | 315  | 696   | 79.4 | 165              |                 |    | 2950            | 971   | 1.9  | 6.6             |                  | 0.06               | 26.25    | 25.90    | 30.27    | 2.03     | 2.70             | 0.00            | 0.00     | 61.42           | 27.35    | 0.10     | 0.11            | 0.00             | 0.00             |
| AA-22   | Shallow | 7.5 | 495                            | 70.4 | 280   | 22.4 | 166              |                 |    | 1660            | 385   | 0.63 | 2.8             | 0.26             | 0.09               | 24.70    | 5.79     | 12.18    | 0.57     | 2.72             | 0.00            | 0.00     | 34.56           | 10.85    | 0.03     | 0.05            | 0.00             | 0.00             |
| AA-23R  | Shallow | 6.9 | 617                            | 121  | 314   | 32.9 | 157              |                 |    | 1920            | 578   | 0.33 | 9.8             | 5.2              | 0.68               | 30.79    | 9.95     | 13.66    | 0.84     | 2.57             | 0.00            | 0.00     | 39.98           | 16.28    | 0.02     | 0.16            | 0.06             | 0.01             |
| AA-26   | Shallow | 7.4 | 234                            | 83.9 | 309   | 40   | 66               |                 |    | 1170            | 326   | 0.77 | 5.8             |                  | 0.03               | 11.68    | 6.90     | 13.44    | 1.02     | 1.08             | 0.00            | 0.00     | 24.36           | 9.18     | 0.04     | 0.09            | 0.00             | 0.00             |
| AA-27   | Shallow | 7.2 | 452                            | 161  | 381   | 7.02 | 108              |                 |    | 2380            | 450   | 1.6  | 12.3            | 0.32             | 0.27               | 22.55    | 13.24    | 16.57    | 0.18     | 1.77             | 0.00            | 0.00     | 49.55           | 12.68    | 0.08     | 0.20            | 0.00             | 0.00             |
| AA-UW1  | Shallow | 7.6 | 539                            | 202  | 319   | 7.39 | 85               |                 |    | 2120            | 439   | 1.1  | 5               | 1.3              | 0.70               | 26.90    | 16.61    | 13.88    | 0.19     | 1.39             | 0.00            | 0.00     | 44.14           | 12.37    | 0.06     | 0.08            | 0.02             | 0.01             |
| AA-UW2  | Shallow | 7.3 | 392                            | 203  | 482   | 8.12 | 123              |                 |    | 1930            | 522   | 1.2  | 10.6            | 0.76             | 0.11               | 19.56    | 16.69    | 20.97    | 0.21     | 2.02             | 0.00            | 0.00     | 40.18           | 14.70    | 0.06     | 0.17            | 0.01             | 0.00             |
| AA-UW3  | Shallow | 7.6 | 293                            | 185  | 830   | 14.9 | 81               |                 |    | 3070            | 264   | 1.5  | 7.9             |                  | 0.08               | 14.62    | 15.21    | 36.10    | 0.38     | 1.33             | 0.00            | 0.00     | 63.92           | 7.44     | 0.08     | 0.13            | 0.00             | 0.00             |
| AA-UW4  | Shallow | 7.6 | 337                            | 173  | 640   | 13.1 | 84               |                 |    | 2970            | 331   | 1    | 11.9            |                  | 0.09               | 16.82    | 14.23    | 27.84    | 0.34     | 1.38             | 0.00            | 0.00     | 61.84           | 9.32     | 0.05     | 0.19            | 0.00             | 0.00             |
| AA-UW5  | Shallow | 7.8 | 75.4                           | 45.8 | 97.7  | 7.56 | 124              |                 |    | 271             | 176   | 0.72 | 14.7            |                  | 0.06               | 3.76     | 3.77     | 4.25     | 0.19     | 2.03             | 0.00            | 0.00     | 5.64            | 4.96     | 0.04     | 0.24            | 0.00             | 0.00             |
| AA-UW6  | Shallow | 7.8 | 370                            | 157  | 324   | 63.3 | 57               |                 |    | 2480            | 226   | 0.62 | 7.6             |                  | 0.07               | 18.46    | 12.91    | 14.09    | 1.62     | 0.93             | 0.00            | 0.00     | 51.63           | 6.37     | 0.03     | 0.12            | 0.00             | 0.00             |
| BEC-6   | Middle  | 7   | 579                            | 267  | 568   | 37   | 105              |                 |    | 1890            | 1700  | 0.57 | 30.4            | 27.7             |                    | 28.89    | 21.96    | 24.71    | 0.95     | 1.72             | 0.00            | 0.00     | 39.35           | 47.89    | 0.03     | 0.49            | 0.33             | 0.00             |
| BEC-9   | Middle  | 5.7 | 712                            | 298  | 443   | 61   | 109              |                 |    | 2080            | 1600  | 0.7  | 46.2            | 1.9              |                    | 35.53    | 24.51    | 19.27    | 1.56     | 1.79             | 0.00            | 0.00     | 43.31           | 45.07    | 0.04     | 0.75            | 0.02             | 0.00             |
| COH-1   | Middle  | 7.5 | 436                            | 8370 | 15100 | 5320 | 83               |                 |    | 43000           | 24100 |      |                 |                  | 0.01               | 21.76    | 688.32   | 656.81   | 136.06   | 1.36             | 0.00            | 0.00     | 895.27          | 678.87   |          |                 | 0.00             | 0.00             |
| COH-2   | Middle  | 7.5 | 499                            | 7190 | 16500 | 4610 | 104              |                 |    | 36100           | 28500 |      |                 |                  | 0.01               | 24.90    | 591.28   | 717.70   | 117.90   | 1.70             | 0.00            | 0.00     | 751.61          | 802.82   |          |                 | 0.00             | 0.00             |
| COH-2A  | Shallow | 7.3 | 544                            | 308  | 1080  | 36   | 146              |                 |    | 3030            | 1500  | 1.3  | 19.5            | 63.4             | 8.33               | 27.15    | 25.33    | 46.98    | 0.92     | 2.39             | 0.00            | 0.00     | 63.09           | 42.25    | 0.07     | 0.31            | 0.76             | 0.08             |
| DBMW-1  | Shallow | 7.4 | 624                            | 306  | 634   | 51.9 | 63               |                 |    | 2810            | 991   | 0.33 | 8.8             | 26.2             | 8.02               | 31.14    | 25.16    | 27.58    | 1.33     | 1.03             | 0.00            | 0.00     | 58.51           | 27.92    | 0.02     | 0.14            | 0.31             | 0.08             |
| DBMW-10 | Shallow | 7.6 | 212                            | 89.6 | 244   | 57.1 | 71               |                 |    | 916             | 317   | 0.59 | 10.1            | 2.6              | 0.55               | 10.58    | 7.37     | 10.61    | 1.46     | 1.16             | 0.00            | 0.00     | 19.07           | 8.93     | 0.03     | 0.16            | 0.03             | 0.01             |
| DBMW-11 | Shallow | 7.5 | 645                            | 481  | 712   | 233  | 65               |                 |    | 3120            | 1880  | 0.35 | 24.3            | 35.3             | 0.49               | 32.19    | 39.56    | 30.97    | 5.96     | 1.07             | 0.00            | 0.00     | 64.96           | 52.96    | 0.02     | 0.39            | 0.42             | 0.00             |
| DBMW-12 | Shallow | 7.1 | 675                            | 859  | 912   | 526  | 55               |                 |    | 5040            | 2480  |      | 25.4            | 38.9             | 18.80              | 33.68    | 70.64    | 39.67    | 13.45    | 0.90             | 0.00            | 0.00     | 104.93          | 69.86    |          | 0.41            | 0.47             | 0.19             |
| DBMW-13 | Shallow | 7.6 | 613                            | 284  | 624   | 134  | 51               |                 |    | 2640            | 1060  | 0.27 | 14.7            | 19               | 10.60              | 30.59    | 23.36    | 27.14    | 3.43     | 0.84             | 0.00            | 0.00     | 54.97           | 29.86    | 0.01     | 0.24            | 0.23             | 0.11             |
| DBMW-14 | Shallow | 7.4 | 607                            | 211  | 515   | 127  | 55               |                 |    | 2390            | 1100  | 0.09 | 16.7            | 20.4             | 14.30              | 30.29    | 17.35    | 22.40    | 3.25     | 0.90             | 0.00            | 0.00     | 49.76           | 30.99    | 0.00     | 0.27            | 0.24             | 0.14             |
| DBMW-15 | Shallow | 7.6 | 570                            | 219  | 416   | 94.7 | 56               |                 |    | 2600            | 397   | 0.34 | 8.3             | 4.6              | 1.46               | 28.44    | 18.01    | 18.09    | 2.42     | 0.92             | 0.00            | 0.00     | 54.13           | 11.18    | 0.02     | 0.13            | 0.06             | 0.01             |
| DBMW-16 | Shallow | 7.8 | 76.8                           | 36.1 | 197   | 20.9 | 76               |                 |    | 445             | 129   | 0.72 |                 |                  |                    |          |          |          |          |                  |                 |          |                 |          |          |                 |                  |                  |

Summary of Cation-Anion Balance and Related Calculations  
Fifth Round Sampling Data - BMI Common Areas - Eastside

| Well    | Zone    | pH  | Major Ion Chemistry Data Input |          |          |          |                  |                 |          |                 |          |          |                 |                  | meq/l Calculations |          |         |         |         |                  |                 |         |                 |         |         |                 |                  |                  |         |
|---------|---------|-----|--------------------------------|----------|----------|----------|------------------|-----------------|----------|-----------------|----------|----------|-----------------|------------------|--------------------|----------|---------|---------|---------|------------------|-----------------|---------|-----------------|---------|---------|-----------------|------------------|------------------|---------|
|         |         |     | Ca                             | Mg       | Na       | K        | HCO <sub>3</sub> | CO <sub>3</sub> | OH       | SO <sub>4</sub> | Cl       | F        | NO <sub>3</sub> | ClO <sub>3</sub> | ClO <sub>4</sub>   | Ca       | Mg      | Na      | K       | HCO <sub>3</sub> | CO <sub>3</sub> | OH      | SO <sub>4</sub> | Cl      | F       | NO <sub>3</sub> | ClO <sub>3</sub> | ClO <sub>4</sub> |         |
|         |         |     | 20.04                          | 12.16    | 22.99    | 39.1     | 61.02            | 30.01           | 17       | 48.03           | 35.5     | 19       | 61.91           | 83.4             | 99.5               |          |         |         |         |                  |                 |         |                 |         |         |                 |                  |                  |         |
|         |         |     | (mg/meq)                       | (mg/meq) | (mg/meq) | (mg/meq) | (mg/meq)         | (mg/meq)        | (mg/meq) | (mg/meq)        | (mg/meq) | (mg/meq) | (mg/meq)        | (mg/meq)         | (mg/meq)           | (mg/meq) | (mg/l)  | (mg/l)  | (mg/l)  | (mg/l)           | (mg/l)          | (mg/l)  | (mg/l)          | (mg/l)  | (mg/l)  | (mg/l)          | (mg/l)           | (mg/l)           | (mg/l)  |
|         |         |     | (meq/l)                        | (meq/l)  | (meq/l)  | (meq/l)  | (meq/l)          | (meq/l)         | (meq/l)  | (meq/l)         | (meq/l)  | (meq/l)  | (meq/l)         | (meq/l)          | (meq/l)            | (meq/l)  | (meq/l) | (meq/l) | (meq/l) | (meq/l)          | (meq/l)         | (meq/l) | (meq/l)         | (meq/l) | (meq/l) | (meq/l)         | (meq/l)          | (meq/l)          | (meq/l) |
| MCF-03B | Middle  | 7.8 | 157                            | 93.3     | 485      | 11.7     | 129              |                 |          | 1200            | 313      | 0.75     | 11              | 0.099            | 0.09               | 7.83     | 7.67    | 21.10   | 0.30    | 2.11             | 0.00            | 0.00    | 24.98           | 8.82    | 0.04    | 0.18            | 0.00             | 0.00             |         |
| MCF-04  | Deep    | 7.3 | 513                            | 129      | 712      | 90.5     | 38               |                 |          | 3100            | 425      | 0.38     |                 |                  | 0.00               | 25.60    | 10.61   | 30.97   | 2.31    | 0.62             | 0.00            | 0.00    | 64.54           | 11.97   | 0.02    |                 | 0.00             | 0.00             |         |
| MCF-05  | Middle  | 7.8 | 330                            | 13900    | 29760    | 4099     | 144              |                 |          | 79900           | 31700    |          |                 |                  | 0.01               | 16.47    | 1143.09 | 1294.48 | 104.84  | 2.36             | 0.00            | 0.00    | 1663.54         | 892.96  |         |                 | 0.00             | 0.00             |         |
| MCF-06A | Deep    | 6.8 | 264                            | 13700    | 33100    | 9060     | 99               |                 |          | 78400           | 68600    |          |                 |                  |                    | 13.17    | 1126.64 | 1439.76 | 231.71  | 1.62             | 0.00            | 0.00    | 1632.31         | 1932.39 |         |                 | 0.00             | 0.00             |         |
| MCF-06B | Middle  | 8.3 | 482                            | 3600     | 4000     | 3570     |                  | 83              | 18300    | 7290            | 0.44     | 4        | 5.6             | 5.58             | 24.05              | 296.05   | 173.99  | 91.30   | 0.00    | 0.00             | 4.88            | 381.01  | 205.35          | 0.02    | 0.06    | 0.07            | 0.06             |                  |         |
| MCF-06C | Shallow | 7.6 | 621                            | 351      | 615      | 195      | 55               |                 |          | 2640            | 1710     | 0.41     | 51.5            | 4.2              | 3.62               | 30.99    | 28.87   | 26.75   | 4.99    | 0.90             | 0.00            | 0.00    | 54.97           | 48.17   | 0.02    | 0.83            | 0.05             | 0.04             |         |
| MCF-07  | Deep    | 8.1 | 7029                           | 15700    | 24500    | 12300    | 140              |                 |          | 84700           | 44600    |          |                 |                  | 0.01               | 350.74   | 1291.12 | 1065.68 | 314.58  | 2.29             | 0.00            | 0.00    | 1763.48         | 1256.34 |         |                 | 0.00             | 0.00             |         |
| MCF-08A | Deep    | 7.3 | 595                            | 6220     | 26300    | 3080     | 111              |                 |          | 25700           | 52800    |          |                 |                  | 0.01               | 29.69    | 511.51  | 1143.98 | 78.77   | 1.82             | 0.00            | 0.00    | 535.08          | 1487.32 |         |                 | 0.00             | 0.00             |         |
| MCF-08B | Middle  | 7.6 | 620                            | 2090     | 5360     | 737      | 49               |                 |          | 11900           | 7750     |          |                 |                  | 0.01               | 30.94    | 171.88  | 233.14  | 18.85   | 0.80             | 0.00            | 0.00    | 247.76          | 218.31  |         |                 | 0.00             | 0.00             |         |
| MCF-09A | Deep    | 7.1 | 472                            | 2170     | 4450     | 615      | 71               |                 |          | 13300           | 4280     |          |                 |                  |                    | 23.55    | 178.45  | 193.56  | 15.73   | 1.16             | 0.00            | 0.00    | 276.91          | 120.56  |         |                 | 0.00             | 0.00             |         |
| MCF-09B | Middle  | 7.5 | 429                            | 132      | 330      | 40.6     | 59               |                 |          | 2210            | 148      | 0.68     |                 |                  |                    | 21.41    | 10.86   | 14.35   | 1.04    | 0.97             | 0.00            | 0.00    | 46.01           | 4.17    | 0.04    |                 | 0.00             | 0.00             |         |
| MCF-10A | Deep    | 7.4 | 522                            | 244      | 1190     | 154      | 50               |                 |          | 3930            | 1390     |          |                 |                  | 0.00               | 26.05    | 20.07   | 51.76   | 3.94    | 0.82             | 0.00            | 0.00    | 81.82           | 39.15   |         |                 | 0.00             | 0.00             |         |
| MCF-10B | Middle  | 7.8 | 245                            | 90.8     | 202      | 33.7     | 54               |                 |          | 1170            | 206      | 0.4      | 0.22            |                  | 0.00               | 12.23    | 7.47    | 8.79    | 0.86    | 0.88             | 0.00            | 0.00    | 24.36           | 5.80    | 0.02    | 0.00            | 0.00             | 0.00             |         |
| MCF-11  | Middle  | 7.5 | 401                            | 121      | 384      | 55.7     | 80               |                 |          | 2100            | 357      | 1.1      |                 |                  | 0.00               | 20.01    | 9.95    | 16.70   | 1.42    | 1.31             | 0.00            | 0.00    | 43.72           | 10.06   | 0.06    |                 | 0.00             | 0.00             |         |
| MCF-12A | Deep    | 7.5 | 498                            | 187      | 807      | 329      | 47               |                 |          | 3410            | 937      | 0.46     |                 |                  | 0.00               | 24.85    | 15.38   | 35.10   | 8.41    | 0.77             | 0.00            | 0.00    | 71.00           | 26.39   | 0.02    |                 | 0.00             | 0.00             |         |
| MCF-12B | Shallow | 7.3 | 283                            | 125      | 270      | 67.3     | 69               |                 |          | 1570            | 317      | 0.45     | 6.4             | 4.6              | 4.13               | 14.12    | 10.28   | 11.74   | 1.72    | 1.13             | 0.00            | 0.00    | 32.69           | 8.93    | 0.02    | 0.10            | 0.06             | 0.04             |         |
| MCF-12C | Middle  | 8.1 | 221                            | 88.8     | 188      | 68.5     | 77               |                 |          | 1260            | 109      | 0.51     | 1.4             | 0.21             | 0.44               | 11.03    | 7.30    | 8.18    | 1.75    | 1.26             | 0.00            | 0.00    | 26.23           | 3.07    | 0.03    | 0.02            | 0.00             | 0.00             |         |
| MCF-16A | Deep    | 5.8 | 429                            | 6390     | 2780     | 11900    | 109              |                 |          | 55700           | 3660     |          |                 |                  | 0.01               | 21.41    | 525.49  | 120.92  | 304.35  | 1.79             | 0.00            | 0.00    | 1159.69         | 103.10  |         |                 | 0.00             | 0.00             |         |
| MCF-16B | Middle  | 6   | 453                            | 6070     | 2710     | 13700    | 143              |                 |          | 45900           | 2570     | 0.33     |                 |                  | 0.02               | 22.60    | 499.18  | 117.88  | 350.38  | 2.34             | 0.00            | 0.00    | 955.65          | 72.39   | 0.02    |                 | 0.00             | 0.00             |         |
| MCF-16C | Shallow | 7.4 | 590                            | 671      | 542      | 357      | 74               |                 |          | 5570            | 1230     | 0.5      | 23.8            | 19               | 11.10              | 29.44    | 55.18   | 23.58   | 9.13    | 1.21             | 0.00            | 0.00    | 115.97          | 34.65   | 0.03    | 0.38            | 0.23             | 0.11             |         |
| MCF-17A | Deep    | 7.5 | 846                            | 3320     | 16800    | 1790     | 54               |                 |          | 15600           | 30100    |          |                 |                  |                    | 42.22    | 273.03  | 730.75  | 45.78   | 0.88             | 0.00            | 0.00    | 324.80          | 847.89  |         |                 | 0.00             | 0.00             |         |
| MCF-18A | Deep    | 6.7 | 3120                           | 2700     | 48200    | 6600     | 24               |                 |          | 3720            | 123000   |          |                 |                  | 0.05               | 155.69   | 222.04  | 2096.56 | 168.80  | 0.39             | 0.00            | 0.00    | 77.45           | 3464.79 |         |                 | 0.00             | 0.00             |         |
| MCF-19A | Deep    | 7.9 | 574                            | 12000    | 21200    | 5420     | 110              |                 |          | 62900           | 34900    |          |                 |                  |                    | 28.64    | 986.84  | 922.14  | 138.62  | 1.80             | 0.00            | 0.00    | 1309.60         | 983.10  |         |                 | 0.00             | 0.00             |         |
| MCF-20A | Deep    | 6.8 | 485                            | 14000    | 33000    | 9730     | 40               |                 |          | 74400           | 72000    |          |                 |                  | 0.05               | 24.20    | 1151.32 | 1435.41 | 248.85  | 0.66             | 0.00            | 0.00    | 1549.03         | 2028.17 |         |                 | 0.00             | 0.00             |         |
| MCF-21A | Deep    | 7.4 | 127                            | 12800    | 13500    | 12200    | 136              |                 |          | 77400           | 18000    |          |                 |                  | 0.02               | 6.34     | 1052.63 | 587.21  | 312.02  | 2.23             | 0.00            | 0.00    | 1611.49         | 507.04  |         |                 | 0.00             | 0.00             |         |
| MCF-22A | Deep    | 7.6 | 542                            | 109      | 224      | 90       | 64               |                 |          | 2140            | 108      | 0.8      |                 |                  | 0.00               | 27.05    | 8.96    | 9.74    | 2.30    | 1.05             | 0.00            | 0.00    | 44.56           | 3.04    | 0.04    |                 | 0.00             | 0.00             |         |
| MCF-23A | Deep    | 7.1 | 616                            | 7700     | 13300    | 3170     | 73               |                 |          | 41100           | 16200    |          |                 |                  |                    | 30.74    | 633.22  | 578.51  | 81.07   | 1.20             | 0.00            | 0.00    | 855.72          | 456.34  |         |                 | 0.00             | 0.00             |         |
| MCF-24A | Deep    | 7.6 | 100                            | 16600    | 6950     | 13800    | 136              |                 |          | 73500           | 10100    |          |                 |                  | 0.01               | 4.99     | 1365.13 | 302.31  | 352.94  | 2.23             | 0.00            | 0.00    | 1530.29         | 284.51  |         |                 | 0.00             | 0.00             |         |
| MCF-25A | Deep    | 8   | 507                            | 179      | 999      | 157      | 50               |                 |          | 3670            | 596      | 0.26     |                 |                  | 0.00               | 25.30    | 14.72   | 43.45   | 4.02    | 0.82             | 0.00            | 0.00    | 76.41           | 16.79   | 0.01    |                 | 0.00             | 0.00             |         |
| MCF-27  | Deep    | 7.6 | 68.7                           | 25       | 201      | 11.9     | 63               |                 |          | 492             | 98.9     | 0.8      | 0.96            |                  | 0.00               | 3.43     | 2.06    | 8.74    | 0.30    | 1.03             | 0.00            | 0.00    | 10.24           | 2.79    | 0.04    | 0.02            | 0.00             | 0.00             |         |
| MW-03   | Shallow | 8   | 438                            | 196      | 687      | 69.7     | 108              |                 |          | 2050            | 1170     | 1.4      |                 |                  | 0.03               | 21.86    | 16.12   | 29.88   | 1.78    | 1.77             | 0.00            | 0.00    | 42.68           | 32.96   | 0.07    |                 | 0.00             | 0.00             |         |
| MW-04   | Shallow | 7.4 | 577                            | 1000     | 2040     | 791      | 65               |                 |          | 6110            | 3380     | 0.32     | 13.8            |                  |                    |          |         |         |         |                  |                 |         |                 |         |         |                 |                  |                  |         |

