



March 12, 2015

Kathy Verhage  
City of Albuquerque  
Department of Municipal Development; Storm Drainage Design  
P.O. Box 1293  
Room 301  
Albuquerque, NM 87103

Re: DRAFT Report, PCB Sediment Sampling Investigation in the Tijeras Arroyo

Dear Ms. Verhage:

As requested by the City of Albuquerque, (COA), Daniel B. Stephens & Associates, Inc. (DBS&A) conducted a field investigation of the Tijeras Arroyo. The purpose of this work was to characterize the possible presence and distribution of poly-chlorinated biphenyl (PCB) contamination in the arroyo. This investigation was conducted on February 18, 2015 as described in the Sampling and Analysis Plan submitted to the COA January 2015.

### **Background**

The Tijeras Arroyo is located on the south side of Albuquerque and originates in the Sandia Mountains. The area of interest in the arroyo for this investigation extends from the boundary of Kirtland Air Force Base (KAFB) downstream to just west of Interstate 25 where the concrete lined portion of the arroyo begins (Figure 1). The purpose of the sediment sampling is to determine the presence or absence of near surface PCB contamination in sediment within this portion of the Tijeras Arroyo, which may have emanated historically from unknown sources.

### **Sample Collection**

Eight sediment samples were collected for PCB analysis (Figure 1). Because of the general lack of specific knowledge regarding the origin of PCB contamination, DBS&A collected sediment samples starting upstream of the concrete lined area of the arroyo to the boundary of KAFB to analyze possible PCB distribution in the arroyo. Samples were collected at or immediately below ground surface only and vertical distribution was not characterized.

The locations of the sediment samples were determined based on a visual screening and focus on areas of sediment deposition, such as behind erosion control structures and areas of low flow velocities, as well as areas where other stormwater features have outfalls into the Tijeras Arroyo, such as the Albuquerque International Airport Tributary Arroyo. Sample locations are presented in Figure 1. Photographs were taken and gps points (3-meter accuracy) of

