

February 28, 2019  
BEC Project No. J181002

Mr. Ralph Bossert  
Verde Engineering Group, PLLC  
1109 N. McLane Road  
Payson, AZ 85541

**RE: DOCUMENTATION OF WASTES AND SAMPLING RESULTS  
PAINTED DESERT DEMONSTRATION PROJECT SITE  
149 LEUPP ROAD  
FLAGSTAFF, ARIZONA**

Dear Mr. Bossert:

At your request, Bender Environmental Consulting, Inc. (BEC) has prepared this letter to conduct further assessment of the Painted Desert Demonstration Project Site, a 15.874-acre parcel on the south side of Leupp Road, 1,000-feet west of Horn Road in Coconino County, Arizona. The address for the "Property" is 149 E. Leupp Road, Flagstaff, Arizona. The Property was the subject of a Phase I Environmental Site Assessment (ESA) conducted by Terrane Engineering Corporation (TEC), report dated October 9, 2018.

The following sections present the project background, methodologies, and results of the assessment.

## **1.0 BACKGROUND**

BEC was provided with a copy of the TEC Phase I ESA for review. The Phase I ESA described the Property as mostly undeveloped with the exception of the southeast part of the site where there are two commercial buildings, and a ranchhouse. There is also a pump house for a water supply well. The Phase I ESA found evidence that the Property was the location of an operation to process volcanic ash (cinders) and extract precious metals (gold, silver, platinum). This operation was run by Agra Technologies (Agra) which owned the land from February 2004 to March 2006. A September 2005 newspaper report described the operation and concluded that it was a scam to defraud investors. The newspaper report also mentioned a hydrochloric acid spill that occurred on the Property, which was reported to ADEQ as 20 to 30 gallons, although other reports indicated it may have been much larger. The date of the spill was not mentioned, nor is it clear when the Agra cinder-processing operations began (possibly pre-dating their acquisition of the Property). At the time of the newspaper report, Agra was also in the business of making soil additives from ground-up cinders.

Recognized Environmental Conditions (RECs) were summarized by TEC as follows:

- Fines spread on surface northwest of the west end of the south building,

- Debris west and north of the west end of the south building,
- Drums, bulk bags and debris along the south boundary east of the south building, and,
- Two tanks, reportedly containing acid of some type in the north building.

TEC recommended that further assessments be performed by a qualified environmental professional with experience assessing sites affected by ore-processing activities.

BEC prepared a scope of work and estimated costs to conduct the recommended further assessments. Mr. Gary Bender, R.G. has extensive experience in the mineral exploration and mining industries, and in particular, has conducted environmental assessments and remedial activities related to current and former mining operations.

The proposed scope of work for the assessment consisted of the following tasks:

- A tour of the areas of concern will be conducted by BEC initially, to assess the extent and nature of each of the RECs identified by TEC.
- The fines (presumably crushed cinders) visible on the ground northwest of the west end of the south building will be visually inspected and a sample collected for analysis.
- The debris west and north of the west end of the south building will be inspected and sampled if warranted.
- The drums, bulk bags and debris along the south boundary east of the south building will be assessed, and sampled, if possible.
- The two tanks inside the building that appear to have some unknown quantity of liquids (presumably hydrochloric acid) will not be sampled. However, information about the tanks will be compiled for submittal to an environmental contractor/disposal company so that a scope of work for disposal can be prepared.
- BEC will prepare a brief summary report.

## **2.0 DOCUMENTATION AND SAMPLING**

On February 8, 2019, Mr. Gary Bender, R.G., BEC's Senior Geologist conducted a site visit to inspect the areas of interest and conduct sampling (where warranted). Mr. Bender, Mr. Frank Costello, P.E. of TEC, and a representative of the Star School (owners of the Property) conducted a general tour of the areas of concern. A site map is presented as Figure 1, and shows the areas of concern. A photo log is attached showing the areas of concern.

## 2.1 Drums, Bulk Bags and Debris (South Fenceline)

At the south end of the ranch house (residential) parcel east of the former Agra facility, a number of drums and supersacks of material were observed. Three supersacks were present near the southeast corner of the yard, and all three were rotted, spilling their contents partially onto the ground. The material was a gray powder, with a slight sulfide odor, and in our experience appeared to be tailings from a sulfide mining operation. BEC collected a four point composite sample using a stainless steel trowel from the three supersacks by collecting equal portions of soil from four locations in the pile and mixing the samples together into one composite soil sample using a large gallon-sized baggy. A sample was then scooped from the baggy into two 4-ounce glass jars supplied by the analytical laboratory, labeled, and stored on ice.

All sampling equipment (stainless steel trowels) were decontaminated before and after sample collection using a three stage process of Alconox/tapwater, tapwater, and then deionized water. The soil sample was labeled and stored on ice pending delivery to the ADHS-licensed analytical laboratory, Pace Analytical.

The composite sample (COMP-1) was analyzed for the 8 RCRA Metals (totals) by EPA 6000 and 7000-Series Methods. Based on the results, additional analyses were added; hexavalent chromium by EPA Method 3060A/7196A, cyanide by EPA Method 9012B, and TCLP 8 RCRA Metals by Method 1311. These are some of the analyses that would be required by the disposal facility.

Just to the west of the supersacks, four drums were found on pallets along the fenceline. The four drums (from east to west) had the following contents:

- Poly drum – half full of a gray sludge similar to the material in the supersacks.
- Poly drum – black grit, appears to be “black sand” derived from a placer gold operation
- 55-gallon metal drum – full of what appeared to be crushed mica
- 30-gallon metal drum – half full of a bronze-colored crystalline material, which turned violet when exposed to moisture (when a sample was retrieved with a trowel). The bottom of the drum was heavily rusted, indicating a possible low pH

These materials were sampled (except for the black grit), but not submitted to the analytical laboratory.

Along the south fenceline, but inside the parcel with the former Agra facility, there is an accumulation of approximately 37 drums on pallets. On the ground beside the drums there is a spread-out pile of pinkish powdery material that appears to have been in drums at one time. Several of the drums could be opened and it appears that the drums all contain the same pinkish powder. BEC collected a 6-point composite of the pinkish powder (sample COMP-2),

in the same manner as described previously. The sample was submitted to Pace Analytical for analysis of the 8 RCRA Metals (totals), and based on results, hexavalent chromium analysis was also added.

