APPENDIX G

SHALLOW SOIL SAMPLING REPORT
BROADWAY SOUTH LANDFILL
BROADWAY-PANTANO WQARF SITE, LANDFILL OPERABLE UNIT
TUCSON, ARIZONA

APPENDIX G

SHALLOW SOIL SAMPLING REPORT

Broadway South Landfill
Broadway-Pantano WQARF Site
Landfill Operable Unit
Tucson, Arizona

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1.0 INTRODUCTION

This report was prepared by Clear Creek Associates (Clear Creek) as part of the Broadway-Pantano Landfill Operable Unit (LOU) Remedial Investigation (RI) report for the Arizona Department of Environmental Quality (ADEQ) to summarize shallow soil sampling and analysis performed at the former Broadway South Landfill (BSL). This work was conducted to evaluate the possible presence of metals, semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and pesticides in the soil covering the BSL for the purpose of a shallow soil risk evaluation.

2.0 SHALLOW SOIL SAMPLE LOCATIONS AND PROCEDURES

2.1 SAMPLING LOCATIONS

Sample locations were initially identified by analyzing an aerial photograph of BSL. Ten locations were selected to be representative of BSL and to provide coverage over the entire area that was designated for investigation by ADEQ. Areas of the BSL not included in the sampling were the Hilton Hotel, Broadway Proper, and Culver's Restaurant (respectively, parcel numbers 134-27-0010, 134-27-002A, and 134-27-003A). ADEQ did not include these parcels in the sampling because the parcel is either covered with pavement, building and/or sod (134-27-0010 and 134-27-003A), or the parcel's soil cover has been previously characterized (134-27-002A and 134-27-003A). The sampling locations were plotted on an aerial photograph as a guide for the field staff. The samples are named SS-BSL-01 to SS-BSL-10, based on the order they were collected. The locations of the shallow soil samples are plotted on Figure G1.

2.2 ACCESS

ADEQ contacted the BSL property owners and obtained access for soil sampling.

2.3 SAMPLE COLLECTION

Samples were collected according to the RI Work Plan (Clear Creek, 2013). Clear Creek field staff collected each sample by hand while wearing a new pair of nitrile sampling gloves. The soil sample consisted of a grab sample from the top three to six inches of soil from each location. The samples were collected using a decontaminated shovel. The soil was placed into a laboratory-supplied glass sampling jar with a Teflon-lined lid. Each sample was appropriately labeled and packed on ice in an insulated cooler. The samples were transported under chain-of-custody protocol to the laboratory for analytical testing.

3.0 SOIL SAMPLE ANALYTICAL TESTING AND RESULTS

Clear Creek submitted ten soil samples to ESC Lab Sciences for analysis of total metals, pesticides, PCBs, and SVOCs. All samples were analyzed according to the RI Work Plan (Clear Creek, 2013). Table G1 presents a summary of the laboratory analytical results, the Arizona Soil Remediation Levels (SRLs) (ADEQ, 2007), and the Groundwater Protection Levels (GPLs) (ADEQ, 1996a). Table G2 presents a summary of the soil sampling locations with photographs and the respective global positioning system (GPS) coordinates. The GPS coordinates were collected according to ADEQ guidance (ADEQ, 1996b).

The metals analysis of soil samples consisted of testing for eight Resource Conservation and Recovery Act (RCRA) metals, including barium, cadmium, chromium, lead, selenium, and silver using Environmental Protection Agency (EPA) Method 6010B, and total mercury using EPA Method 7471A. The soil samples were analyzed for 30 pesticide compounds and eight PCBs using EPA Methods 8081/8082. The soil samples were also analyzed for 59 SVOCs using EPA Method 8270C.

A complete list of parameters analyzed, along with the analytical results, is presented in Table G1. The maximum concentration detected for each analyte, the SRLs, and minimum GPLs are presented at the end of Table G1 for comparison.

Metals were detected in all soil samples at concentrations above the laboratory reporting limits. The metals concentrations were less than the most stringent SRLs. Pesticides, PCBs, and SVOCs were not detected at concentrations above the laboratory reporting limits.