*Daniel B. Stephens & Associates, Inc.*

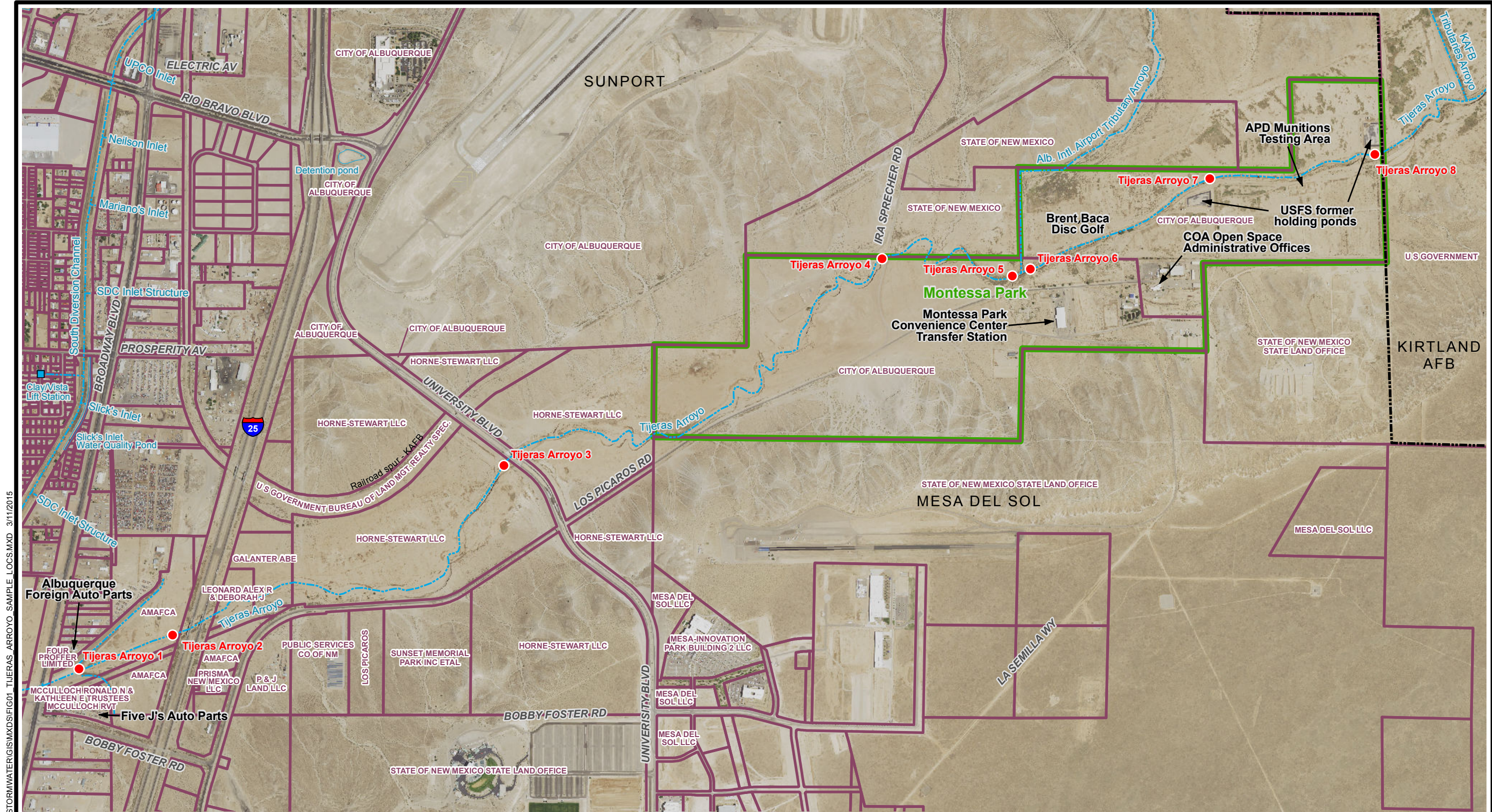
6020 Academy NE, Suite 100

Albuquerque, NM 87109

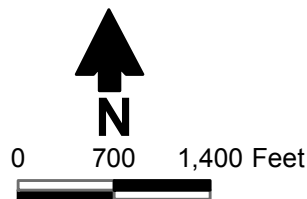
505-822-9400

FAX 505-822-8877





USDA NAIP 2014 aerial photography



- Explanation**
- Sediment sampling location
  - ▭ Kirtland Air Force Base boundary
  - ▭ Parcel
  - Drainage feature
  - ▭ Open space

Source: Bernalillo County GIS Program and Albuquerque Geographic Information Systems (AGIS), 2014.

CITY OF ALBUQUERQUE  
**Tijeras Arroyo**  
**Sediment Sampling Locations**

S:\PROJECTS\WR14.0049.01\_COA\_STORMWATER\GIS\MXDS\FIG01\_TIJERAS\_ARROYO\_SAMPLE\_LOCS.MXD 3/11/2015



**Daniel B. Stephens & Associates, Inc.**  
3/11/2015 JN WR14.0049

Figure 1



sample locations were collected. Photographs of the sample locations are presented in Attachment 1. Additionally, the surrounding land use was noted during the investigation and is presented in the following section.

### **Surrounding Land Use**

Land use near the Tijeras Arroyo within the study area varies from industrial to publicly accessible open space properties. The eastern boundary of the investigation area is KAFB. The Albuquerque International Airport (AIA) and its runways are located due north of the Tijeras Arroyo east of Interstate 25. Mesa Del Sol, a master plan community development is south of the Arroyo. West of Interstate 25 land use is primarily industrial. Sampling locations and land use is presented in Figure 1. An abandoned KAFB railroad spur is north of Tijeras Arroyo extending from Interstate 25 to the boundary with KAFB. Distance from the arroyo to the abandoned railroad spur ranges between 1,100 ft to 5,000 ft. Below is a description of primary land use near each of the sample locations.

#### *Tijeras Arroyo-1 and -2 Sampling Locations*

On the west side of Broadway where the Tijeras Arroyo crosses underneath the road, there are automobile salvage yards; Albuquerque Foreign Auto Parts to the north and Five J's Auto Parts to the south of the arroyo. There are several more auto salvage businesses along this part of Broadway. The Tijeras Arroyo-1 sampling location is located in the unlined section of the arroyo just before the arroyo becomes concrete-lined and is near these automobile salvage yards. Following Tijeras Arroyo east is Interstate 25. Runoff from Interstate 25 feeds into Tijeras Arroyo. The sampling location for Tijeras Arroyo 2 is downstream from where stormwater runoff from Interstate 25 enters the arroyo.