Finally, there was an accumulation of drums around the east and south sides of the block construction building along the south fenceline. A generator room is present in one of the rooms within this building, and a large aboveground storage tank for diesel is present along the south side of the building. There are 10 drums stored along the south and east sides of the building and include six metal and four poly 55-gallon drums. Three of the drums contained what appeared to be small quantities of used oil, while the other drums are empty. There are also three drums on dispenser stands (two marked for antifreeze, one marked for lubricating oil). There was only *de minimis* oily staining on the ground around any of the drums, and in our opinion there was no need for sampling of soil in these areas.

## **2.2 Black Grit Northwest of South Building**

Two large areas of black grit are present on the ground east of the fenceline, and northwest of the west end of the south building. At one time, the black grit was apparently in 55-gallon drums (visible in the most recent aerial photograph from June 2017). It appears that grit was dumped out of the drums, and most of the drums were taken offsite for disposal/recycling. One area of black grit, approximately 60 feet by 70 feet, is located just to the northwest of the south building, and west across the driveway from the main Agra plant building and tank farm. The second area of black grit is approximately 280 feet by 35 feet wide, and extends northwestward along the east side of the west fenceline as shown on Figure 1.

BEC collected two composite samples, one from each area of black grit. A six-point composite (COMP-3) was collected from the south area, and a 10-point composite (COMP-4) was collected from the north area. Sampling was done in a similar manner to methods described previously. Both samples were submitted to Pace Analytical for analysis of the 8 RCRA Metals (totals), and sample COMP-4 was additionally analyzed for hexavalent chromium.

A sample of the black grit was examined by BEC under a stereoscopic microscope, and it appears that the black grit is "black sand" typically generated during placer gold mining operations. Most of the material appeared to consist of magnetite (iron oxide) crystals. There were no garnets, also typically recovered as part of the black sand from placer operations, and it is possible that the black sand was magnetically separated to remove everything but the magnetite.

## **2.3 Drums and Debris West of Building**

West of the south building, there are several drums containing materials that may require special disposal methods. One poly drum contained assay lab wastes (used crucibles and

cupels). A second poly drum contained ceramic pellets of various sizes, which are often associated with wastewater treatment equipment. BEC collected samples of both materials but did not submit the samples for analysis. BEC did contact an assay laboratory (Skyline Lab in Tucson, Arizona) to inquire about disposal options for the used assay equipment. The laboratory indicated that these kinds of waste have to be disposed as RCRA hazardous waste based on metals content (primarily lead). In BEC's opinion, the ceramic pellets are much less likely to be hazardous waste, and can probably be disposed as solid waste.

In addition to the two drums, there were several small areas of what appeared to glassy slag and ashes on the ground in this area. The amounts of these materials appeared to be *de minimis* and would not require specific cleanup methods or sampling.

## **2.4 Scrubber Room Equipment**

In a small room at the northeast corner of the Agra plant building, there is equipment that was reportedly used as an air scrubber for emissions from the plant. Two large poly tanks (500 gallons) have some remaining liquids (possibly hydrochloric acid), however, it was not possible during the inspection to determine the quantity or actual composition of the liquids. Several smaller tanks may also contain liquids that would require special handling. Pictures are included in the attached photolog.

BEC recommends that a licensed environmental contractor inspect the equipment for decommissioning and arrange for disposal of the equipment and any wastes (such as acids) that might still be in the containers.

## **3.0 SAMPLE RESULTS**

Analytical results are presented on Table 1 and summarized as follows:

- Analytical results from the composite sample for the gray powder in the supersacks (COMP-1) indicated metals well above normal Arizona background, but only arsenic exceeds the Soil Remediation Level (SRL) of 10 milligrams/kilogram (mg/kg). The arsenic result of 141 mg/kg is well above the ADEQ Residential and Non-Residential SRL of 10 mg/kg. There was no detectable cyanide or hexavalent chromium. A TCLP (leachability) test of the material showed that no metal (including arsenic) failed the RCRA Hazardous waste levels.
- Analytical results from the composite sample for the pinkish powder in the drums and on the ground (COMP-2) indicated metals below any ADEQ SRLs. Chromium seemed to be above what would be in Arizona soils, but was well below its SRL. There was no detectable hexavalent chromium in the sample.

- Analytical results from the two composite samples for the black grit (COMP-3 and COMP-4) indicated metals below any ADEQ SRLs. There was some detectable mercury and chromium seemed higher than typical Arizona soils. Silver in COMP-3 was much higher than normal background levels (30.4 mg/kg, which is over an ounce per ton). However, there were no exceedences of SRLs for any of the 8 RCRA metals. There was no detectable hexavalent chromium in the sample with the higher chromium (COMP-4).

The soil sample analytical report and chain-of-custody documentation are attached in Appendix A.

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

On February 8, 2019, BEC conducted a tour of the Painted Desert Demonstration Project Site which was formerly operated by Agra Technologies. Areas of concern identified by a previous Phase I ESA report (TEC, October 9, 2018) were examined, and composite samples were collected of some of the materials for purposes of determining disposal methods.

- The three super sacks of gray powder contained arsenic exceeding ADEQ's Residential and Non-Residential SRLs. Leachability tests show that the metals (including arsenic) are not leachable, and the material would not be considered RCRA hazardous waste. However, the material remaining in the supersacks and on the ground should be cleaned up, and removed as non-hazardous waste. Confirmation sampling of underlying soil should be collected with analysis for arsenic.
- The pinkish materials in the drums and on the ground do not show any exceedences of SRLs for the 8 RCRA metals, and do not contain hexavalent chromium. The materials may be disposed as non-hazardous waste.
- The black grit on the ground northwest of the south building do not show any exceedences of SRLs for the 8 RCRA metals, and do not contain hexavalent chromium. The materials may be disposed as non-hazardous waste.
- The four drums along the south fenceline (gray powder, crushed mica, black grit, and greenish crystalline material) require further testing to determine disposal methods. Some of these materials (especially the greenish crystalline material) may require disposal as RCRA hazardous waste.
- Finally, there was an accumulation of 10 drums around the east and south sides of the block construction building along the south fenceline. Three of the drums contained what appeared to be small quantities of used oil, while the other drums are empty. There are also three drums on dispenser stands (two marked for antifreeze, one marked for lubricating oil). There was only *de minimis* oily staining on the ground around any of the drums, and in our

opinion there was no need for sampling of soil in these areas. The small amount of used oil and the drums should be removed for off-site disposal/recycling.