Summary of Cation-Anion Balance and Related Calculations  
Fifth Round Sampling Data - BMI Common Areas - Eastside

| Well    | A: Cation-Anion Balance Tests |            |              |                    |                          | B: TDS Checks |         |               |                            | C: Lab TDS and EC |                    |                              | D: Measured EC and Ion Sums (Cations) |                        |                          |
|---------|-------------------------------|------------|--------------|--------------------|--------------------------|---------------|---------|---------------|----------------------------|-------------------|--------------------|------------------------------|---------------------------------------|------------------------|--------------------------|
|         | Sum Cations                   | Sum Anions | Cat/An Ratio | (Cat-An)/ (Cat+An) | Acceptable Variance <5%? | TDS Sum       | TDS Lab | Lab/Sum Ratio | Acceptable Ratio 1.0 - 1.2 | EC Measured       | Lab TDS / EC Ratio | Acceptable Range 0.55 - 1.47 | 100x cation sum                       | 100x cation sum/Lab EC | Acceptable Range 0.9-1.1 |
|         | (meq/l)                       | (meq/l)    | -            | (%)                |                          | (mg/l)        | (mg/l)  | -             |                            | (umhos/cm)        | -                  |                              | (meq/L)                               | -                      |                          |
| AA-01   | 53.93                         | 52.35      | 1.03         | 1.48               | PASS                     | 3291          | 3850    | 1.17          | PASS                       | 4460              | 0.863              | PASS                         | 5392.75                               | 1.21                   | FAIL                     |
| AA-07   | 29.57                         | 30.50      | 0.97         | 1.54               | PASS                     | 1937          | 2250    | 1.16          | PASS                       | 2820              | 0.798              | PASS                         | 2957.45                               | 1.05                   | PASS                     |
| AA-08   | 61.72                         | 78.52      | 0.79         | 11.98              | FAIL                     | 4475          | 4820    | 1.08          | PASS                       | 5910              | 0.816              | PASS                         | 6172.43                               | 1.04                   | PASS                     |
| AA-09   | 102.02                        | 105.33     | 0.97         | 1.60               | PASS                     | 6576          | 7610    | 1.16          | PASS                       | 8400              | 0.906              | PASS                         | 10202.33                              | 1.21                   | FAIL                     |
| AA-10   | 70.64                         | 75.98      | 0.93         | 3.64               | PASS                     | 4586          | 4590    | 1.00          | PASS                       | 6060              | 0.757              | PASS                         | 7064.07                               | 1.17                   | FAIL                     |
| AA-13   | 42.30                         | 41.88      | 1.01         | 0.50               | PASS                     | 2687          | 2760    | 1.03          | PASS                       | 3600              | 0.767              | PASS                         | 4230.28                               | 1.18                   | FAIL                     |
| AA-18   | 15.63                         | 17.12      | 0.91         | 4.56               | PASS                     | 1029          | 1160    | 1.13          | PASS                       | 1740              | 0.667              | PASS                         | 1562.94                               | 0.90                   | FAIL                     |
| AA-20   | 70.86                         | 92.07      | 0.77         | 13.02              | FAIL                     | 5422          | 5990    | 1.10          | PASS                       | 7530              | 0.795              | PASS                         | 7085.79                               | 0.94                   | PASS                     |
| AA-21   | 84.46                         | 91.68      | 0.92         | 4.10               | PASS                     | 5645          | 4550    | 0.81          | FAIL                       | 7040              | 0.646              | PASS                         | 8445.68                               | 1.20                   | FAIL                     |
| AA-22   | 43.24                         | 48.21      | 0.90         | 5.43               | FAIL                     | 3016          | 3020    | 1.00          | PASS                       | 3880              | 0.778              | PASS                         | 4324.22                               | 1.11                   | FAIL                     |
| AA-23R  | 55.24                         | 59.07      | 0.94         | 3.36               | PASS                     | 3693          | 4260    | 1.15          | PASS                       | 4560              | 0.934              | PASS                         | 5523.86                               | 1.21                   | FAIL                     |
| AA-26   | 33.04                         | 34.76      | 0.95         | 2.54               | PASS                     | 2209          | 2520    | 1.14          | PASS                       | 2970              | 0.848              | PASS                         | 3304.00                               | 1.11                   | FAIL                     |
| AA-27   | 52.55                         | 64.29      | 0.82         | 10.05              | FAIL                     | 3910          | 4570    | 1.17          | PASS                       | 4930              | 0.927              | PASS                         | 5254.70                               | 1.07                   | PASS                     |
| AA-UW1  | 57.57                         | 58.06      | 0.99         | 0.42               | PASS                     | 3685          | 4310    | 1.17          | PASS                       | 4510              | 0.956              | PASS                         | 5757.27                               | 1.28                   | FAIL                     |
| AA-UW2  | 57.43                         | 57.15      | 1.00         | 0.24               | PASS                     | 3624          | 4460    | 1.23          | FAIL                       | 4620              | 0.965              | PASS                         | 5742.83                               | 1.24                   | FAIL                     |
| AA-UW3  | 66.32                         | 72.89      | 0.91         | 4.72               | PASS                     | 4715          | 4880    | 1.03          | PASS                       | 5730              | 0.852              | PASS                         | 6631.83                               | 1.16                   | FAIL                     |
| AA-UW4  | 59.22                         | 72.78      | 0.81         | 10.28              | FAIL                     | 4527          | 5990    | 1.32          | FAIL                       | 6710              | 0.893              | PASS                         | 5921.66                               | 0.88                   | FAIL                     |
| AA-UW5  | 11.97                         | 12.91      | 0.93         | 3.76               | PASS                     | 763           | 1400    | 1.83          | FAIL                       | 4350              | 0.322              | FAIL                         | 1197.19                               | 0.28                   | FAIL                     |
| AA-UW6  | 47.09                         | 59.09      | 0.80         | 11.31              | FAIL                     | 3663          | 5850    | 1.60          | FAIL                       | 1360              | 4.301              | FAIL                         | 4708.63                               | 3.46                   | FAIL                     |
| BEC-6   | 76.50                         | 89.81      | 0.85         | 8.00               | FAIL                     | 5163          | 5900    | 1.14          | PASS                       | 7220              | 0.817              | PASS                         | 7650.21                               | 1.06                   | PASS                     |
| BEC-9   | 80.86                         | 90.97      | 0.89         | 5.88               | FAIL                     | 5308          | 6160    | 1.16          | PASS                       | 8560              | 0.720              | PASS                         | 8086.49                               | 0.94                   | PASS                     |
| COH-1   | 1502.95                       | 1575.51    | 0.95         | 2.36               | PASS                     | 96376         | 104000  | 1.08          | PASS                       | 82400             | 1.262              | PASS                         | 150294.75                             | 1.82                   | FAIL                     |
| COH-2   | 1451.79                       | 1556.13    | 0.93         | 3.47               | PASS                     | 93461         | 101000  | 1.08          | PASS                       | 89800             | 1.125              | PASS                         | 145178.93                             | 1.62                   | FAIL                     |
| COH-2A  | 100.37                        | 108.96     | 0.92         | 4.10               | PASS                     | 6678          | 6900    | 1.03          | PASS                       | 8950              | 0.771              | PASS                         | 10037.23                              | 1.12                   | FAIL                     |
| DBMW-1  | 85.21                         | 88.01      | 0.97         | 1.62               | PASS                     | 5498          | 6180    | 1.12          | PASS                       | 6780              | 0.912              | PASS                         | 8520.68                               | 1.26                   | FAIL                     |
| DBMW-10 | 30.02                         | 29.40      | 1.02         | 1.05               | PASS                     | 1892          | 1760    | 0.93          | FAIL                       | 2810              | 0.626              | PASS                         | 3002.09                               | 1.07                   | PASS                     |
| DBMW-11 | 108.67                        | 119.82     | 0.91         | 4.88               | PASS                     | 7170          | 7250    | 1.01          | PASS                       | 9060              | 0.800              | PASS                         | 10867.06                              | 1.20                   | FAIL                     |
| DBMW-12 | 157.45                        | 176.76     | 0.89         | 5.78               | FAIL                     | 10608         | 9780    | 0.92          | FAIL                       | 11400             | 0.858              | PASS                         | 15744.62                              | 1.38                   | FAIL                     |
| DBMW-13 | 84.51                         | 86.25      | 0.98         | 1.01               | PASS                     | 5430          | 5890    | 1.08          | PASS                       | 6660              | 0.884              | PASS                         | 8451.34                               | 1.27                   | FAIL                     |
| DBMW-14 | 73.29                         | 82.31      | 0.89         | 5.80               | FAIL                     | 5034          | 5680    | 1.13          | PASS                       | 2910              | 1.952              | FAIL                         | 7329.05                               | 2.52                   | FAIL                     |
| DBMW-15 | 66.97                         | 66.46      | 1.01         | 0.39               | PASS                     | 4345          | 4170    | 0.96          | FAIL                       | 5060              | 0.824              | PASS                         | 6696.98                               | 1.32                   | FAIL                     |
| DBMW-16 | 15.90                         | 14.22      | 1.12         | 5.60               | FAIL                     | 953           | 900     | 0.94          | FAIL                       | 1550              | 0.581              | PASS                         | 1590.46                               | 1.03                   | PASS                     |
| DBMW-17 | 23.14                         | 22.96      | 1.01         | 0.40               | PASS                     | 1544          | 1790    | 1.16          | PASS                       | 2140              | 0.836              | PASS                         | 2314.05                               | 1.08                   | PASS                     |
| DBMW-19 | 67.55                         | 73.45      | 0.92         | 4.19               | PASS                     | 4602          | 4780    | 1.04          | PASS                       | 5580              | 0.857              | PASS                         | 6755.06                               | 1.21                   | FAIL                     |
| DBMW-2  | 88.40                         | 103.81     | 0.85         | 8.02               | FAIL                     | 6242          | 6600    | 1.06          | PASS                       | 7610              | 0.867              | PASS                         | 8839.55                               | 1.16                   | FAIL                     |
| DBMW-20 | 66.75                         | 72.06      | 0.93         | 3.83               | PASS                     | 4403          | 5580    | 1.27          | FAIL                       | 5850              | 0.954              | PASS                         | 6675.06                               | 1.14                   | FAIL                     |
| DBMW-22 | 59.32                         | 62.23      | 0.95         | 2.39               | PASS                     | 4044          | 3720    | 0.92          | FAIL                       | 4520              | 0.823              | PASS                         | 5931.99                               | 1.31                   | FAIL                     |
| DBMW-3  | 83.13                         | 104.19     | 0.80         | 11.24              | FAIL                     | 6104          | 6590    | 1.08          | PASS                       | 7810              | 0.844              | PASS                         | 8313.41                               | 1.06                   | PASS                     |
| DBMW-4  | 71.03                         | 89.64      | 0.79         | 11.58              | FAIL                     | 5273          | 6740    | 1.28          | FAIL                       | 6740              | 1.000              | PASS                         | 7102.85                               | 1.05                   | PASS                     |
| DBMW-5  | 69.55                         | 78.13      | 0.89         | 5.80               | FAIL                     | 4735          | 8000    | 1.69          | FAIL                       | 6040              | 1.325              | PASS                         | 6955.44                               | 1.15                   | FAIL                     |
| DBMW-6  | 91.41                         | 103.48     | 0.88         | 6.19               | FAIL                     | 5996          | 6520    | 1.09          | PASS                       | 8110              | 0.804              | PASS                         | 9140.92                               | 1.13                   | FAIL                     |
| DBMW-7  | 81.10                         | 99.46      | 0.82         | 10.17              | FAIL                     | 5747          | 6030    | 1.05          | PASS                       | 7460              | 0.808              | PASS                         | 8110.11                               | 1.09                   | PASS                     |
| DBMW-8  | 88.67                         | 99.35      | 0.89         | 5.68               | FAIL                     | 5863          | 5860    | 1.00          | PASS                       | 7600              | 0.771              | PASS                         | 8866.93                               | 1.17                   | FAIL                     |
| DBMW-9  | 55.29                         | 61.21      | 0.90         | 5.09               | FAIL                     | 3847          | 3700    | 0.96          | FAIL                       | 4480              | 0.826              | PASS                         | 5528.93                               | 1.23                   | FAIL                     |
| DM-1    | 64.73                         | 63.60      | 1.02         | 0.88               | PASS                     | 4136          | 4200    | 1.02          | PASS                       | 4750              | 0.884              | PASS                         | 6473.12                               | 1.36                   | FAIL                     |
| HMW-08  | 40.37                         | 41.84      | 0.96         | 1.80               | PASS                     | 2626          | 2880    | 1.10          | PASS                       | 3530              | 0.816              | PASS                         | 4036.50                               | 1.14                   | FAIL                     |
| HMW-09  | 59.04                         | 60.43      | 0.98         | 1.16               | PASS                     | 3834          | 3710    | 0.97          | FAIL                       | 4800              | 0.773              | PASS                         | 5903.84                               | 1.23                   | FAIL                     |
| HMWWT-6 | 22.86                         | 23.17      | 0.99         | 0.68               | PASS                     | 1377          | 1570    | 1.14          | PASS                       | 2370              | 0.662              | PASS                         | 2285.81                               | 0.96                   | PASS                     |
| MCF-01A | 55.44                         | 59.06      | 0.94         | 3.16               | PASS                     | 3855          | 4490    | 1.16          | PASS                       | 321               | 13.988             | FAIL                         | 5544.24                               | 17.27                  | FAIL                     |
| MCF-01B | 28.06                         | 31.43      | 0.89         | 5.66               | FAIL                     | 1953          | 1960    | 1.00          | PASS                       | 2760              | 0.710              | PASS                         | 2806.31                               | 1.02                   | PASS                     |
| MCF-02A | 8.49                          | 8.80       | 0.97         | 1.78               | PASS                     | 553           | 570     | 1.03          | PASS                       | 2420              | 0.236              | FAIL                         | 849.16                                | 0.35                   | FAIL                     |
| MCF-02B | 9.52                          | 9.62       | 0.99         | 0.54               | PASS                     | 619           | 766     | 1.24          | FAIL                       | 1080              | 0.709              | PASS                         | 951.52                                | 0.88                   | FAIL                     |
| MCF-03A | 9.77                          | 9.78       | 1.00         | 0.03               | PASS                     | 622           | 683     | 1.10          | PASS                       | 1110              | 0.615              | PASS                         | 977.08                                | 0.88                   | FAIL                     |

Summary of Cation-Anion Balance and Related Calculations  
Fifth Round Sampling Data - BMI Common Areas - Eastside

| Well           | A: Cation-Anion Balance Tests |            |              |                    |                          | B: TDS Checks |         |               |                            | C: Lab TDS and EC |                    |                              | D: Measured EC and Ion Sums (Cations) |                        |                          |
|----------------|-------------------------------|------------|--------------|--------------------|--------------------------|---------------|---------|---------------|----------------------------|-------------------|--------------------|------------------------------|---------------------------------------|------------------------|--------------------------|
|                | Sum Cations                   | Sum Anions | Cat/An Ratio | (Cat-An)/ (Cat+An) | Acceptable Variance <5%? | TDS Sum       | TDS Lab | Lab/Sum Ratio | Acceptable Ratio 1.0 - 1.2 | EC Measured       | Lab TDS / EC Ratio | Acceptable Range 0.55 - 1.47 | 100x cation sum                       | 100x cation sum/Lab EC | Acceptable Range 0.9-1.1 |
|                | (meq/l)                       | (meq/l)    | -            | (%)                |                          | (mg/l)        | (mg/l)  | -             |                            | (umhos/cm)        | -                  |                              | (meq/L)                               | -                      |                          |
| MCF-03B        | 36.90                         | 36.13      | 1.02         | 1.05               | PASS                     | 2349          | 2970    | 1.26          | FAIL                       | 3520              | 0.844              | PASS                         | 3690.24                               | 1.05                   | PASS                     |
| MCF-04         | 69.49                         | 77.16      | 0.90         | 5.23               | FAIL                     | 4993          | 5380    | 1.08          | PASS                       | 5840              | 0.921              | PASS                         | 6949.19                               | 1.19                   | FAIL                     |
| MCF-05         | 2558.87                       | 2558.86    | 1.00         | 0.00               | PASS                     | 159776        | 165000  | 1.03          | PASS                       | 106000            | 1.557              | FAIL                         | 255887.32                             | 2.41                   | FAIL                     |
| MCF-06A        | 2811.29                       | 3566.33    | 0.79         | 11.84              | FAIL                     | 203183        | 215000  | 1.06          | PASS                       | 138000            | 1.558              | FAIL                         | 281128.84                             | 2.04                   | FAIL                     |
| MCF-06B        | 585.40                        | 591.46     | 0.99         | 0.51               | PASS                     | 37307         | 48800   | 1.31          | FAIL                       | 38800             | 1.258              | PASS                         | 58539.76                              | 1.51                   | FAIL                     |
| MCF-06C        | 91.59                         | 104.98     | 0.87         | 6.81               | FAIL                     | 6225          | 6500    | 1.04          | PASS                       | 8340              | 0.779              | PASS                         | 9159.11                               | 1.10                   | PASS                     |
| MCF-07         | 3022.11                       | 3022.11    | 1.00         | 0.00               | PASS                     | 188913        | 197000  | 1.04          | PASS                       | 12100             | 16.281             | FAIL                         | 302211.35                             | 24.98                  | FAIL                     |
| MCF-08A        | 1763.95                       | 2024.23    | 0.87         | 6.87               | FAIL                     | 114762        | 116000  | 1.01          | PASS                       | 11800             | 9.831              | FAIL                         | 176395.18                             | 14.95                  | FAIL                     |
| MCF-08B        | 454.81                        | 466.87     | 0.97         | 1.31               | PASS                     | 28486         | 46500   | 1.63          | FAIL                       | 32800             | 1.418              | PASS                         | 45480.71                              | 1.39                   | FAIL                     |
| MCF-09A        | 411.30                        | 398.64     | 1.03         | 1.56               | PASS                     | 25330         |         | N/A           | FAIL                       | 27800             | 0.000              | FAIL                         | 41129.82                              | 1.48                   | FAIL                     |
| MCF-09B        | 47.65                         | 51.18      | 0.93         | 3.57               | PASS                     | 3326          | 3970    | 1.19          | PASS                       | 3930              | 1.010              | PASS                         | 4765.49                               | 1.21                   | FAIL                     |
| MCF-10A        | 101.81                        | 121.80     | 0.84         | 8.94               | FAIL                     | 7460          | 5400    | 0.72          | FAIL                       | 8850              | 0.610              | PASS                         | 10181.39                              | 1.15                   | FAIL                     |
| MCF-10B        | 29.34                         | 31.07      | 0.94         | 2.87               | PASS                     | 1981          | 2080    | 1.05          | PASS                       | 2800              | 0.743              | PASS                         | 2934.10                               | 1.05                   | PASS                     |
| MCF-11         | 48.09                         | 55.15      | 0.87         | 6.84               | FAIL                     | 3468          | 3510    | 1.01          | PASS                       | 4370              | 0.803              | PASS                         | 4808.81                               | 1.10                   | FAIL                     |
| MCF-12A        | 83.75                         | 98.19      | 0.85         | 7.94               | FAIL                     | 6197          | 6200    | 1.00          | PASS                       | 7940              | 0.781              | PASS                         | 8374.51                               | 1.05                   | PASS                     |
| MCF-12B        | 37.87                         | 42.97      | 0.88         | 6.32               | FAIL                     | 2689          | 2840    | 1.06          | PASS                       | 3640              | 0.780              | PASS                         | 3786.68                               | 1.04                   | PASS                     |
| MCF-12C        | 28.26                         | 30.62      | 0.92         | 4.01               | PASS                     | 1984          | 1990    | 1.00          | PASS                       | 2740              | 0.726              | PASS                         | 2826.00                               | 1.03                   | PASS                     |
| MCF-16A        | 972.17                        | 1264.58    | 0.77         | 13.07              | FAIL                     | 80924         | 87300   | 1.08          | PASS                       | 62700             | 1.392              | PASS                         | 97217.06                              | 1.55                   | FAIL                     |
| MCF-16B        | 990.04                        | 1030.41    | 0.96         | 2.00               | PASS                     | 71489         | 71900   | 1.01          | PASS                       | 56100             | 1.282              | PASS                         | 99004.34                              | 1.76                   | FAIL                     |
| MCF-16C        | 117.33                        | 152.58     | 0.77         | 13.06              | FAIL                     | 9059          | 16000   | 1.77          | FAIL                       | 4750              | 3.368              | FAIL                         | 11732.79                              | 2.47                   | FAIL                     |
| MCF-17A        | 1091.77                       | 1173.57    | 0.93         | 3.61               | PASS                     | 68488         | 85600   | 1.25          | FAIL                       | 78800             | 1.086              | PASS                         | 109177.44                             | 1.39                   | FAIL                     |
| MCF-18A        | 2643.09                       | 3542.63    | 0.75         | 14.54              | FAIL                     | 187354        | 157000  | 0.84          | FAIL                       | 19200             | 8.177              | FAIL                         | 264308.98                             | 13.77                  | FAIL                     |
| MCF-19A        | 2076.24                       | 2294.50    | 0.90         | 4.99               | PASS                     | 137060        | 161000  | 1.17          | PASS                       | 99600             | 1.616              | FAIL                         | 207624.38                             | 2.08                   | FAIL                     |
| MCF-20A        | 2859.77                       | 3577.86    | 0.80         | 11.15              | FAIL                     | 203639        | 183000  | 0.90          | FAIL                       | 13500             | 13.556             | FAIL                         | 285977.32                             | 21.18                  | FAIL                     |
| MCF-21A        | 1958.20                       | 2120.76    | 0.92         | 3.99               | PASS                     | 134109        | 153000  | 1.14          | PASS                       | 87800             | 1.743              | FAIL                         | 195820.12                             | 2.23                   | FAIL                     |
| MCF-22A        | 48.05                         | 48.69      | 0.99         | 0.66               | PASS                     | 3252          | 3370    | 1.04          | PASS                       | 38200             | 0.088              | FAIL                         | 4805.49                               | 0.13                   | FAIL                     |
| MCF-23A        | 1323.55                       | 1313.25    | 1.01         | 0.39               | PASS                     | 82130         | 105000  | 1.28          | FAIL                       | 68900             | 1.524              | FAIL                         | 132354.88                             | 1.92                   | FAIL                     |
| MCF-24A        | 2025.37                       | 1817.03    | 1.11         | 5.42               | FAIL                     | 121132        | 101000  | 0.83          | FAIL                       | 7800              | 12.949             | FAIL                         | 202536.81                             | 25.97                  | FAIL                     |
| MCF-25A        | 87.49                         | 94.03      | 0.93         | 3.60               | PASS                     | 6138          | 5090    | 0.83          | FAIL                       | 76600             | 0.066              | FAIL                         | 8748.88                               | 0.11                   | FAIL                     |
| MCF-27         | 14.53                         | 14.12      | 1.03         | 1.44               | PASS                     | 937           | 1170    | 1.25          | FAIL                       | 1500              | 0.780              | PASS                         | 1453.13                               | 0.97                   | PASS                     |
| MW-03          | 69.64                         | 77.48      | 0.90         | 5.33               | FAIL                     | 4677          | 4820    | 1.03          | PASS                       | 6750              | 0.714              | PASS                         | 6963.99                               | 1.03                   | PASS                     |
| MW-04          | 219.99                        | 224.00     | 0.98         | 0.90               | PASS                     | 13975         | 13300   | 0.95          | FAIL                       | 16600             | 0.801              | PASS                         | 21999.37                              | 1.33                   | FAIL                     |
| MW-13          | 73.34                         | 75.78      | 0.97         | 1.63               | PASS                     | 4689          | 4860    | 1.04          | PASS                       | 6090              | 0.798              | PASS                         | 7334.25                               | 1.20                   | FAIL                     |
| MW-15          | 63.22                         | 64.91      | 0.97         | 1.32               | PASS                     | 4169          | 6630    | 1.59          | FAIL                       | 5240              | 1.265              | PASS                         | 6321.63                               | 1.21                   | FAIL                     |
| PC-108         | 38.64                         | 39.96      | 0.97         | 1.68               | PASS                     | 2408          | 2810    | 1.17          | PASS                       | 3890              | 0.722              | PASS                         | 3863.98                               | 0.99                   | PASS                     |
| PC-2           | 79.34                         | 93.81      | 0.85         | 8.35               | FAIL                     | 5543          | 5870    | 1.06          | PASS                       | 8310              | 0.706              | PASS                         | 7934.20                               | 0.95                   | PASS                     |
| PC-24          | 176.76                        | 200.34     | 0.88         | 6.25               | FAIL                     | 11387         | 13100   | 1.15          | PASS                       | 16700             | 0.784              | PASS                         | 17676.13                              | 1.06                   | PASS                     |
| PC-28          | 90.48                         | 104.08     | 0.87         | 6.99               | FAIL                     | 6950          | 7370    | 1.06          | PASS                       | 8470              | 0.870              | PASS                         | 9048.24                               | 1.07                   | PASS                     |
| PC-4           | 102.90                        | 109.45     | 0.94         | 3.09               | PASS                     | 6777          | 8400    | 1.24          | FAIL                       | 8890              | 0.945              | PASS                         | 10289.84                              | 1.16                   | FAIL                     |
| PC-67          | 180.23                        | 215.27     | 0.84         | 8.86               | FAIL                     | 12619         | 12600   | 1.00          | PASS                       | 17600             | 0.716              | PASS                         | 18023.02                              | 1.02                   | PASS                     |
| PC-76          | 67.88                         | 73.47      | 0.92         | 3.95               | PASS                     | 4383          | 6340    | 1.45          | FAIL                       | 6240              | 1.016              | PASS                         | 6788.28                               | 1.09                   | PASS                     |
| PC-79          | 38.21                         | 37.11      | 1.03         | 1.47               | PASS                     | 2326          | 3000    | 1.29          | FAIL                       | 3690              | 0.813              | PASS                         | 3821.06                               | 1.04                   | PASS                     |
| PC-80          | 32.78                         | 30.44      | 1.08         | 3.70               | PASS                     | 1924          | 2270    | 1.18          | PASS                       | 3130              | 0.725              | PASS                         | 3277.50                               | 1.05                   | PASS                     |
| PC-81          | 39.03                         | 37.99      | 1.03         | 1.36               | PASS                     | 2389          | 2860    | 1.20          | PASS                       | 3890              | 0.735              | PASS                         | 3903.27                               | 1.00                   | PASS                     |
| PC-88          | 66.38                         | 75.96      | 0.87         | 6.73               | FAIL                     | 4468          | 4360    | 0.98          | FAIL                       | 6690              | 0.652              | PASS                         | 6638.03                               | 0.99                   | PASS                     |
| PC-90          | 61.67                         | 72.33      | 0.85         | 7.95               | FAIL                     | 4240          | 4810    | 1.13          | PASS                       | 6240              | 0.771              | PASS                         | 6166.82                               | 0.99                   | PASS                     |
| PC-94          | 61.00                         | 65.71      | 0.93         | 3.71               | PASS                     | 4093          | 4160    | 1.02          | PASS                       | 5210              | 0.798              | PASS                         | 6100.02                               | 1.17                   | FAIL                     |
| POD2           | 85.71                         | 106.35     | 0.81         | 10.74              | FAIL                     | 6249          | 6170    | 0.99          | FAIL                       | 8040              | 0.767              | PASS                         | 8571.30                               | 1.07                   | PASS                     |
| POD8           | 60.16                         | 68.33      | 0.88         | 6.36               | FAIL                     | 3918          | 4140    | 1.06          | PASS                       | 5770              | 0.718              | PASS                         | 6015.59                               | 1.04                   | PASS                     |
| POU3           | 135.93                        | 135.30     | 1.00         | 0.23               | PASS                     | 8352          | 9680    | 1.16          | PASS                       | 12000             | 0.807              | PASS                         | 13593.14                              | 1.13                   | FAIL                     |
| WMW5.58SD      | 2272.26                       | 2355.16    | 0.96         | 1.79               | PASS                     | 149749        | 195000  | 1.30          | FAIL                       | 109000            | 1.789              | FAIL                         | 227226.04                             | 2.08                   | FAIL                     |
| WMW5.58SI      | 33.93                         | 35.64      | 0.95         | 2.46               | PASS                     | 2182          | 2300    | 1.05          | PASS                       | 3400              | 0.676              | PASS                         | 3392.76                               | 1.00                   | PASS                     |
| WMW5.58SS      | 24.86                         | 22.86      | 1.09         | 4.19               | PASS                     | 1461          | 1460    | 1.00          | PASS                       | 2410              | 0.606              | PASS                         | 2485.50                               | 1.03                   | PASS                     |
| Total Samples: |                               |            |              |                    |                          | 106           |         |               | 106                        |                   |                    | 106                          |                                       |                        | 106                      |
| Passing:       |                               |            |              |                    |                          | 64            |         |               | 69                         |                   |                    | 86                           |                                       |                        | 37                       |
| Failing:       |                               |            |              |                    |                          | 42            |         |               | 37                         |                   |                    | 20                           |                                       |                        | 69                       |

