PHASE II ENVIRONMENTAL ASSESSMENT

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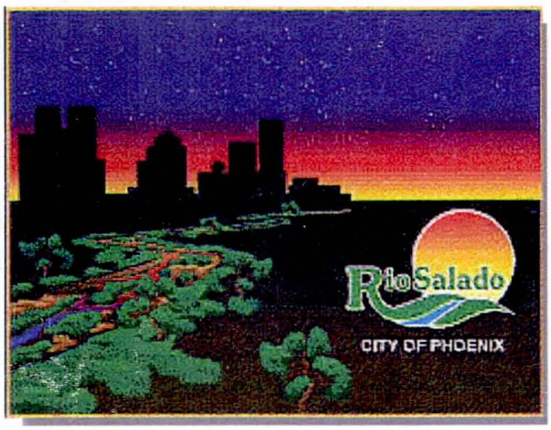

Rio Salado Project Area

Phoenix, Arizona

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TABLE OF CONTENTS

SECTION 1 INTRODUCTION **1-1**

OVERVIEW 1-1
SCOPE OF WORK 1-2
REPORT ORGANIZATION 1-3
LIMITATIONS 1-3

SITE MAP

SECTION 2 GEOPHYSICAL EXPLORATION **2-1**

OVERVIEW 2-1
METHODOLOGY 2-1
RESULTS 2-2
Area 2 - McDonald and Wilhelm 2-2
Area 3 - United Metro 2-2
Area 4 - City of Phoenix 2-2
Area 6 - United Metro 2-2
Area 8 - Calmat 2-3
Area 9 - West of Del Rio Landfill 2-3
Area 13 - McIntyre 2-3

GEOPHYSICAL SURVEY LINE LOCATION MAP

SECTION 3 EXPLORATORY TRENCHING **3-1**

OVERVIEW 3-1
METHODOLOGY 3-1
Trenching 3-1
Soil Sampling 3-2
Asbestos Sampling 3-3
RESULTS 3-3
Area 2 - McDonald and Wilhelm 3-3
Area 3 - United Metro 3-4
Area 4 - City of Phoenix 3-4
Area 5 - United Metro 3-5
Area 6 - United Metro 3-5
Area 7 - Calmat 3-6
Area 8 - Calmat 3-7
Area 9 - West of Del Rio Landfill 3-7
Area 13 - McIntyre 3-7

TABLE OF CONTENTS (continued)

EXPLORATORY TRENCH LOCATION MAPS
EXPLORATORY TRENCH SUMMARY TABLES
SUBSURFACE SOIL SAMPLE SUMMARY TABLE
LABORATORY REPORTS - SUBSURFACE AND ASBESTOS SAMPLES

SECTION 4 GRADE CONTROL SOIL BORINGS 4-1

OVERVIEW 4-1
METHODOLOGY 4-1
RESULTS 4-2

GRADE CONTROL STRUCTURE SOIL BORING LOCATION MAP
GRADE CONTROL STRUCTURE SOIL BORING LOGS

SECTION 5 GUIDE DIKE TRENCHING 5-1

OVERVIEW 5-1
METHODOLOGY 5-1
RESULTS 5-2

GUIDE DIKE AND ADDITIONAL TRENCH LOCATION MAPS
SUMMARY TABLES - GUIDE DIKES AND ADDITIONAL TRENCHES

SECTION 6 SOIL VAPOR SURVEY 6-1

OVERVIEW 6-1
METHODOLOGY 6-1
RESULTS 6-2
Area 2 - McDonald and Wilhelm 6-2
Area 4 - City of Phoenix 6-2
Area 5 - United Metro 6-2

SOIL VAPOR SURVEY SAMPLE LOCATION MAP
SOIL VAPOR SUMMARY TABLE
LABORATORY REPORT - SOIL VAPOR SURVEY

SECTION 7 SURFACE SOIL SAMPLING 7-1

OVERVIEW 7-1
METHODOLOGY 7-1
Area 6 - United Metro 7-1
Area 13 - McIntyre 7-2

TABLE OF CONTENTS (continued)

RESULTS 7-3
Area 6 - United Metro 7-3
Area 13 - McIntyre 7-4

SURFACE SOIL SAMPLE LOCATION MAPS
SURFACE SOIL SUMMARY TABLES
LABORATORY REPORTS - SURFACE SOIL SAMPLES

SECTION 1
INTRODUCTION

OVERVIEW

SCS Engineers was retained by the City of Phoenix to perform Phase II investigation of land within the proposed acquisition area for the Rio Salado Project Area (RSPA). The RSPA extends from 19th Avenue on the west to the Interstate 10 bridge on the east, and consists of the river channel, banks, and land generally extending at least 50 feet beyond the top of the river bank. This investigation was performed to address issues of environmental concern that were identified within the RSPA by the Phase I Environmental Site Assessment dated February 19, 1999.

Issues addressed by this scope of work include the following:

- Characterization of the nature and approximate extent of buried materials, which were suspected at several locations along the top of the river banks, and in at least one location in the river channel;

- Evaluation of the potential presence of landfill gas which may be generated by buried wastes; and

- Characterization of the nature of stained soils and soil piles.

The Phase II investigation was primarily based on findings of the Phase I investigation, but in many cases, the findings of each task within the Phase II investigation were used as a basis for subsequent Phase II tasks.

SCOPE OF WORK

This Phase II investigation consisted of the following tasks:

- Geophysical surveys, consisting of acquisition, processing, and analysis of IP/Resistivity data to identify the potential presence and extent of buried waste.

- Exploratory trenching, consisting of the excavation and visual inspection of trenches to confirm the presence and nature of waste, thickness of soil cover, and depth of waste if possible. In one area, subsurface soil samples were collected and analyzed to evaluate the potential presence of contaminants associated with surface or subsurface waste material.

- Soil vapor surveys, consisting of the collection and analysis of subsurface soil vapor samples to evaluate the potential presence of methane and volatile organic compounds.

- Guide dike trenching, consisting of the excavation and visual inspection of trenches at selected proposed guide dike locations to evaluate the potential presence of waste at locations that may be excavated for construction of guide dikes.

- Grade control structure soil borings, consisting of the drilling and visual inspection of soil borings where a grade control structure will intersect the river bank, to evaluate the potential presence of waste at locations that may be excavated for construction of grade control structures.

- Surface soil sampling, consisting of the collection and laboratory analysis of surface soil samples in selected areas to evaluate the nature of apparent stained or discolored soils observed at the ground surface.