- The drum of assay waste requires further testing, and will almost certainly require disposal as RCRA hazardous waste. The drum of ceramic pellets may be disposed as solid waste.
- The air scrubber equipment and associated containers of possible acids need further evaluation by a licensed environmental contractor to determine disposal methods and costs.

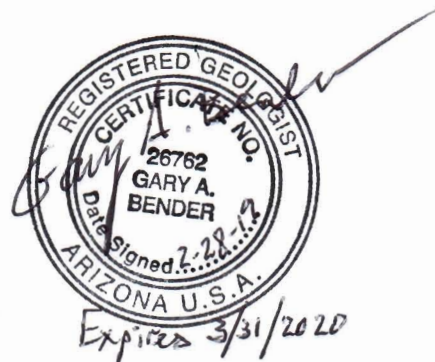
BEC recommends that a licensed environmental contractor be provided with this report and also conduct a site visit to obtain specific information needed for further testing of various materials, and for decommissioning the air scrubber equipment. BEC's testing of materials was not comprehensive, and a disposal facility may require further testing of some or all of the materials.

In our opinion, BEC's testing did appear to show no need for a soils investigation on the Property with the possible exception of the supersack area, where testing of soils after the cleanup should be conducted (limited to arsenic analysis).

The preceding report presents our findings and completes the Scope of Services for this project. If you need any additional information, please call us at (480) 345-2448.

Respectfully submitted,  
**Bender Environmental Consulting, Inc.**

Gary A. Bender, R.G.  
Senior Geologist, V.P.



Attachments: Figure 1 – Sample Location Map  
Table 1 – Analytical Results  
Photolog  
Appendix A - Laboratory Analytical Reports

Mr. Ralph Bossert (Verde Engineering Group, PLLC)  
Documentation of Wastes and Sampling Results  
Painted Desert Demonstration Project Site  
149 Leupp Road  
Flagstaff, Arizona

BEC Project No. J181002  
February 28, 2019

## FIGURE

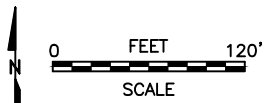




97

Imagery Date: 6/12/2017 lat 35.302500° lon -111.294180

SOURCES: BENDER ENVIRONMENTAL CONSULTING, INC. 2019



NOTE: SCALES ARE APPROXIMATE AND ARE NOT TO BE RELIED ON AS A SURVEY.



1929 EAST MYRNA LANE  
 TEMPE, ARIZONA 85284  
 TEL: (480) 345-2448  
 FAX: (480) 345-2474

**SAMPLE LOCATION MAP**  
 PAINTED DESERT DEMONSTRATION  
 PROJECT SITE  
 149 EAST LEUPP ROAD  
 FLAGSTAFF, ARIZONA

Prepared By: G. BENDER	Project No: J181002
Reviewed By: K. BENDER	Figure No: 1
Date: 2/2019	

Mr. Ralph Bossert (Verde Engineering Group, PLLC)  
Documentation of Wastes and Sampling Results  
Painted Desert Demonstration Project Site  
149 Leupp Road  
Flagstaff, Arizona

BEC Project No. J181002  
February 28, 2019

## **TABLE**

**Table 1 - Soil Sample Results**  
**Painted Desert Demonstration Project Site**  
**149 E. Leupp Road**  
**Flagstaff, Arizona**

Sample Designation	Date Collected	Depth below ground surface (bgs) and Soil Description	Hexavalent Chromium by EPA Method 3060A/7196A (mg/kg)	Cyanide by EPA Method 9012B (mg/kg)	8 RCRA Metals (Totals) by EPA 6000- and 7000-Series Methods (mg/kg) and 8 RCRA Metals by TCLP extraction, EPA Method 1311 (mg/L)							
					Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
COMP-1	02/08/19	Four point composite of gray powder from three super-sacks	<2.00	<0.250	<b>141</b>	99.2	14.1	125	160	<0.0200	11.2	<5.0
					<0.100	0.202	0.15	<0.100	<0.100	<0.0100	<0.100	<0.100
COMP-2	02/08/19	Six point composite from pinkish powder on the ground next to collection of drums	<2.00	NA	<2.00	225	<0.500	72.3	1.02	<0.0200	<2.00	<1.00
COMP-3	02/08/19	Six point composite from black grit on the ground along west fenceline	NA	NA	2.84	29.0	<0.500	79.3	12.7	0.0668	<2.00	30.4
COMP-4	02/08/19	Ten point composite from black grit on the ground along west fenceline (larger area to north)	<2.00	NA	<10.0	103	<2.50	132	41.4	0.0374	<10.0	<5.0
ADEQ Residential Soil Remediation Level (SRL), Revised May 2007			30	1200	10	15,000	39	120,000	400	23	390	390
ADEQ Non-Residential Soil Remediation Level (SRL), Revised May 2007			65	12000	10	170,000	510	1,000,000	800	310	5,100	5,100
RCRA Hazardous Waste Levels (in mg/L)			NE	NE*	5	100	1	5	5	0.20	1	5

Notes:

bgs = below ground surface

mg/kg = milligrams/kilogram

NA = Not analyzed by this method

Sample results in bold purple exceed their respective Residential and Non-Residential SRL

NE\* = Not established for this compound, some additional tests may be needed (reactivity, ignitibility, corrosivity)

Mr. Ralph Bossert (Verde Engineering Group, PLLC)  
Documentation of Wastes and Sampling Results  
Painted Desert Demonstration Project Site  
149 Leupp Road  
Flagstaff, Arizona

BEC Project No. J181002  
February 28, 2019

## **PHOTOLOG**





Photo No. 1: View of the three “super-sacks” of gray powdery material (sample COMP-1).



Photo No. 3: View of 37 drums of pinkish powdery material along south fenceline (sample COMP-2)



Photo No. 2: View of the four drums along the south fenceline.



Photo No. 4: View of drums (mostly empty, some with waste oil) behind generator building.

**Bender Environmental Consulting, Inc.**  
1929 E. Myrna Lane  
Phoenix, Arizona

**BEC Project No. J181002**  
February 8, 2019

**PHOTOGRAPHIC LOG – Waste Sampling**  
Painted Rock Demonstration Project Site  
149 Leupp Road  
Flagstaff, Arizona





Photo No. 5: View of several drums on dispenser stands beside diesel fuel AST.