Summary of Cation-Anion Balance and Related Calculations  
Fifth Round Sampling Data - BMI Common Areas - Eastside

| Well    | E: Measured EC and Ion Sums (Anions) |                       |                  | F: Calculated TDS and EC |                  | Data Flags from Quality Checks |   |   |   | Qualifiers |       |
|---------|--------------------------------------|-----------------------|------------------|--------------------------|------------------|--------------------------------|---|---|---|------------|-------|
|         | 100x anion sum                       | 100x anion sum/Lab EC | Acceptable Range | Calculated TDS/ Lab EC   | Acceptable Range | See Footnotes                  |   |   |   |            |       |
|         | meq/L                                |                       | 0.9-1.1          |                          | 0.55 - 0.7       |                                |   |   |   |            |       |
| AA-01   | 5235.49                              | 1.17                  | FAIL             | 0.74                     | FAIL             |                                |   | D | E | F          |       |
| AA-07   | 3050.16                              | 1.08                  | PASS             | 0.69                     | PASS             |                                |   |   |   |            |       |
| AA-08   | 7851.95                              | 1.33                  | FAIL             | 0.76                     | FAIL             | A                              |   |   | E | F          | J-CAB |
| AA-09   | 10533.41                             | 1.25                  | FAIL             | 0.78                     | FAIL             |                                |   | D | E | F          |       |
| AA-10   | 7598.04                              | 1.25                  | FAIL             | 0.76                     | FAIL             |                                |   | D | E | F          |       |
| AA-13   | 4188.14                              | 1.16                  | FAIL             | 0.75                     | FAIL             |                                |   | D | E | F          |       |
| AA-18   | 1712.16                              | 0.98                  | PASS             | 0.59                     | PASS             |                                |   | D |   |            |       |
| AA-20   | 9206.82                              | 1.22                  | FAIL             | 0.72                     | FAIL             | A                              |   |   | E | F          | J-CAB |
| AA-21   | 9168.33                              | 1.30                  | FAIL             | 0.80                     | FAIL             |                                | B | D | E | F          | J-TDS |
| AA-22   | 4820.97                              | 1.24                  | FAIL             | 0.78                     | FAIL             | A                              |   | D | E | F          | J-CAB |
| AA-23R  | 5907.45                              | 1.30                  | FAIL             | 0.81                     | FAIL             |                                |   | D | E | F          |       |
| AA-26   | 3475.90                              | 1.17                  | FAIL             | 0.74                     | FAIL             |                                |   | D | E | F          |       |
| AA-27   | 6428.77                              | 1.30                  | FAIL             | 0.79                     | FAIL             | A                              |   |   | E | F          | J-CAB |
| AA-UW1  | 5805.95                              | 1.29                  | FAIL             | 0.82                     | FAIL             |                                |   | D | E | F          |       |
| AA-UW2  | 5714.77                              | 1.24                  | FAIL             | 0.78                     | FAIL             |                                | B | D | E | F          | J-TDS |
| AA-UW3  | 7288.98                              | 1.27                  | FAIL             | 0.82                     | FAIL             |                                |   | D | E | F          |       |
| AA-UW4  | 7278.26                              | 1.08                  | PASS             | 0.67                     | PASS             | A                              | B | D |   |            | J-CAB |
| AA-UW5  | 1290.81                              | 0.30                  | FAIL             | 0.18                     | FAIL             |                                | B | C | D | E          | J-TDS |
| AA-UW6  | 5909.08                              | 4.34                  | FAIL             | 2.69                     | FAIL             | A                              | B | C | D | E          | J-TDS |
| BEC-6   | 8981.16                              | 1.24                  | FAIL             | 0.72                     | FAIL             | A                              |   |   | E | F          | J-CAB |
| BEC-9   | 9096.89                              | 1.06                  | PASS             | 0.62                     | PASS             | A                              |   |   |   |            | J-CAB |
| COH-1   | 157550.73                            | 1.91                  | FAIL             | 1.17                     | FAIL             |                                |   | D | E | F          |       |
| COH-2   | 155613.49                            | 1.73                  | FAIL             | 1.04                     | FAIL             |                                |   | D | E | F          |       |
| COH-2A  | 10895.91                             | 1.22                  | FAIL             | 0.75                     | FAIL             |                                |   | D | E | F          |       |
| DBMW-1  | 8800.73                              | 1.30                  | FAIL             | 0.81                     | FAIL             |                                |   | D | E | F          |       |
| DBMW-10 | 2939.55                              | 1.05                  | PASS             | 0.67                     | PASS             |                                | B |   |   |            | J-TDS |
| DBMW-11 | 11982.15                             | 1.32                  | FAIL             | 0.79                     | FAIL             |                                |   | D | E | F          |       |
| DBMW-12 | 17676.06                             | 1.55                  | FAIL             | 0.93                     | FAIL             | A                              | B | D | E | F          | J-CAB |
| DBMW-13 | 8624.66                              | 1.29                  | FAIL             | 0.82                     | FAIL             |                                |   | D | E | F          | J-TDS |
| DBMW-14 | 8231.06                              | 2.83                  | FAIL             | 1.73                     | FAIL             | A                              |   | C | D | E          | J-CAB |
| DBMW-15 | 6645.55                              | 1.31                  | FAIL             | 0.86                     | FAIL             |                                | B | D | E | F          | J-TDS |
| DBMW-16 | 1421.79                              | 0.92                  | PASS             | 0.62                     | PASS             | A                              | B |   |   |            | J-CAB |
| DBMW-17 | 2295.68                              | 1.07                  | PASS             | 0.72                     | FAIL             |                                |   |   |   | F          | J-TDS |
| DBMW-19 | 7345.33                              | 1.32                  | FAIL             | 0.82                     | FAIL             |                                |   | D | E | F          | J-CAB |
| DBMW-2  | 10380.61                             | 1.36                  | FAIL             | 0.82                     | FAIL             | A                              |   | D | E | F          | J-TDS |
| DBMW-20 | 7206.27                              | 1.23                  | FAIL             | 0.75                     | FAIL             |                                | B | D | E | F          | J-TDS |
| DBMW-22 | 6222.65                              | 1.38                  | FAIL             | 0.89                     | FAIL             |                                | B | D | E | F          | J-TDS |
| DBMW-3  | 10418.80                             | 1.33                  | FAIL             | 0.78                     | FAIL             | A                              |   |   | E | F          | J-CAB |
| DBMW-4  | 8964.22                              | 1.33                  | FAIL             | 0.78                     | FAIL             | A                              | B |   | E | F          | J-TDS |
| DBMW-5  | 7812.57                              | 1.29                  | FAIL             | 0.78                     | FAIL             | A                              | B | D | E | F          | J-TDS |
| DBMW-6  | 10347.79                             | 1.28                  | FAIL             | 0.74                     | FAIL             | A                              |   | D | E | F          | J-CAB |
| DBMW-7  | 9946.46                              | 1.33                  | FAIL             | 0.77                     | FAIL             | A                              |   |   | E | F          | J-CAB |
| DBMW-8  | 9934.87                              | 1.31                  | FAIL             | 0.77                     | FAIL             | A                              |   | D | E | F          | J-CAB |
| DBMW-9  | 6121.39                              | 1.37                  | FAIL             | 0.86                     | FAIL             | A                              | B | D | E | F          | J-TDS |
| DM-1    | 6360.39                              | 1.34                  | FAIL             | 0.87                     | FAIL             |                                |   | D | E | F          |       |
| HMW-08  | 4184.24                              | 1.19                  | FAIL             | 0.74                     | FAIL             |                                |   | D | E | F          |       |
| HMW-09  | 6042.67                              | 1.26                  | FAIL             | 0.80                     | FAIL             |                                | B | D | E | F          | J-TDS |
| HMWWT-6 | 2317.32                              | 0.98                  | PASS             | 0.58                     | PASS             |                                |   |   |   |            |       |
| MCF-01A | 5906.01                              | 18.40                 | FAIL             | 12.01                    | FAIL             |                                |   | C | D | E          | F     |
| MCF-01B | 3143.35                              | 1.14                  | FAIL             | 0.71                     | FAIL             | A                              |   |   | E | F          | J-CAB |
| MCF-02A | 879.93                               | 0.36                  | FAIL             | 0.23                     | FAIL             |                                |   | C | D | E          | F     |
| MCF-02B | 961.76                               | 0.89                  | FAIL             | 0.57                     | PASS             |                                | B | D | E |            | J-TDS |
| MCF-03A | 977.60                               | 0.88                  | FAIL             | 0.56                     | PASS             |                                |   | D | E |            |       |

Summary of Cation-Anion Balance and Related Calculations  
Fifth Round Sampling Data - BMI Common Areas - Eastside

| Well      | E: Measured EC and Ion Sums (Anions) |                       |                  | F: Calculated TDS and EC |                  | Data Flags from Quality Checks |   |   |   | Qualifiers |   |       |       |
|-----------|--------------------------------------|-----------------------|------------------|--------------------------|------------------|--------------------------------|---|---|---|------------|---|-------|-------|
|           | 100x anion sum                       | 100x anion sum/Lab EC | Acceptable Range | Calculated TDS/ Lab EC   | Acceptable Range | See Footnotes                  |   |   |   |            |   |       |       |
|           | meq/L                                |                       | 0.9-1.1          |                          | 0.55 - 0.7       |                                |   |   |   |            |   |       |       |
| MCF-03B   | 3613.46                              | 1.03                  | PASS             | 0.67                     | PASS             | B                              |   |   |   |            |   | J-CAB | J-TDS |
| MCF-04    | 7715.76                              | 1.32                  | FAIL             | 0.85                     | FAIL             | A                              |   | D | E | F          |   |       |       |
| MCF-05    | 255886.13                            | 2.41                  | FAIL             | 1.51                     | FAIL             |                                |   | C | D | E          | F |       |       |
| MCF-06A   | 356632.99                            | 2.58                  | FAIL             | 1.47                     | FAIL             | A                              |   | C | D | E          | F | J-CAB | J-TDS |
| MCF-06B   | 59145.73                             | 1.52                  | FAIL             | 0.96                     | FAIL             |                                | B |   | D | E          | F |       |       |
| MCF-06C   | 10497.62                             | 1.26                  | FAIL             | 0.75                     | FAIL             | A                              |   |   |   | E          | F | J-CAB |       |
| MCF-07    | 302211.36                            | 24.98                 | FAIL             | 15.61                    | FAIL             |                                |   | C | D | E          | F |       |       |
| MCF-08A   | 202422.53                            | 17.15                 | FAIL             | 9.73                     | FAIL             | A                              |   | C | D | E          | F | J-CAB |       |
| MCF-08B   | 46687.48                             | 1.42                  | FAIL             | 0.87                     | FAIL             |                                | B |   | D | E          | F |       | J-TDS |
| MCF-09A   | 39863.72                             | 1.43                  | FAIL             | 0.91                     | FAIL             |                                | B | C | D | E          | F |       | J-TDS |
| MCF-09B   | 5118.46                              | 1.30                  | FAIL             | 0.85                     | FAIL             |                                |   |   | D | E          | F |       |       |
| MCF-10A   | 12179.82                             | 1.38                  | FAIL             | 0.84                     | FAIL             | A                              | B |   | D | E          | F | J-CAB | J-TDS |
| MCF-10B   | 3107.22                              | 1.11                  | FAIL             | 0.71                     | FAIL             |                                |   |   |   | E          | F |       |       |
| MCF-11    | 5514.80                              | 1.26                  | FAIL             | 0.79                     | FAIL             | A                              |   |   | D | E          | F | J-CAB |       |
| MCF-12A   | 9818.61                              | 1.24                  | FAIL             | 0.78                     | FAIL             | A                              |   |   |   | E          | F | J-CAB |       |
| MCF-12B   | 4297.20                              | 1.18                  | FAIL             | 0.74                     | FAIL             | A                              |   |   |   | E          | F | J-CAB |       |
| MCF-12C   | 3062.23                              | 1.12                  | FAIL             | 0.72                     | FAIL             |                                |   |   |   | E          | F |       |       |
| MCF-16A   | 126457.69                            | 2.02                  | FAIL             | 1.29                     | FAIL             | A                              |   |   | D | E          | F | J-CAB |       |
| MCF-16B   | 103040.81                            | 1.84                  | FAIL             | 1.27                     | FAIL             |                                |   |   | D | E          | F |       |       |
| MCF-16C   | 15257.99                             | 3.21                  | FAIL             | 1.91                     | FAIL             | A                              | B | C | D | E          | F | J-CAB | J-TDS |
| MCF-17A   | 117356.93                            | 1.49                  | FAIL             | 0.87                     | FAIL             |                                | B |   | D | E          | F |       | J-TDS |
| MCF-18A   | 354263.41                            | 18.45                 | FAIL             | 9.76                     | FAIL             | A                              | B | C | D | E          | F | J-CAB | J-TDS |
| MCF-19A   | 229449.94                            | 2.30                  | FAIL             | 1.38                     | FAIL             |                                |   | C | D | E          | F |       |       |
| MCF-20A   | 357785.69                            | 26.50                 | FAIL             | 15.08                    | FAIL             | A                              | B | C | D | E          | F | J-CAB | J-TDS |
| MCF-21A   | 212076.40                            | 2.42                  | FAIL             | 1.53                     | FAIL             |                                |   | C | D | E          | F |       |       |
| MCF-22A   | 4868.87                              | 0.13                  | FAIL             | 0.09                     | FAIL             |                                |   | C | D | E          | F |       |       |
| MCF-23A   | 131324.95                            | 1.91                  | FAIL             | 1.19                     | FAIL             |                                | B | C | D | E          | F |       | J-TDS |
| MCF-24A   | 181702.95                            | 23.30                 | FAIL             | 15.53                    | FAIL             | A                              | B | C | D | E          | F | J-CAB | J-TDS |
| MCF-25A   | 9403.24                              | 0.12                  | FAIL             | 0.08                     | FAIL             |                                | B | C | D | E          | F |       | J-TDS |
| MCF-27    | 1411.96                              | 0.94                  | PASS             | 0.62                     | PASS             |                                | B |   |   |            |   |       | J-TDS |
| MW-03     | 7748.33                              | 1.15                  | FAIL             | 0.69                     | PASS             | A                              |   |   |   | E          |   | J-CAB |       |
| MW-04     | 22399.89                             | 1.35                  | FAIL             | 0.84                     | FAIL             |                                | B |   | D | E          | F |       | J-TDS |
| MW-13     | 7577.88                              | 1.24                  | FAIL             | 0.77                     | FAIL             |                                |   |   | D | E          | F |       |       |
| MW-15     | 6491.13                              | 1.24                  | FAIL             | 0.80                     | FAIL             |                                | B |   | D | E          | F |       | J-TDS |
| PC-108    | 3996.06                              | 1.03                  | PASS             | 0.62                     | PASS             |                                |   |   |   |            |   |       |       |
| PC-2      | 9380.57                              | 1.13                  | FAIL             | 0.67                     | PASS             | A                              |   |   |   | E          |   | J-CAB |       |
| PC-24     | 20033.55                             | 1.20                  | FAIL             | 0.68                     | PASS             | A                              |   |   |   | E          |   | J-CAB |       |
| PC-28     | 10408.16                             | 1.23                  | FAIL             | 0.82                     | FAIL             | A                              |   |   |   | E          | F | J-CAB |       |
| PC-4      | 10945.12                             | 1.23                  | FAIL             | 0.76                     | FAIL             |                                | B |   | D | E          | F |       | J-TDS |
| PC-67     | 21527.24                             | 1.22                  | FAIL             | 0.72                     | FAIL             | A                              |   |   |   | E          | F | J-CAB |       |
| PC-76     | 7347.09                              | 1.18                  | FAIL             | 0.70                     | FAIL             |                                | B |   |   | E          | F |       | J-TDS |
| PC-79     | 3710.67                              | 1.01                  | PASS             | 0.63                     | PASS             |                                | B |   |   |            |   |       | J-TDS |
| PC-80     | 3043.84                              | 0.97                  | PASS             | 0.61                     | PASS             |                                |   |   |   |            |   |       |       |
| PC-81     | 3798.72                              | 0.98                  | PASS             | 0.61                     | PASS             |                                |   |   |   |            |   |       |       |
| PC-88     | 7596.31                              | 1.14                  | FAIL             | 0.67                     | PASS             | A                              | B |   |   | E          |   | J-CAB | J-TDS |
| PC-90     | 7232.74                              | 1.16                  | FAIL             | 0.68                     | PASS             | A                              |   |   |   | E          |   | J-CAB |       |
| PC-94     | 6570.52                              | 1.26                  | FAIL             | 0.79                     | FAIL             |                                |   |   | D | E          | F |       |       |
| POD2      | 10634.67                             | 1.32                  | FAIL             | 0.78                     | FAIL             | A                              | B |   |   | E          | F | J-CAB | J-TDS |
| POD8      | 6833.12                              | 1.18                  | FAIL             | 0.68                     | PASS             | A                              |   |   |   | E          |   | J-CAB |       |
| POU3      | 13529.57                             | 1.13                  | FAIL             | 0.70                     | PASS             |                                |   |   | D | E          |   |       |       |
| WMW5.58SD | 235516.44                            | 2.16                  | FAIL             | 1.37                     | FAIL             |                                | B | C | D | E          | F |       | J-TDS |
| WMW5.58SI | 3563.65                              | 1.05                  | PASS             | 0.64                     | PASS             |                                |   |   |   |            |   |       |       |
| WMW5.58SS | 2285.56                              | 0.95                  | PASS             | 0.61                     | PASS             |                                |   |   |   |            |   |       |       |
|           |                                      | Total Samples:        | 106              |                          |                  |                                |   |   |   |            |   |       |       |
|           |                                      | Passing:              | 16               |                          |                  |                                |   |   |   |            |   |       |       |
|           |                                      | Failing:              | 90               |                          |                  |                                |   |   |   |            |   |       |       |

# Summary of Cation-Anion Balance and Related Calculations

## Fifth Round Sampling Data - BMI Common Areas - Eastside

Notes:

mg/L - Milligrams per Liter

Blank cells indicate data not collected.

Blank cells for minor constituents (F, NO3, ClO3, ClO4) indicate sample not collected or below detection limit.

Orange cells (wells MCF-05 and MCF-07) indicate that the sample result was non-detect, and the value was manually estimated by balancing the cation-anion calculation using the sodium-to-potassium (mg/L) ratio (7.26) in Middle Zone wells.

For Analysis "C" (Lab TDS and EC) the upper range of the acceptable limit (1.47) was determined from the slope of a linear fit through Lab TDS versus EC data, excluding outliers.

Data Flags:

A: Outside acceptable limits for Cation-Anion Balance for 10.0-800 meq/L Anion Sum.

B: Outside acceptable limits for TDS check. Standard methods indicates that if measured value is less than calculated, higher ion sum is suspect. If measured solids concentration is more than 20% higher than calculated, the low ion sum is suspect.

C: Outside acceptable limits for ratio of measured TDS to EC. Standard methods indicates that measured TDS or measured EC is suspect.

D: Outside acceptable limits for ratio of cation sum to measured EC. Standard methods indicates that cation sum is suspect.

E: Outside acceptable limits for ratio of anion sum to measured EC. Standard methods indicates that anion sum is suspect.

F: Outside acceptable limits for ratio of calculated TDS to EC. Standard methods indicates that if ratio below 0.55, lower ion sum is suspect. If ratio above 0.7, higher ion sum is suspect.