REPORT ORGANIZATION

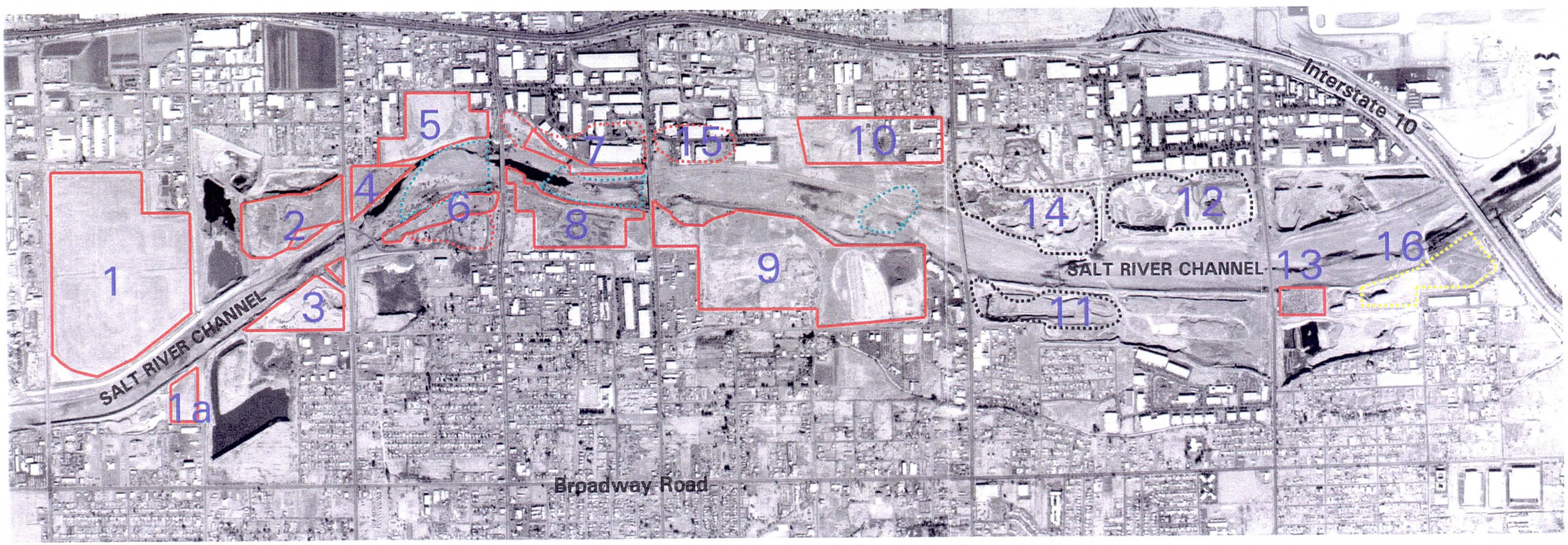
This report is organized in separate sections addressing each of the above tasks. Results are discussed in each section, with subsections addressing results for each ownership parcel/area of interest. The areas of interest are identified as Areas 1 through 15, as shown on the figures at the end of each report section.

LIMITATIONS

This report has been specifically prepared for use and reliance by the City of Phoenix with application to the evaluation of the potential presence of waste within the acquisition area of the subject site. The report has been prepared in accordance with the care and skill generally exercised by reputable professionals, under similar circumstances, in this or similar localities. No other warranty, either expressed or implied, is made as to the opinions presented herein. Third parties use this report at their own risk. SCS assumes no responsibility for the accuracy of information obtained, compiled, or provided by others.

Sampling and laboratory analysis was limited to the media and compounds specified in the report. Sampling of other types of hazardous materials or other types of potential pollutants was not performed as part of this investigation. Additionally, because regulatory criteria are constantly changing, contaminant concentrations presently considered permissible may become subject to future regulatory standards that require remedial action.

SITE MAP



Landfill or unknown fill area

Landfill or unknown fill area, extent or presence uncertain

Known inert material

Former fill area removed by excavation

Proposed exploratory excavation area within river channel

N

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SITE MAP

SECTION 2
GEOPHYSICAL EXPLORATION

OVERVIEW

Geophysical surveys were performed at several locations to evaluate the potential presence of significant buried waste deposits. In some cases, the lateral extent of buried materials was also estimated. The primary objective of the surveys was to evaluate potential areas of concern that were previously identified by historical research, and to identify specific geophysical anomalies that would provide "targets" for exploratory trenching.

The surveys consisted of the acquisition and processing of high-density induced polarization (IP) and electrical resistivity data to obtain geophysical profiles of areas which may contain buried materials, particularly miscellaneous solid waste (MSW). This survey method can detect subsurface mineralization, metal, some contaminated fluids, decomposing waste, and manmade features such as buried pipelines. A detailed description of methodology and results will be provided by the geophysical subcontractor, ZONGE Engineering and Research Organization, Inc. (Zonge) when complete.

METHODOLOGY

Between June 9 and September 17, 1999, Zonge acquired high-density induced polarization (IP) and electrical resistivity data at several locations within the Rio Salado Project Area. Field work was performed on June 9-12, June 18 and 19, October 20-25, and September 8-17. Data were acquired on eight different areas, consisting of a total of 24 lines.

Geophysical survey lines were placed in areas which were judged to be possible locations of buried waste materials. These suspect areas were identified primarily by review of historical aerial photographs, verbal and written reports, and surface observations. Line locations are shown on the attached figure.

Due to the presence of soil and concrete debris piles on the City of Phoenix parcel (Area 4), a bulldozer was used to grade several traverses across the parcel to allow access for the geophysical equipment.

RESULTS

Area 2 - McDonald and Wilhelm

Five geophysical lines were run across this parcel. Anomalies indicative of buried waste were identified on all of the geophysical lines. Selected locations on and between lines were further evaluated by exploratory trenching, and all trenches contained waste or debris, including tires, concrete, glass, metal debris, vegetative debris, automobile batteries, vinyl floor tiles, wood, and household trash.

Area 3 - United Metro

Two geophysical lines (forming a single line with a slight bend in the approximate center) were run across this parcel. Weak, isolated anomalies possibly indicative of buried waste were identified in the approximate center of the geophysical traverse across this parcel. This location was evaluated by exploratory trench B34, which did not detect waste material or debris.

Area 4 - City of Phoenix

Four geophysical lines were run across this parcel. Moderately strong anomalies were identified near the northeastern end of the line closest to the top of the river bank. This area was evaluated by exploratory trench T11, which contained inert concrete debris as well as household trash, glass, and wood.

Area 6 - United Metro

Two geophysical lines (forming a single line with a slight bend in the approximate center) were run across this parcel. Moderate anomalies were identified in the northern one-third of the line.

The center of this anomalous area was evaluated by exploratory trench A14, which detected only concrete debris. However, trench A15, which was excavated at the southwestern end of the anomalous area, identified metal, tires, concrete, household trash, and glass.

Two joined lines were also run in the river channel north of Area 6. One small anomaly, thought to be indicative of the presence of a metallic feature such as a pipe deposited as flood debris, was identified on the north end of this traverse. However, excavation was not possible at this location due to the presence of boulders. A second similar anomaly on the southern end of the traverse proved to be a piece of buried sheet metal.

Area 8 - Calmat

Four geophysical lines were run across this parcel. Strong, well-defined anomalies potentially indicative of buried waste were identified at three locations on these lines. These locations were evaluated by trenches B12, B13, A16, and A17, which confirmed the presence of metal, tires, vegetative debris, concrete, automobile batteries, household trash, wood, and glass.