4.0 RESULTS OF DATA VALIDATION

Clear Creek contracted Innovative Technical Solutions, Inc. (ITSI) to conduct a full data validation according to the Quality Assurance Project Plan (QAPP) in the LOU RI Work Plan (Clear Creek, 2013). The data validation included review of the report from the laboratory equivalent to an EPA Level IV data deliverable, which included sample results, chain-of-custody forms, basic quality control summaries including surrogate recoveries, method blank results, and precision and accuracy data summaries for the sample preparation batch, a review of the data for instrument calibrations, sample quantitation, compound identification and internal standard recoveries, and raw data. If analytical problems were encountered, the report also includes a case narrative describing the problem and any potential impact on data quality. Ten samples underwent full data validation.

The laboratory report and chain-of-custody documentation are in Appendix H of this RI report. The Data Validation report is in Appendix I. Relevant data validation results for the shallow soil sample analyses are:

- The data validation resulted in the flagging of one sample. The relative percent difference for hexachlorocyclopentadiene was 35 percent in the continuing calibration verification associated with sample SS-BSL-10. This is outside of the criteria of less than 20 percent. The associated sample result for hexachlorocyclopentadiene was qualified as "UJ-" for an estimated reporting limit with a low bias.

- The laboratory reporting limits were elevated for some non-detect results for some samples due to matrix interference. Although there were no quantitation anomalies, this matrix interference caused the reporting limits to be higher than the Arizona SRLs for seven compounds of concern in the QAPP. The samples were analyzed at one times (1X) or five times (5X) dilution. The compounds listed below did not meet the QAPP SRLs for a 1X and/or 5X dilution:

Compound	Lab Limit (mg/kg)	SRL (mg/kg)	Affected Samples
Bis(2-Chloroethyl) Ether	1.7 (5X) 0.33 (1X)	0.23	ALL
n-Nitrosodi-n-propylamine	1.7 (5X) 0.33 (1X)	0.078	ALL
n-Nitrosodimethylamine	1.7 (5X) 0.33 (1X)	0.011	ALL
Benzo(a)pyrene	0.16 (5X)	0.069	SS-BSL-01 SS-BSL-02 SS-BSL-05 SS-BSL-07 SS-BSL-08
Dibenz(ah)anthracene	0.16 (5X)	0.069	
3,3'-Dichlorobenzidine	1.7 (5X)	1.2	
Hexachlorobenzene	1.7 (5X)	0.34	

The data validation did not result in additional flagging of the shallow soil sample analytical results. The data, as qualified, are useable for their intended purpose of risk evaluation.

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5.0 REFERENCES

Arizona Department of Environmental Quality (ADEQ). 1996a, A Screening Method to Determine Soil Concentrations Protective of Groundwater Quality. September, 1996. Minimum GPLs were revised in 2008 using 2007 chemical properties.

Arizona Department of Environmental Quality (ADEQ), 1996b, Locational Data Policy. Issue Date February 3, 1995; amended November 13, 1996.

Arizona Department of Environmental Quality (ADEQ), 2007, Title 18 Environmental Quality, Chapter 7 Department of Environmental Quality Remedial Action, Supp. 09-1, Issue Date March 29, 1996; amended 13 A.A.R. 971 effective. May 5, 2007.
http://www.azsos.gov/public_services/title_18/18-07.htm

Clear Creek Associates (Clear Creek), 2013, Remedial Investigation Work Plan, Broadway-Pantano WQARF Site Landfill Operable Unit, Tucson, Arizona, Prepared for Arizona Department of Environmental Quality, February 1, 2013.