## **Appendix B**

# Log of Boring No. BRC-SB-01-A

## BMI Site - Hydrogeologic Characterization

### Henderson, Nevada



**Drilling Method:** Mud Rotary  
**Drilling Equipment:** Gefco 15K  
**Drilling Contractor:** Water Development Corporation  
**Driller:** Juan Aguilar

**Borehole Total Depth:** 400 ft bgs  
**Borehole Diameter:** 10 in  
**Boring Location:** Location 1 (Well ID: AA-01)  
**Depth to Water (ft. bgs):** NA

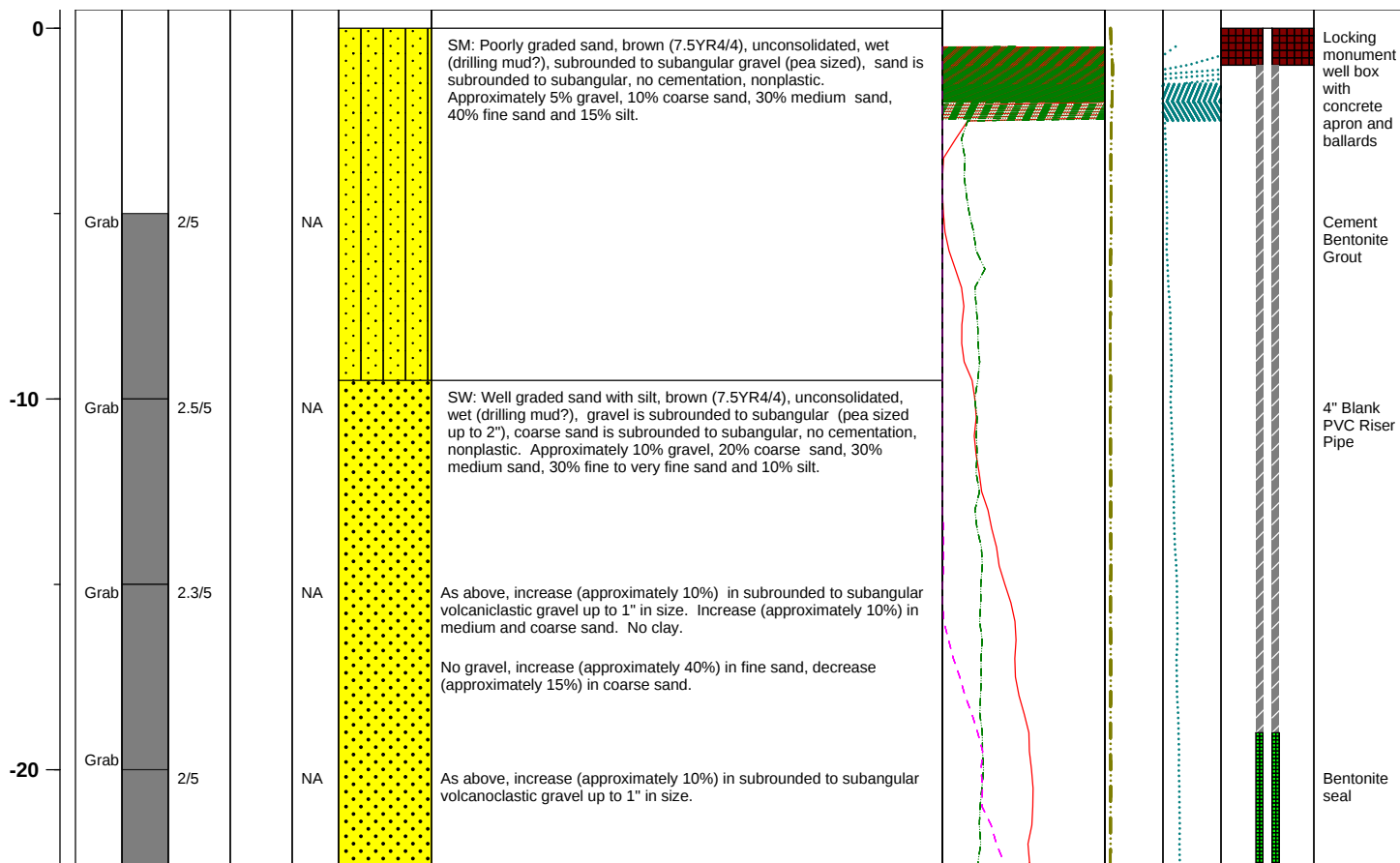
**Sample Type:** Continuous Core  
**Sample Interval:** Continuous

**Logged By:** Dave Kremer  
**Date Started:** 2/21/04  
**Date Completed:** 2/23/04

#### Monitoring Well Construction

**Type of Surface Seal:** Bentonite-Grout  
**Blank Casing Type/Size:** 4" Sch 80 PVC  
**Screen Type/Size:** 4" Sch 80 PVC  
**Transition Sand Type:** #1C  
**Screen Slot Size:** 0.010 in  
**Top of Screen (ft. bgs):** 29 ft bgs  
**Bottom of Screen (ft. bgs):** 49 ft bgs  
**Type of Sand Pack:** #10 x 20

| Depth<br>Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Geophysical Data |           |              |                       |                      | Well Construction |  |
|--------------------------|-------------|-----------------|-----------------|---------------------------------|-----|-----------|------------------|------------------|-----------|--------------|-----------------------|----------------------|-------------------|--|
|                          |             |                 |                 |                                 |     |           |                  | E-Log            |           |              | Caliper Log<br>(inch) | Guard Log<br>(OHM.M) |                   |  |
|                          |             |                 |                 |                                 |     |           |                  | 16" (OHM)        | 64" (OHM) | S. PT. (OHM) |                       |                      |                   |  |



**Project No.** 3850360

**Log of Boring:** BRC-SB-01-A



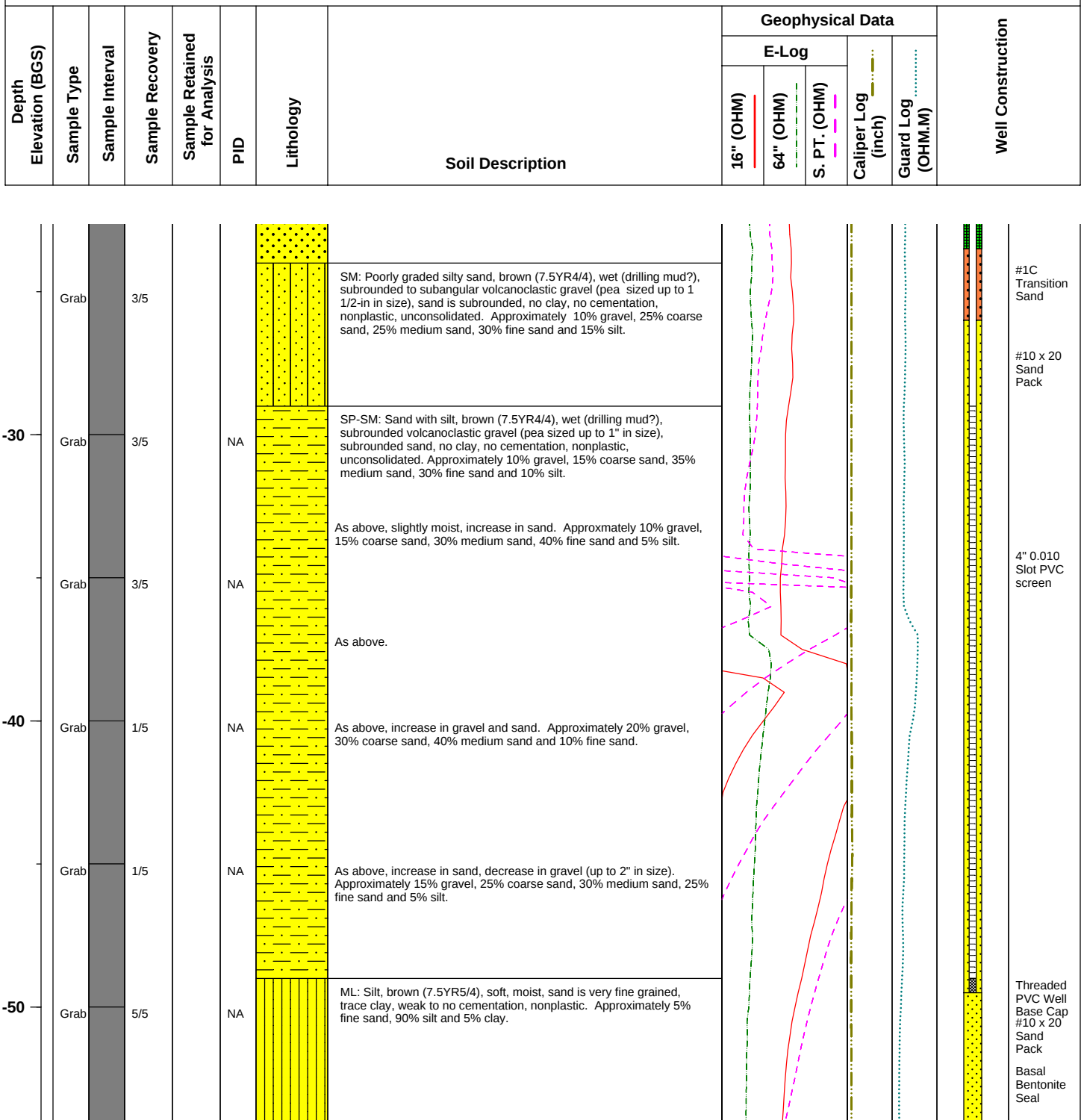
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# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-01-A



Project No. 3850360

Log of Boring: BRC-SB-01-A



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# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-01-A

| Depth<br>Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained<br>for Analysis | PID | Lithology | Soil Description                                                                                                                                          | Geophysical Data |           |              |                       |                      | Well Construction |  |  |  |  |
|--------------------------|-------------|-----------------|-----------------|---------------------------------|-----|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------|--------------|-----------------------|----------------------|-------------------|--|--|--|--|
|                          |             |                 |                 |                                 |     |           |                                                                                                                                                           | E-Log            |           |              | Caliper Log<br>(inch) | Guard Log<br>(OHM.M) |                   |  |  |  |  |
|                          |             |                 |                 |                                 |     |           |                                                                                                                                                           | 16" (OHM)        | 64" (OHM) | S. PT. (OHM) |                       |                      |                   |  |  |  |  |
|                          | Grab        | 5/5             |                 |                                 | NA  |           | As above.                                                                                                                                                 |                  |           |              |                       |                      |                   |  |  |  |  |
|                          |             |                 |                 |                                 |     |           | As above, slight (approximately 5%) increase in fine sand, non-plastic to low plasticity.                                                                 |                  |           |              |                       |                      |                   |  |  |  |  |
| -60                      | Grab        | 5/5             |                 |                                 | NA  |           | As above.                                                                                                                                                 |                  |           |              |                       |                      |                   |  |  |  |  |
|                          |             |                 |                 |                                 |     |           | As above.                                                                                                                                                 |                  |           |              |                       |                      |                   |  |  |  |  |
|                          | Grab        | 5/5             |                 |                                 | NA  |           | As above.                                                                                                                                                 |                  |           |              |                       |                      |                   |  |  |  |  |
|                          |             |                 |                 |                                 |     |           | As above.                                                                                                                                                 |                  |           |              |                       |                      |                   |  |  |  |  |
| -70                      | Grab        | 5/5             |                 |                                 | NA  |           | As above, medium stiff, moist, trace clay, medium (1/8" to 1" in size) cemented nodules, nonplastic.                                                      |                  |           |              |                       |                      |                   |  |  |  |  |
|                          |             |                 |                 |                                 |     |           | No recovery from 73 to 76 ft bgs.                                                                                                                         |                  |           |              |                       |                      |                   |  |  |  |  |
|                          | Grab        | 1/5             |                 |                                 | NA  |           |                                                                                                                                                           |                  |           |              |                       |                      |                   |  |  |  |  |
| -80                      | Grab        | 5/5             |                 |                                 | NA  |           | Silt, brown (7.5YR5/4), soft, moist, sand is very fine grained, trace clay, no cementation, low plasticity. Approximately 10% sand, 85% silt and 5% clay. |                  |           |              |                       |                      |                   |  |  |  |  |
|                          |             |                 |                 |                                 |     |           | As above, slight (approximately 5%) increase in fine to very fine sand, moist.                                                                            |                  |           |              |                       |                      |                   |  |  |  |  |
|                          |             |                 |                 |                                 |     |           | As above, wet, increase (approximately 10%) in very fine sand.                                                                                            |                  |           |              |                       |                      |                   |  |  |  |  |
|                          | Grab        | 5/5             |                 |                                 | NA  |           |                                                                                                                                                           |                  |           |              |                       |                      |                   |  |  |  |  |

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Log of Boring: BRC-SB-01-A



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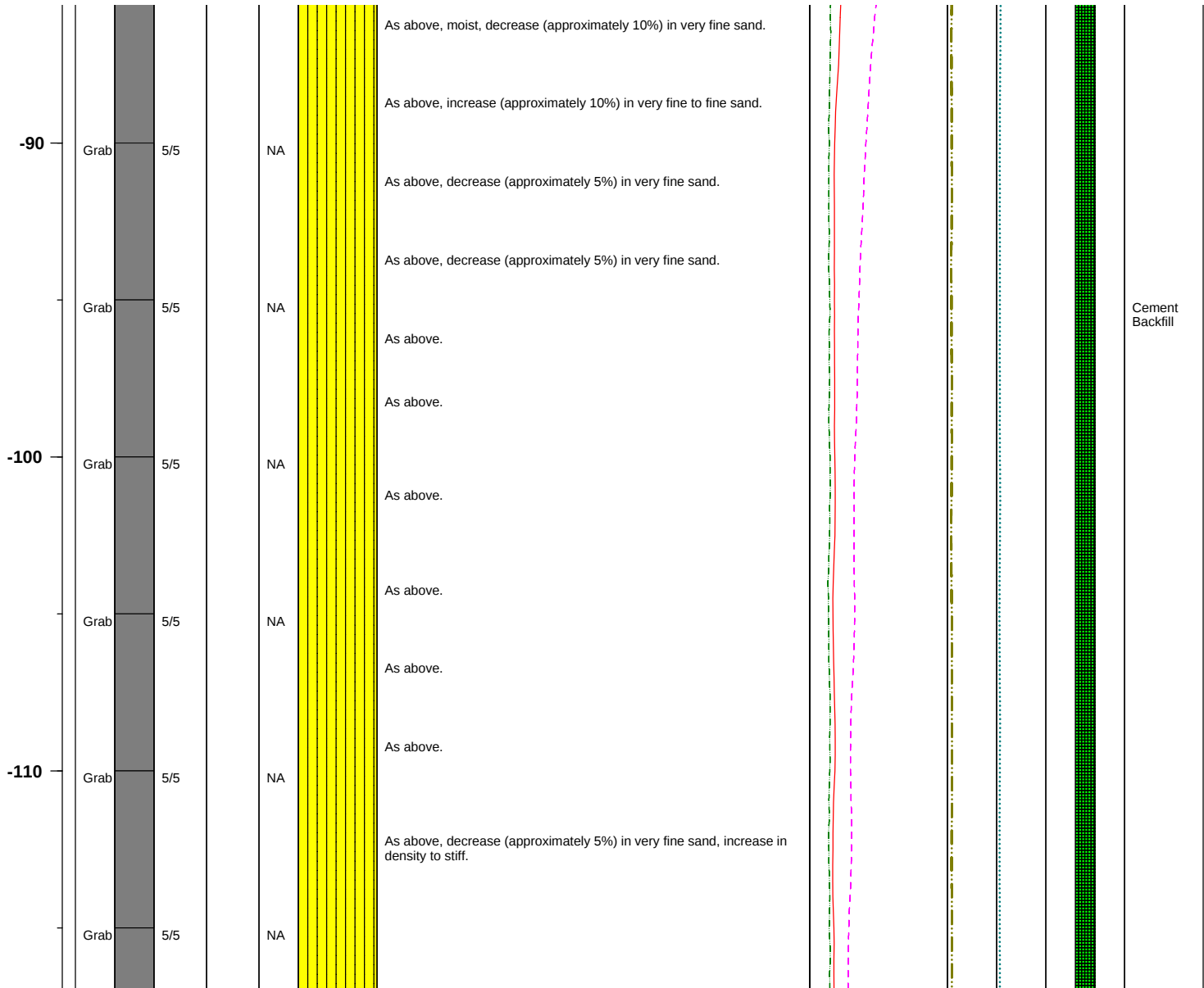
# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-01-A

| Depth<br>Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Geophysical Data       |                        |                        |                       | Well Construction |                      |
|--------------------------|-------------|-----------------|-----------------|---------------------------------|-----|-----------|------------------|------------------------|------------------------|------------------------|-----------------------|-------------------|----------------------|
|                          |             |                 |                 |                                 |     |           |                  | E-Log                  |                        |                        | Caliper Log<br>(inch) |                   | Guard Log<br>(OHM.M) |
|                          |             |                 |                 |                                 |     |           |                  | 16" (OHM)              | 64" (OHM)              | S. PT. (OHM)           |                       |                   |                      |
|                          |             |                 |                 |                                 |     |           |                  | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> |                       |                   |                      |



Project No. 3850360

Log of Boring: BRC-SB-01-A



# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-01-A

| Depth<br>Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Geophysical Data       |                        |                        |                       | Well Construction |                      |
|--------------------------|-------------|-----------------|-----------------|---------------------------------|-----|-----------|------------------|------------------------|------------------------|------------------------|-----------------------|-------------------|----------------------|
|                          |             |                 |                 |                                 |     |           |                  | E-Log                  |                        |                        | Caliper Log<br>(inch) |                   | Guard Log<br>(OHM.M) |
|                          |             |                 |                 |                                 |     |           |                  | 16" (OHM)              | 64" (OHM)              | S. PT. (OHM)           |                       |                   |                      |
|                          |             |                 |                 |                                 |     |           |                  | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> |                       |                   |                      |

|      |      |     |    |  |  |  |                                                                                                                                                                                                            |  |  |  |  |  |
|------|------|-----|----|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| -120 | Grab | 5/5 | NA |  |  |  | As above, increase (approximately 15%) in very fine sand, decrease in density to soft, wet.<br><br>Silt with sand, as above, decrease (approximately 15%) in very fine sand, increase in density to stiff. |  |  |  |  |  |
|      | Grab | 5/5 | NA |  |  |  | Silt, as above.                                                                                                                                                                                            |  |  |  |  |  |
| -130 | Grab | 5/5 | NA |  |  |  | As above, decrease (approximately 5%) in very fine sand, increase in density to very stiff.                                                                                                                |  |  |  |  |  |
|      | Grab | 5/5 | NA |  |  |  | As above, increase (approximately 5%) in very fine sand.                                                                                                                                                   |  |  |  |  |  |
|      |      |     |    |  |  |  | Silt with clay, as above, decrease (approximately 5%) in very fine sand.                                                                                                                                   |  |  |  |  |  |
| -140 | Grab | 5/5 | NA |  |  |  | Silty with sand and clay, as above.                                                                                                                                                                        |  |  |  |  |  |
|      | Grab | 4/5 | NA |  |  |  | Silt with clay, as above, decrease (approximately 10%) in very fine sand.                                                                                                                                  |  |  |  |  |  |
|      |      |     |    |  |  |  | Clayey silt, as above.                                                                                                                                                                                     |  |  |  |  |  |

Cement Backfill

Project No. 3850360

Log of Boring: BRC-SB-01-A



Page 5 of 13

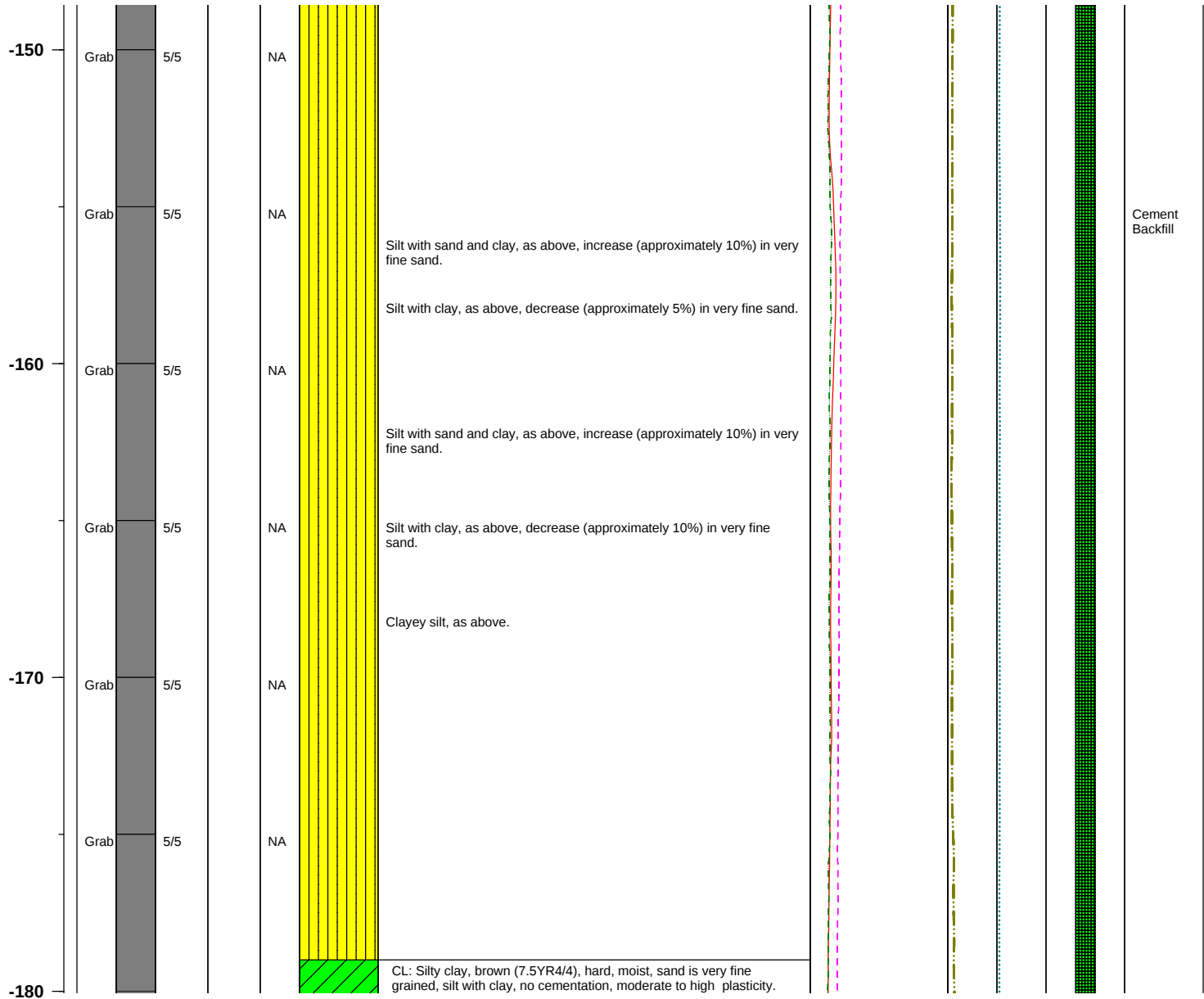
# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-01-A

| Depth<br>Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Geophysical Data       |                        |                        |                       | Well Construction |                      |
|--------------------------|-------------|-----------------|-----------------|---------------------------------|-----|-----------|------------------|------------------------|------------------------|------------------------|-----------------------|-------------------|----------------------|
|                          |             |                 |                 |                                 |     |           |                  | E-Log                  |                        |                        | Caliper Log<br>(inch) |                   | Guard Log<br>(OHM.M) |
|                          |             |                 |                 |                                 |     |           |                  | 16" (OHM)              | 64" (OHM)              | S. PT. (OHM)           |                       |                   |                      |
|                          |             |                 |                 |                                 |     |           |                  | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> |                       |                   |                      |