#### *Tijeras Arroyo-3 Sampling Location*

The sampling location for Tijeras Arroyo-3 is downstream from where stormwater runoff from University Blvd enters the arroyo. Other than University Blvd, most land in this area is undeveloped. The land is owned by Horne-Stewart, LLC. Approximately 1,100 feet north of this sampling point is the abandoned KAFB railroad spur.

#### *Tijeras Arroyo-4 Sampling Location*

The sampling location for Tijeras Arroyo-4 is where the arroyo crosses Ira Spector Road (Figure 1). The land in this area is an open space property owned by the COA called Montessa Park and is primarily used as an off-road vehicle area. The park encompasses approximately 577 acres.

#### *Tijeras Arroyo-5 and -6 Sampling Locations*

Sampling locations for Tijeras Arroyo-5 and -6 are downstream and upstream, respectively, of where the Albuquerque International Tributary Arroyo enters the Tijeras Arroyo. Land use in

this area includes the COA Open Space Division's Brent Baca Memorial Disc Golf Course, COA Open Space office facilities, the Montessa Park Convenience Center trash disposal transfer station, and undeveloped land. Lands in this area are owned by the COA and the State of New Mexico.

#### *Tijeras Arroyo-7 Sampling Location*

The Tijeras Arroyo-7 sampling location is downstream of an area used by the Albuquerque Police Department to explode munitions. On the south side of the arroyo is a former holding pond that was once used to hold irrigation water for a tree farm that was managed by the U.S. Forest Service (USFS), according to an email from Matthew Schmader of the COA Open Space Division (December 23, 2014). This irrigation holding pond has reportedly not been in use for many years.

#### *Tijeras Arroyo-8 Sampling Location*

The Tijeras Arroyo-8 sampling location is directly downstream of the property boundary with the KAFB. On the north side of the arroyo is another USFS former irrigation holding pond that is no longer in use.

### **Results of Laboratory Analysis**

All samples were submitted to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico for analysis of PCBs using Method SW846 8082. Results of the laboratory analysis are presented in Table 1.

Table 1. PCB Analysis Results for Sediment Samples in Tijeras Arroyo

Sample Location		Result (mg/kg)							
		Tijeras Arroyo-1	Tijeras Arroyo-2	Tijeras Arroyo-3	Tijeras Arroyo-4	Tijeras Arroyo-5	Tijeras Arroyo-6	Tijeras Arroyo-7	Tijeras Arroyo-8
Analyte	Date	2/18/2015	2/18/2015	2/18/2015	2/18/2015	2/18/2015	2/18/2015	2/18/2015	2/18/2015
Aroclor 1016		< 0.020	<0.10	< 0.020	<0.10	< 0.020	< 0.020	< 0.020	< 0.020
Aroclor 1221		< 0.020	<0.10	< 0.020	<0.10	< 0.020	< 0.020	< 0.020	< 0.020
Aroclor 1232		< 0.020	<0.10	< 0.020	<0.10	< 0.020	< 0.020	< 0.020	< 0.020
Aroclor 1242		< 0.020	<0.10	< 0.020	<0.10	< 0.020	< 0.020	< 0.020	< 0.020
Aroclor 1248		< 0.020	<0.10	< 0.020	<0.10	< 0.020	< 0.020	< 0.020	< 0.020
Aroclor 1254		< 0.020	<0.10	< 0.020	<0.10	< 0.020	< 0.020	< 0.020	< 0.020
Aroclor 1260		< 0.020	<0.10	< 0.020	<0.10	< 0.020	< 0.020	< 0.020	< 0.020
PCBs, Total		< 0.020	<0.10	< 0.020	<0.10	< 0.020	< 0.020	< 0.020	< 0.020

Kathy Verhage  
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No PCBs were detected in any of the sediment samples from Tijeras Arroyo. Method reporting limits were slightly elevated for 2 samples, Tijeras Arroyo-2 and Tijeras Arroyo-4, but are sufficiently low to be able to detect any significant source of PCBs. Elevated reporting limits are due to matrix interference. The laboratory report is included as Attachment 2.