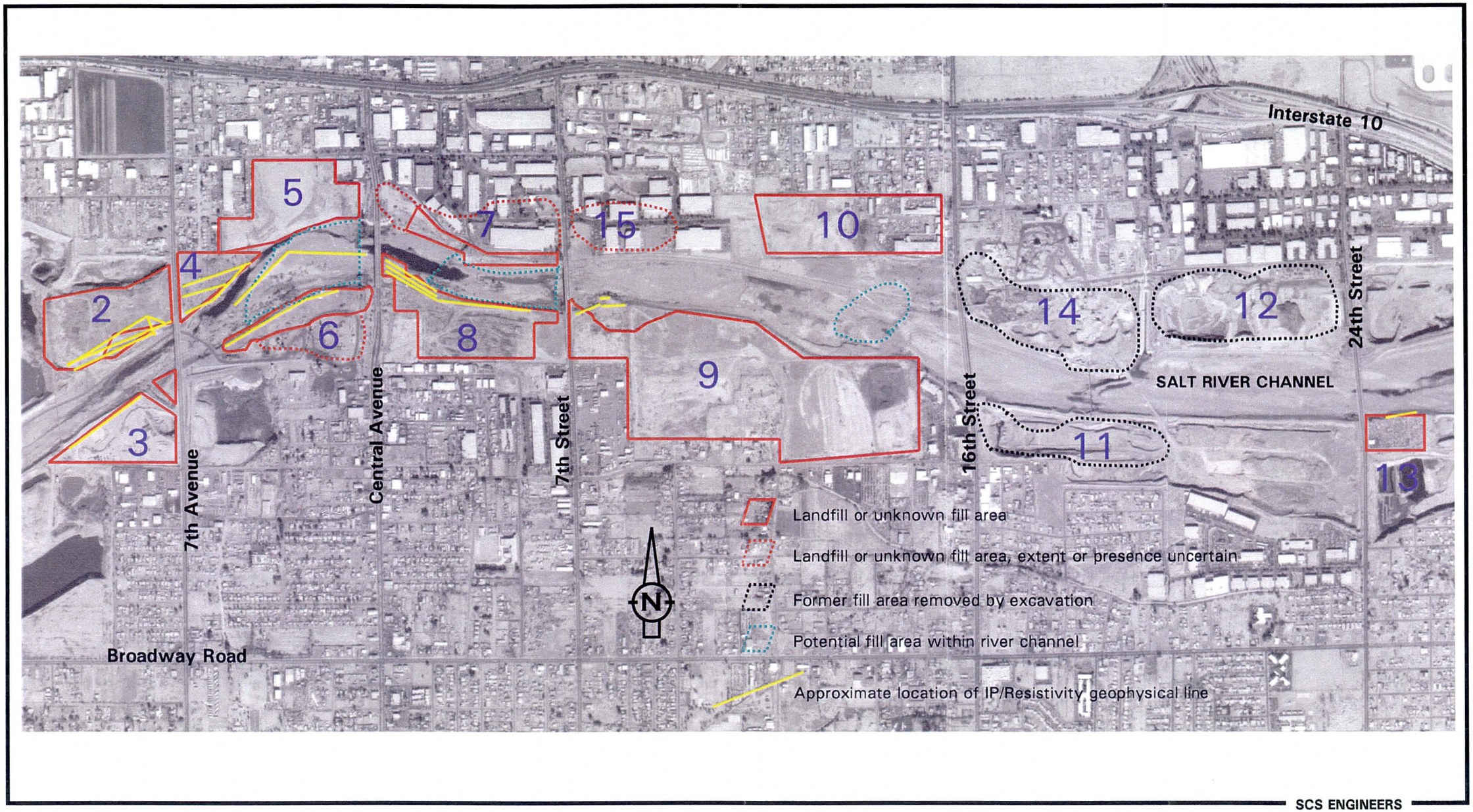
Area 9 - West of Del Rio Landfill

Two joined lines were run on the western portion of this parcel. Two anomalies identified by this traverse were confirmed as concrete and metallic debris by trenches A2 and A20.

Area 13 - McIntyre

One geophysical line was run across the top edge of the river bank at this parcel. An anomaly was identified on one portion of this line, although the presence of metallic debris at the surface and a nearby fence could have contributed to the anomalous response. Trenches at this location and throughout the site identified a variety of buried waste and debris on the parcel, including tires, concrete, glass, metal debris, automobile parts, vinyl floor tiles and construction debris containing asbestos, wood, and household trash.

GEOPHYSICAL SURVEY LINE LOCATION MAP



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GEOPHYSICAL LINE LOCATIONS

SECTION 3
EXPLORATORY TRENCHING

OVERVIEW

The primary objective of the shallow subsurface exploration was to evaluate the depth of soil cover over buried materials. The secondary objective was to visually characterize the nature of waste encountered. Where possible, the lateral and vertical extent of the waste was evaluated.

METHODOLOGY

Trenching

Exploratory trench locations are shown on the attached map. Trenches were excavated at the location of geophysical anomalies identified on by preliminary data from the geophysical surveys. In addition, trenches were excavated at locations judged likely to contain buried waste based on verbal reports, historical aerial photographs, existing reports, and surface observations. At the McIntyre site, some trenches were excavated at the location of surface soil samples that exhibited elevated concentrations of potential contaminants.

In some cases, trench locations were dependent on access and topographical restrictions. Because of the presence of large soil and concrete debris piles on the City of Phoenix parcel (Area 4), a bulldozer was used to grade several traverses across the parcel to allow access for the geophysical equipment and trenching equipment. At the McIntyre property (Area 13), trenches had to be located between rows of salvaged automobiles.

Dates of trenching field work were as follows:

- T1-18, October 8 and 13, 1999
- A1-12, October 29, 1999
- A13-20, November 2, 1999

- A21-31, November 4, 1999
- A32-39, November 5, 1999
- B1-7, October 21, 1999
- B7-15 and B22-24, October 22, 1999
- B16-21, November 1, 1999
- B30-36, November 3, 1999

A rubber-tired backhoe with a depth reach of approximately 14 feet was used to excavate trenches. Each trench was visually inspected to determine the depth and type of cover material over waste, the nature of waste materials, and where possible, the depth of the bottom of waste. These properties are recorded for each trench in the tables provided at the end of this section of this report. With the exception of the McIntyre site (Area 13), soil or waste samples were not collected for laboratory analysis as part of trenching activities. Soil sampling performed in conjunction with trenching at the McIntyre site is described below.

Soil Sampling

Six soil samples were collected during trenching on the McIntyre site (Area 13). On October 8 and October 13, 1999, SCS collected these soil samples from the bottom of trenches T1, T2, T5, T12, T13, and T18 to characterize the potential presence of contaminants beneath previous surface sample locations.

Soil was retrieved from the desired sample depth with the backhoe bucket. After removing the top several inches of soil from the backhoe bucket, samples were collected directly into brass sleeves and sealed with Teflon™ sheets, aluminum foil and a plastic cap. Upon sample collection, the sleeves were labeled with a unique identification code and immediately stored in an insulated cooler with ice until delivery to the analytical laboratory. The samples were delivered to the laboratory on the same day under chain of custody procedures.

Soil samples were delivered to Del Mar Analytical Laboratories (ADHS No. AZ0426) which is certified to perform the requested analysis. Normal turnaround time was requested. All samples

were analyzed for polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8310 and for total cadmium, chromium, and lead by EPA Method 6010B. Three of the samples were also analyzed for volatile organic compounds (VOCs) by EPA Method 8260B.

Asbestos Sampling

Suspect asbestos-containing building debris were observed in some trenches on the McIntyre site (Area 13). On October 13, 1999 SCS collected 4 asbestos samples from roofing tar paper and suspected cement-asbestos (transite) panels that were found in trenches T-12 and T-14 respectively. The samples were collected by removing a small portion of the suspect material and placing it into a plastic bag. Bags were labeled with a unique identification number and logged onto the chain-of-custody.

Samples were delivered to EMC Laboratories for analysis by polarized light microscopy (PLM). EMC is fully accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) to perform analysis of bulk samples for asbestos using PLM. Results are shown on the attached laboratory report.

RESULTS

Area 2 - McDonald and Wilhelm

A total of 14 exploratory trenches were excavated and observed on this parcel. Cover material consisted primarily of fine-grained soils, at thicknesses ranging from zero (concrete and asphalt debris exposed at the ground surface) to four feet. Waste was detected in all trenches, and included the following materials:

- tires
- concrete
- glass
- metal debris

- vegetative debris
- automobile batteries
- vinyl floor tiles
- wood and lumber
- household trash

In addition, an apparent "decay layer" consisting of apparent diffused organic material causing discolored soil was observed in some test pits.

Area 3 - United Metro

A total of 7 exploratory trenches were excavated and observed on this parcel. Cover material consisted primarily of coarse-grained soils, at thicknesses ranging from one to two feet. Waste was detected in three trenches, and included the following materials:

- concrete
- metal debris
- vegetative debris (only in trench B36, located in the river channel)

Area 4 - City of Phoenix

Prior to excavation of exploratory trenches, surface debris that was graded to provide access for geophysical equipment consisted primarily of soil, but some concrete and asphaltic pavement debris were also encountered.

A total of 11 exploratory trenches were excavated and observed on this parcel. Cover material consisted primarily of coarse-grained soils, although trenches further from the river bank contained more fine-grained cover. Cover thickness ranged from zero (concrete and asphalt debris exposed at the ground surface) to four feet. Waste was detected in all trenches, and included the following materials:

- concrete (in all trenches)
- glass
- metal debris
- vinyl floor tiles
- wood and lumber
- household trash

In addition, an apparent "decay layer" consisting of apparent diffused organic material causing discolored soil was observed in some test pits.