Project No. 3850360

Log of Boring: BRC-SB-01-A



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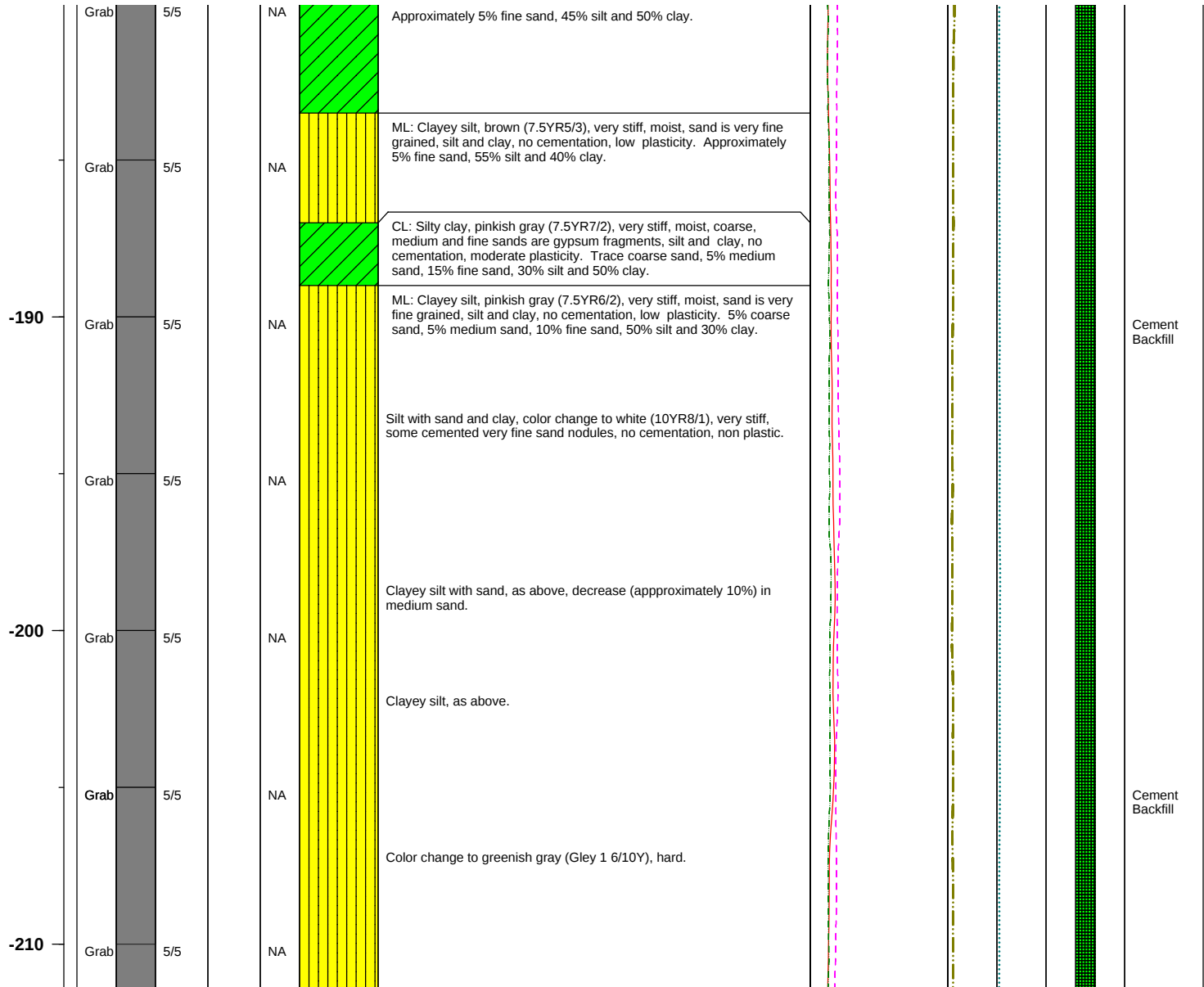
# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-01-A

| Depth<br>Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Geophysical Data       |                        |                        |                       | Well Construction |                      |
|--------------------------|-------------|-----------------|-----------------|---------------------------------|-----|-----------|------------------|------------------------|------------------------|------------------------|-----------------------|-------------------|----------------------|
|                          |             |                 |                 |                                 |     |           |                  | E-Log                  |                        |                        | Caliper Log<br>(inch) |                   | Guard Log<br>(OHM.M) |
|                          |             |                 |                 |                                 |     |           |                  | 16" (OHM)              | 64" (OHM)              | S. PT. (OHM)           |                       |                   |                      |
|                          |             |                 |                 |                                 |     |           |                  | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> |                       |                   |                      |



Project No. 3850360

Log of Boring: BRC-SB-01-A



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# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-01-A

| Depth<br>Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Geophysical Data       |                        |                        |                       | Well Construction |                      |
|--------------------------|-------------|-----------------|-----------------|---------------------------------|-----|-----------|------------------|------------------------|------------------------|------------------------|-----------------------|-------------------|----------------------|
|                          |             |                 |                 |                                 |     |           |                  | E-Log                  |                        |                        | Caliper Log<br>(inch) |                   | Guard Log<br>(OHM.M) |
|                          |             |                 |                 |                                 |     |           |                  | 16" (OHM)              | 64" (OHM)              | S. PT. (OHM)           |                       |                   |                      |
|                          |             |                 |                 |                                 |     |           |                  | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> |                       |                   |                      |

|      |      |     |  |  |    |  |                                                                                                                                                                                                                                                            |  |  |  |  |  |
|------|------|-----|--|--|----|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
|      |      |     |  |  |    |  | Color change to brown (10YR5/3), hard.                                                                                                                                                                                                                     |  |  |  |  |  |
|      | Grab | 5/5 |  |  | NA |  | Color change to brown (7.5YR4/3).                                                                                                                                                                                                                          |  |  |  |  |  |
|      |      |     |  |  |    |  | Color change to brown (7.5YR5/3).                                                                                                                                                                                                                          |  |  |  |  |  |
| -220 | Grab | 5/5 |  |  | NA |  | <div> SM: Poorly graded silty sand with clay, brown (7.5YR5/3), hard, moist, medium grained sand subrounded, fine to very fine sand, silt with clay, no cementation, nonplastic. Approximately 5% medium sand, 50% fine sand, 40% silt and 5% clay. </div> |  |  |  |  |  |
|      |      |     |  |  |    |  | ML: Clayey silt, brown (7.5YR5/3), hard, moist, very fine sand, silt and clay, no cementation, nonplastic to low plasticity. Approximately 5% fine sand, 70% silt and 25% clay.                                                                            |  |  |  |  |  |
|      | Grab | 5/5 |  |  | NA |  | As above, slight increase (approximately 5%) in clay.                                                                                                                                                                                                      |  |  |  |  |  |
| -230 | Grab | 5/5 |  |  | NA |  | As above.                                                                                                                                                                                                                                                  |  |  |  |  |  |
|      |      |     |  |  |    |  | Color change to pinkish gray (7.5YR7/2), hard, moist, sand is fine to very fine grained, silt and clay, nocementation, increase (approximately 5%) in fine sand, decrease in clay.                                                                         |  |  |  |  |  |
|      | Grab | 5/5 |  |  | NA |  | Color change to brown (7.5YR5/3), moderate plasticity, increase (approximately 5%) in fine sand, decrease in clay.                                                                                                                                         |  |  |  |  |  |
|      |      |     |  |  |    |  | As above, decrease (approximately 5%) in fine sand, increase in clay.                                                                                                                                                                                      |  |  |  |  |  |
| -240 | Grab | 5/5 |  |  | NA |  | Clayey silt with sand, as above, increase (approximately 15%) in fine sand.                                                                                                                                                                                |  |  |  |  |  |

Project No. 3850360

Log of Boring: BRC-SB-01-A



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# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-01-A

| Depth<br>Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Geophysical Data |           |              |                       | Well Construction |                      |
|--------------------------|-------------|-----------------|-----------------|---------------------------------|-----|-----------|------------------|------------------|-----------|--------------|-----------------------|-------------------|----------------------|
|                          |             |                 |                 |                                 |     |           |                  | E-Log            |           |              | Caliper Log<br>(inch) |                   | Guard Log<br>(OHM.M) |
|                          |             |                 |                 |                                 |     |           |                  | 16" (OHM)        | 64" (OHM) | S. PT. (OHM) |                       |                   |                      |

|      |      |     |  |    |  |  |                                                                                        |  |  |  |  |  |  |
|------|------|-----|--|----|--|--|----------------------------------------------------------------------------------------|--|--|--|--|--|--|
|      | Grab | 5/5 |  | NA |  |  | As above, decrease (approximately 10%) in fine sand.                                   |  |  |  |  |  |  |
| -250 | Grab | 5/5 |  | NA |  |  | Silt with clay, as above.                                                              |  |  |  |  |  |  |
|      |      |     |  |    |  |  | As above, decrease (approximately 5%) in fine sand.                                    |  |  |  |  |  |  |
|      |      |     |  |    |  |  | Clayey silt, as above, increase (approximately 5%) in fine sand.                       |  |  |  |  |  |  |
|      | Grab | 5/5 |  | NA |  |  | Clayey silt with sand, as above.                                                       |  |  |  |  |  |  |
| -260 | Grab | 5/5 |  | NA |  |  | Silt with clay, as above, increase (approximately 10%) in fine sand, decrease in clay. |  |  |  |  |  |  |
|      |      |     |  |    |  |  | As above, increase (approximately 5%) in fine sand, decrease in clay.                  |  |  |  |  |  |  |
|      | Grab | 5/5 |  | NA |  |  | Clayey silt, as above, decrease (approximately 10%) in fine sand.                      |  |  |  |  |  |  |
| -270 | Grab | 5/5 |  | NA |  |  |                                                                                        |  |  |  |  |  |  |
|      |      |     |  |    |  |  | Silt with sand and clay, as above, increase (approximately 10%) in fine                |  |  |  |  |  |  |

Project No. 3850360

Log of Boring: BRC-SB-01-A



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# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-01-A

| Depth<br>Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Geophysical Data |           |              |                       | Well Construction |                      |
|--------------------------|-------------|-----------------|-----------------|---------------------------------|-----|-----------|------------------|------------------|-----------|--------------|-----------------------|-------------------|----------------------|
|                          |             |                 |                 |                                 |     |           |                  | E-Log            |           |              | Caliper Log<br>(inch) |                   | Guard Log<br>(OHM.M) |
|                          |             |                 |                 |                                 |     |           |                  | 16" (OHM)        | 64" (OHM) | S. PT. (OHM) |                       |                   |                      |

|      |      |     |  |    |  |  |                                                                               |  |  |  |  |                 |
|------|------|-----|--|----|--|--|-------------------------------------------------------------------------------|--|--|--|--|-----------------|
|      | Grab | 0/5 |  | NA |  |  | sand.                                                                         |  |  |  |  |                 |
| -280 | Grab | 5/5 |  | NA |  |  | Clayey silt, as above, decrease (approximately 5%) in fine sand.              |  |  |  |  |                 |
|      |      |     |  |    |  |  | Silt with sand, as above.                                                     |  |  |  |  |                 |
|      | Grab | 5/5 |  | NA |  |  | Sandy silt, as above, increase (approximately 20%) in fine sand.              |  |  |  |  |                 |
| -290 | Grab | 5/5 |  | NA |  |  | Clayey silt, as above, increase (approximately 15%) in silt, trace fine sand. |  |  |  |  |                 |
|      |      |     |  |    |  |  | As above, increase (approximately 10%) in fine sand.                          |  |  |  |  |                 |
|      | Grab | 5/5 |  | NA |  |  | Silt with sand, as above. Approximately 15% fine sand, 80% silt and 5% clay.  |  |  |  |  |                 |
| -300 | Grab | 5/5 |  | NA |  |  | Silt, as above. Approximatley 10% fine sand, 85% silt and 5% clay.            |  |  |  |  |                 |
|      |      | 5/5 |  | NA |  |  |                                                                               |  |  |  |  | Cement Backfill |

Project No. 3850360

Log of Boring: BRC-SB-01-A



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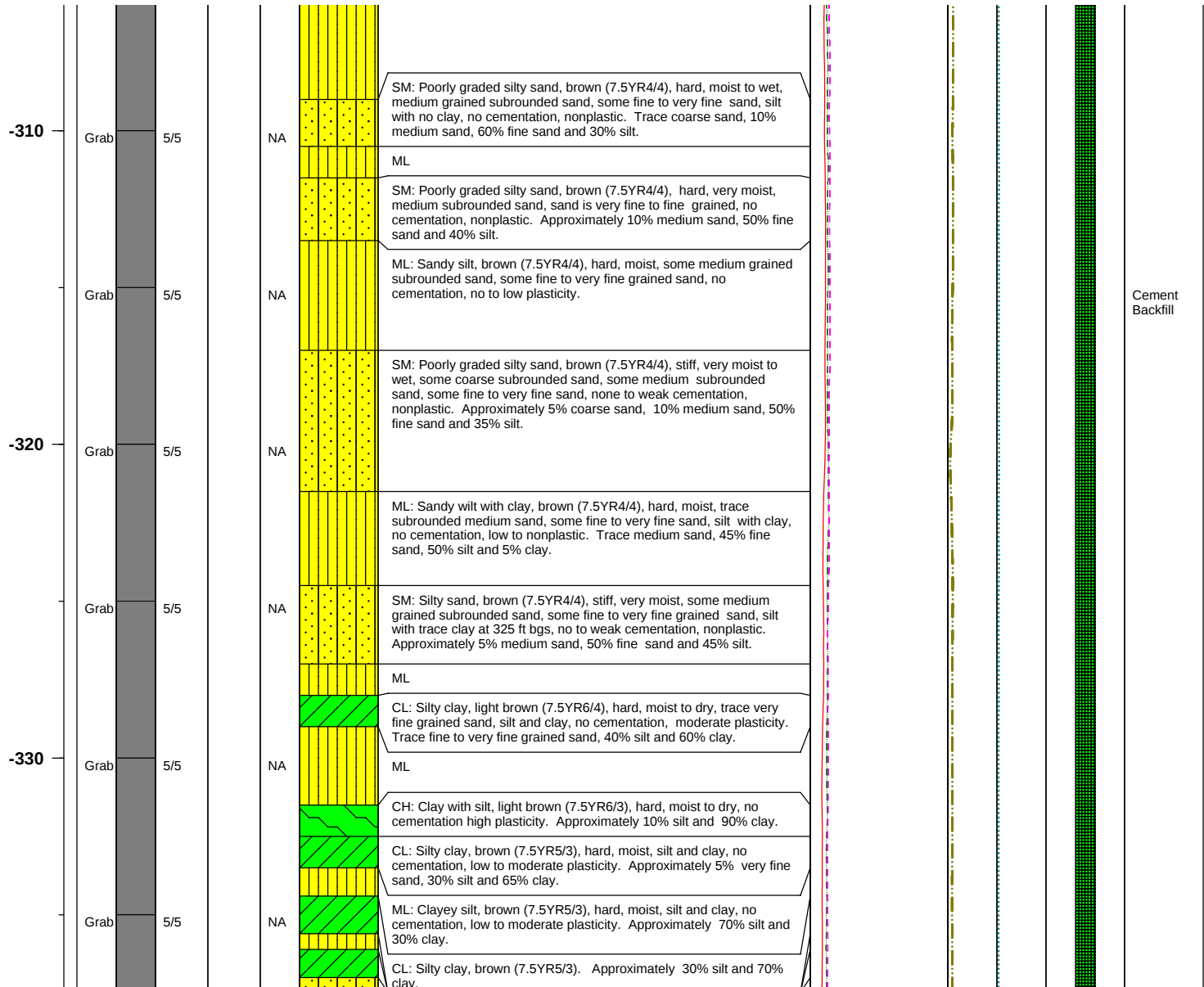
# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-01-A

| Depth<br>Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Geophysical Data |           |                       | Well Construction |                      |
|--------------------------|-------------|-----------------|-----------------|---------------------------------|-----|-----------|------------------|------------------|-----------|-----------------------|-------------------|----------------------|
|                          |             |                 |                 |                                 |     |           |                  | E-Log            |           | Caliper Log<br>(inch) |                   | Guard Log<br>(OHM.M) |
|                          |             |                 |                 |                                 |     |           |                  | 16" (OHM)        | 64" (OHM) |                       |                   |                      |



Project No. 3850360

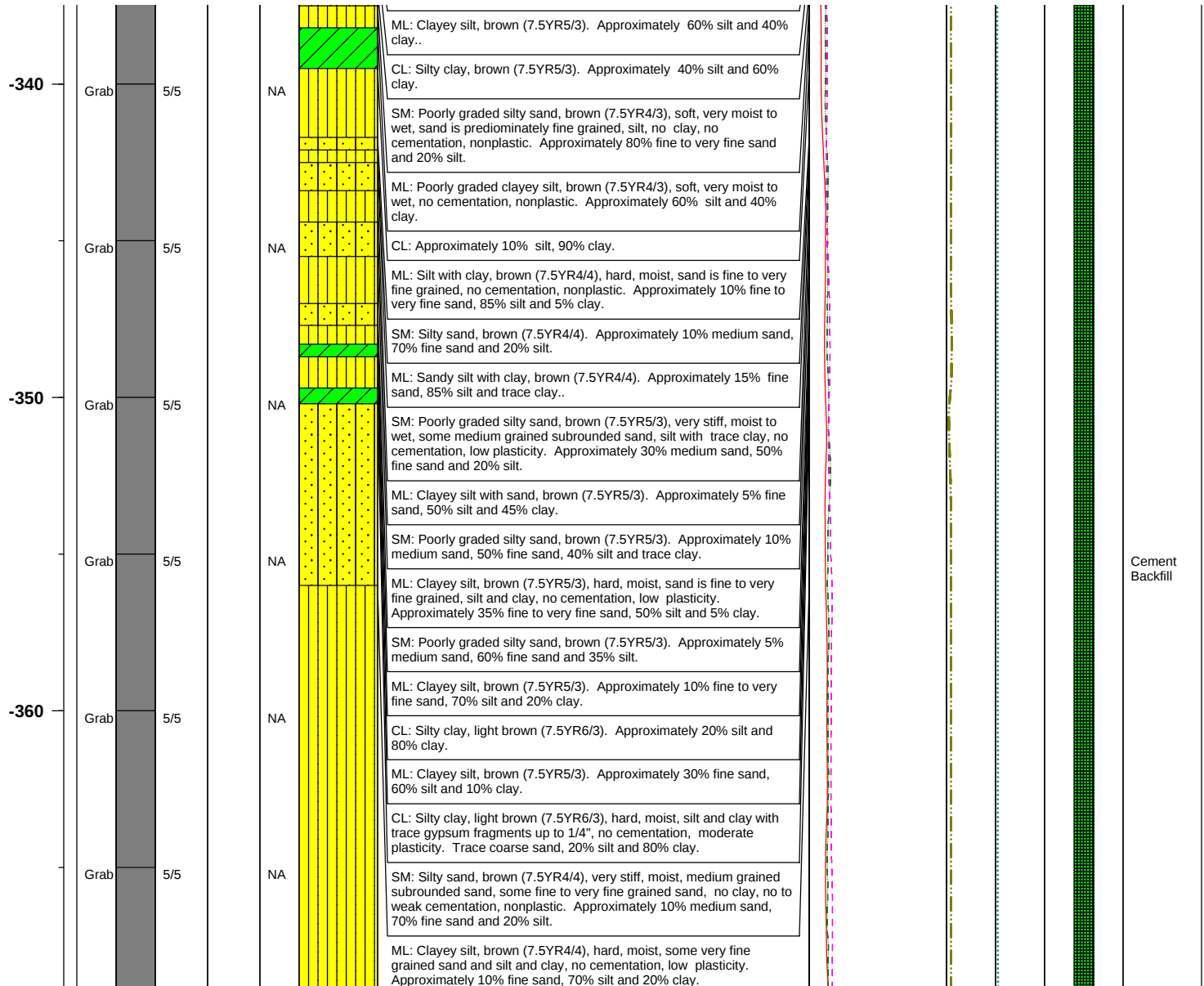
Log of Boring: BRC-SB-01-A





**Basic Remediation**  
COMPANY

| Soil Description | Depth<br>Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained<br>for Analysis | PID | Lithology                           | Geophysical Data                    |                                        |                                                 |                                                | Well Construction |
|------------------|--------------------------|-------------|-----------------|-----------------|---------------------------------|-----|-------------------------------------|-------------------------------------|----------------------------------------|-------------------------------------------------|------------------------------------------------|-------------------|
|                  |                          |             |                 |                 |                                 |     | E-Log                               |                                     |                                        |                                                 |                                                |                   |
|                  |                          |             |                 |                 |                                 |     | 16" (OHM)<br><div><div></div></div> | 64" (OHM)<br><div><div></div></div> | S. PT. (OHM)<br><div><div></div></div> | Caliper Log<br>(inch)<br><div><div></div></div> | Guard Log<br>(OHM.M)<br><div><div></div></div> |                   |
|                  |                          |             |                 |                 |                                 |     |                                     |                                     |                                        |                                                 |                                                |                   |
|                  |                          |             |                 |                 |                                 |     |                                     |                                     |                                        |                                                 |                                                |                   |



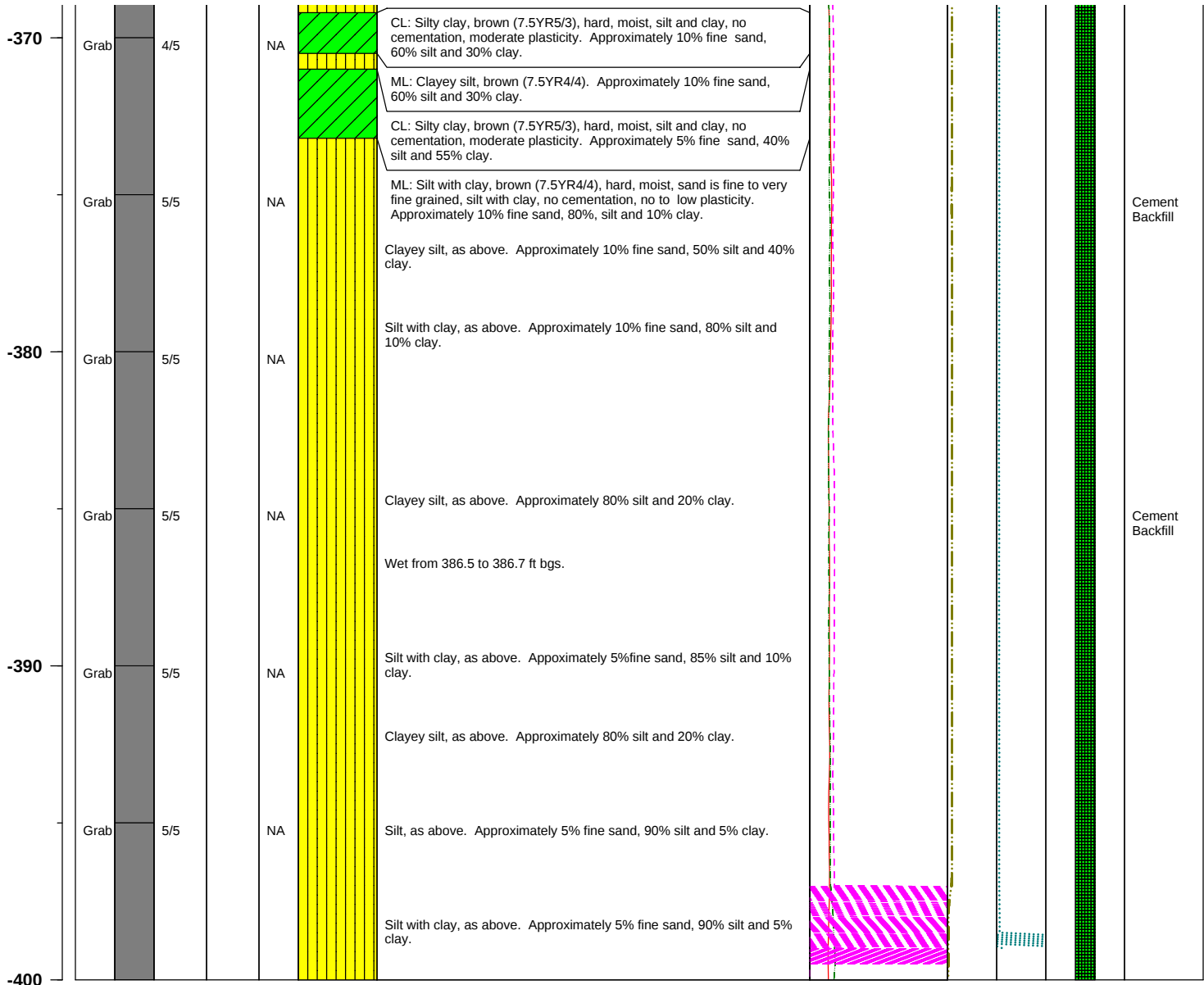
# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-01-A

| Depth<br>Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Geophysical Data |           |                       | Well Construction |                      |
|--------------------------|-------------|-----------------|-----------------|---------------------------------|-----|-----------|------------------|------------------|-----------|-----------------------|-------------------|----------------------|
|                          |             |                 |                 |                                 |     |           |                  | E-Log            |           | Caliper Log<br>(inch) |                   | Guard Log<br>(OHM.M) |
|                          |             |                 |                 |                                 |     |           |                  | 16" (OHM)        | 64" (OHM) |                       |                   |                      |
|                          |             |                 |                 |                                 |     |           |                  |                  |           |                       |                   |                      |



Project No. 3850360

Log of Boring: BRC-SB-01-A



# Log of Boring No. BRC-SB-27-B

## BMI Site - Hydrogeologic Characterization

### Henderson, Nevada



**Drilling Method:** Sonic  
**Drilling Equipment:** Rotary Sonic  
**Drilling Contractor:** Resonant Sonic  
**Driller:** ProSonic