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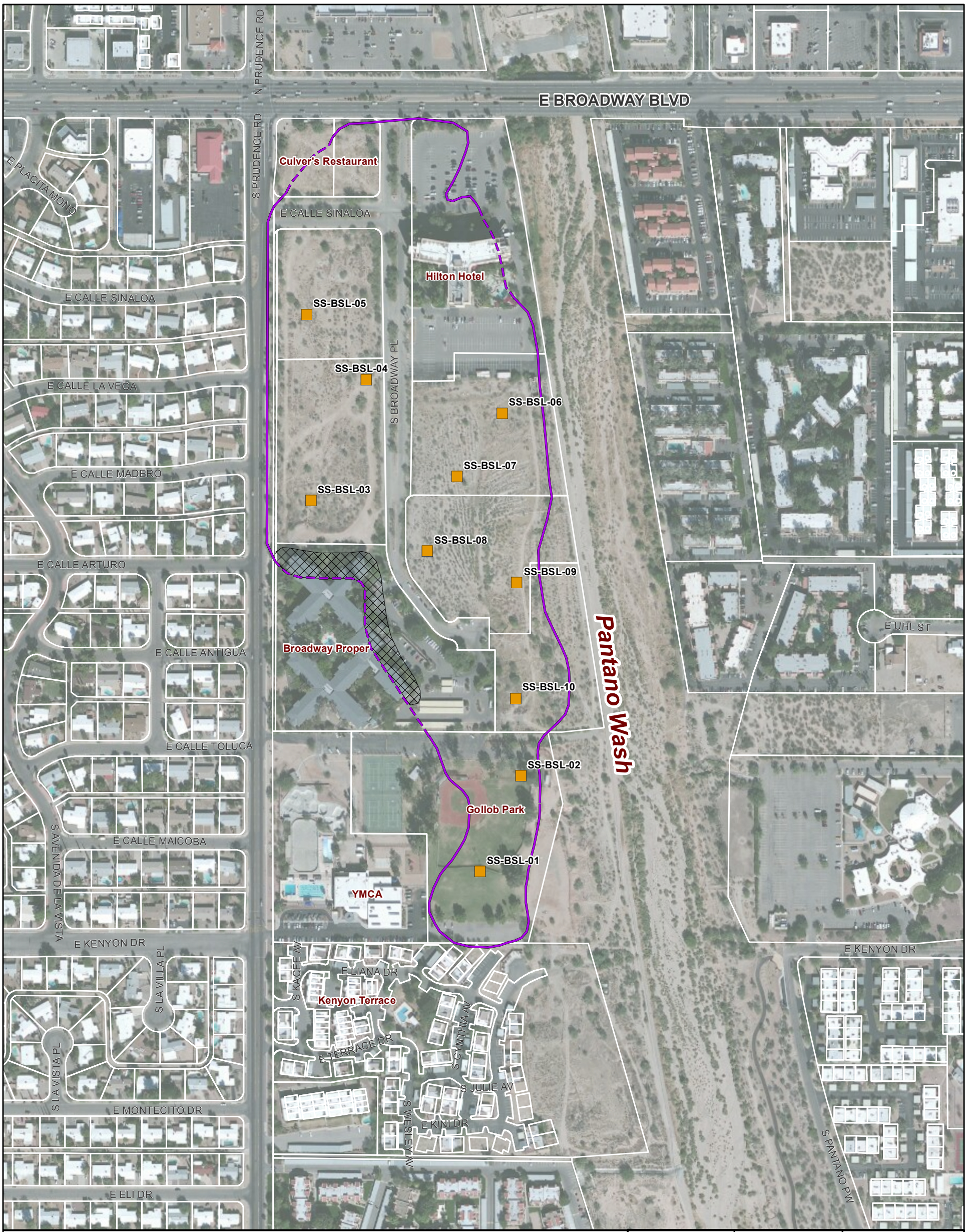
FIGURE



Legend

- Shallow Soil Sample Location*
- Extent of Refuse**
- Estimated Extent of Refuse Removed***
- Parcel Boundary

0 300 600 Feet

1 inch:300 feet

Notes:
**Shallow soil samples collected in March 2013.*

***Refuse was reported to have been removed at Hilton, Culver's, and Broadway Proper prior to construction of the buildings. The areas of removal were not documented. The "Extent of Refuse" boundary is dashed in areas where removal may have occurred.*