Photo No. 7: View looking north at area of dumped black grit, with sample COMP-3 being collected (trowel and baggy).



Photo No. 6: Looking south at several remnant drums with black grit material (sample COMP-4).



Photo No. 8: Waste assay laboratory materials (cupels and crucibles) in poly drum near southwest corner of Property.

**Bender Environmental Consulting, Inc.**  
1929 E. Myrna Lane  
Phoenix, Arizona

**BEC Project No. J181002**  
February 8, 2019

**PHOTOGRAPHIC LOG – Waste Sampling**  
Painted Rock Demonstration Project Site  
149 Leupp Road  
Flagstaff, Arizona





Photo No. 9: View of waste water treatment materials (mostly clay pellets).



Photo No. 10: View of interior of drum containing possible gentian violet crystals.



Photo No. 11: View of smaller tank in the air scrubber room.



Photo No. 12: Bottom of one of the two larger tanks in air scrubber room, showing fluid level near the bottom.

**Bender Environmental Consulting, Inc.**  
1929 E. Myrna Lane  
Phoenix, Arizona

**BEC Project No. J181002**  
February 8, 2019

**PHOTOGRAPHIC LOG – Waste Sampling**  
Painted Rock Demonstration Project Site  
149 Leupp Road  
Flagstaff, Arizona

Mr. Ralph Bossert (Verde Engineering Group, PLLC)  
Documentation of Wastes and Sampling Results  
Painted Desert Demonstration Project Site  
149 Leupp Road  
Flagstaff, Arizona

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February 28, 2019

**APPENDIX A**

**LABORATORY ANALYTICAL REPORT**



February 22, 2019

## Bender Environmental

Sample Delivery Group: L1071251  
Samples Received: 02/12/2019  
Project Number: J181002  
Description: Leupp, AZ

Report To: Gary Bender  
1929 East Myrna Lane  
Tempe, AZ 85284

Entire Report Reviewed By:



Daphne Richards  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



<b>Cp: Cover Page</b>	<b>1</b>	<b><sup>1</sup>Cp</b>
<b>Tc: Table of Contents</b>	<b>2</b>	
<b>Ss: Sample Summary</b>	<b>3</b>	<b><sup>2</sup>Tc</b>
<b>Cn: Case Narrative</b>	<b>4</b>	
<b>Sr: Sample Results</b>	<b>5</b>	<b><sup>3</sup>Ss</b>
COMP-1 L1071251-01	<b>5</b>	
COMP-1 L1071251-02	<b>6</b>	<b><sup>4</sup>Cn</b>
COMP-2 L1071251-03	<b>7</b>	<b><sup>5</sup>Sr</b>
COMP-4 L1071251-04	<b>8</b>	
<b>Qc: Quality Control Summary</b>	<b>9</b>	<b><sup>6</sup>Qc</b>
Wet Chemistry by Method 3060A/7196A	<b>9</b>	
Wet Chemistry by Method 9012B	<b>10</b>	<b><sup>7</sup>Gl</b>
Mercury by Method 7470A	<b>11</b>	<b><sup>8</sup>Al</b>
Metals (ICP) by Method 6010C	<b>12</b>	
<b>Gl: Glossary of Terms</b>	<b>14</b>	<b><sup>9</sup>Sc</b>
<b>Al: Accreditations &amp; Locations</b>	<b>15</b>	
<b>Sc: Sample Chain of Custody</b>	<b>16</b>	

# SAMPLE SUMMARY



## COMP-1 L1071251-01 Solid

Collected by  
Gary Bender  
Collected date/time  
02/08/19 11:00  
Received date/time  
02/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 3060A/7196A	WG1240594	1	02/22/19 07:00	02/22/19 14:36	SJM
Wet Chemistry by Method 9012B	WG1239059	1	02/19/19 14:00	02/20/19 11:10	JER

1  
Cp

2  
Tc

3  
Ss

## COMP-1 L1071251-02 Waste

Collected by  
Gary Bender  
Collected date/time  
02/08/19 11:00  
Received date/time  
02/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Preparation by Method 1311	WG1238856	1	02/18/19 16:24	02/18/19 16:24	CGD
Mercury by Method 7470A	WG1239247	1	02/19/19 14:27	02/20/19 10:45	ABL
Metals (ICP) by Method 6010C	WG1239374	1	02/20/19 09:41	02/20/19 15:45	TRB

4  
Cn

5  
Sr

6  
Qc

## COMP-2 L1071251-03 Solid

Collected by  
Gary Bender  
Collected date/time  
02/08/19 11:40  
Received date/time  
02/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 3060A/7196A	WG1240594	1	02/22/19 07:00	02/22/19 14:37	SJM

7  
Gl

8  
Al

## COMP-4 L1071251-04 Solid

Collected by  
Gary Bender  
Collected date/time  
02/08/19 13:30  
Received date/time  
02/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 3060A/7196A	WG1240594	1	02/22/19 07:00	02/22/19 14:37	SJM

9  
Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne Richards  
Project Manager

- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> Gl
- <sup>8</sup> Al
- <sup>9</sup> Sc



Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	02/22/2019 14:36	<a href="#">WG1240594</a>

1 Cp

2 Tc

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	02/20/2019 11:10	<a href="#">WG1239059</a>

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		2/18/2019 4:24:18 PM	WG1238856
Fluid	1		2/18/2019 4:24:18 PM	WG1238856
Initial pH	6.43		2/18/2019 4:24:18 PM	WG1238856
Final pH	5.00		2/18/2019 4:24:18 PM	WG1238856

1 Cp

2 Tc

3 Ss

4 Cn

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	02/20/2019 10:45	<a href="#">WG1239247</a>

5 Sr

6 Qc

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	02/20/2019 15:45	<a href="#">WG1239374</a>
Barium	0.202		0.100	100	1	02/20/2019 15:45	<a href="#">WG1239374</a>
Cadmium	0.148		0.100	1	1	02/20/2019 15:45	<a href="#">WG1239374</a>
Chromium	ND		0.100	5	1	02/20/2019 15:45	<a href="#">WG1239374</a>
Lead	ND		0.100	5	1	02/20/2019 15:45	<a href="#">WG1239374</a>
Selenium	ND		0.100	1	1	02/20/2019 15:45	<a href="#">WG1239374</a>
Silver	ND		0.100	5	1	02/20/2019 15:45	<a href="#">WG1239374</a>