### **Conclusions**

Review of the laboratory analytical data indicates that there are no PBCs present in the sediment samples that were collected. No future sediment sampling is anticipated in the Tijeras Arroyo.

We appreciate the opportunity to serve the City of Albuquerque on this important project. If you have any questions regarding this sampling plan, please call me at (505) 822-9400.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read 'Kali Bronson', with a stylized flourish extending to the right.

Kali Bronson  
Hydrogeologist

## **Attachment 1**



1. Tijeras Arroyo-1 sampling location; looking west at beginning of concrete-lined portion of the arroyo.



2. Tijeras Arroyo-2 sampling location; looking east at the Interstate 25 overpass.







3. Tijeras Arroyo-3 sampling location near University Blvd.



4. Tijeras Arroyo-3 sampling location; looking east at University Blvd overpass.







5. Tijeras Arroyo-4 sampling location near Ira Spector Road.



6. Tijeras Arroyo-4 sampling location; looking at a water control feature.





7. Tijeras Arroyo-5 sampling location, downstream of confluence with the Albuquerque International Tributary Arroyo.



8. Tijeras Arroyo-5/Tijeras Arroyo-6: looking north into Albuquerque International Tributary Arroyo.







9. Tijeras Arroyo-5/Tijeras Arroyo-6 sampling locations; looking east at confluence with the Albuquerque International Tributary Arroyo.



10. Tijeras Arroyo-6 sampling location located upstream of the confluence with the Albuquerque International Tributary Arroyo.





11. Tijeras Arroyo-7 sampling location; PVC pipe likely part of former USFS irrigation holding ponds.



12. Tijeras Arroyo-7: outfall appears to be part of the former USFS irrigation holding ponds.







13. Tijeras Arroyo-7: looking west down the Tijeras Arroyo.



14. Tijeras Arroyo-8 sampling location; looking west down the arroyo.





15. Tijeras Arroyo-8 sampling location; looking east at a water control feature on KAFB.



16. Tijeras Arroyo-8 sampling location; looking east at a water control feature on KAFB and onto KAFB.





## **Attachment 2**



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

February 24, 2015

Kali Bronson

Daniel B. Stephens & Assoc.  
6020 Academy NE Suite 100  
Albuquerque, NM 87109  
TEL: (505) 822-9400  
FAX (505) 822-8877

RE: COA Tijeras Arroyo

OrderNo.: 1502735

Dear Kali Bronson:

Hall Environmental Analysis Laboratory received 8 sample(s) on 2/18/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1502735**

Date Reported: **2/24/2015**

**CLIENT:** Daniel B. Stephens & Assoc.

**Client Sample ID:** Tijeras Arroyo 1-021815

**Project:** COA Tijeras Arroyo

**Collection Date:** 2/18/2015 11:45:00 AM

**Lab ID:** 1502735-001

**Matrix:** SOIL

**Received Date:** 2/18/2015 12:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8082: PCB'S</b>							Analyst: <b>SCC</b>
Aroclor 1016	ND	0.020		mg/Kg	1	2/23/2015 3:04:50 PM	17812
Aroclor 1221	ND	0.020		mg/Kg	1	2/23/2015 3:04:50 PM	17812
Aroclor 1232	ND	0.020		mg/Kg	1	2/23/2015 3:04:50 PM	17812
Aroclor 1242	ND	0.020		mg/Kg	1	2/23/2015 3:04:50 PM	17812
Aroclor 1248	ND	0.020		mg/Kg	1	2/23/2015 3:04:50 PM	17812
Aroclor 1254	ND	0.020		mg/Kg	1	2/23/2015 3:04:50 PM	17812
Aroclor 1260	ND	0.020		mg/Kg	1	2/23/2015 3:04:50 PM	17812
Surr: Decachlorobiphenyl	64.0	37.5-161		%REC	1	2/23/2015 3:04:50 PM	17812
Surr: Tetrachloro-m-xylene	78.4	28.1-149		%REC	1	2/23/2015 3:04:50 PM	17812