****Estimated extent of refuse removed during construction operations at Broadway Proper (Brinsko, 1989).*

Map Projection: NAD 1983 UTM Zone 12N

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

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Revision: A

CLEAR CREEK ASSOCIATES

Figure G1
Shallow Soil Sampling Locations
Broadway South Landfill

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TABLES

Table G1
Shallow Soil Analytical Results
Broadway South Landfill 2013

Sample ID[1]					SS-BSL-01		SS-BSL-02		SS-BSL-03		SS-BSL-04		SS-BSL-05		SS-BSL-06		SS-BSL-07		SS-BSL-08		SS-BSL-09		SS-BSL-10		Max Results (mg/kg)	Max Result Location	Soil Remediation Levels[2]				Minimum GPL[3] (mg/kg)
Latitude (Degrees)					32°12'51.63"N		32°12'54.59"N		32°13'3.11"N		32°13'6.81"N		32°13'8.82"N		32°13'5.79"N		32°13'3.85"N		32°13'1.54"N		32°13'0.56"N		32°12'56.99"N				Residential SRL (mg/kg)				
Longitude (Degrees)					110°49'48.53"W		110°49'47.08"W		110°49'54.70"W		110°49'52.63"W		110°49'54.80"W		110°49'47.74"W		110°49'49.35"W		110°49'50.46"W		110°49'47.18"W		110°49'47.22"W				Carcinogen		Non-Carcinogen (mg/kg)	Non-Residential SRL (mg/kg)	
Collect Date					3/4/2013		3/4/2013		3/4/2013		3/4/2013		3/4/2013		3/4/2013		3/4/2013		3/4/2013		3/4/2013		3/4/2013				10^{-6} Risk (mg/kg)	10^{-5} Risk (mg/kg)			
Method		CAS No.	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual							
RCRA Metals	7471	7439-97-6	Mercury	mg/kg	0.11		0.13		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		0.13	SS-BSL-02					
	6010B	7440-38-2	Arsenic	mg/kg	1.1		<1.0		<1.0		1.5		<1.0		2		1.4		1.7		<1.0		1.4		2	SS-BSL-06	10	10	10	10	290
	6010B	7440-39-3	Barium	mg/kg	80		85		44		50		33		52		84		74		41		37		85	SS-BSL-02			15,000	170,000	1,200
	6010B	7440-43-9	Cadmium	mg/kg	0.37		<0.25		<0.25		<0.25		<0.25		<0.25		<0.25		<0.25		<0.25		<0.25		0.37	SS-BSL-01			39	510	29
	6010B	7440-47-3	Chromium	mg/kg	11		11		3.7		4.6		3.4		2.5		4		3.6		3.5		3.4		11	SS-BSL-02	30**	NA**		65**	590
	6010B	7439-92-1	Lead	mg/kg	15		12		7.5		8.5		6.6		6.2		4.6		6.5		4.9		4.6		15	SS-BSL-01			400	800	290
	6010B	7782-49-2	Selenium	mg/kg	<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		ND				390	5,100	290
	6010B	7440-22-4	Silver	mg/kg	1.1		1		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50		1.1	SS-BSL-01			390	5,100	
Pesticides	8081/8082	309-00-2	Aldrin	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		0.032	0.32		1.0	
	8081/8082	319-84-6	Alpha BHC	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		0.1	1.0		3.6	
	8081/8082	319-85-7	Beta BHC	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		0.36	3.6		13	
	8081/8082	319-86-8	Delta BHC	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND						
	8081/8082	58-89-9	Gamma BHC	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		0.5	5		17	0.088
	8081/8082	5103-71-2	alpha-Chlordane	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		1.9****	19****		65****	
	8081/8082	5103-74-2	gamma-Chlordane	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		1.9****	19****		65****	
	8081/8082	72-54-8	4,4-DDD	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		2.8	28		100	
	8081/8082	72-55-9	4,4-DDE	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		2	20		70	
	8081/8082	50-29-3	4,4-DDT	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		2	20		70	
	8081/8082	60-57-1	Dieldrin	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		0.034	0.34		1.1	
	8081/8082	959-98-8	Endosulfan I	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND				370	3700	
	8081/8082	33213-65-9	Endosulfan II	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND				370	3700	
	8081/8082	1031-07-8	Endosulfan sulfate	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND						
	8081/8082	72-20-8	Endrin	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND				18	180	45