Area 5 - United Metro

A total of 2 exploratory trenches were excavated and observed on eastern end of this parcel. Cover material consisted of coarse-grained soils, at thicknesses of 2 and 3 feet. Waste was detected in both trenches, and included the following materials:

- glass
- metal debris
- vinyl floor tiles
- wood and lumber
- household trash
- floor tiles

In addition, an apparent "decay layer" consisting of apparent diffused organic material causing discolored soil was observed in some test pits.

Area 6 - United Metro

A total of 14 exploratory trenches were excavated and observed on this parcel. Cover material consisted of both coarse- and fine-grained soils, at thicknesses ranging from 0.5 to 4 feet. Waste

was detected in 10 of the trenches (although others contained only very minor amounts of inert concrete or brick), and included the following materials:

- glass
- metal debris
- concrete and brick
- tires
- household trash

In addition, an apparent "decay layer" consisting of apparent diffused organic material causing discolored soil was observed in one test pit.

Personnel at the United Metro Plant #1 stated that there were numerous tires buried along portions of the south bank in the vicinity of the investigation area. Tires were detected only in trenches B22-B24 (located on the river bank just west of Central Avenue) and A15 (located approximately half way between Central Avenue and 7th Avenue on top of the south river bank).

Area 7 - Calmat

A total of 6 exploratory trenches were excavated and observed on this parcel. Cover material consisted of both coarse- and fine-grained soils, at thicknesses ranging from 3 to 6 feet. Waste was detected in 3 of the trenches, and included the following materials:

- metal debris
- concrete and brick
- tires

Area 8 - Calmat

A total of 12 exploratory trenches were excavated and observed on this parcel. Cover material consisted predominantly of coarse-grained soils, at thicknesses ranging from 1 to 4 feet. Waste was detected in 11 of the trenches, and included the following materials:

- metal debris
- vegetative debris
- concrete and brick
- automobile batteries
- tires
- household trash
- floor tiles
- glass

In addition, an apparent "decay layer" consisting of apparent diffused organic material causing discolored soil was observed in two of the test pits.

Area 9 - West of Del Rio Landfill

A total of 2 exploratory trenches were excavated and observed on this parcel. Cover material consisted of coarse-grained soils, at thicknesses ranging from 1.5 and 2 feet. Waste was detected in both of the trenches, and included the following materials:

- metal debris
- concrete and brick

Area 13 - McIntyre

A total of 21 exploratory trenches were excavated and observed on this parcel. Cover material consisted of both fine- and coarse-grained soils, ranging in thickness from zero to 3 feet. Waste

was detected in all trenches located on top of the river bank, but the two trenches located on the side of the bank did not contain debris or waste. Waste materials included the following:

- metal debris
- concrete and brick
- tires and rubber hoses
- household trash
- floor tiles
- wood
- glass

Waste was present in all pits but T15, with the highest concentration of waste at east end of the site. The southernmost pit (T13) also contained a high density of debris. The vertical extent of waste appeared to be approximately 6 to 7 feet on western portion of the site, as defined by an underlying sand layer at least 3 feet thick, the top of which was observed at this depth. Excavation did not penetrate this layer, so older waste could be present beneath it. The vertical extent of waste was at least 10 feet on the eastern portion of the site.

The least amount of cover was present at the east end of the site, outside the fenced area. The greatest cover thickness was observed in the southernmost test pits.

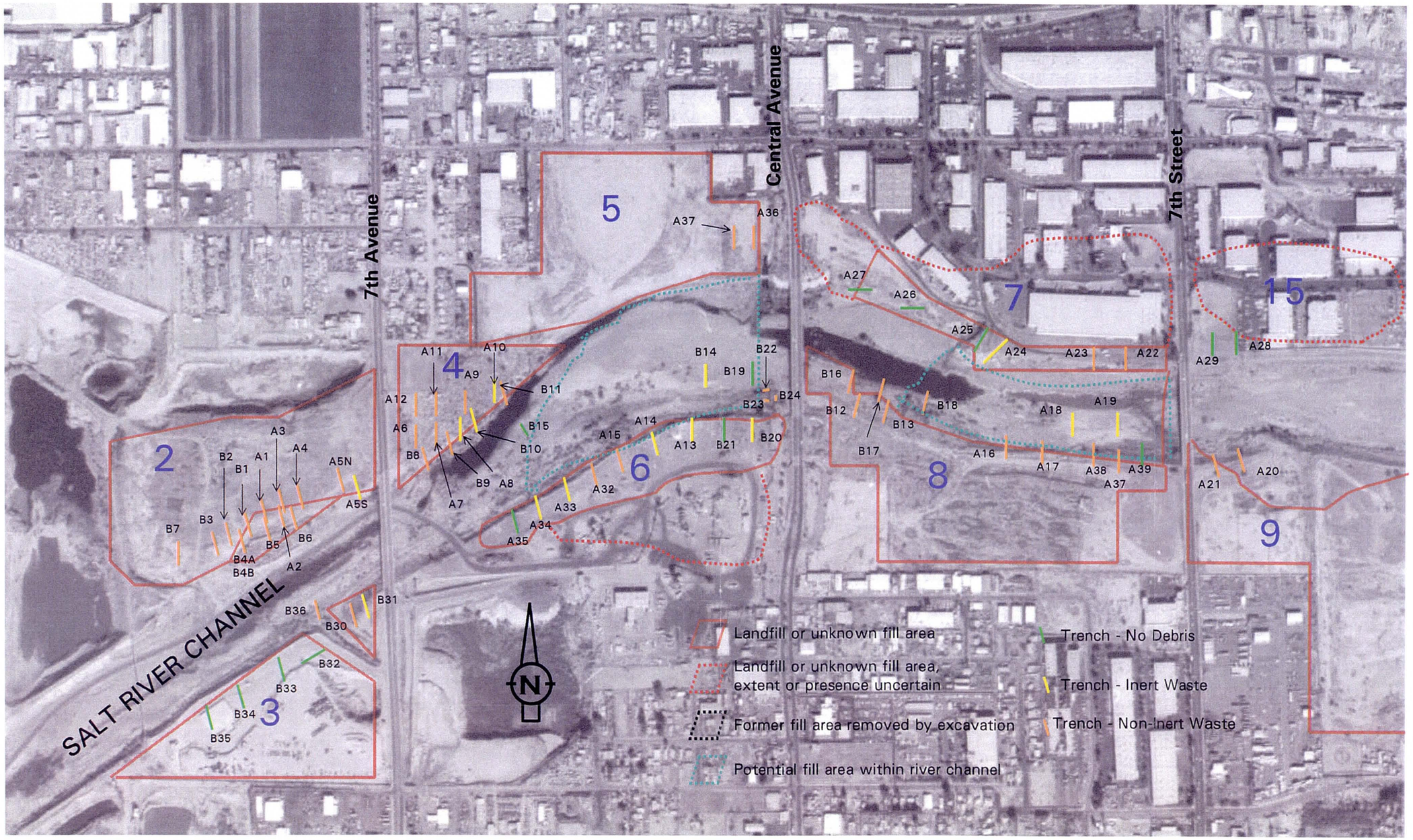
The greatest variety of materials (including most of the tires) was observed in the eastern end of the site. Glass was more prevalent in the western end of the site. Construction debris was present throughout. Ash and discolored soil was present from surface to about 2 feet in the central portion of the site, near the bank.

The six soil samples collected from trenches T1, T2, T5, T12, T13, and T18 contained detectable concentrations of cadmium, chromium, and lead. Concentrations ranged from 1.4 - 4.2 mg/kg cadmium, 11 - 29 mg/kg chromium, and 2.5 - 130 mg/kg lead. These concentrations do not exceed residential or non-residential Soil Remediation Levels (SRLs). The six samples did not contain detectable concentrations of PAHs. The three samples from trenches T12, T13, and T18

that were also analyzed for volatile organic compounds by EPA Method 8260 did not detect VOCs.