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1502735**

Date Reported: **2/24/2015**

**CLIENT:** Daniel B. Stephens & Assoc.

**Client Sample ID:** Tijeras Arroyo 2-021815

**Project:** COA Tijeras Arroyo

**Collection Date:** 2/18/2015 11:35:00 AM

**Lab ID:** 1502735-002

**Matrix:** SOIL

**Received Date:** 2/18/2015 12:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8082: PCB'S</b>							Analyst: <b>SCC</b>
Aroclor 1016	ND	0.10		mg/Kg	1	2/23/2015 10:44:27 PM	17812
Aroclor 1221	ND	0.10		mg/Kg	1	2/23/2015 10:44:27 PM	17812
Aroclor 1232	ND	0.10		mg/Kg	1	2/23/2015 10:44:27 PM	17812
Aroclor 1242	ND	0.10		mg/Kg	1	2/23/2015 10:44:27 PM	17812
Aroclor 1248	ND	0.10		mg/Kg	1	2/23/2015 10:44:27 PM	17812
Aroclor 1254	ND	0.10		mg/Kg	1	2/23/2015 10:44:27 PM	17812
Aroclor 1260	ND	0.10		mg/Kg	1	2/23/2015 10:44:27 PM	17812
Surr: Decachlorobiphenyl	78.0	37.5-161		%REC	1	2/23/2015 10:44:27 PM	17812
Surr: Tetrachloro-m-xylene	76.0	28.1-149		%REC	1	2/23/2015 10:44:27 PM	17812

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1502735**

Date Reported: **2/24/2015**

**CLIENT:** Daniel B. Stephens & Assoc.

**Client Sample ID:** Tijeras Arroyo 3-021815

**Project:** COA Tijeras Arroyo

**Collection Date:** 2/18/2015 11:15:00 AM

**Lab ID:** 1502735-003

**Matrix:** SOIL

**Received Date:** 2/18/2015 12:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8082: PCB'S</b>						Analyst: <b>SCC</b>	
Aroclor 1016	ND	0.020		mg/Kg	1	2/24/2015 1:02:21 AM	17812
Aroclor 1221	ND	0.020		mg/Kg	1	2/24/2015 1:02:21 AM	17812
Aroclor 1232	ND	0.020		mg/Kg	1	2/24/2015 1:02:21 AM	17812
Aroclor 1242	ND	0.020		mg/Kg	1	2/24/2015 1:02:21 AM	17812
Aroclor 1248	ND	0.020		mg/Kg	1	2/24/2015 1:02:21 AM	17812
Aroclor 1254	ND	0.020		mg/Kg	1	2/24/2015 1:02:21 AM	17812
Aroclor 1260	ND	0.020		mg/Kg	1	2/24/2015 1:02:21 AM	17812
Surr: Decachlorobiphenyl	37.6	37.5-161		%REC	1	2/24/2015 1:02:21 AM	17812
Surr: Tetrachloro-m-xylene	43.6	28.1-149		%REC	1	2/24/2015 1:02:21 AM	17812

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1502735**

Date Reported: **2/24/2015**

**CLIENT:** Daniel B. Stephens & Assoc.

**Client Sample ID:** Tijeras Arroyo 4-021815

**Project:** COA Tijeras Arroyo

**Collection Date:** 2/18/2015 10:55:00 AM

**Lab ID:** 1502735-004

**Matrix:** SOIL

**Received Date:** 2/18/2015 12:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8082: PCB'S</b>							Analyst: <b>SCC</b>
Aroclor 1016	ND	0.10		mg/Kg	1	2/24/2015 3:19:54 AM	17812
Aroclor 1221	ND	0.10		mg/Kg	1	2/24/2015 3:19:54 AM	17812
Aroclor 1232	ND	0.10		mg/Kg	1	2/24/2015 3:19:54 AM	17812
Aroclor 1242	ND	0.10		mg/Kg	1	2/24/2015 3:19:54 AM	17812
Aroclor 1248	ND	0.10		mg/Kg	1	2/24/2015 3:19:54 AM	17812
Aroclor 1254	ND	0.10		mg/Kg	1	2/24/2015 3:19:54 AM	17812
Aroclor 1260	ND	0.10		mg/Kg	1	2/24/2015 3:19:54 AM	17812
Surr: Decachlorobiphenyl	76.0	37.5-161		%REC	1	2/24/2015 3:19:54 AM	17812
Surr: Tetrachloro-m-xylene	76.0	28.1-149		%REC	1	2/24/2015 3:19:54 AM	17812