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	02/22/2019 14:37	<a href="#">WG1240594</a>

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	02/22/2019 14:37	<a href="#">WG1240594</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





Method Blank (MB)

(MB) R3386251-1 02/22/19 14:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chromium,Hexavalent	U		0.640	2.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1072394-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1072394-01 02/22/19 14:39 • (DUP) R3386251-7 02/22/19 14:44

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Chromium,Hexavalent	U	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3386251-2 02/22/19 14:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	24.0	25.1	105	80.0-120	

L1071114-21 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071114-21 02/22/19 14:13 • (MS) R3386251-3 02/22/19 14:21 • (MSD) R3386251-4 02/22/19 14:22

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	23.4	0.844	17.0	12.0	69.0	47.8	1	75.0-125	M2	M2 R2	34.2	20



Method Blank (MB)

(MB) R3385361-1 02/20/19 11:03

Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3385361-2 02/20/19 11:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Cyanide	2.50	2.30	91.8	50.0-150	

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3385444-1 02/20/19 09:22

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.00330	0.0100

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3385444-2 02/20/19 09:24 • (LCSD) R3385444-5 02/20/19 09:46

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.0300	0.0296	0.0306	98.5	102	80.0-120			3.40	20

L1071074-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071074-02 02/20/19 09:29 • (MS) R3385444-3 02/20/19 09:32 • (MSD) R3385444-4 02/20/19 09:34

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.0300	ND	0.0323	0.0317	108	106	1	75.0-125			1.96	20

L1071110-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071110-02 02/20/19 09:37 • (MS) R3385444-6 02/20/19 10:01 • (MSD) R3385444-7 02/20/19 10:03

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.0300	ND	0.0257	0.0240	85.6	80.1	1	75.0-125			6.58	20



Method Blank (MB)

(MB) R3385429-10 02/20/19 13:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Arsenic	U		0.0330	0.100
Barium	U		0.0330	0.100
Cadmium	U		0.0330	0.100
Chromium	U		0.0330	0.100
Lead	U		0.0330	0.100
Selenium	U		0.0330	0.100
Silver	U		0.0330	0.100



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3385429-2 02/20/19 13:03 • (LCSD) R3385429-3 02/20/19 13:05

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Arsenic	10.0	9.40	9.55	94.0	95.5	80.0-120			1.57	20
Barium	10.0	9.61	9.75	96.1	97.5	80.0-120			1.46	20
Cadmium	10.0	9.59	9.74	95.9	97.4	80.0-120			1.50	20
Chromium	10.0	9.45	9.62	94.5	96.2	80.0-120			1.72	20
Lead	10.0	9.59	9.76	95.9	97.6	80.0-120			1.75	20
Selenium	10.0	9.74	9.94	97.4	99.4	80.0-120			2.06	20
Silver	2.00	1.80	1.84	89.9	91.9	80.0-120			2.29	20



L1071297-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071297-06 02/20/19 13:08 • (MS) R3385429-5 02/20/19 13:13 • (MSD) R3385429-6 02/20/19 13:15

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Arsenic	10.0	ND	9.61	9.43	95.7	93.9	1	75.0-125			1.93	20
Barium	10.0	0.919	10.6	10.6	97.0	97.2	1	75.0-125			0.111	20
Cadmium	10.0	ND	9.80	9.63	98.0	96.3	1	75.0-125			1.73	20
Chromium	10.0	ND	9.57	9.50	95.7	95.0	1	75.0-125			0.744	20
Lead	10.0	ND	9.85	9.79	97.6	97.1	1	75.0-125			0.560	20
Selenium	10.0	ND	9.98	9.85	99.3	98.0	1	75.0-125			1.28	20
Silver	2.00	ND	1.86	1.82	92.9	91.2	1	75.0-125			1.87	20



[L1071251-02](#)

L1071510-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1071510-02 02/20/19 13:18 • (MS) R3385429-7 02/20/19 13:21 • (MSD) R3385429-8 02/20/19 13:23

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	ND	9.35	9.17	93.5	91.7	1	75.0-125			1.93	20
Barium	10.0	ND	9.93	9.83	98.6	97.7	1	75.0-125			0.951	20
Cadmium	10.0	ND	9.65	9.54	96.5	95.4	1	75.0-125			1.11	20
Chromium	10.0	ND	9.64	9.56	96.4	95.6	1	75.0-125			0.825	20
Lead	10.0	ND	9.62	9.51	96.2	95.1	1	75.0-125			1.15	20
Selenium	10.0	ND	9.51	9.33	95.1	93.3	1	75.0-125			1.96	20
Silver	2.00	ND	1.82	1.81	91.0	90.5	1	75.0-125			0.522	20

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier	Description
M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
R2	RPD/RSD exceeded the laboratory acceptance limit.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

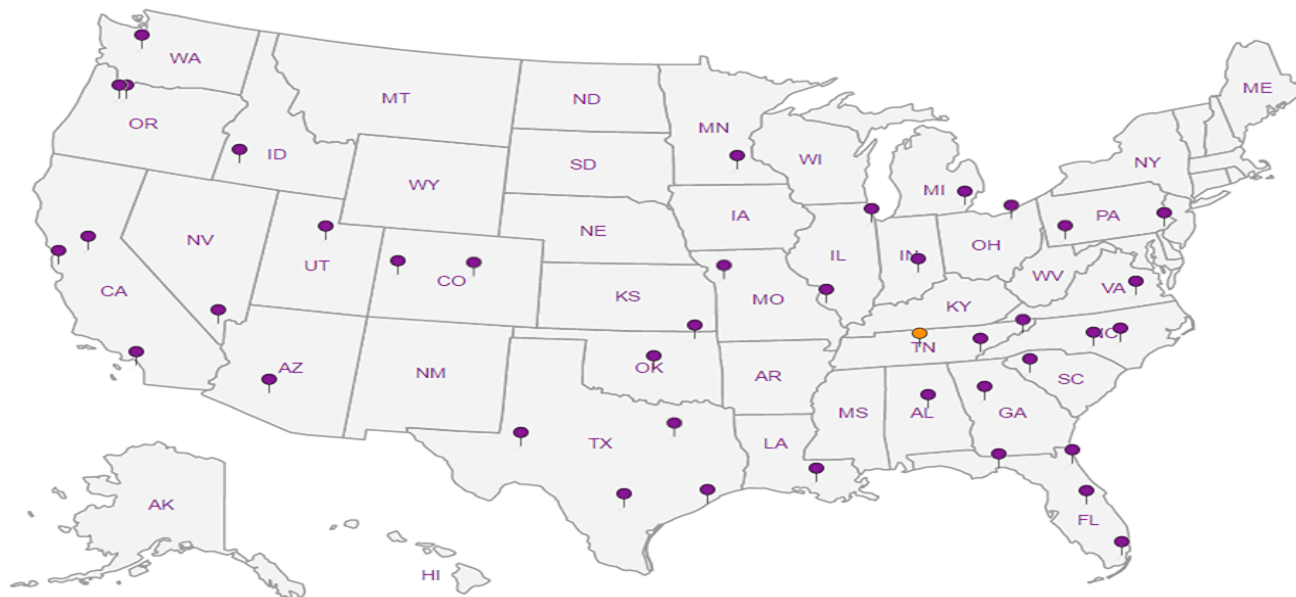
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Bender Environmental  
1929 E Myrna Lane  
Tempe AZ 85284