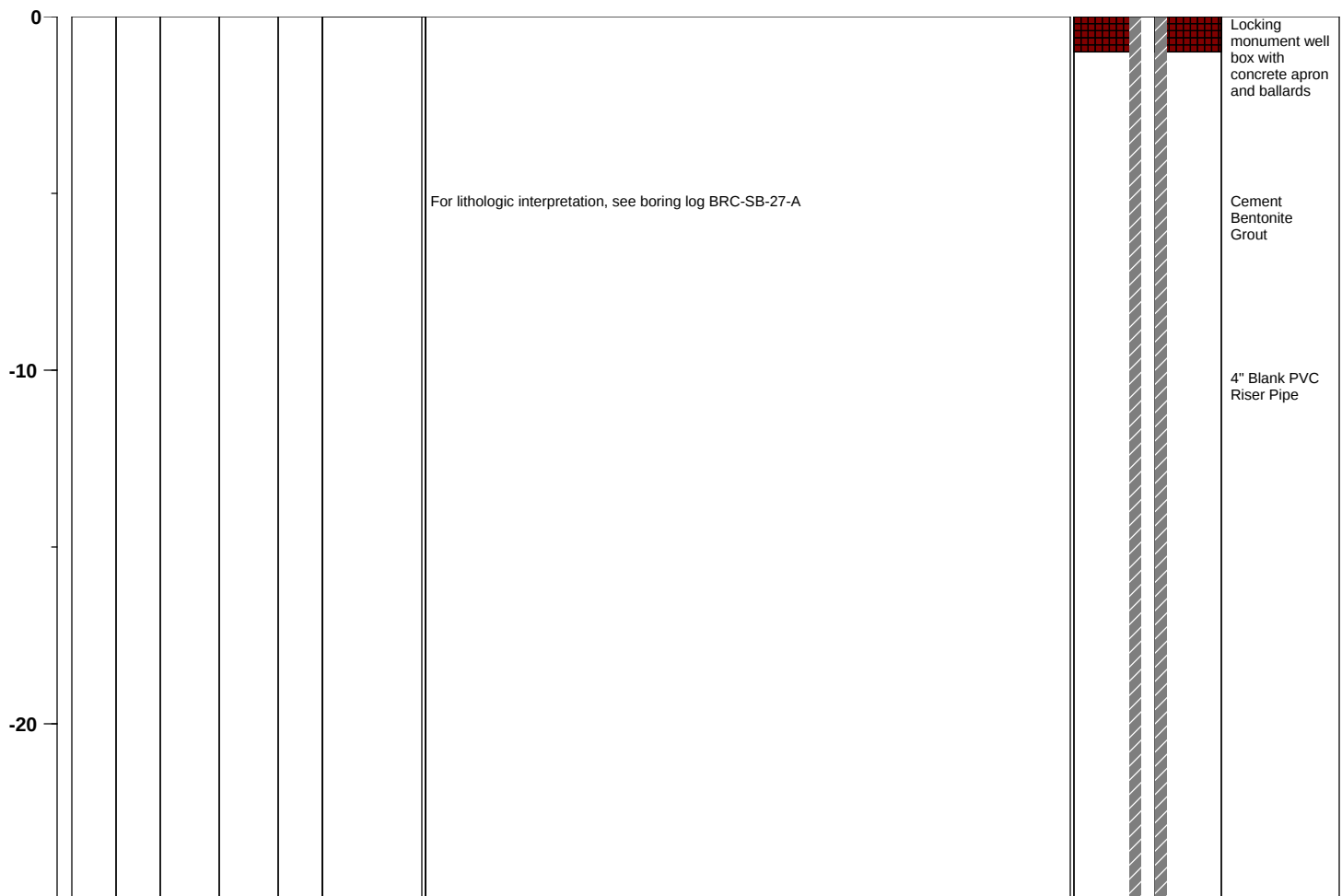
**Borehole Total Depth:** 143 ft bgs  
**Borehole Diameter:** 8.5 in  
**Boring Location:** Location 27 (Well ID: AA-27)  
**Depth to Water (ft. bgs):** NA

**Sample Type:** S.S.  
**Sample Interval:** Continuous

**Logged By:** Jennifer Wiley  
**Date Started:** 07/06/04  
**Date Completed:** 07/07/04

| Monitoring Well Construction   |                 |                                    |             |
|--------------------------------|-----------------|------------------------------------|-------------|
| <b>Type of Surface Seal:</b>   | Bentonite-Grout | <b>Screen Slot Size:</b>           | 0.010 in    |
| <b>Blank Casing Type/Size:</b> | 4" Sch 80 PVC   | <b>Top of Screen (ft. bgs):</b>    | 61.5 ft bgs |
| <b>Screen Type/Size:</b>       | 4" Sch 80 PVC   | <b>Bottom of Screen (ft. bgs):</b> | 81.5 ft bgs |
| <b>Transition Sand Type:</b>   | N/A             | <b>Type of Sand Pack:</b>          | #2 x 12     |

| Depth<br>Elevation (MSLD) | Sample Type | Sample Interval | Sample Recovery<br>(feet) | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Well Construction |
|---------------------------|-------------|-----------------|---------------------------|---------------------------------|-----|-----------|------------------|-------------------|
|---------------------------|-------------|-----------------|---------------------------|---------------------------------|-----|-----------|------------------|-------------------|



**Project No.** 3850360

**Log of Boring:** BRC-SB-27-B



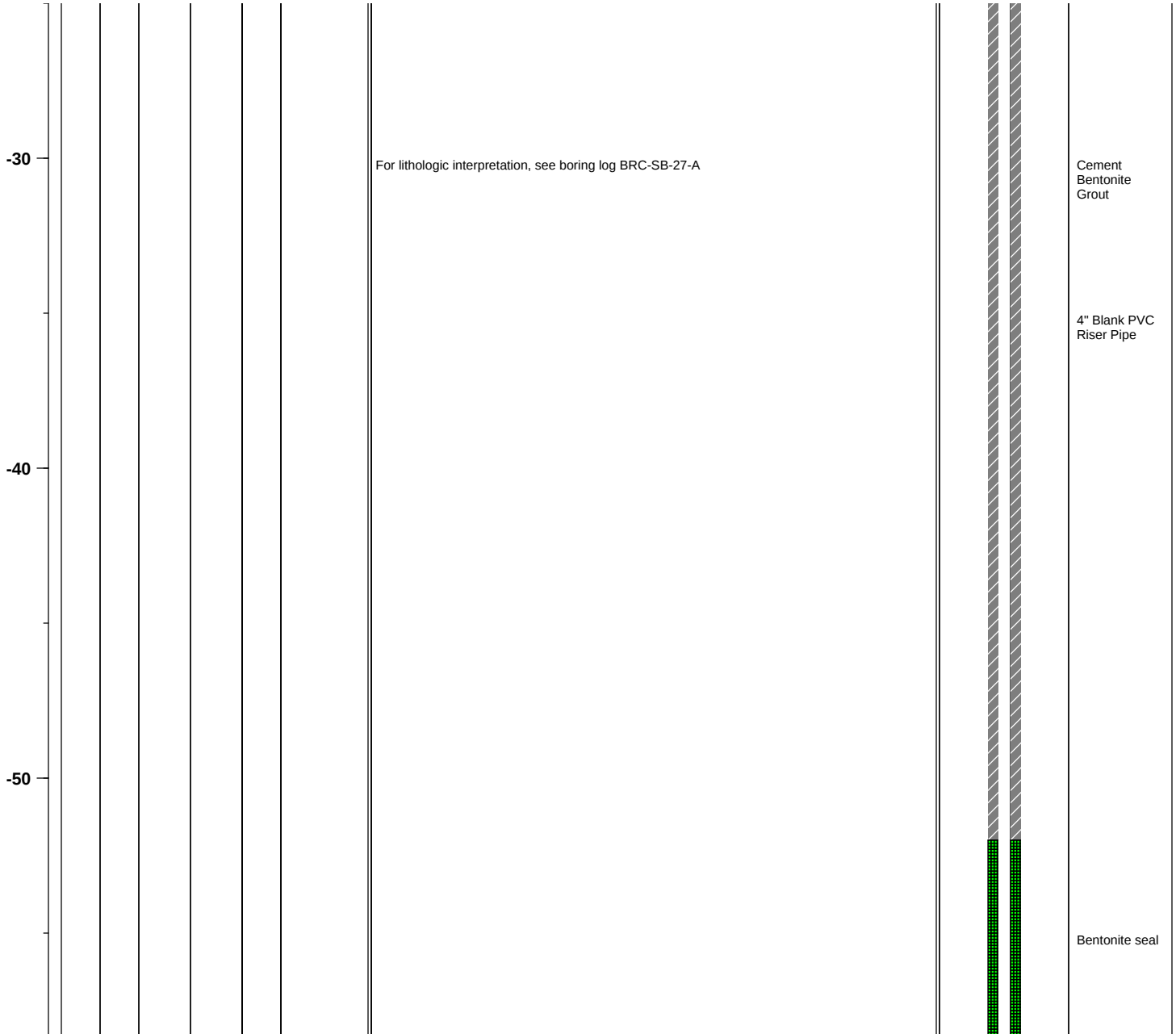
# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-27-B

| Depth<br>Elevation (MSLD) | Sample Type | Sample Interval | Sample Recovery<br>(feet) | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Well Construction |
|---------------------------|-------------|-----------------|---------------------------|---------------------------------|-----|-----------|------------------|-------------------|
|---------------------------|-------------|-----------------|---------------------------|---------------------------------|-----|-----------|------------------|-------------------|



Project No. 3850360

Log of Boring: BRC-SB-27-B



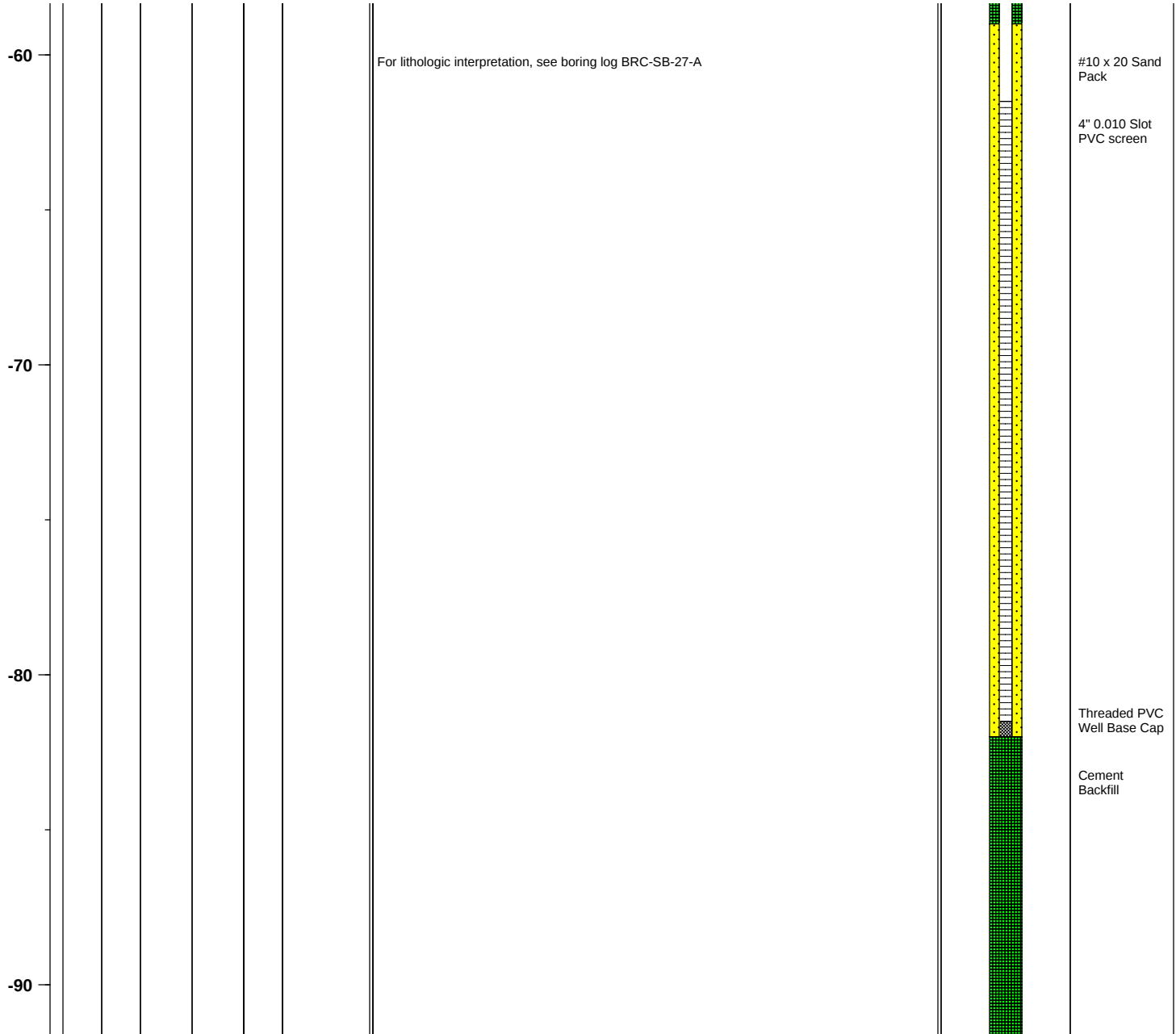
# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-27-B

| Depth<br>Elevation (MSLD) | Sample Type | Sample Interval | Sample Recovery<br>(feet) | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Well Construction |
|---------------------------|-------------|-----------------|---------------------------|---------------------------------|-----|-----------|------------------|-------------------|
|---------------------------|-------------|-----------------|---------------------------|---------------------------------|-----|-----------|------------------|-------------------|



Project No. 3850360

Log of Boring: BRC-SB-27-B



**Log of Boring No. BRC-SB-27-B**

| Depth<br>Elevation (MSLD) | Sample Type | Sample Interval | Sample Recovery<br>(feet) | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Well Construction |
|---------------------------|-------------|-----------------|---------------------------|---------------------------------|-----|-----------|------------------|-------------------|
|---------------------------|-------------|-----------------|---------------------------|---------------------------------|-----|-----------|------------------|-------------------|

# BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-27-B

| Depth<br>Elevation (MSLD) | Sample Type | Sample Interval | Sample Recovery<br>(feet) | Sample Retained<br>for Analysis | PID | Lithology | Soil Description | Well Construction |
|---------------------------|-------------|-----------------|---------------------------|---------------------------------|-----|-----------|------------------|-------------------|
|---------------------------|-------------|-----------------|---------------------------|---------------------------------|-----|-----------|------------------|-------------------|

|      |  |  |  |  |  |  |                                                           |                 |
|------|--|--|--|--|--|--|-----------------------------------------------------------|-----------------|
| -130 |  |  |  |  |  |  | For lithologic interpretation, see boring log BRC-SB-27-A |                 |
| -140 |  |  |  |  |  |  |                                                           | Cement Backfill |

Project No. 3850360

Log of Boring: BRC-SB-27-B



# EXPLORATION LOG AA-UW 1

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
 EXPLORATION LOCATION: N 26725562.64, E 839434.53  
 EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
 ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
 EXPLORATION DATE: 7/30/07  
 EQUIPMENT: SONIC DRILL RIG  
 LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
 FINAL DEPTH TO WATER: 48.70'

DATE MEASURED: NA  
 DATE MEASURED: 8/1/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS | USCS | DESCRIPTION                                                                                                                                                                                             | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION |
|---------------------|--------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
| -2.5                |                          |      |                                                                                                                                                                                                         |    |    |                         |                      |         |                      |
| 0                   |                          | SM   | Grayish brown silty SAND, little gravel, dry and dense. PIDs (10.6 & 11.7 eV)= 0.1, 0.0 ppmV. 25% angular gravel, 70% subrounded sand, 5% fines; Trace mica; poorly sorted with feldspars and pyroxene. |    |    |                         |                      |         |                      |
| 2.5                 |                          |      |                                                                                                                                                                                                         |    |    |                         |                      |         |                      |
| 5                   |                          |      | ...light brown. PIDs (10.6 & 11.7 eV)= 0.1, 0.0 ppmV.                                                                                                                                                   |    |    |                         |                      |         |                      |
| 7.5                 |                          |      |                                                                                                                                                                                                         |    |    |                         |                      |         |                      |
| 10                  |                          |      | ...reddish brown. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.                                                                                                                                                 |    |    |                         |                      |         |                      |
| 12.5                |                          |      |                                                                                                                                                                                                         |    |    |                         |                      |         |                      |

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

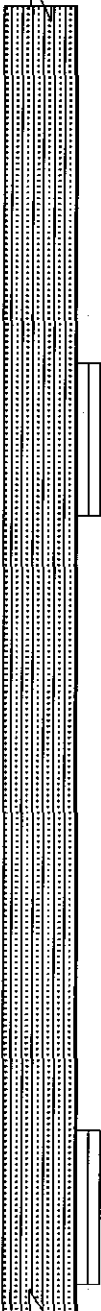
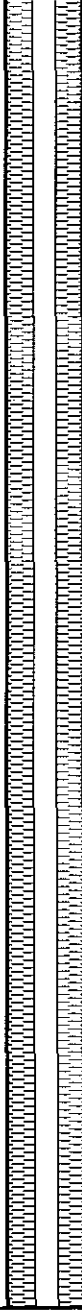
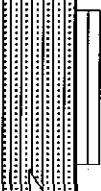
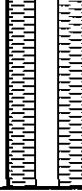
# EXPLORATION LOG AA-UW 1

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
 EXPLORATION LOCATION: N 26725562.64, E 839434.53  
 EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
 ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
 EXPLORATION DATE: 7/30/07  
 EQUIPMENT: SONIC DRILL RIG  
 LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
 FINAL DEPTH TO WATER: 48.70'

DATE MEASURED: NA  
 DATE MEASURED: 8/1/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS                                                            | USCS | DESCRIPTION                                               | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION                                                                  |
|---------------------|-------------------------------------------------------------------------------------|------|-----------------------------------------------------------|----|----|-------------------------|----------------------|---------|---------------------------------------------------------------------------------------|
| 15                  |   |      | ...weakly cemented. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. |    |    |                         |                      |         |   |
| 17.5                |                                                                                     |      |                                                           |    |    |                         |                      |         |                                                                                       |
| 20                  |                                                                                     |      | ...uncemented. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.      |    |    |                         |                      |         |                                                                                       |
| 22.5                |                                                                                     |      |                                                           |    |    |                         |                      |         |                                                                                       |
| 25                  |                                                                                     |      |                                                           |    |    |                         |                      |         |                                                                                       |
| 27.5                |  |      |                                                           |    |    |                         |                      |         |  |
| 30                  |                                                                                     |      | ...PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.                  |    |    |                         |                      |         |                                                                                       |

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made.  
 It is not intended to be representative of subsurface conditions at other locations or times.

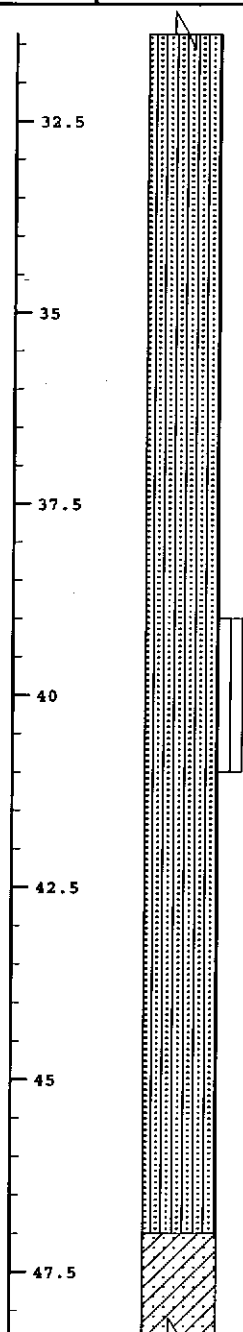
# EXPLORATION LOG AA-UW 1

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
 EXPLORATION LOCATION: N 26725562.64, E 839434.53  
 EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
 ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
 EXPLORATION DATE: 7/30/07  
 EQUIPMENT: SONIC DRILL RIG  
 LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
 FINAL DEPTH TO WATER: 48.70'

DATE MEASURED: NA  
 DATE MEASURED: 8/1/07

| ELEVATION/<br>DEPTH                                                                | SOIL & SAMPLE<br>SYMBOLS | USCS | DESCRIPTION                                                                                                                                                                                                                            | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION |
|------------------------------------------------------------------------------------|--------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
|  |                          |      | <p>...trace gravel.</p> <p>...weakly cemented layers inches thick alternating with uncemented layers to 46 feet bgs. PIDs (10.6 &amp; 11.7 eV)= 0.1, 0.0 ppmV.</p> <p>...brown.<br/>...dark reddish brown, moist, weakly cemented.</p> |    |    |                         |                      |         |                      |
| 47.5                                                                               |                          | SC   | Dark reddish brown clayey SAND with gravel, wet and medium dense.                                                                                                                                                                      |    |    |                         |                      |         |                      |

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

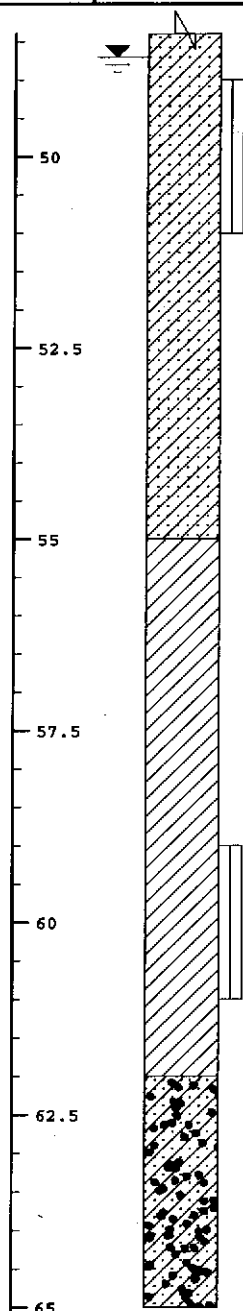
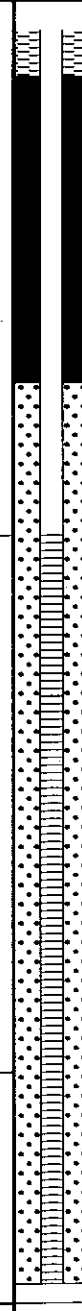
# EXPLORATION LOG AA-UW 1

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 26725562.64, E 839434.53  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 7/30/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 48.70'

DATE MEASURED: NA  
DATE MEASURED: 8/1/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS                                                           | USCS  | DESCRIPTION                                                                                                                                                                                                                             | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION                                                                 |
|---------------------|------------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|--------------------------------------------------------------------------------------|
| 50                  |  |       | ...strong brown. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.                                                                                                                                                                                  |    |    |                         |                      |         |  |
| 52.5                |                                                                                    |       |                                                                                                                                                                                                                                         |    |    |                         |                      |         |                                                                                      |
| 55                  |                                                                                    | CL    | MUDDY CREEK FORMATION: Yellowish red sandy lean CLAY, wet and very stiff. Occasional thin (1/2 inch thick) sandstone layers. 5% subangular gravel, 10% subangular sand, 85% fines; <1% micas; poorly sorted with feldspar and pyroxene. |    |    |                         |                      |         |                                                                                      |
| 57.5                |                                                                                    |       |                                                                                                                                                                                                                                         |    |    |                         |                      |         |                                                                                      |
| 60                  |                                                                                    |       | ...PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.                                                                                                                                                                                                |    |    |                         |                      |         |                                                                                      |
| 62.5                |                                                                                    | GP-GC | Dark brown poorly graded GRAVEL with sand, trace clay, moist and medium dense.                                                                                                                                                          |    |    |                         |                      |         |                                                                                      |
| 65                  |                                                                                    |       | END OF TEST PIT AT 65.0 FEET                                                                                                                                                                                                            |    |    |                         |                      |         |                                                                                      |

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

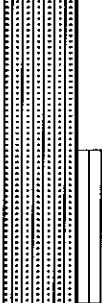
# EXPLORATION LOG AA-UW 2

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 26722943.77, E 838125.09  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 7/31-8/3/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 64.57'