The roofing tar paper samples contained 50% Chrysotile asbestos, and the transite panels contained 15% Chrysotile asbestos.

EXPLORATORY TRENCH LOCATION MAPS



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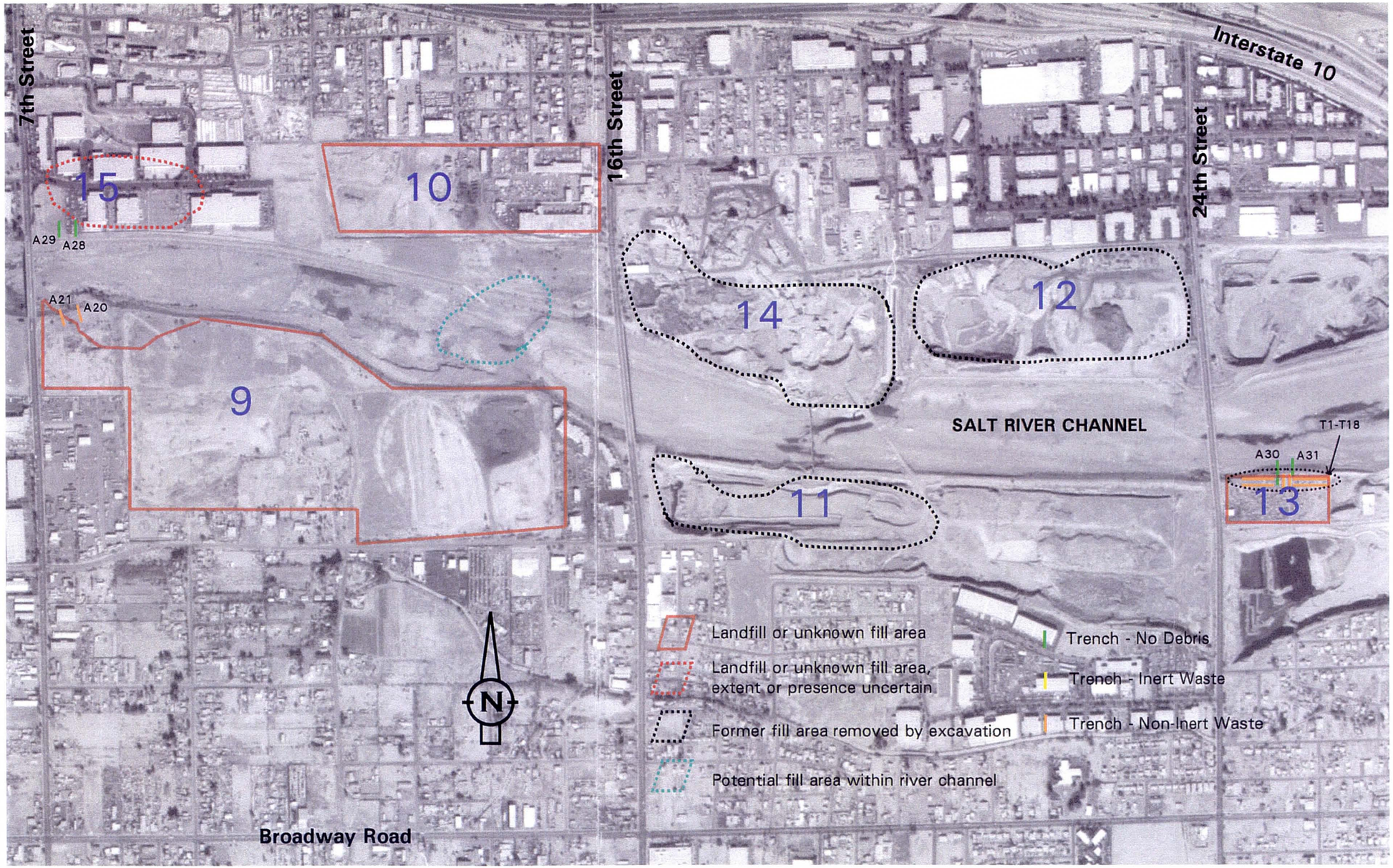
EXPLORATORY TRENCHING LOCATIONS

WESTERN PORTION OF STUDY AREA



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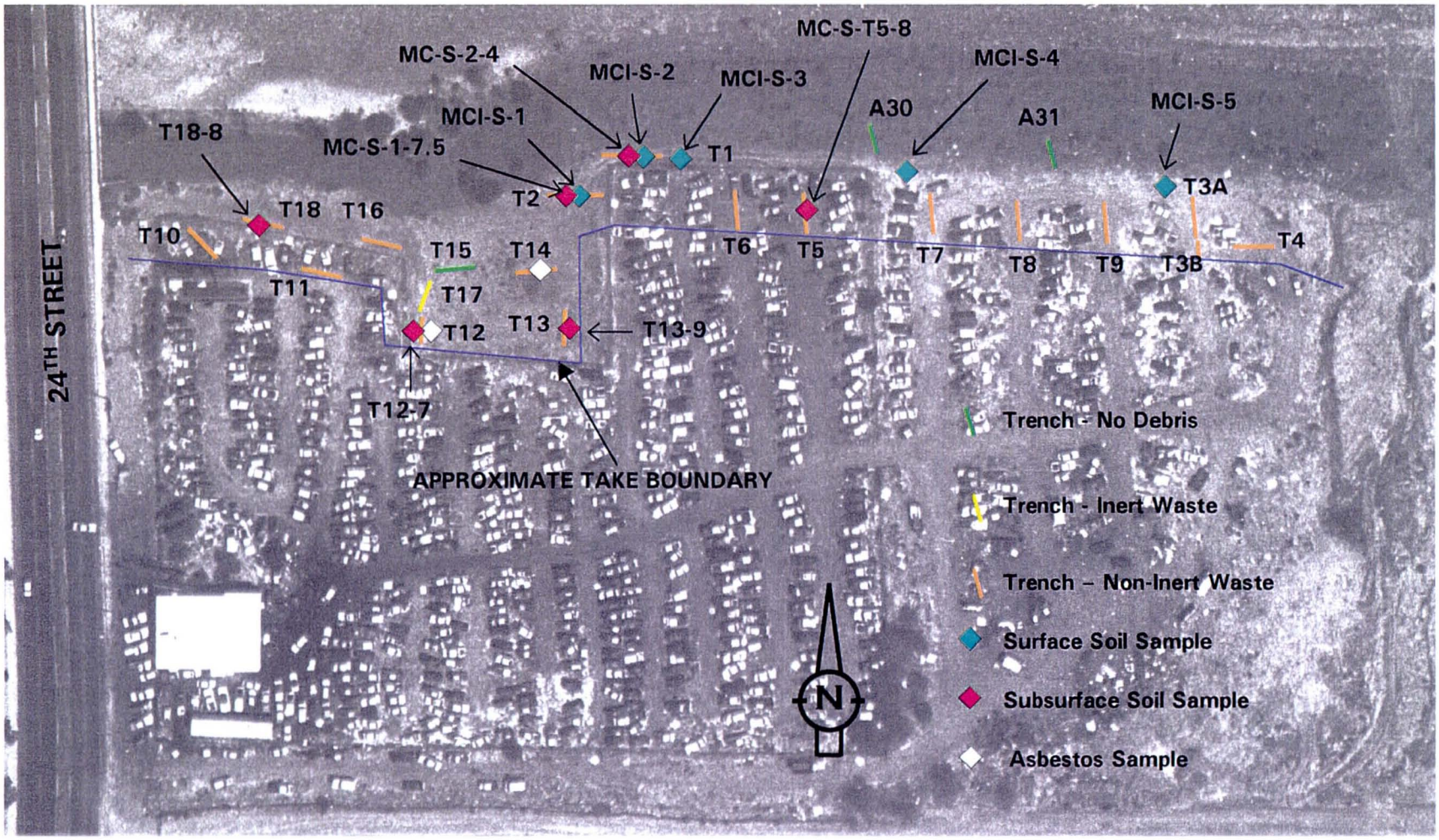
EXPLORATORY TRENCHING LOCATIONS
EASTERN PORTION OF STUDY AREA



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AREA 13 MCINTYRE TRENCH AND SAMPLE LOCATIONS

EXPLORATORY TRENCH SUMMARY TABLES

Notes:

Cover Thickness - thickness of cover material in feet; 0' indicates exposed waste or debris. If no Waste Type boxes are checked, the thickness of cover equals the total depth of the trench.