Billing Information:

Same

Pres  
Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



Report to:  
Gary Bender

Email To:  
benderenv@cox.net

Project Description: Leupp, AZ

City/State Collected: Leupp, AZ

Phone: 480-345-2448  
Fax: 480-345-2474

Client Project #  
J18100Z

Lab Project #

Collected by (print):  
GARY BENDER

Site/Facility ID #

P.O. #

Collected by (signature):  
Gary A. Bender

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day  
Next Day 5 Day (Rad Only)  
Two Day 10 Day (Rad Only)  
Three Day

Date Results Needed

Normal TAT

No. of  
Entrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Entrs
Comp-1	Comp	SS	-	2/8/19	1100	2 X
Comp-2	↓	SS	-	2/8/19	1140	2 X
Comp-3		SS	-	2/8/19	1300	2 X
Comp-4		SS	-	2/8/19	1330	2 X

8 RCRA Metals (Total)

L# 4468977  
1047  
L1071251  
Acctnum: BENENVTAZ  
Template:  
Prelogin:  
TSR: Daphne Richards  
PB:  
Shipped Via:

NJ  
2/13/19

Remarks Sample # (lab only)

-01/02  
-03  
04

\* Matrix:  
SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - Wastewater  
DW - Drinking Water  
OT - Other

Remarks:

Samples returned via:  
\_ UPS \_ FedEx \_ Courier

Tracking #

pH Temp  
Flow Other

Sample Receipt Checklist

COC Seal Present/Intact:  NP  H  
COC Signed/Accurate:  Y  R  
Bottles arrive intact:  Y  N  
Correct bottles used:  Y  H  
Sufficient volume sent:  Y  R  
If Applicable  
VOA Zero Headspace:  Y  N  
Preservation Correct/Checked:  Y  H

Relinquished by: (Signature) Gary A. Bender	Date: 2/11/19	Time: 1248	Received by: (Signature) [Signature]	Trip Blank Received: Yes / No HCL / MeOH TBR	Temp 1.9 - 2 = 1.7	Bottles Received: 8	Hold:	Condition: NCF / OK
Relinquished by: (Signature) [Signature]	Date: 2/11/19	Time: 1800	Received by: (Signature) S. W. A.					
Relinquished by: (Signature) [Signature]	Date: 2/12	Time: 4:45	Received for lab by: (Signature) M. P.					

RAD SCREEN: <0.5 mR/hr

If preservation required by Log: Date/Time



**Andy Vann**

---

**From:** Daphne Richards  
**Sent:** Monday, February 18, 2019 2:18 PM  
**To:** Login  
**Subject:** Relog L1068977 BENENVTAZ

Please relog  
L1068977-01 for TCLP RCRA8, CN and CR6  
-02 CR6  
-04 CR6

Thanks

February 15, 2019

## Bender Environmental

Sample Delivery Group: L1068977

Samples Received: 02/12/2019

Project Number: J181002

Description: Leupp, AZ

Report To: Gary Bender  
1929 East Myrna Lane  
Tempe, AZ 85284

Entire Report Reviewed By:



Daphne Richards  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



<b>Cp: Cover Page</b>	<b>1</b>	<b><sup>1</sup>Cp</b>
<b>Tc: Table of Contents</b>	<b>2</b>	<b><sup>2</sup>Tc</b>
<b>Ss: Sample Summary</b>	<b>3</b>	<b><sup>3</sup>Ss</b>
<b>Cn: Case Narrative</b>	<b>4</b>	<b><sup>4</sup>Cn</b>
<b>Sr: Sample Results</b>	<b>5</b>	<b><sup>5</sup>Sr</b>
COMP-1 L1068977-01	<b>5</b>	
COMP-2 L1068977-02	<b>6</b>	
COMP-3 L1068977-03	<b>7</b>	
COMP-4 L1068977-04	<b>8</b>	
<b>Qc: Quality Control Summary</b>	<b>9</b>	<b><sup>6</sup>Qc</b>
Mercury by Method 7471B	<b>9</b>	
Metals (ICP) by Method 6010C	<b>10</b>	
<b>Gl: Glossary of Terms</b>	<b>11</b>	<b><sup>7</sup>Gl</b>
<b>Al: Accreditations &amp; Locations</b>	<b>12</b>	<b><sup>8</sup>Al</b>
<b>Sc: Sample Chain of Custody</b>	<b>13</b>	<b><sup>9</sup>Sc</b>

# SAMPLE SUMMARY



## COMP-1 L1068977-01 Solid

Collected by  
Gary Bender  
Collected date/time  
02/08/19 11:00  
Received date/time  
02/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471B	WG1235826	1	02/12/19 12:25	02/12/19 20:07	TCT
Metals (ICP) by Method 6010C	WG1236119	5	02/13/19 10:13	02/15/19 08:59	TRB

1  
Cp

2  
Tc

3  
Ss

## COMP-2 L1068977-02 Solid

Collected by  
Gary Bender  
Collected date/time  
02/08/19 11:40  
Received date/time  
02/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471B	WG1235826	1	02/12/19 12:25	02/12/19 20:42	TCT
Metals (ICP) by Method 6010C	WG1236119	1	02/13/19 10:13	02/14/19 18:01	CCE