	8081/8082	7421-93-4	Endrin aldehyde	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND						
	8081/8082	53494-70-5	Endrin ketone	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND						
	8081/8082	76-44-8	Heptachlor	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		0.12	1.2		3.8	
	8081/8082	1024-57-3	Heptachlor epoxide	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		0.06	0.6		1.9	
	8081/8082	118-74-1	Hexachlorobenzene	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND		0.34	3.4		11	
	8081/8082	72-43-5	Methoxychlor	mg/kg	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		ND				310	3,100	
	8081/8082	8001-35-2	Toxaphene	mg/kg	<0.40		<0.40		<0.40		<0.40		<0.40		<0.40		<0.40		<0.40		<0.40		<0.40		ND		0.5	5		16	
PCBs	8081/8082	12674-11-2	PCB 1016	mg/kg	<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		ND				3.9	37	
	8081/8082	11104-28-2	PCB 1221	mg/kg	<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		ND						
	8081/8082	11141-16-5	PCB 1232	mg/kg	<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		ND						
	8081/8082	53469-21-9	PCB 1242	mg/kg	<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		ND						
	8081/8082	12672-29-6	PCB 1248	mg/kg	<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		ND						
	8081/8082	11097-69-1	PCB 1254	mg/kg	<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		ND		0.25	2.5	1.1	7.4	
	8081/8082	11096-82-5	PCB 1260	mg/kg	<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		<0.017		ND						
SVOCs	8270C	83-32-9	Acenaphthene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND				3,700	29,000	
	8270C	208-96-8	Acenaphthylene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND						
	8270C	120-12-7	Anthracene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND				22,000	240,000	
	8270C	56-55-3	Benzo(a)anthracene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND		0.69	6.9		21	
	8270C	205-99-2	Benzo(b)fluoranthene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND		0.69	6.9		21	
	8270C	207-08-9	Benzo(k)fluoranthene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND		6.9	69		210	
	8270C	191-24-2	Benzo(g,h,i)perylene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND						
	8270C	50-32-8	Benzo(a)pyrene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND_4		0.069	0.69		2.1	
	8270C	111-91-1	Bis(2-chlorethoxy)methane	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND						
	8270C	111-44-4	Bis(2-chloroethyl)ether	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND_4		0.23	2.3		5.8	
	8270C	101-55-3	4-Bromophenyl-phenylether	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND						
	8270C	91-58-7	2-Chloronaphthalene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND				110	110	
	8270C	7005-72-3	4-Chlorophenyl-phenylether	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND						
	8270C	218-01-9	Chrysene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND		68	680		2,000	
	8270C	53-70-3	Dibenz(a,h)anthracene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND_4		0.069	0.69		2.1	
	8270C	91-94-1	3,3-Dichlorobenzidine	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND_4		1.2	12		38	
	8270C	121-14-2	2,4-Dinitrotoluene	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				120	1,200	
	8270C	606-20-2	2,6-Dinitrotoluene	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				61	620	
	8270C	206-44-0	Fluoranthene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND				2,300	22,000	
	8270C	86-73-7	Fluorene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND				2,700	26,000	
	8270C	118-74-1	Hexachlorobenzene	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND_4		0.34	3.4		11	
	8270C	87-68-3	Hexachloro-1,3-butadiene	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND		7	70	18	180	