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1502735**

Date Reported: **2/24/2015**

**CLIENT:** Daniel B. Stephens & Assoc.

**Client Sample ID:** Tijeras Arroyo 5-021815

**Project:** COA Tijeras Arroyo

**Collection Date:** 2/18/2015 10:32:00 AM

**Lab ID:** 1502735-005

**Matrix:** SOIL

**Received Date:** 2/18/2015 12:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8082: PCB'S</b>						Analyst: <b>SCC</b>	
Aroclor 1016	ND	0.020		mg/Kg	1	2/24/2015 6:24:14 AM	17812
Aroclor 1221	ND	0.020		mg/Kg	1	2/24/2015 6:24:14 AM	17812
Aroclor 1232	ND	0.020		mg/Kg	1	2/24/2015 6:24:14 AM	17812
Aroclor 1242	ND	0.020		mg/Kg	1	2/24/2015 6:24:14 AM	17812
Aroclor 1248	ND	0.020		mg/Kg	1	2/24/2015 6:24:14 AM	17812
Aroclor 1254	ND	0.020		mg/Kg	1	2/24/2015 6:24:14 AM	17812
Aroclor 1260	ND	0.020		mg/Kg	1	2/24/2015 6:24:14 AM	17812
Surr: Decachlorobiphenyl	92.4	37.5-161		%REC	1	2/24/2015 6:24:14 AM	17812
Surr: Tetrachloro-m-xylene	103	28.1-149		%REC	1	2/24/2015 6:24:14 AM	17812

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1502735**

Date Reported: **2/24/2015**

**CLIENT:** Daniel B. Stephens & Assoc.

**Client Sample ID:** Tijeras Arroyo 6-021815

**Project:** COA Tijeras Arroyo

**Collection Date:** 2/18/2015 10:30:00 AM

**Lab ID:** 1502735-006

**Matrix:** SOIL

**Received Date:** 2/18/2015 12:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8082: PCB'S</b>						Analyst: <b>SCC</b>	
Aroclor 1016	ND	0.020		mg/Kg	1	2/24/2015 7:10:01 AM	17812
Aroclor 1221	ND	0.020		mg/Kg	1	2/24/2015 7:10:01 AM	17812
Aroclor 1232	ND	0.020		mg/Kg	1	2/24/2015 7:10:01 AM	17812
Aroclor 1242	ND	0.020		mg/Kg	1	2/24/2015 7:10:01 AM	17812
Aroclor 1248	ND	0.020		mg/Kg	1	2/24/2015 7:10:01 AM	17812
Aroclor 1254	ND	0.020		mg/Kg	1	2/24/2015 7:10:01 AM	17812
Aroclor 1260	ND	0.020		mg/Kg	1	2/24/2015 7:10:01 AM	17812
Surr: Decachlorobiphenyl	95.2	37.5-161		%REC	1	2/24/2015 7:10:01 AM	17812
Surr: Tetrachloro-m-xylene	86.0	28.1-149		%REC	1	2/24/2015 7:10:01 AM	17812

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1502735**

Date Reported: **2/24/2015**

**CLIENT:** Daniel B. Stephens & Assoc.

**Client Sample ID:** Tijeras Arroyo 7-021815

**Project:** COA Tijeras Arroyo

**Collection Date:** 2/18/2015 10:00:00 AM

**Lab ID:** 1502735-007

**Matrix:** SOIL

**Received Date:** 2/18/2015 12:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8082: PCB'S</b>						Analyst: <b>SCC</b>	
Aroclor 1016	ND	0.020		mg/Kg	1	2/24/2015 7:55:56 AM	17812
Aroclor 1221	ND	0.020		mg/Kg	1	2/24/2015 7:55:56 AM	17812
Aroclor 1232	ND	0.020		mg/Kg	1	2/24/2015 7:55:56 AM	17812
Aroclor 1242	ND	0.020		mg/Kg	1	2/24/2015 7:55:56 AM	17812
Aroclor 1248	ND	0.020		mg/Kg	1	2/24/2015 7:55:56 AM	17812
Aroclor 1254	ND	0.020		mg/Kg	1	2/24/2015 7:55:56 AM	17812
Aroclor 1260	ND	0.020		mg/Kg	1	2/24/2015 7:55:56 AM	17812
Surr: Decachlorobiphenyl	84.0	37.5-161		%REC	1	2/24/2015 7:55:56 AM	17812
Surr: Tetrachloro-m-xylene	94.4	28.1-149		%REC	1	2/24/2015 7:55:56 AM	17812