Cover Type - nature of cover material, categorized into three types as explained in table footnotes.

Waste Types - where no waste type boxes are checked, no waste was identified and the soils penetrated by the trench are as described in the Cover Type column. "Decay layer" consisted of darker-colored soils, apparently containing diffused organic material that could not be identified.

AREA 2 - MCDONALD AND WILHELM

TRENCH ID	COVER THICKNESS	COVER TYPE	VEGETATIVE DEBRIS	METAL, CABLE	CONCRETE, BRICK	AUTO BATTERIES	TIRES	HOUSEHOLD TRASH	FLOOR TILES	WOOD	GLASS	DECAY LAYER
A-Trench 1	1'	B			X			X		X	X	
A-Trench 2	0.5'	C		X	X					X	X	
A-Trench 3	0'	C		X				X		X	X	X
A-Trench 4	0'	C						X		X	X	X
A-Trench 5N	3.5'	B		X	X			X		X	X	
A-Trench 5S	4'	B			X							
B-Trench 1	1.5'	A			X		X			X		
B-Trench 2	2'	A	X		X			X		X	X	X
B-Trench 3	1.5'	A			X		X	X		X		X
B-Trench 4	1'	A			X	X			X	X	X	
B-Trench 4A	1.5'	A			X	X	X		X	X		
B-Trench 5	3'	C					X			X	X	X
B-Trench 6	1'	A		X				X		X	X	X
B-Trench 7	0.5'	A	X	X	X		X	X	X	X	X	X

Cover Types:

A=predominantly fine-grained soils (fine sand, silt, clay)
B=predominantly coarse-grained soils (coarse sand, gravel, cobbles)
C=predominantly debris (concrete, asphalt)

AREA 3 - UNITED METRO 7TH AVE LANDFILL

TRENCH ID	COVER THICKNESS	COVER TYPE	VEGETATIVE DEBRIS	METAL, CABLE	CONCRETE, BRICK	AUTO BATTERIES	TIRES	HOUSEHOLD TRASH	FLOOR TILES	WOOD	GLASS	DECAY LAYER
B-Trench 30	2'	B		X	X							
B-Trench 31	2'	B			X							
B-Trench 32	1'	B										
B-Trench 33	1.5'	B										
B-Trench 34	1.5'	B										
B-Trench 35	1'	B										
B-Trench 36	1'	C	X	X	X							

Cover Types:

A=predominantly fine-grained soils (fine sand, silt, clay)
B=predominantly coarse-grained soils (coarse sand, gravel, cobbles)
C=predominantly debris (concrete, asphalt)

AREA 4 - CITY OF PHOENIX

TRENCH ID	COVER THICKNESS	COVER TYPE	VEGETATIVE DEBRIS	METAL, CABLE	CONCRETE, BRICK	AUTO BATTERIES	TIRES	HOUSEHOLD TRASH	FLOOR TILES	WOOD	GLASS	DECAY LAYER
A-Trench 6	4'	B			X			X			X	
A-Trench 7	4'	B			X			X			X	
A-Trench 8	4'	B			X							
A-Trench 9	3'	B		X	X			X				
A-Trench 10	0'	C			X			X			X	
A-Trench 11	3.5'	B			X			X				
A-Trench 12	3.5'	B			X							
B-Trench 8	0'	C		X	X			X				
B-Trench 9	2'	A		X	X						X	X
B-Trench 10	2'	A			X							X
B-Trench 11	2'	A			X			X		X	X	

Cover Types:

A=predominantly fine-grained soils (fine sand, silt, clay)
B=predominantly coarse-grained soils (coarse sand, gravel, cobbles)
C=predominantly debris (concrete, asphalt)

AREA 5 - UNITED METRO CENTRAL AVE LANDFILL

TRENCH ID	COVER THICKNESS	COVER TYPE	VEGETATIVE DEBRIS	METAL, CABLE	CONCRETE, BRICK	AUTO BATTERIES	TIRES	HOUSEHOLD TRASH	FLOOR TILES	WOOD	GLASS	DECAY LAYER
A-Trench 36	2'	B		X				X	X	X	X	X
A-Trench 37	3'	B						X			X	

Cover Types:

A=predominantly fine-grained soils (fine sand, silt, clay)
B=predominantly coarse-grained soils (coarse sand, gravel, cobbles)
C=predominantly debris (concrete, asphalt)

AREA 6 - UNITED METRO PLANT 1

TRENCH ID	COVER THICKNESS	COVER TYPE	VEGETATIVE DEBRIS	METAL, CABLE	CONCRETE, BRICK	AUTO BATTERIES	TIRES	HOUSEHOLD TRASH	FLOOR TILES	WOOD	GLASS	DECAY LAYER
A-Trench 13	4'	A			X							
A-Trench 14	10'	A			X							
A-Trench 15	2'	A		X	X		X	X			X	X
A-Trench 33	3'	A			X							
A-Trench 34	0.5'	A			X							
A-Trench 35	8'	A										
B-Trench 14	0.5'	B			X							
B-Trench 15	2'	B										
B-Trench 19	9'	B										
B-Trench 20	1'	B			X							
B-Trench 21	1.5'	B										
Test Pit 1/B22	0.5'	A					X					
Test Pit 2/B23	0.5'	A					X					
Test Pit 3/B24	0.5'	A					X					

Cover Types:

A=predominantly fine-grained soils (fine sand, silt, clay)
B=predominantly coarse-grained soils (coarse sand, gravel, cobbles)
C=predominantly debris (concrete, asphalt)

AREA 7 - CALMAT

TRENCH ID	COVER THICKNESS	COVER TYPE	VEGETATIVE DEBRIS	METAL, CABLE	CONCRETE, BRICK	AUTO BATTERIES	TIRES	HOUSEHOLD TRASH	FLOOR TILES	WOOD	GLASS	DECAY LAYER
A-Trench 22	3'	B			X		X					
A-Trench 23	2'	B		X	X							
A-Trench 24	6'	B			X							
A-Trench 25	10'	B										
A-Trench 26	12'	A										
A-Trench 27	12'	A										

Cover Types:

A=predominantly fine-grained soils (fine sand, silt, clay)
B=predominantly coarse-grained soils (coarse sand, gravel, cobbles)
C=predominantly debris (concrete, asphalt)

AREA 8 - CALMAT

TRENCH ID	COVER THICKNESS	COVER TYPE	VEGETATIVE DEBRIS	METAL, CABLE	CONCRETE, BRICK	AUTO BATTERIES	TIRES	HOUSEHOLD TRASH	FLOOR TILES	WOOD	GLASS	DECAY LAYER
A-Trench 16	3'	A		X		X	X	X			X	
A-Trench 17	2'	A					X	X			X	
A-Trench 18	4'	B		X								
A-Trench 19	4'	B			X							
A-Trench 37	3'	B						X			X	
A-Trench 38	1'	B		X			X	X				X
A-Trench 39	10'	B										
B-Trench 12	1'	A		X	X		X	X		X	X	
B-Trench 13	1.5'	A	X		X		X	X		X		
B-Trench 16	1.5'	B		X	X							
B-Trench 17	1.5'	B		X	X		X					
B-Trench 18	1'	B	X	X	X			X		X		X

Cover Types:

A=predominantly fine-grained soils (fine sand, silt, clay)
B=predominantly coarse-grained soils (coarse sand, gravel, cobbles)
C=predominantly debris (concrete, asphalt)

AREA 9 - WEST OF DEL RIO LANDFILL

TRENCH ID	COVER THICKNESS	COVER TYPE	VEGETATIVE DEBRIS	METAL, CABLE	CONCRETE, BRICK	AUTO BATTERIES	TIRES	HOUSEHOLD TRASH	FLOOR TILES	WOOD	GLASS	DECAY LAYER
A-Trench 20	1.5'	B		X	X							
A-Trench 21	2'	B		X	X							

Cover Types:

A=predominantly fine-grained soils (fine sand, silt, clay)
B=predominantly coarse-grained soils (coarse sand, gravel, cobbles)
C=predominantly debris (concrete, asphalt)

AREA 13 - MCINTYRE

TRENCH ID	COVER THICKNESS	COVER TYPE	VEGETATIVE DEBRIS	METAL, CABLE	CONCRETE, BRICK	AUTO BATTERIES	TIRES	HOUSEHOLD TRASH	FLOOR TILES	WOOD	GLASS	DECAY LAYER
T-Trench 1	0'	C						X			X	
T-Trench 2	0.5'	C		X	X			X			X	
T-Trench 3A	1.5'	B		X	X			X		X	X	
T-Trench 3B	1.5'	B		X	X		X	X				
T-Trench 4	0.5'	A		X	X			X				
T-Trench 5	1'	A			X			X				
T-Trench 6	1.5'	A			X			X				
T-Trench 7	1'	A			X		X	X		X		
T-Trench 8	0.5'	B		X	X			X				
T-Trench 9	0'	C			X		X	X		X		
T-Trench 10	1'	B			X			X				
T-Trench 11	1.5'	A			X			X				
T-Trench 12	2'	A			X			X	X			
T-Trench 13	0	C			X			X			X	
T-Trench 14	2'	B			X			X	X			
T-Trench 15	7'	B										
T-Trench 16	3'	A						X				
T-Trench 17	2'	A			X							
T-Trench 18	2'	A		X	X			X				
A-Trench 30	13'	B										
A-Trench 31	12'	B										

Cover Types:

A=predominantly fine-grained soils (fine sand, silt, clay)
B=predominantly coarse-grained soils (coarse sand, gravel, cobbles)
C=predominantly debris (concrete, asphalt)

AREA 15 - CALMAT

TRENCH ID	COVER THICKNESS	COVER TYPE	VEGETATIVE DEBRIS	METAL, CABLE	CONCRETE, BRICK	AUTO BATTERIES	TIRES	HOUSEHOLD TRASH	FLOOR TILES	WOOD	GLASS	DECAY LAYER
A-Trench 28	15'	B										
A-Trench 29	11'	B										

Cover Types:

A=predominantly fine-grained soils (fine sand, silt, clay)
B=predominantly coarse-grained soils (coarse sand, gravel, cobbles)
C=predominantly debris (concrete, asphalt)

SUBSURFACE SOIL SAMPLING SUMMARY TABLES
AREA 13 - MCINTYRE

SUBSURFACE TRENCH SOIL SAMPLE RESULTS

AREA 13 - MCINTYRE

SAMPLE LOCATION	DEPTH (FT)	TOTAL METALS (mg/kg)	POLYNUCLEAR AROMATIC HYDROCARBONS	VOLATILE ORGANIC COMPOUNDS
T-12-7	7	cadmium 1.9 chromium 20 lead 9.5	ND	ND
T-13-9	9	cadmium 1.6 chromium 11 lead 37	ND	ND
T-18-8	8	cadmium 1.4 chromium 14 lead 3.9	ND	ND
MC-S-2-4	4	cadmium 4.2 chromium 29 lead 130	ND	not analyzed
MC-S-1-7.5	7.5	cadmium 1.9 chromium 17 lead 2.5	ND	not analyzed
MC-S-T5-8	8	cadmium 1.4 chromium 11 lead 2.5	ND	not analyzed
SOIL REMEDIATION LEVELS (res/non-res)		cadmium 38/850 chromium 2100/4500 lead 400/2000		

Notes:

ND=not detected (detection limit varies by compound, refer to laboratory reports)

LABORATORY REPORTS
SUBSURFACE SOIL AND SUSPECT ASBESTOS SAMPLING
MCINTYRE SITE (AREA 13)

Del Mar Analytical

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

LABORATORY REPORT

Prepared For: SCS Engineers - Phoenix
Brad Johnston
2702 N. 44th St. Ste. 105-B
Phoenix AZ, 85008-1583

Project: 98004.09/Task 1

Sampled: 10/13/99
Received 10/13/99
Reported: 11/02/99

This laboratory report is confidential and is intended for the sole use of Del Mar Analytical and its client. This entire report was reviewed and approved for release.

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SCS Engineers - Phoenix
2702 N. 44th St. Ste. 105-B
Phoenix AZ, 85008-1583
Attention: Brad Johnston

Client Project ID: 98004.09/Task 1

Report Number: PIJ0472

Sampled 10/13/99
Received: 10/13/99

CASE NARRATIVE

LABORATORY NUMBER	SAMPLE DESCRIPTION	SAMPLE MATRIX
PIJ0472-01	T-12-7	Soil
PIJ0472-02	T-13-9	Soil
PIJ0472-03	T-18-8	Soil

SAMPLE RECEIPT: Samples were received intact, on ice, and with chain of custody documentation.

HOLDING TIMES: Holding times were met.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria.

OBSERVATIONS: No significant observations were made.

SUBC ONTRACTED: Analysis for EPA 8310 was completed at Del Mar Analytical-Colton(AZ0062) Results attached.

DEL MAR ANALYTICAL , PHOENIX (AZ0426)

Del Mar Analytical

Kim Eberenz
Project Manager

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Client Project ID: 98004.09/Task 1

Report Number: PIJ0472

Sampled 10/13/99
Received: 10/13/99

VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Analyte	Method	Reporting Limit ug/kg	Sample Result ug/kg	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: PIJ0472-01 (T-12-7 - Soil)							
Xylenes, Total	EPA 8260B	300	ND	1	10/15/99	10/22/99	
Acetone	EPA 8260B	1000	ND	1	10/15/99	10/22/99	
Benzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Bromobenzene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Bromochloromethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Bromodichloromethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Bromoform	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Bromomethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
2-Butanone (MEK)	EPA 8260B	500	ND	1	10/15/99	10/22/99	
n-Butylbenzene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
sec-Butylbenzene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
tert-Butylbenzene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Carbon Disulfide	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Carbon tetrachloride	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Chlorobenzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Chloroethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
2-Chloroethyl vinyl ether	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Chloroform	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Chloromethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
2-Chlorotoluene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
4-Chlorotoluene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Dibromochloromethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,2-Dibromo-3-chloropropane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
1,2-Dibromoethane (EDB)	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Dibromomethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,2-Dichlorobenzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,3-Dichlorobenzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,4-Dichlorobenzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Dichlorodifluoromethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
1,1-Dichloroethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,2-Dichloroethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,1-Dichloroethene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
cis-1,2-Dichloroethene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
trans-1,2-Dichloroethene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,2-Dichloropropane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,3-Dichloropropane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
2,2-Dichloropropane	EPA 8260B	100	ND	1	10/15/99	10/22/99	