4  
Cn

5  
Sr

6  
Qc

## COMP-3 L1068977-03 Solid

Collected by  
Gary Bender  
Collected date/time  
02/08/19 13:00  
Received date/time  
02/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471B	WG1235826	1	02/12/19 12:25	02/12/19 20:45	TCT
Metals (ICP) by Method 6010C	WG1236119	1	02/13/19 10:13	02/14/19 18:03	CCE

7  
Gl

8  
Al

9  
Sc

## COMP-4 L1068977-04 Solid

Collected by  
Gary Bender  
Collected date/time  
02/08/19 13:30  
Received date/time  
02/12/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471B	WG1235826	1	02/12/19 12:25	02/12/19 20:48	TCT
Metals (ICP) by Method 6010C	WG1236119	5	02/13/19 10:13	02/15/19 09:01	TRB



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne Richards  
Project Manager

- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> Gl
- <sup>8</sup> Al
- <sup>9</sup> Sc



Mercury by Method 7471B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND	M2	0.0200	1	02/12/2019 20:07	<a href="#">WG1235826</a>

1 Cp

2 Tc

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	141		10.0	5	02/15/2019 08:59	<a href="#">WG1236119</a>
Barium	99.2		2.50	5	02/15/2019 08:59	<a href="#">WG1236119</a>
Cadmium	14.1		2.50	5	02/15/2019 08:59	<a href="#">WG1236119</a>
Chromium	125		5.00	5	02/15/2019 08:59	<a href="#">WG1236119</a>
Lead	160		2.50	5	02/15/2019 08:59	<a href="#">WG1236119</a>
Selenium	11.2		10.0	5	02/15/2019 08:59	<a href="#">WG1236119</a>
Silver	ND		5.00	5	02/15/2019 08:59	<a href="#">WG1236119</a>

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Mercury by Method 7471B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	02/12/2019 20:42	<a href="#">WG1235826</a>

1 Cp

2 Tc

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	ND		2.00	1	02/14/2019 18:01	<a href="#">WG1236119</a>
Barium	225		0.500	1	02/14/2019 18:01	<a href="#">WG1236119</a>
Cadmium	ND		0.500	1	02/14/2019 18:01	<a href="#">WG1236119</a>
Chromium	72.3		1.00	1	02/14/2019 18:01	<a href="#">WG1236119</a>
Lead	1.02		0.500	1	02/14/2019 18:01	<a href="#">WG1236119</a>
Selenium	ND		2.00	1	02/14/2019 18:01	<a href="#">WG1236119</a>
Silver	ND		1.00	1	02/14/2019 18:01	<a href="#">WG1236119</a>

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Mercury by Method 7471B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	0.0668		0.0200	1	02/12/2019 20:45	<a href="#">WG1235826</a>

1 Cp

2 Tc

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	2.84		2.00	1	02/14/2019 18:03	<a href="#">WG1236119</a>
Barium	29.0		0.500	1	02/14/2019 18:03	<a href="#">WG1236119</a>
Cadmium	ND		0.500	1	02/14/2019 18:03	<a href="#">WG1236119</a>
Chromium	79.3		1.00	1	02/14/2019 18:03	<a href="#">WG1236119</a>
Lead	12.7		0.500	1	02/14/2019 18:03	<a href="#">WG1236119</a>
Selenium	ND		2.00	1	02/14/2019 18:03	<a href="#">WG1236119</a>
Silver	30.4		1.00	1	02/14/2019 18:03	<a href="#">WG1236119</a>

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





Mercury by Method 7471B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	0.0374		0.0200	1	02/12/2019 20:48	<a href="#">WG1235826</a>

1 Cp

2 Tc

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	ND		10.0	5	02/15/2019 09:01	<a href="#">WG1236119</a>
Barium	103		2.50	5	02/15/2019 09:01	<a href="#">WG1236119</a>
Cadmium	ND		2.50	5	02/15/2019 09:01	<a href="#">WG1236119</a>
Chromium	132		5.00	5	02/15/2019 09:01	<a href="#">WG1236119</a>
Lead	41.4		2.50	5	02/15/2019 09:01	<a href="#">WG1236119</a>
Selenium	ND		10.0	5	02/15/2019 09:01	<a href="#">WG1236119</a>
Silver	ND		5.00	5	02/15/2019 09:01	<a href="#">WG1236119</a>

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3383187-1 02/12/19 19:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.00280	0.0200

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3383187-2 02/12/19 19:56 • (LCSD) R3383187-3 02/12/19 20:04

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	0.500	0.487	0.489	97.4	97.7	80.0-120			0.403	20

<sup>7</sup>Gl

<sup>8</sup>Al

L1068977-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1068977-01 02/12/19 20:07 • (MS) R3383187-4 02/12/19 20:09 • (MSD) R3383187-5 02/12/19 20:12

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.500	ND	0.348	0.365	69.6	73.1	1	75.0-125	M2	M2	4.93	20

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3383964-1 02/14/19 16:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Barium	U		0.170	0.500
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Lead	U		0.190	0.500
Selenium	U		0.620	2.00
Silver	U		0.120	1.00

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3383964-2 02/14/19 16:47 • (LCSD) R3383964-3 02/14/19 16:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	98.9	99.1	98.9	99.1	80.0-120			0.210	20
Barium	100	107	106	107	106	80.0-120			0.960	20
Cadmium	100	99.5	98.6	99.5	98.6	80.0-120			0.913	20
Chromium	100	101	99.5	101	99.5	80.0-120			1.40	20
Lead	100	101	99.8	101	99.8	80.0-120			0.793	20
Selenium	100	99.6	97.3	99.6	97.3	80.0-120			2.33	20
Silver	100	98.2	96.9	98.2	96.9	80.0-120			1.36	20