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Table G1
Shallow Soil Analytical Results
Broadway South Landfill 2013

Sample ID[1]					SS-BSL-01		SS-BSL-02		SS-BSL-03		SS-BSL-04		SS-BSL-05		SS-BSL-06		SS-BSL-07		SS-BSL-08		SS-BSL-09		SS-BSL-10		Max Results (mg/kg)	Max Result Location	Soil Remediation Levels[2]				Minimum GPL[3] (mg/kg)
Latitude (Degrees)					32°12'51.63"N		32°12'54.59"N		32°13'3.11"N		32°13'6.81"N		32°13'8.82"N		32°13'5.79"N		32°13'3.85"N		32°13'1.54"N		32°13'0.56"N		32°12'56.99"N				Residential SRL (mg/kg)				
Longitude (Degrees)					110°49'48.53"W		110°49'47.08"W		110°49'54.70"W		110°49'52.63"W		110°49'54.80"W		110°49'47.74"W		110°49'49.35"W		110°49'50.46"W		110°49'47.18"W		110°49'47.22"W				Carcinogen		Non-Carcinogen (mg/kg)	Non-Residential SRL (mg/kg)	
Collect Date					3/4/2013		3/4/2013		3/4/2013		3/4/2013		3/4/2013		3/4/2013		3/4/2013		3/4/2013		3/4/2013		3/4/2013				10^{-6} Risk (mg/kg)	10^{-5} Risk (mg/kg)			
Method		CAS No.	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual							
SVOCs	8270C	77-47-4	Hexachlorocyclopentadiene	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33	UJ-	ND				370	3,700	
	8270C	67-72-1	Hexachloroethane	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND		39	390	61	620	
	8270C	193-39-5	Indeno(1,2,3-cd)pyrene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND		0.69	6.9		21	
	8270C	78-59-1	Isophorone	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND		580	5,800		18,000	
	8270C	91-20-3	Naphthalene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND				56	190	
	8270C	98-95-3	Nitrobenzene	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				20	100	
	8270C	62-75-9	n-Nitrosodimethylamine	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND_5		0.011	0.11		0.34	
	8270C	86-30-6	n-Nitrosodiphenylamine	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND		110	1,100		3,500	
	8270C	621-64-7	n-Nitrosodi-n-propylamine	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND_6		0.078	0.78		2.5	
	8270C	85-01-8	Phenanthrene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND						
	8270C	85-68-7	Benzylbutyl phthalate	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				12,000	120,000	
	8270C	117-81-7	Bis(2-ethylhexyl)phthalate	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND		39	390		1,200	
	8270C	84-74-2	Di-n-butyl phthalate	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				6,100	62,000	
	8270C	84-66-2	Diethyl phthalate	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				49,000	490,000	
	8270C	131-11-3	Dimethyl phthalate	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				610,000	1,000,000	
	8270C	117-84-0	Di-n-octyl phthalate	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				2,400	25,000	
	8270C	129-00-0	Pyrene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND				2,300	29,000	
	8270C	120-82-1	1,2,4-Trichlorobenzene	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				62	220	
	8270C	59-50-7	4-Chloro-3-methylphenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND						
	8270C	95-57-8	2-Chlorophenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				63	240	
	8270C	120-83-2	2,4-Dichlorophenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				180	1,800	
	8270C	105-67-9	2,4-Dimethylphenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				1,200	12,000	
	8270C	534-52-1	4,6-Dinitro-2-methylphenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND						
	8270C	51-28-5	2,4-Dinitrophenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				120	1,200	
	8270C	88-75-5	2-Nitrophenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND						
	8270C	100-02-7	4-Nitrophenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND						
	8270C	87-86-5	Pentachlorophenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND		3.2	32		90	
	8270C	108-95-2	Phenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				18,000	180,000	
	8270C	88-06-2	2,4,6-Trichlorophenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				6.1	62	
	8270C	88-06-3	1,2-Dichlorobenzene	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				6.1	62	
	8270C	88-06-4	1,3-Dichlorobenzene	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				6.1	62	
	8270C	88-06-5	1,4-Dichlorobenzene	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				6.1	62	
	8270C	88-06-6	2,4,5-Trichlorophenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				6.1	62	
	8270C	88-06-7	2-Methylnaphthalene	mg/kg	<0.16		<0.16		<0.033		<0.033		<0.16		<0.033		<0.16		<0.16		<0.033		<0.033		ND				6.1	62	
	8270C	88-06-8	2-Methylphenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				6.1	62	
	8270C	88-06-9	2-Nitroaniline	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				6.1	62	
	8270C	88-06-10	3-Nitroaniline	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				6.1	62	
	8270C	106-47-8	4-Chloroaniline	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				240	2,500	
	8270C	108-39-4	3-Methyl Phenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				3,100	31,000	
	8270C	106-44-5	4-Methyl Phenol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				310	3,100	
	8270C	100-01-6	4-Nitroaniline	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND		26	260	180	820	
	8270C	62-53-3	Aniline	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND		96	960	430	3,000	
	8270C	65-85-0	Benzoic acid	mg/kg	<1.6		<1.6		<0.33		<0.33		<1.6		<0.33		<1.6		<1.6		<0.33		<0.33		ND				240,000	1,000,000***	
	8270C	100-51-6	Benzyl alcohol	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				18,000	180,000	
	8270C	132-64-9	Dibenzofuran	mg/kg	<1.7		<1.7		<0.33		<0.33		<1.7		<0.33		<1.7		<1.7		<0.33		<0.33		ND				140*	140*	