DATE MEASURED: NA  
DATE MEASURED: 8/4/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS                                                            | USCS | DESCRIPTION                                                                                                                                                                                                                                              | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION |
|---------------------|-------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
| -2.5                |                                                                                     |      |                                                                                                                                                                                                                                                          |    |    |                         |                      |         |                      |
| 0                   |   | GW   | Light grayish brown well graded GRAVEL with silt and sand, dry and medium dense. PIDs (10.6 & 11.7 eV)= 0. 7, 0.1 ppmV. 55% angular to subangular gravel, 40% subangular sand, 5% fines; <1% mica; poorly sorted with feldspar, amphibole, and pyroxene. |    |    |                         |                      |         |                      |
| 2.5                 |  | SM   | Reddish brown silty SAND with gravel, dry and dense.                                                                                                                                                                                                     |    |    |                         |                      |         |                      |
| 5                   |                                                                                     |      | ...PIDs (10.6 & 11.7 eV)= 0. 9, 0.1 ppmV. 5% angular gravel, 85% subrounded to subangular sand, 10% fines; <1% mica, poorly sorted.                                                                                                                      |    |    |                         |                      |         |                      |
| 7.5                 |                                                                                     |      |                                                                                                                                                                                                                                                          |    |    |                         |                      |         |                      |
| 10                  |                                                                                     |      | ...PIDs (10.6 & 11.7 eV)= 0. 3, 0.1 ppmV.                                                                                                                                                                                                                |    |    |                         |                      |         |                      |
| 12.5                |                                                                                     |      |                                                                                                                                                                                                                                                          |    |    |                         |                      |         |                      |

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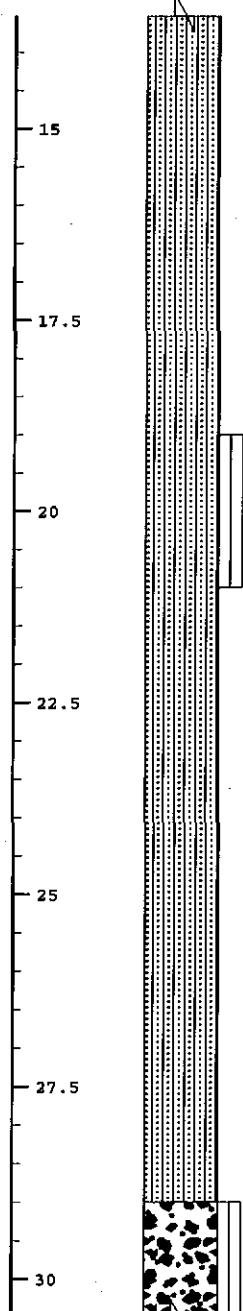
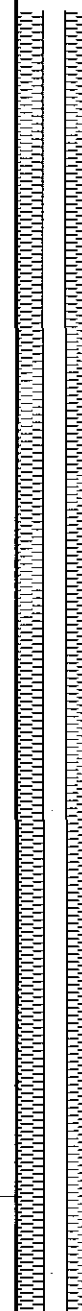
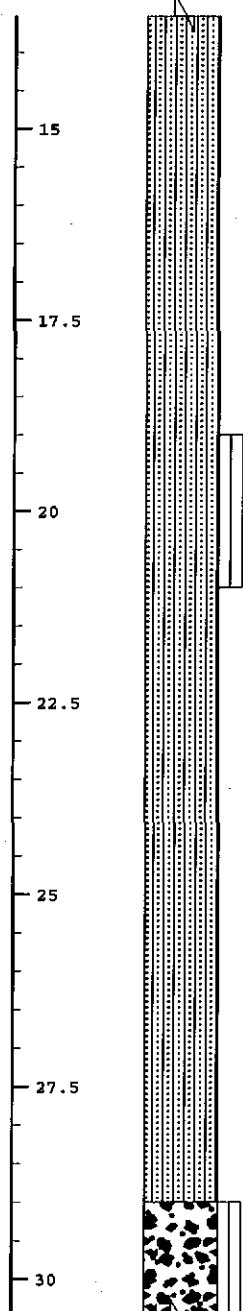
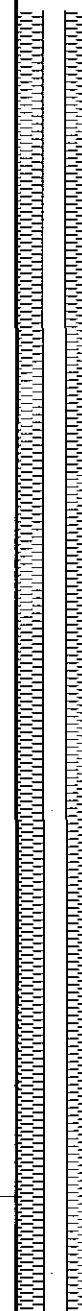
# EXPLORATION LOG AA-UW 2

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
 EXPLORATION LOCATION: N 26722943.77, E 838125.09  
 EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
 ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
 EXPLORATION DATE: 7/31-8/3/07  
 EQUIPMENT: SONIC DRILL RIG  
 LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
 FINAL DEPTH TO WATER: 64.57'

DATE MEASURED: NA  
 DATE MEASURED: 8/4/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS                                                           | USCS | DESCRIPTION                                                                                                                         | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION                                                                 |
|---------------------|------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|--------------------------------------------------------------------------------------|
| 15                  |  |      | ...brown.                                                                                                                           |    |    |                         |                      |         |  |
| 17.5                |                                                                                    |      | ...weakly cemented to 20 feet.                                                                                                      |    |    |                         |                      |         |                                                                                      |
| 20                  |                                                                                    |      | ...uncemented. Increasing gravel size to 2 inches. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.                                            |    |    |                         |                      |         |                                                                                      |
| 22.5                |                                                                                    |      |                                                                                                                                     |    |    |                         |                      |         |                                                                                      |
| 25                  |                                                                                    |      | ...pale brown.                                                                                                                      |    |    |                         |                      |         |                                                                                      |
| 27.5                |                                                                                    |      |                                                                                                                                     |    |    |                         |                      |         |                                                                                      |
| 30                  |  | GW   | Light brown well graded GRAVEL with silt and sand, few cobbles, dry and very dense.<br>...PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. 50% |    |    |                         |                      |         |  |

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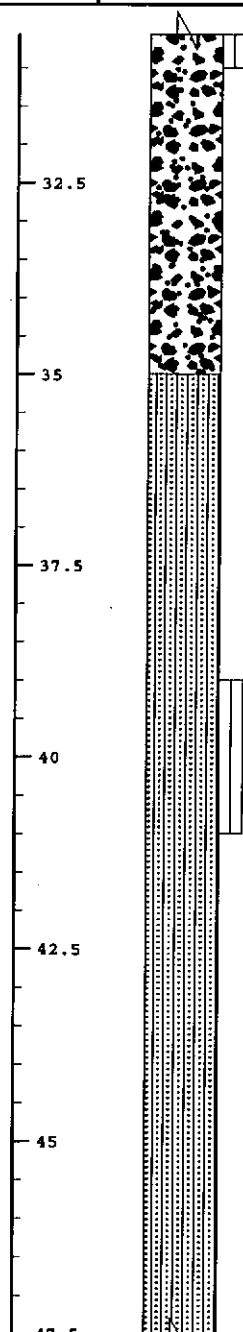
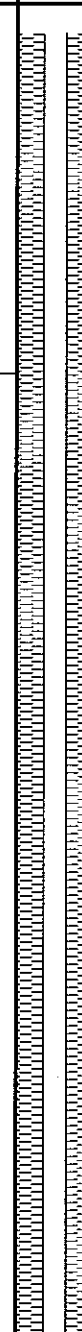
# EXPLORATION LOG AA-UW 2

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
 EXPLORATION LOCATION: N 26722943.77, E 838125.09  
 EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
 ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
 EXPLORATION DATE: 7/31-8/3/07  
 EQUIPMENT: SONIC DRILL RIG  
 LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
 FINAL DEPTH TO WATER: 64.57'

DATE MEASURED: NA  
 DATE MEASURED: 8/4/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS                                                           | USCS | DESCRIPTION                                                                                                                                                                                                            | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION                                                                 |
|---------------------|------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|--------------------------------------------------------------------------------------|
| 32.5                |  |      | angular gravel, 40% subrounded to subangular sand, 10% fines; <1% mica; poorly sorted with feldspar and pyroxene.                                                                                                      |    |    |                         |                      |         |  |
| 35                  |                                                                                    | SM   | Light brown silty SAND, trace gravel, dry and very dense. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. 7% subangular gravel, 90% subrounded to subangular sand, 3% fines; <1% mica; poorly sorted with feldspar and pyroxene. |    |    |                         |                      |         |                                                                                      |
| 37.5                |                                                                                    |      | ...PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.                                                                                                                                                                               |    |    |                         |                      |         |                                                                                      |
| 40                  |                                                                                    |      | ...weakly cemented to 45 feet.                                                                                                                                                                                         |    |    |                         |                      |         |                                                                                      |
| 42.5                |                                                                                    |      | ...uncemented.                                                                                                                                                                                                         |    |    |                         |                      |         |                                                                                      |
| 45                  |                                                                                    |      |                                                                                                                                                                                                                        |    |    |                         |                      |         |                                                                                      |
| 47.5                |                                                                                    |      |                                                                                                                                                                                                                        |    |    |                         |                      |         |                                                                                      |

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# EXPLORATION LOG AA-UW 2

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 26722943.77, E 838125.09  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 7/31-8/3/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 64.57'

DATE MEASURED: NA  
DATE MEASURED: 8/4/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS | USCS | DESCRIPTION                                                                                                                                                                                                                                    | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION |
|---------------------|--------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
|                     |                          |      | ...weakly cemented to 50 feet.                                                                                                                                                                                                                 |    |    |                         |                      |         |                      |
| 50                  |                          | GW   | Brown well graded GRAVEL with silt and sand, dry and very dense. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. 50% subangular to angular gravel, 40% subrounded sand, 10% fines; <1% mica; poorly sorted with feldspar and pyroxene.                   |    |    |                         |                      |         |                      |
| 52.5                |                          |      | ...moist.                                                                                                                                                                                                                                      |    |    |                         |                      |         |                      |
| 55                  |                          | SM   | Reddish brown silty SAND with gravel, moist and very dense. Weakly cemented layers 0.5 to 1.0 inch thick. 20% angular gravel, 70% subrounded to subangular sand, 10% fines; <1% mica; poorly sorted with feldspar, pyroxene, and trace gypsum. |    |    |                         |                      |         |                      |
| 57.5                |                          |      |                                                                                                                                                                                                                                                |    |    |                         |                      |         |                      |
| 60                  |                          |      | ...dark brown. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.                                                                                                                                                                                           |    |    |                         |                      |         |                      |
| 62.5                |                          | CL   | MUDDY CREEK FORMATION: Yellowish red sandy lean CLAY, moist and very stiff. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. 5% angular to subangular gravel, 15% subrounded sand, 85% fines; <1% mica; poorly sorted coarse fraction (sand and gravel).  |    |    |                         |                      |         |                      |

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Figure No.

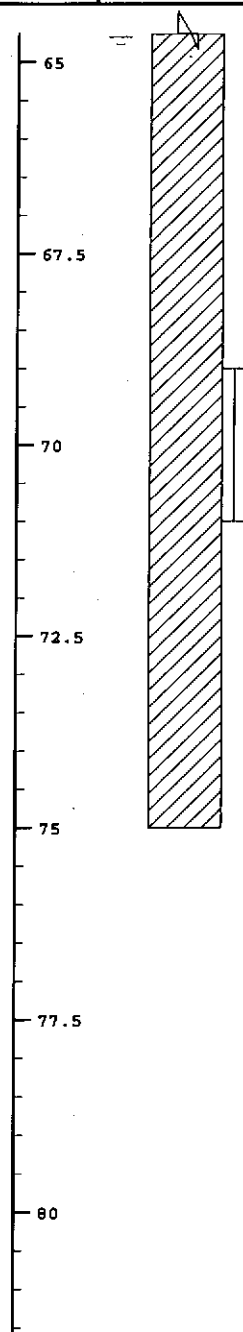
# EXPLORATION LOG AA-UW 2

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
 EXPLORATION LOCATION: N 26722943.77, E 838125.09  
 EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
 ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
 EXPLORATION DATE: 7/31-8/3/07  
 EQUIPMENT: SONIC DRILL RIG  
 LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
 FINAL DEPTH TO WATER: 64.57'

DATE MEASURED: NA  
 DATE MEASURED: 8/4/07

| ELEVATION/<br>DEPTH                                                                | SOIL & SAMPLE<br>SYMBOLS | USCS | DESCRIPTION                                         | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION                                                                 |
|------------------------------------------------------------------------------------|--------------------------|------|-----------------------------------------------------|----|----|-------------------------|----------------------|---------|--------------------------------------------------------------------------------------|
|  |                          |      | <p>...PIDs (10.6 &amp; 11.7 eV)= 0.0, 0.0 ppmV.</p> |    |    |                         |                      |         |  |
|                                                                                    |                          |      | END OF TEST PIT AT 75.0 FEET                        |    |    |                         |                      |         |                                                                                      |

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

# EXPLORATION LOG AA-UW 3

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 26720040.77, E 836519.18  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 8/5/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 63.89'

DATE MEASURED: NA  
DATE MEASURED: 8/6/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS | USCS | DESCRIPTION                                                                                                                                                                                                                                                 | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION |
|---------------------|--------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
| -2.5                |                          |      |                                                                                                                                                                                                                                                             |    |    |                         |                      |         |                      |
| 0                   |                          | SM   | Light brown silty SAND with gravel, dry and dense. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. 10% angular to subangular gravel, 80% subrounded sand, 10% fines; <1% mica; poorly sorted with feldspar and mafic minerals (pyroxene).                             |    |    |                         |                      |         |                      |
| 2.5                 |                          |      |                                                                                                                                                                                                                                                             |    |    |                         |                      |         |                      |
| 5                   |                          |      | ...PIDs (10.6 & 11.7 eV)= 0.1, 0.0 ppmV.                                                                                                                                                                                                                    |    |    |                         |                      |         |                      |
| 7.5                 |                          |      |                                                                                                                                                                                                                                                             |    |    |                         |                      |         |                      |
| 10                  |                          | GW   | Brown well graded GRAVEL with silt and sand, dry and very dense. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. 60% angular to subangular gravel, 30% subrounded to subangular sand, 10% fines; <1% mica; poorly sorted with feldspar and mafic minerals (pyroxene). |    |    |                         |                      |         |                      |
| 12.5                |                          |      |                                                                                                                                                                                                                                                             |    |    |                         |                      |         |                      |

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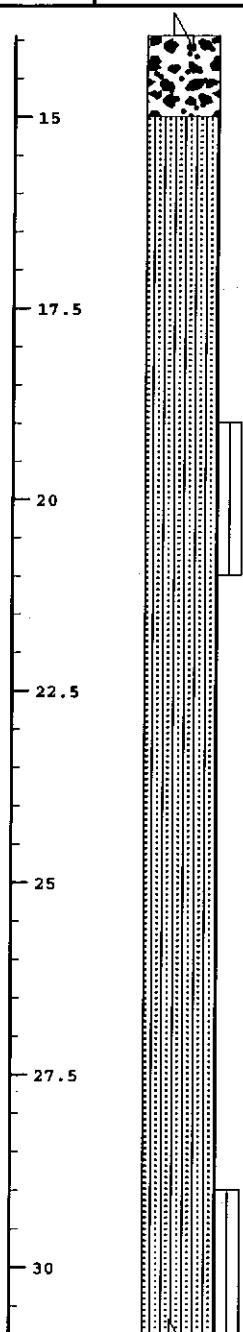
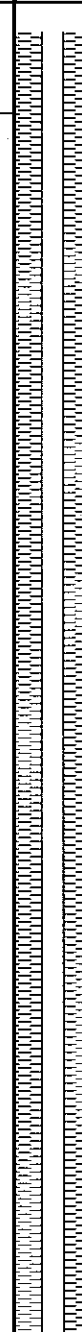
# EXPLORATION LOG AA-UW 3

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 26720040.77, E 836519.18  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 8/5/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 63.89'

DATE MEASURED: NA  
DATE MEASURED: 8/6/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS                                                           | USCS | DESCRIPTION                                                                                                                                                                                                                    | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION                                                                 |
|---------------------|------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|--------------------------------------------------------------------------------------|
| 15                  |  | SM   | Brown silty SAND with gravel, dry and very dense. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. 15% angular to subangular gravel, 75% subrounded sand, 10% fines; <1% mica; poorly sorted with feldspar and mafic minerals (pyroxene). |    |    |                         |                      |         |  |
| 17.5                |                                                                                    |      |                                                                                                                                                                                                                                |    |    |                         |                      |         |                                                                                      |
| 20                  |                                                                                    |      | ...PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.                                                                                                                                                                                       |    |    |                         |                      |         |                                                                                      |
| 22.5                |                                                                                    |      |                                                                                                                                                                                                                                |    |    |                         |                      |         |                                                                                      |
| 25                  |                                                                                    |      | ...light brown, few cobbles.                                                                                                                                                                                                   |    |    |                         |                      |         |                                                                                      |
| 27.5                |                                                                                    |      |                                                                                                                                                                                                                                |    |    |                         |                      |         |                                                                                      |
| 30                  |                                                                                    |      | ...few cobbles. PIDs (10.6 & 11.7 eV)= 0.2, 0.0 ppmV.                                                                                                                                                                          |    |    |                         |                      |         |                                                                                      |

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# EXPLORATION LOG

## AA-UW 3

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 26720040.77, E 836519.18  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 8/5/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 63.89'

DATE MEASURED: NA  
DATE MEASURED: 8/6/07

| ELEVATION/<br>DEPTH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | SOIL & SAMPLE<br>SYMBOLS | USCS | DESCRIPTION                                                                                                                                                             | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 100%; border-left: 1px solid black; border-right: 1px solid black;"> <div style="position: absolute; top: 0; left: 0; right: 0; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></div> <div style="position: absolute; bottom: 0; left: 0; right: 0; height: 10px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, black 2px, black 4px);"></div> </div> <div style="margin-left: 5px;"> <div style="position: absolute; top: 0; left: 0; right: 0; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></div> <div style="position: absolute; bottom: 0; left: 0; right: 0; height: 10px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, black 2px, black 4px);"></div> </div> </div> <div style="margin-left: 10px;"> <div style="position: absolute; top: 0; left: 0; right: 0; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></div> <div style="position: absolute; bottom: 0; left: 0; right: 0; height: 10px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, black 2px, black 4px);"></div> </div> </div> |                          |      | <p>...PIDs (10.6 &amp; 11.7 eV)= 0.0, 0.0 ppmV.</p> <p>...yellowish red</p> <p>...weakly cemented to 40.0 feet.</p> <p>...PIDs (10.6 &amp; 11.7 eV)= 0.0, 0.0 ppmV.</p> |    |    |                         |                      |         | <div style="position: relative; height: 100%; border-left: 1px solid black; border-right: 1px solid black;"> <div style="position: absolute; top: 0; left: 0; right: 0; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></div> <div style="position: absolute; bottom: 0; left: 0; right: 0; height: 10px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, black 2px, black 4px);"></div> </div> |

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**GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**

**Figure No.**

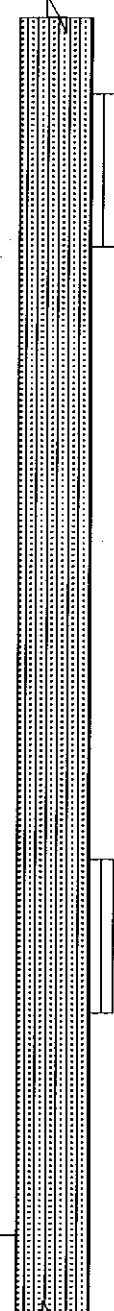
# EXPLORATION LOG AA-UW 3

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
 EXPLORATION LOCATION: N 26720040.77, E 836519.18  
 EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
 ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
 EXPLORATION DATE: 8/5/07  
 EQUIPMENT: SONIC DRILL RIG  
 LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
 FINAL DEPTH TO WATER: 63.89'

DATE MEASURED: NA  
 DATE MEASURED: 8/6/07

| ELEVATION/<br>DEPTH                                                                | SOIL & SAMPLE<br>SYMBOLS                                                           | USCS | DESCRIPTION                                                                                                                                                                                                                                                                            | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION                                                                 |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|--------------------------------------------------------------------------------------|
|  |  |      | <p>...weakly cemented layers 0.5 inch thick. PIDs (10.6 &amp; 11.7 eV)= 0.0, 0.0 ppmV. 20% subangular to angular gravel, 65% subrounded sand, 15% fines; &lt;1% mica; poorly sorted with feldspar.</p> <p>...moist</p> <p>...dark brown. PIDs (10.6 &amp; 11.7 eV)= 0.0, 0.0 ppmV.</p> |    |    |                         |                      |         |  |

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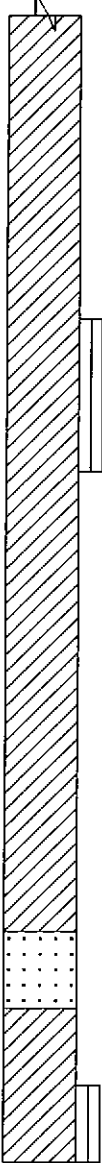
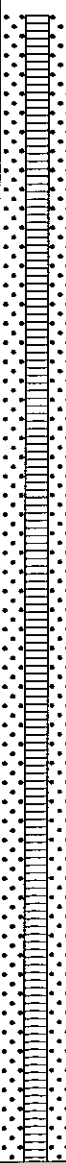
# EXPLORATION LOG AA-UW 3

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
 EXPLORATION LOCATION: N 26720040.77, E 836519.18  
 EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
 ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
 EXPLORATION DATE: 8/5/07  
 EQUIPMENT: SONIC DRILL RIG  
 LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
 FINAL DEPTH TO WATER: 63.89'

DATE MEASURED: NA  
 DATE MEASURED: 8/6/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS                                                           | USCS | DESCRIPTION                                                                                                                                                                                                                                    | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION                                                                 |
|---------------------|------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|--------------------------------------------------------------------------------------|
| 67.5                |  | CL   | MUDDY CREEK FORMATION: Reddish brown sandy lean CLAY, wet and very stiff. <1% angular gravel, 5% subrounded sand, 94% fines; <1% mica; poorly sorted course fraction (sand and gravel),<br><br>...moist. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. |    |    |                         |                      |         |  |
| 70                  |                                                                                    |      |                                                                                                                                                                                                                                                |    |    |                         |                      |         |                                                                                      |
| 72.5                |                                                                                    |      |                                                                                                                                                                                                                                                |    |    |                         |                      |         |                                                                                      |
| 75                  |                                                                                    |      |                                                                                                                                                                                                                                                |    |    |                         |                      |         |                                                                                      |
| 77.5                |                                                                                    | SP   | Dark brown poorly graded SAND, trace gravel, wet and very dense. <1% subangular gravel, 5% subrounded sand, 95% fines; <1% mica; poorly sorted course fraction (sand and gravel).                                                              |    |    |                         |                      |         |                                                                                      |
| 80                  |                                                                                    | CL   | Reddish brown sandy lean CLAY, moist and very stiff. <1% subangular gravel, 5% subrounded sand, 95% fines; <1% mica; poorly sorted course fraction (sand and gravel).                                                                          |    |    |                         |                      |         |                                                                                      |
|                     |                                                                                    |      | END OF TEST PIT AT 80.0 FEET                                                                                                                                                                                                                   |    |    |                         |                      |         |                                                                                      |

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# EXPLORATION LOG

## AA-UW 4

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 2671895.69, E 834777.38  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 8/6/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 39.59'

DATE MEASURED: NA  
DATE MEASURED: 8/7/07

[illegible]

The descriptions contained within this exploration log apply only at the specific exploration location and at the time the exploration was made. It is not intended to be representative of subsurface conditions at other locations or times.