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1502735**

Date Reported: **2/24/2015**

**CLIENT:** Daniel B. Stephens & Assoc.

**Client Sample ID:** Tijeras Arroyo 8-021815

**Project:** COA Tijeras Arroyo

**Collection Date:** 2/18/2015 9:40:00 AM

**Lab ID:** 1502735-008

**Matrix:** SOIL

**Received Date:** 2/18/2015 12:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8082: PCB'S</b>						Analyst: <b>SCC</b>	
Aroclor 1016	ND	0.020		mg/Kg	1	2/24/2015 9:27:59 AM	17812
Aroclor 1221	ND	0.020		mg/Kg	1	2/24/2015 9:27:59 AM	17812
Aroclor 1232	ND	0.020		mg/Kg	1	2/24/2015 9:27:59 AM	17812
Aroclor 1242	ND	0.020		mg/Kg	1	2/24/2015 9:27:59 AM	17812
Aroclor 1248	ND	0.020		mg/Kg	1	2/24/2015 9:27:59 AM	17812
Aroclor 1254	ND	0.020		mg/Kg	1	2/24/2015 9:27:59 AM	17812
Aroclor 1260	ND	0.020		mg/Kg	1	2/24/2015 9:27:59 AM	17812
Surr: Decachlorobiphenyl	84.8	37.5-161		%REC	1	2/24/2015 9:27:59 AM	17812
Surr: Tetrachloro-m-xylene	87.6	28.1-149		%REC	1	2/24/2015 9:27:59 AM	17812

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1502735

24-Feb-15

Client: Daniel B. Stephens &amp; Assoc.

Project: COA Tijeras Arroyo

Sample ID	<b>MB-17812</b>		SampType:	<b>MBLK</b>		TestCode:	<b>EPA Method 8082: PCB's</b>			
Client ID:	<b>PBS</b>		Batch ID:	<b>17812</b>		RunNo:	<b>24447</b>			
Prep Date:	<b>2/19/2015</b>		Analysis Date:	<b>2/23/2015</b>		SeqNo:	<b>720069</b>		Units: <b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.020								
Aroclor 1221	ND	0.020								
Aroclor 1232	ND	0.020								
Aroclor 1242	ND	0.020								
Aroclor 1248	ND	0.020								
Aroclor 1254	ND	0.020								
Aroclor 1260	ND	0.020								
Surr: Decachlorobiphenyl	0.032		0.06250		52.0	37.5	161			
Surr: Tetrachloro-m-xylene	0.056		0.06250		89.6	28.1	149			

Sample ID	<b>LCS-17812</b>		SampType:	<b>LCS</b>		TestCode:	<b>EPA Method 8082: PCB's</b>			
Client ID:	<b>LCSS</b>		Batch ID:	<b>17812</b>		RunNo:	<b>24447</b>			
Prep Date:	<b>2/19/2015</b>		Analysis Date:	<b>2/23/2015</b>		SeqNo:	<b>720085</b>		Units: <b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.11	0.020	0.1250	0	90.2	26.2	127			
Aroclor 1260	0.12	0.020	0.1250	0	97.0	36.6	122			
Surr: Decachlorobiphenyl	0.044		0.06250		71.2	37.5	161			
Surr: Tetrachloro-m-xylene	0.085		0.06250		136	28.1	149			

Sample ID	<b>1502735-001AMS</b>		SampType:	<b>MS</b>		TestCode:	<b>EPA Method 8082: PCB's</b>			
Client ID:	<b>Tijeras Arroyo 1-021</b>		Batch ID:	<b>17812</b>		RunNo:	<b>24447</b>			
Prep Date:	<b>2/19/2015</b>		Analysis Date:	<b>2/23/2015</b>		SeqNo:	<b>720646</b>		Units: <b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.070	0.020	0.1255	0	55.6	15.8	111			
Aroclor 1260	0.099	0.020	0.1255	0	79.0	6.14	135			
Surr: Decachlorobiphenyl	0.033		0.06275		52.4	37.5	161			
Surr: Tetrachloro-m-xylene	0.044		0.06275		69.6	28.1	149			