Notes:

mg/kg	milligrams per kilogram
NA	Not applicable
ND	Analyte not detected above reporting limit
SRL	Soil Remediation Level
GPL	Groundwater Protection Level
Qual	Qualifier
<	Less than laboratory reporting limit
(-)	Indicates a low bias
(+)	Indicates a high bias

Shaded cell indicates detection

Notes continued:

1 Sample ID (SS-BSL-02) = soil sample ID (SS-BSL-02). The depth of the soil sample is NOT included in the sample ID. All the soil samples in this table had a sample depth of three to six inches below land surface.
2 Soil Remediation Levels, Arizona Administrative Code Title 18, Article 2, Effective as May 5, 2007- http://www.azsos.gov/public_services/title_18/18-07.htm.
3 Groundwater Protection Levels, Arizona Department of Environmental Quality, A Screening Method to Determine Soil Concentrations Protective of Groundwater Quality, September 1996, VOCs revised 2008.
2 The reporting limit for one or more samples is higher than the most stringent SRL.
3 The reporting limit for one or more samples is higher than the Resdiential SRL 10^{-6} and 10^{-5} Carcinogen Risk and the Non-Residential SRL.
4 The reporting limit for one or more samples is higher than the Resdiential SRL 10^{-6} and 10^{-5} Carcinogen Risk.
* Indicates SRL is based on the chemical-specific saturation level in soil for volatile organic chemicals only.
** Based on SRL for Chromium VI, CAS no. 18540-29-9.
*** Indicates SRL is based on a 100% saturation ceiling limit for non-volatile organic chemicals.
**** SRLs based on Chlordane, CAS no. 12789-03-6.

Qualifiers:

J Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
U Undetected: The analyte was analyzed for, but not detected.
UJ The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

Location ID	Photo	UTM 12N[1]		Degrees[1]	
		Easting	Northing	Lat	Long
SS-BSL-01		516006.02 m E	3564207.18 m N	32° 12' 51.6378"	-110° 49' 48.5322"
SS-BSL-02		516045.81 m E	3564298.81 m N	32° 12' 54.612"	-110° 49' 47.0058"

Location ID	Photo	UTM 12N[1]		Degrees[1]	
		Easting	Northing	Lat	Long
SS-BSL-03		515845.42 m E	3564560.73 m N	32° 13' 3.1296"	-110° 49' 54.645"
SS-BSL-04		515898.78 m E	3564675.65 m N	32° 13' 6.8592"	-110° 49' 52.6002"

Location ID	Photo	UTM 12N[1]		Degrees[1]	
		Easting	Northing	Lat	Long
SS-BSL-05		515841.00 m E	3564737.00 m N	32° 13' 8.871"	-110° 49' 54.7746"
SS-BSL-06		516027.93 m E	3564643.15 m N	32° 13' 5.7972"	-110° 49' 47.6688"

Location ID	Photo	UTM 12N[1]		Degrees[1]	
		Easting	Northing	Lat	Long
SS-BSL-07		515984.58 m E	3564583.12 m N	32° 13' 3.8496"	-110° 49' 49.3284"
SS-BSL-08		515956.66 m E	3564512.89 m N	32° 13' 1.5708"	-110° 49' 50.4012"

Location ID	Photo	UTM 12N[1]		Degrees[1]	
		Easting	Northing	Lat	Long
SS-BSL-09		516041.66 m E	3564482.45 m N	32° 13' 0.5772"	-110° 49' 47.1534"
SS-BSL-10		516040.61 m E	3564372.37 m N	32° 12' 57.0024"	-110° 49' 47.2008"

Notes

1 = Coordinates surveyed by Clear Creek according to ADEQ Locational Guidance Policy (ADEQ, 1996b).