L1068553-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1068553-05 02/14/19 16:52 • (MS) R3383964-6 02/14/19 17:00 • (MSD) R3383964-7 02/14/19 17:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	5.15	99.5	99.4	94.3	94.3	1	75.0-125			0.0677	20
Barium	100	93.3	201	210	108	117	1	75.0-125			4.41	20
Cadmium	100	U	91.9	94.3	91.9	94.3	1	75.0-125			2.61	20
Chromium	100	13.6	112	110	98.5	96.5	1	75.0-125			1.80	20
Lead	100	2.94	99.4	102	96.4	99.2	1	75.0-125			2.71	20
Selenium	100	U	89.3	90.4	89.3	90.4	1	75.0-125			1.29	20
Silver	100	U	91.6	94.1	91.6	94.1	1	75.0-125			2.63	20



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier	Description
M2	Matrix spike recovery was low, the method control sample recovery was acceptable.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

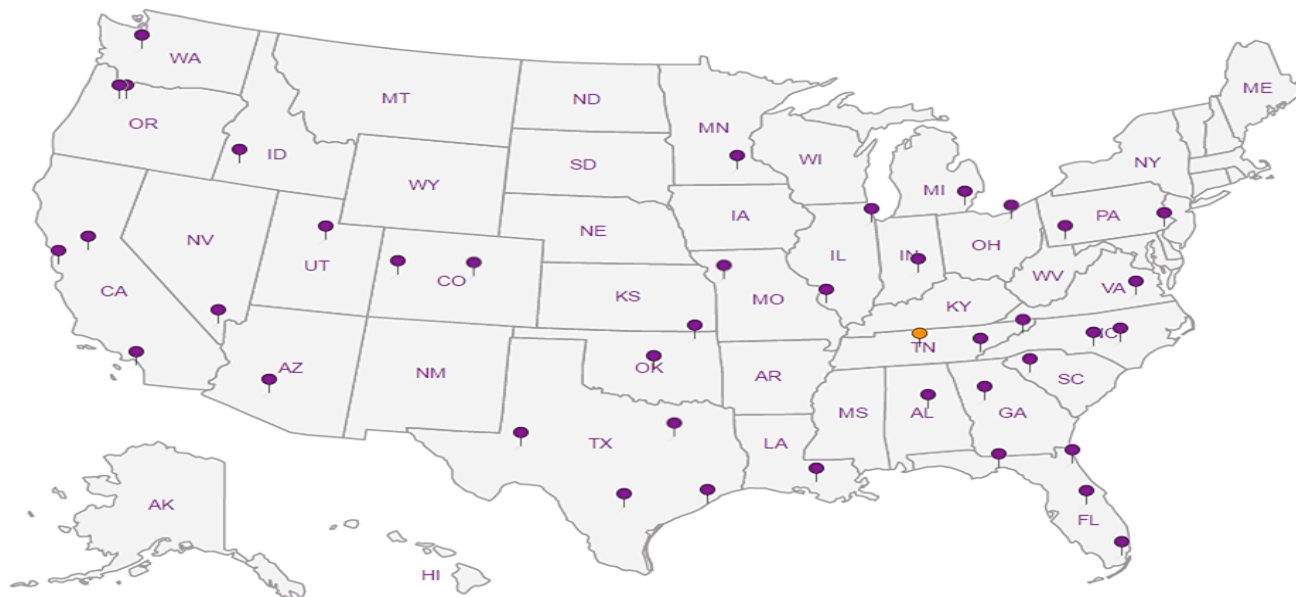
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

**Bender Environmental**  
 1929 E Myrna Lane  
 Tempe AZ 85284

Billing Information:

*Same*

Pres  
 Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



12065 Lebanon Rd  
 Mount Juliet, TN 37122  
 Phone: 615-758-5858  
 Phone: 800-767-5859  
 Fax: 615-758-5859



Report to:  
**Gary Bender**

Email To:  
**benderenv@cox.net**

Project Description: *Leupp, AZ*

City/State Collected: *Leupp, AZ*

Phone: **480-345-2448**  
 Fax: **480-345-2474**

Client Project #  
*J181002*

Lab Project #

Collected by (print):  
*GARY BENDER*

Site/Facility ID #

P.O. #

Collected by (signature):  
*Gary A. Bender*

Rush? (Lab MUST Be Notified)

Quote #

Same Day  Five Day  
 Next Day  5 Day (Rad Only)  
 Two Day  10 Day (Rad Only)  
 Three Day

Date Results Needed

*Normal TAT*

Immediately Packed on Ice N  Y

No. of  
 Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
<i>Comp-1</i>	<i>Comp</i>	<i>SS</i>	<i>-</i>	<i>2/8/19</i>	<i>1100</i>	<i>2 X</i>
<i>Comp-2</i>	<i>(</i>	<i>SS</i>	<i>-</i>	<i>2/8/19</i>	<i>1140</i>	<i>2 X</i>
<i>Comp-3</i>	<i>↓</i>	<i>SS</i>	<i>-</i>	<i>2/8/19</i>	<i>1300</i>	<i>2 X</i>
<i>Comp-4</i>	<i>↓</i>	<i>SS</i>	<i>-</i>	<i>2/8/19</i>	<i>1330</i>	<i>2 X</i>

8 RCRA Metals (Total)

L# *L1068977*  
**1047**

Acctnum: **BENENVTAZ**

Template:

Prelogin:

TSR: **Daphne Richards**

PB:

Shipped Via:

Remarks Sample # (lab only)

*-01*  
*-02*  
*-03*  
*-04*

\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:  
 UPS  FedEx  Courier

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact:  NP  H  
 COC Signed/Accurate:  Y  N  
 Bottles arrive intact:  Y  N  
 Correct bottles used:  Y  N  
 Sufficient volume sent:  Y  N  
 if Applicable  
 VOA Zero Headpace:  Y  N  
 Preservation Correct/Checked:  Y  N

**RAD SCREEN: <0.5 mR/hr**

Relinquished by: (Signature)  
*Gary A Bender*

Date: *2/11/19*

Time: *1248*

Received by: (Signature)  
*Jamy...*

Trip Blank Received: Yes / No  
 Yes  No  
 HCL / MeOH  
 TBR

Relinquished by: (Signature)  
*Jamy...*

Date: *2/11/19*

Time: *1800*

Received by: (Signature)  
*SWA*

Temp *4 BF °C*  
*1.9 - .2 = 1.7*  
 Bottles Received: *8*

If preservation required by Login: Date/Time

Relinquished by: (Signature)  
*M...*

Date: *2/12*

Time: *8:45*

Received for lab by: (Signature)  
*M...*

Date: *2/12*  
 Time: *8:45*

Hold: Condition: *NCF / OK*