Sample ID	<b>1502735-001AMSD</b>		SampType:	<b>MSD</b>		TestCode:	<b>EPA Method 8082: PCB's</b>			
Client ID:	<b>Tijeras Arroyo 1-021</b>		Batch ID:	<b>17812</b>		RunNo:	<b>24447</b>			
Prep Date:	<b>2/19/2015</b>		Analysis Date:	<b>2/23/2015</b>		SeqNo:	<b>720647</b>		Units: <b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.082	0.020	0.1254	0	65.4	15.8	111	16.1	20	
Aroclor 1260	0.13	0.020	0.1254	0	99.8	6.14	135	23.1	32.8	
Surr: Decachlorobiphenyl	0.042		0.06269		66.8	37.5	161	0	0	
Surr: Tetrachloro-m-xylene	0.053		0.06269		85.2	28.1	149	0	0	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
O RSD is greater than RSDlimit  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
P Sample pH Not In Range  
RL Reporting Detection Limit



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: www.hallenvironmental.com

## Sample Log-In Check List

Client Name: DBS

Work Order Number: 1502735

RcptNo: 1

Received by/date:	AT	02/18/15
Logged By:	Anne Thorne	2/18/2015 12:10:00 PM
Completed By:	Anne Thorne	2/18/2015
Reviewed By:	[Signature]	02/18/15

### Chain of Custody

- |  |   |                             |   |
|--|---|-----------------------------|---|
| 1. Custody seals intact on sample bottles? | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 2. Is Chain of Custody complete?           | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/>            |
| 3. How was the sample delivered?           | Client                                  |                             |   |

### Log In

- |  |   |  |  |
|--|---|--|--|
| 4. Was an attempt made to cool the samples?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | NA <input type="checkbox"/>                      |
| 5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to $6.0^{\circ}\text{C}$ | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/>                      |
| <u>Samples were collected the same day and chilled.</u>  |   |  |  |
| 6. Sample(s) in proper container(s)?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| 7. Sufficient sample volume for indicated test(s)?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| 8. Are samples (except VOA and ONG) properly preserved?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| 9. Was preservative added to bottles?  | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/>                      |
| 10. VOA vials have zero headspace?   | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | No VOA Vials <input checked="" type="checkbox"/> |
| 11. Were any sample containers received broken?  | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> |  |
| 12. Does paperwork match bottle labels?<br>(Note discrepancies on chain of custody)            | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| 13. Are matrices correctly identified on Chain of Custody?                                     | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| 14. Is it clear what analyses were requested?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| 15. Were all holding times able to be met?<br>(If no, notify customer for authorization.)      | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |

# of preserved bottles checked for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	7.3	Good	Not Present			

# Chain-of-Custody Record

Client: DBS: A

Mailing Address:

Phone #: 822 9400

Email or Fax#: k.bronson@dbstephens.com

A/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

EDD (Type) excel

Date	Time	Matrix	Sample Request ID
8/15	1145	Soil	Tijeras Arroyo 1-021815
	1135		Tijeras Arroyo 2-021815
	1115		Tijeras Arroyo 3-021815
	1055		Tijeras Arroyo 4-021815
	1032		Tijeras Arroyo 5-021815
	1030		Tijeras Arroyo 6-021815
	1000		Tijeras Arroyo 7-021815
	0940		Tijeras Arroyo 8-021815

Date: 18/15/210

Relinquished by: [Signature]

Date: 18/15/210

Relinquished by: [Signature]

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

COA Tijeras Arroyo

Project #:

WR14.0049.01 Phase 3, Task 3

Project Manager:

Kali Bronson

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 7.3

Container Type and #

1x 4oz

Preservative Type

Ice

HEAL No.

1502735

## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

### Analysis Request

BTEX + MTBE + TMBs (8021)	
BTEX + MTBE + TPH (Gas only)	
TPH 8015B (GRO / DRO / MRO)	
TPH (Method 418.1)	
EDB (Method 504.1)	
PAH's (8310 or 8270 SIMS)	
RCRA 8 Metals	
Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	
8081 Pesticides / 8082 PCB's	
8260B (VOA)	
8270 (Semi-VOA)	
8082 - PCBs	
Air Bubbles (Y or N)	

Remarks:

Received by: [Signature] Date: 02/13/15

Received by: [Signature] Date: 02/13/15