# EXPLORATION LOG

## AA-UW 4

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 2671895.69, E 834777.38  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 8/6/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 39.59'

DATE MEASURED: NA  
DATE MEASURED: 8/7/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS | USCS | DESCRIPTION                                                                                 | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION |
|---------------------|--------------------------|------|---------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
| 15                  |                          |      | ...light brown. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.                                       |    |    |                         |                      |         |                      |
| 17.5                |                          |      |                                                                                             |    |    |                         |                      |         |                      |
| 20                  |                          |      | ...PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.                                                    |    |    |                         |                      |         |                      |
| 22.5                |                          |      |                                                                                             |    |    |                         |                      |         |                      |
| 25                  |                          |      | ...brown. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.                                             |    |    |                         |                      |         |                      |
| 27.5                |                          |      |                                                                                             |    |    |                         |                      |         |                      |
| 30                  |                          |      | ...reddish brown, increasing gravel size to 2 inches. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. |    |    |                         |                      |         |                      |

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**GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**

**Figure No.**

# EXPLORATION LOG AA-UW 4

**PROJECT:** BRC DEEP BACKGROUND INVESTIGATION  
**EXPLORATION LOCATION:** N 2671895.69, E 834777.38  
**EXPLORATION SIZE (dia.):** 6" O.D. SAMPLER  
**ELEVATION:** EXISTING GROUND SURFACE

**PROJECT NO.:** 20072228V1  
**EXPLORATION DATE:** 8/6/07  
**EQUIPMENT:** SONIC DRILL RIG  
**LOGGED BY:** HILLMAN/COOKE

**INITIAL DEPTH TO WATER:** NA  
**FINAL DEPTH TO WATER:** 39.59'

**DATE MEASURED:** NA  
**DATE MEASURED:** 8/7/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS | USCS  | DESCRIPTION                                                                                                                                                                                                                | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION |
|---------------------|--------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
| 32.5                |                          |       |                                                                                                                                                                                                                            |    |    |                         |                      |         |                      |
| 35                  |                          | CL    | MUDDY CREEK FORMATION: Reddish brown sandy lean CLAY, white gypsum salt and crystals, wet and very stiff. Gypsum is present from 32 feet to 35 feet.<br><br>...PIDs (10.6 & 11.7 eV)= 0.1, 0.0 ppmV.<br><br>...wet.        |    |    |                         |                      |         |                      |
| 37.5                |                          |       |                                                                                                                                                                                                                            |    |    |                         |                      |         |                      |
| 40                  |                          | CL-ML | Dark brown silty CLAY with sand, trace gravel, wet and very stiff.                                                                                                                                                         |    |    |                         |                      |         |                      |
| 42.5                |                          | CL    | Reddish brown sandy lean CLAY, wet and very stiff. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.<br><br>...light gray with orange oxidation mottling.<br><br>...light olive brown.<br><br>...PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. |    |    |                         |                      |         |                      |
| 45                  |                          |       |                                                                                                                                                                                                                            |    |    |                         |                      |         |                      |
| 47.5                |                          |       |                                                                                                                                                                                                                            |    |    |                         |                      |         |                      |

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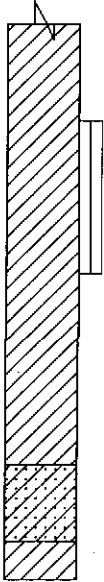
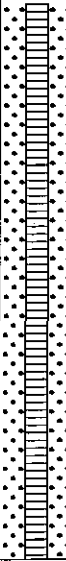
# EXPLORATION LOG AA-UW 4

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
 EXPLORATION LOCATION: N 2671895.69, E 834777.38  
 EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
 ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
 EXPLORATION DATE: 8/6/07  
 EQUIPMENT: SONIC DRILL RIG  
 LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
 FINAL DEPTH TO WATER: 39.59'

DATE MEASURED: NA  
 DATE MEASURED: 8/7/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS                                                           | USCS | DESCRIPTION                                                | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION                                                                 |
|---------------------|------------------------------------------------------------------------------------|------|------------------------------------------------------------|----|----|-------------------------|----------------------|---------|--------------------------------------------------------------------------------------|
| 50                  |  |      | ...reddish brown. PIDs (10.6 & 11.7 eV)= 0.0,<br>0.0 ppmV. |    |    |                         |                      |         |  |
| 52.5                |                                                                                    | SC   | Reddish brown clayey SAND, wet and dense.                  |    |    |                         |                      |         |                                                                                      |
| 55                  |                                                                                    | CL   | Reddish brown sandy lean CLAY, wet and very<br>stiff.      |    |    |                         |                      |         |                                                                                      |
|                     |                                                                                    |      | END OF TEST PIT AT 55.0 FEET                               |    |    |                         |                      |         |                                                                                      |
| 57.5                |                                                                                    |      |                                                            |    |    |                         |                      |         |                                                                                      |
| 60                  |                                                                                    |      |                                                            |    |    |                         |                      |         |                                                                                      |
| 62.5                |                                                                                    |      |                                                            |    |    |                         |                      |         |                                                                                      |

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# EXPLORATION LOG AA-UW 5

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 26718163.09, E 832800.88  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 8/7/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 45.39'

DATE MEASURED: NA  
DATE MEASURED: 8/8/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS | USCS  | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                  | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION |
|---------------------|--------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
| -2.5                |                          |       |                                                                                                                                                                                                                                                                                                                                                                                                                              |    |    |                         |                      |         |                      |
| 0                   |                          | GP    | Light brown poorly graded GRAVEL with sand, dry and dense. PIDs (10.6 & 11.7 eV)= 0.4, 0.1 ppmV. 60% angular gravel, 30% subrounded sand, 10% fines; <1% mica; poorly sorted with feldspars and mafic minerals (pyroxene).                                                                                                                                                                                                   |    |    |                         |                      |         |                      |
| 2.5                 |                          |       |                                                                                                                                                                                                                                                                                                                                                                                                                              |    |    |                         |                      |         |                      |
| 5                   |                          | GW-GM | Light brown well graded GRAVEL with silt and sand, dry and dense. Gravel size increases to 2 inches. PIDs (10.6 & 11.7 eV)= 0.2, 0.0 ppmV. 75% angular gravel, 15% subrounded to subangular sand, 10% fines; <1% mica; poorly sorted with feldspar and mafic minerals (pyroxene).<br><br>...large cobble or boulder encountered.<br>...drill through large cobble or boulder.<br><br>...PIDs (10.6 & 11.7 eV)= 0.1 0.0 ppmV. |    |    |                         |                      |         |                      |
| 7.5                 |                          |       |                                                                                                                                                                                                                                                                                                                                                                                                                              |    |    |                         |                      |         |                      |
| 10                  |                          |       |                                                                                                                                                                                                                                                                                                                                                                                                                              |    |    |                         |                      |         |                      |
| 12.5                |                          |       |                                                                                                                                                                                                                                                                                                                                                                                                                              |    |    |                         |                      |         |                      |

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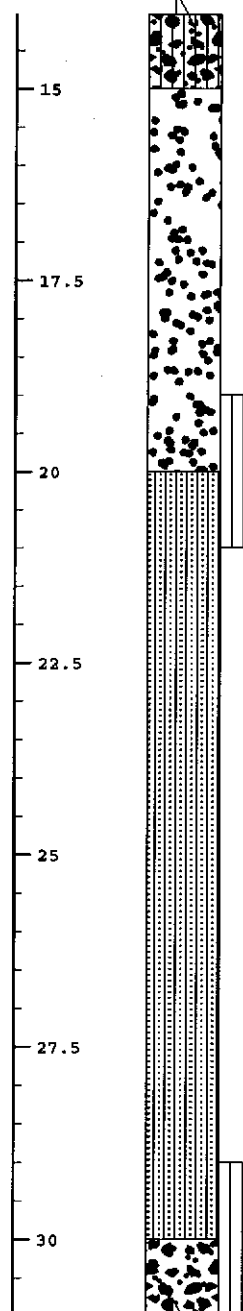
# EXPLORATION LOG AA-UW 5

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 26718163.09, E 832800.88  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 8/7/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 45.39'

DATE MEASURED: NA  
DATE MEASURED: 8/8/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS                                                           | USCS | DESCRIPTION                                                                                                                                                                                                                                                                                                          | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION |
|---------------------|------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
| 15                  |  | GP   | Light brown poorly graded GRAVEL with silt and sand, dry and very dense. PIDs (10.6 & 11.7 eV)= 0.0 0.0 ppmV. 80% angular gravel, 15% subrounded to subangular sand, 5 % fines; <1% mica; poorly sorted with feldspar and mafic minerals (pyroxene).                                                                 |    |    |                         |                      |         |                      |
| 17.5                |                                                                                    |      |                                                                                                                                                                                                                                                                                                                      |    |    |                         |                      |         |                      |
| 20                  |                                                                                    | SM   | Light reddish brown silty SAND, trace gravel, dry and very dense. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. 5% angular gravel, 90% subrounded to subangular sand, 5% fines; <1% mica; poorly sorted gravel with feldspar and mafic minerals (pyroxene), well sorted sand.<br><br>...PIDs (10.6 & 11.7 eV)= 0.1 0.0 ppmV. |    |    |                         |                      |         |                      |
| 22.5                |                                                                                    |      |                                                                                                                                                                                                                                                                                                                      |    |    |                         |                      |         |                      |
| 25                  |                                                                                    |      |                                                                                                                                                                                                                                                                                                                      |    |    |                         |                      |         |                      |
| 27.5                |                                                                                    |      |                                                                                                                                                                                                                                                                                                                      |    |    |                         |                      |         |                      |
| 30                  |                                                                                    | GW   | Light reddish brown well graded GRAVEL with silt and sand, dry and very dense. PIDs (10.6 &                                                                                                                                                                                                                          |    |    |                         |                      |         |                      |

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# EXPLORATION LOG AA-UW 5

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 26718163.09, E 832800.88  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 8/7/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 45.39'

DATE MEASURED: NA  
DATE MEASURED: 8/8/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS | USCS | DESCRIPTION                                                                                                                                                                                                                                                                          | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION |
|---------------------|--------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
| 32.5                |                          |      | 11.7 eV)= 0.0, 0.0 ppmV. 45% subangular gravel, 40% subrounded to subangular sand, 5% fines; <1% mica; poorly sorted with feldspar.                                                                                                                                                  |    |    |                         |                      |         |                      |
| 35                  |                          | SM   | Reddish gray silty SAND with gravel, dry and very dense. PIDs (10.6 & 11.7 eV)= 0.0 0.0 ppmV. 20% angular to subangular gravel, 75% subrounded to subangular sand, 5% fines; <1% mica; poorly sorted with feldspar. ...brown, moist.                                                 |    |    |                         |                      |         |                      |
| 37.5                |                          | SC   | Mottled light gray and reddish brown clayey SAND with gravel, moist and very dense.                                                                                                                                                                                                  |    |    |                         |                      |         |                      |
| 40                  |                          | SM   | Reddish gray silty SAND with gravel, dry and very dense. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. 30% angular gravel, 60% subrounded to subangular sand, 10% fines; <1% mica; poorly sorted with feldspar.                                                                              |    |    |                         |                      |         |                      |
| 42.5                |                          |      | ...moist.<br>...wet.                                                                                                                                                                                                                                                                 |    |    |                         |                      |         |                      |
| 45                  |                          | SC   | MUDDY CREEK FORMATION: Reddish brown with white mottling clayey SAND, trace weathered white caliche nodules, moist and very dense. PIDs (10.6 & 11.7 eV)= 0.0 0.0 ppmV. 15% subangular gravel, 50% subrounded to sunangular sand, 35% fines; <1% mica; poorly sorted with gypsum and |    |    |                         |                      |         |                      |
| 47.5                |                          |      |                                                                                                                                                                                                                                                                                      |    |    |                         |                      |         |                      |

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# EXPLORATION LOG AA-UW 5

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
 EXPLORATION LOCATION: N 26718163.09, E 832800.88  
 EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
 ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
 EXPLORATION DATE: 8/7/07  
 EQUIPMENT: SONIC DRILL RIG  
 LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
 FINAL DEPTH TO WATER: 45.39'

DATE MEASURED: NA  
 DATE MEASURED: 8/8/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS | USCS | DESCRIPTION                                                                                                                                                                                                | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION |
|---------------------|--------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
| 50                  |                          |      | feldspar.                                                                                                                                                                                                  |    |    |                         |                      |         |                      |
| 52.5                |                          | CL   | Reddish brown sandy lean CLAY, moist and very stiff. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. 1% subangular gravel, 10% subrounded sand, 89% fines; <1% mica; poorly sorted coarse fraction (sand and gravel) |    |    |                         |                      |         |                      |
| 55                  |                          | CL   | ...wet to 57 feet.                                                                                                                                                                                         |    |    |                         |                      |         |                      |
| 57.5                |                          |      | ...set well at 57.0 feet bgs.                                                                                                                                                                              |    |    |                         |                      |         |                      |
| 60                  |                          |      | END OF TEST PIT AT 60.0 FEET                                                                                                                                                                               |    |    |                         |                      |         |                      |
| 62.5                |                          |      |                                                                                                                                                                                                            |    |    |                         |                      |         |                      |
| 65                  |                          |      |                                                                                                                                                                                                            |    |    |                         |                      |         |                      |

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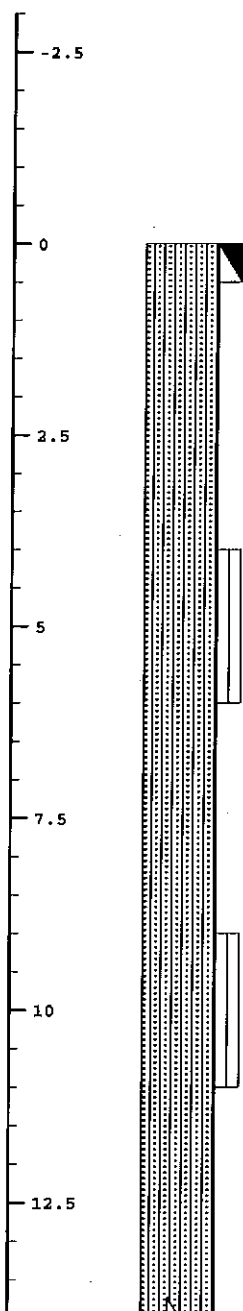
# EXPLORATION LOG AA-UW 6

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 26719633.12, E 831429.68  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 8/7/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 55.3'

DATE MEASURED: NA  
DATE MEASURED: 8/8/07

| ELEVATION/<br>DEPTH                                                                | SOIL & SAMPLE<br>SYMBOLS | USCS | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                              | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION |
|------------------------------------------------------------------------------------|--------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
|  |                          |      |                                                                                                                                                                                                                                                                                                                                                                                                          |    |    |                         |                      |         |                      |
|                                                                                    |                          | SM   | <p>Pinkish gray silty SAND with gravel, dry and medium dense. PIDs (10.6 &amp; 11.7 eV)= 0.3, 0.0 ppmV. 20% angular gravel, 70% subrounded sand, 10% fines; &lt;1% mica; poorly sorted with feldspars and mafic minerals (pyroxene). ...dense.</p> <p>...reddish gray, very dense. PIDs (10.6 &amp; 11.7 eV)= 0.2, 0.0 ppmV.</p> <p>...light reddish brown. PIDs (10.6 &amp; 11.7 eV)= 0.2 0.0 ppmV.</p> |    |    |                         |                      |         |                      |

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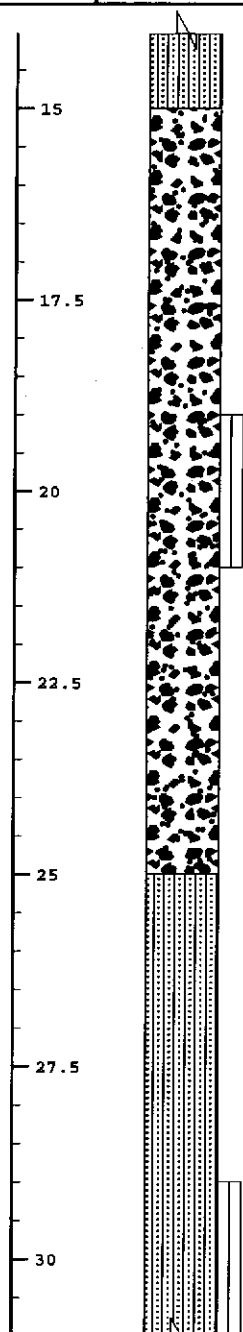
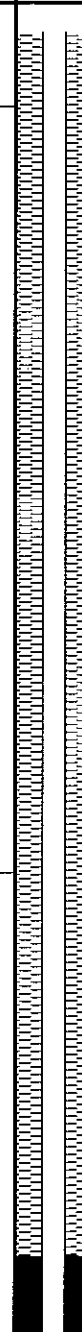
# EXPLORATION LOG AA-UW 6

PROJECT: BRC DEEP BACKGROUND INVESTIGATION  
EXPLORATION LOCATION: N 26719633.12, E 831429.68  
EXPLORATION SIZE (dia.): 6" O.D. SAMPLER  
ELEVATION: EXISTING GROUND SURFACE

PROJECT NO.: 20072228V1  
EXPLORATION DATE: 8/7/07  
EQUIPMENT: SONIC DRILL RIG  
LOGGED BY: HILLMAN/COOKE

INITIAL DEPTH TO WATER: NA  
FINAL DEPTH TO WATER: 55.3'

DATE MEASURED: NA  
DATE MEASURED: 8/8/07

| ELEVATION/<br>DEPTH | SOIL & SAMPLE<br>SYMBOLS                                                           | USCS | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                          | PI | LL | MOISTURE<br>CONTENT (%) | DRY DENSITY<br>(pcf) | % SWELL | WELL<br>CONSTRUCTION                                                                 |
|---------------------|------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|--------------------------------------------------------------------------------------|
| 15                  |  | GW   | Light brown well graded GRAVEL with silt and sand, dry and very dense. PIDs (10.6 & 11.7 eV)= 0.1 0.0 ppmV. 55% angular to subangular gravel, 35% subrounded to subangular sand, 10 % fines; <1% mica; poorly sorted with feldspar and mafic minerals (pyroxene).<br><br>...PIDs (10.6 & 11.7 eV)= 0.1, 0.0 ppmV.                                                    |    |    |                         |                      |         |  |
| 17.5                |                                                                                    |      |                                                                                                                                                                                                                                                                                                                                                                      |    |    |                         |                      |         |                                                                                      |
| 20                  |                                                                                    |      |                                                                                                                                                                                                                                                                                                                                                                      |    |    |                         |                      |         |                                                                                      |
| 22.5                |                                                                                    |      |                                                                                                                                                                                                                                                                                                                                                                      |    |    |                         |                      |         |                                                                                      |
| 25                  |                                                                                    | SM   | Reddish gray silty SAND with gravel, dry and very dense. PIDs (10.6 & 11.7 eV)= 0.1 0.0 ppmV. 35% angular gravel, 55% subrounded to subangular sand, 10% fines; <1% mica; poorly sorted gravel with feldspar and mafic minerals (pyroxene), well sorted sand.<br>...little cobbles.<br><br>...cobbles to 6 inches in diameter. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV. |    |    |                         |                      |         |                                                                                      |
| 27.5                |                                                                                    |      |                                                                                                                                                                                                                                                                                                                                                                      |    |    |                         |                      |         |                                                                                      |
| 30                  |                                                                                    |      |                                                                                                                                                                                                                                                                                                                                                                      |    |    |                         |                      |         |                                                                                      |

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|---------------------|--------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|----------------------|
| 32.5                |                          |      |                                                                                                                                                                                                                                                      |    |    |                         |                      |         |                      |
| 35                  |                          | CL   | <p><b>MUDDY CREEK FORMATION:</b> Light gray to light grayish brown sandy lean CLAY, some gypsum, dry and very stiff. 5% subangular gravel, 25% subrounded sand, 70% fines; &lt;1% mica; poorly sorted gravel, well sorted sand, with 20% gypsum.</p> |    |    |                         |                      |         |                      |
| 37.5                |                          | SM   | <p>Reddish gray silty SAND with gravel, dry and very dense. PIDs (10.6 &amp; 11.7 eV)= 0.0 0.0 ppmV. 20% angular to subangular gravel, 75% subrounded to subangular sand, 5% fines; &lt;1% mica; poorly sorted with feldspar. ...brown, moist.</p>   |    |    |                         |                      |         |                      |
| 40                  |                          | SC   | <p>Mottled light gray and reddish brown clayey SAND with gravel, moist and very dense.</p>                                                                                                                                                           |    |    |                         |                      |         |                      |
| 42.5                |                          | SM   | <p>Reddish gray silty SAND with gravel, dry and very dense. PIDs (10.6 &amp; 11.7 eV)= 0.0, 0.0 ppmV. 30% angular gravel, 60% subrounded to subangular sand, 10% fines; &lt;1% mica; poorly sorted with feldspar.</p>                                |    |    |                         |                      |         |                      |
| 45                  |                          |      | <p>...moist.<br/>...wet, light olive brown.</p>                                                                                                                                                                                                      |    |    |                         |                      |         |                      |
| 47.5                |                          | SC   | <p>...brown. Decreasing percent gravel and sand. 1% Gravel, 10% sand, 89% fines. PIDs (10.6 &amp; 11.7 eV)= 0.0 0.0 ppmV.</p>                                                                                                                        |    |    |                         |                      |         |                      |

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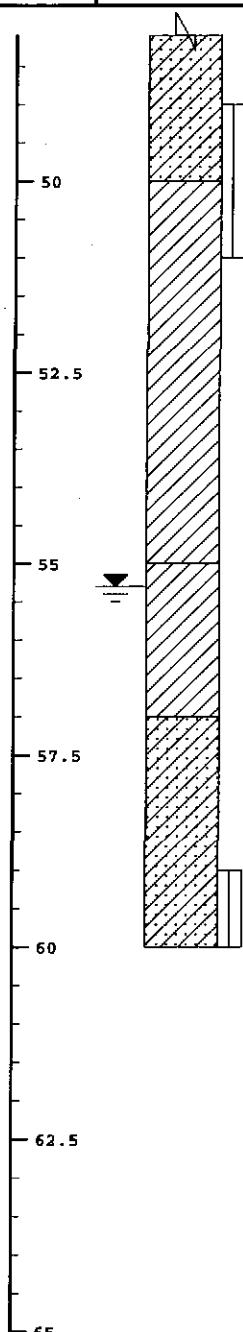
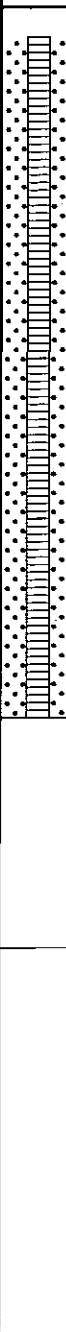
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|---------------------|------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-------------------------|----------------------|---------|--------------------------------------------------------------------------------------|
| 50                  |  | CL   | Reddish brown sandy lean CLAY, moist and very stiff. PIDs (10.6 & 11.7 eV)= 0.0, 0.0 ppmV.                                                                                                                                                                                                               |    |    |                         |                      |         |  |
| 52.5                |                                                                                    |      |                                                                                                                                                                                                                                                                                                          |    |    |                         |                      |         |                                                                                      |
| 55                  |                                                                                    | CL   | ...wet to 57 feet.                                                                                                                                                                                                                                                                                       |    |    |                         |                      |         |                                                                                      |
| 57.5                |                                                                                    | SC   | Olive gray clayey SAND, wet and very dense. 1% subangular gravel, 65% subrounded sand, 34% fines; <1% mica; poorly sorted gravel and well sorted sand with feldspar and mafic minerals.<br>...0.0% gravel, 70 % subangular sand, 30% fines; <1% mica; well sorted sand with feldspar and mafic minerals. |    |    |                         |                      |         |                                                                                      |
| 60                  |                                                                                    |      | END OF TEST PIT AT 60.0 FEET                                                                                                                                                                                                                                                                             |    |    |                         |                      |         |                                                                                      |
| 62.5                |                                                                                    |      |                                                                                                                                                                                                                                                                                                          |    |    |                         |                      |         |                                                                                      |
| 65                  |                                                                                    |      |                                                                                                                                                                                                                                                                                                          |    |    |                         |                      |         |                                                                                      |

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# KEY TO SYMBOLS

Symbol Description

Symbol Description

## Strata symbols



Silty sand



Clayey sand



Low plasticity  
clay



Poorly graded gravel  
with clay



Well graded gravel



Poorly graded sand



Silty low plasticity  
clay



Poorly graded gravel



Well graded gravel  
with silt

## Misc. Symbols



Boring continues



Water table at date  
indicated

## Soil Samplers



Bulk/Grab sample



Rock core

## Monitor Well Details



riser with cover  
and protective  
casing



bentonite pellets



bentonite slurry



silica sand, blank PVC



slotted pipe w/ sand



end of well  
installation

## Notes:

1. Exploratory borings were drilled on 8/7/07 using a 4-inch diameter continuous flight power auger.
2. No free water was encountered at the time of drilling or when re-checked the following day.
3. Boring locations were taped from existing features and elevations extrapolated from the final design schematic plan.
4. These logs are subject to the limitations, conclusions, and recommendations in this report.
5. Results of tests conducted on samples recovered are reported on the logs.

## **Appendix C**