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Attention: Brad Johnston

Client Project ID: 98004.09/Task 1

Report Number: PIJ0472

Sampled 10/13/99
Received: 10/13/99

VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Analyte	Method	Reporting Limit ug/kg	Sample Result ug/kg	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: PIJ0472-01 (T-12-7 - Soil)							
1,1-Dichloropropene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
cis-1,3-Dichloropropene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
trans-1,3-Dichloropropene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Ethylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Hexachlorobutadiene	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
2-Hexanone	EPA 8260B	*500*	ND	1	10/15/99	10/22/99	
Iodomethane	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Isopropylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
p-Isopropyltoluene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Methylene chloride	EPA 8260B	*500*	ND	1	10/15/99	10/22/99	
4-Methyl-2-pentatnone (MIBK)	EPA 8260B	*500*	ND	1	10/15/99	10/22/99	
Methyl-tert-butyl Ether (MTBE	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
Naphthalene	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
n-Propylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Styrene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
1,1,1,2-Tetrachloroethane	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
1,1,2,2-Tetrachloroethane	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Tetrachloroethene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Toluene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
1,2,3-Trichlorobenzene	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
1,2,4-Trichlorobenzene	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
1,1,1-Trichloroethane	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
1,1,2-Trichloroethane	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Trichloroethene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Trichlorofluoromethane	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
1,2,3-Trichloropropane	EPA 8260B	*500*	ND	1	10/15/99	10/22/99	
1,2,4-Trimethylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
1,3,5-Trimethylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Vinyl acetate	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
Vinyl chloride	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
Surrogate: Dibromofluoromethane (70-125%)			*96.0 %*				
Surrogate: Toluene-d8 (50-135%)			*104 %*				
Surrogate: 4-Bromofluorobenzene (70-130%)			*112 %*				

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Kim Eberenz
Project Manager

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Attention: Brad Johnston

Client Project ID: 98004.09/Task 1

Report Number: PIJ0472

Sampled 10/13/99
Received: 10/13/99

VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Analyte	Method	Reporting Limit ug/kg	Sample Result ug/kg	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: PIJ0472-02 (T-13-9 - Soil)							
Xylenes, Total	EPA 8260B	300	ND	1	10/15/99	10/22/99	
Acetone	EPA 8260B	1000	ND	1	10/15/99	10/22/99	
Benzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Bromobenzene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Bromochloromethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Bromodichloromethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Bromoform	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Bromomethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
2-Butanone (MEK)	EPA 8260B	500	ND	1	10/15/99	10/22/99	
n-Butylbenzene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
sec-Butylbenzene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
tert-Butylbenzene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Carbon Disulfide	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Carbon tetrachloride	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Chlorobenzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Chloroethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
2-Chloroethyl vinyl ether	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Chloroform	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Chloromethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
2-Chlorotoluene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
4-Chlorotoluene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Dibromochloromethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,2-Dibromo-3-chloropropane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
1,2-Dibromoethane (EDB)	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Dibromomethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,2-Dichlorobenzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,3-Dichlorobenzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,4-Dichlorobenzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Dichlorodifluoromethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
1,1-Dichloroethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,2-Dichloroethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,1-Dichloroethene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
cis-1,2-Dichloroethene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
trans-1,2-Dichloroethene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,2-Dichloropropane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,3-Dichloropropane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
2,2-Dichloropropane	EPA 8260B	100	ND	1	10/15/99	10/22/99	

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Client Project ID: 98004.09/Task 1

Report Number: PIJ0472

Sampled 10/13/99
Received: 10/13/99

VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Analyte	Method	Reporting Limit ug/kg	Sample Result ug/kg	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: PIJ0472-02 (T-13-9 - Soil)							
1,1-Dichloropropene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
cis-1,3-Dichloropropene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
trans-1,3-Dichloropropene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Ethylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Hexachlorobutadiene	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
2-Hexanone	EPA 8260B	*500*	ND	1	10/15/99	10/22/99	
Iodomethane	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Isopropylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
p-Isopropyltoluene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Methylene chloride	EPA 8260B	*500*	ND	1	10/15/99	10/22/99	
4-Methyl-2-pentatnone (MIBK)	EPA 8260B	*500*	ND	1	10/15/99	10/22/99	
Methyl-tert-butyl Ether (MTBE	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
Naphthalene	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
n-Propylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Styrene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
1,1,1,2-Tetrachloroethane	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
1,1,2,2-Tetrachloroethane	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Tetrachloroethene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Toluene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
1,2,3-Trichlorobenzene	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
1,2,4-Trichlorobenzene	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
1,1,1-Trichloroethane	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
1,1,2-Trichloroethane	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Trichloroethene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Trichlorofluoromethane	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
1,2,3-Trichloropropane	EPA 8260B	*500*	ND	1	10/15/99	10/22/99	
1,2,4-Trimethylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
1,3,5-Trimethylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Vinyl acetate	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
Vinyl chloride	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
Surrogate: Dibromofluoromethane (70-125%)			*104 %*				
Surrogate: Toluene-d8 (50-135%)			*112 %*				
Surrogate: 4-Bromofluorobenzene (70-130%)			*112 %*				

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SCS Engineers - Phoenix
2702 N. 44th St. Ste. 105-B
Phoenix AZ, 85008-1583
Attention: Brad Johnston

Client Project ID: 98004.09/Task 1

Report Number: PIJ0472

Sampled 10/13/99
Received: 10/13/99

VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Analyte	Method	Reporting Limit ug/kg	Sample Result ug/kg	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: PIJ0472-03 (T-18-8 - Soil)							
Xylenes, Total	EPA 8260B	300	ND	1	10/15/99	10/22/99	
Acetone	EPA 8260B	1000	ND	1	10/15/99	10/22/99	
Benzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Bromobenzene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Bromochloromethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Bromodichloromethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Bromoform	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Bromomethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
2-Butanone (MEK)	EPA 8260B	500	ND	1	10/15/99	10/22/99	
n-Butylbenzene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
sec-Butylbenzene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
tert-Butylbenzene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Carbon Disulfide	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Carbon tetrachloride	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Chlorobenzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Chloroethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
2-Chloroethyl vinyl ether	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Chloroform	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Chloromethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
2-Chlorotoluene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
4-Chlorotoluene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
Dibromochloromethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,2-Dibromo-3-chloropropane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
1,2-Dibromoethane (EDB)	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Dibromomethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,2-Dichlorobenzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,3-Dichlorobenzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,4-Dichlorobenzene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
Dichlorodifluoromethane	EPA 8260B	250	ND	1	10/15/99	10/22/99	
1,1-Dichloroethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,2-Dichloroethane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,1-Dichloroethene	EPA 8260B	250	ND	1	10/15/99	10/22/99	
cis-1,2-Dichloroethene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
trans-1,2-Dichloroethene	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,2-Dichloropropane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
1,3-Dichloropropane	EPA 8260B	100	ND	1	10/15/99	10/22/99	
2,2-Dichloropropane	EPA 8260B	100	ND	1	10/15/99	10/22/99	

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SCS Engineers - Phoenix
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Phoenix AZ, 85008-1583
Attention: Brad Johnston

Client Project ID: 98004.09/Task 1

Report Number: PIJ0472

Sampled 10/13/99
Received: 10/13/99

VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Analyte	Method	Reporting Limit ug/kg	Sample Result ug/kg	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: PIJ0472-03 (T-18-8 - Soil)							
1,1-Dichloropropene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
cis-1,3-Dichloropropene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
trans-1,3-Dichloropropene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Ethylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Hexachlorobutadiene	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
2-Hexanone	EPA 8260B	*500*	ND	1	10/15/99	10/22/99	
Iodomethane	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Isopropylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
p-Isopropyltoluene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Methylene chloride	EPA 8260B	*500*	ND	1	10/15/99	10/22/99	
4-Methyl-2-pentatnone (MIBK)	EPA 8260B	*500*	ND	1	10/15/99	10/22/99	
Methyl-tert-butyl Ether (MTBE	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
Naphthalene	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
n-Propylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Styrene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
1,1,1,2-Tetrachloroethane	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
1,1,2,2-Tetrachloroethane	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Tetrachloroethene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Toluene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
1,2,3-Trichlorobenzene	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
1,2,4-Trichlorobenzene	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
1,1,1-Trichloroethane	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
1,1,2-Trichloroethane	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Trichloroethene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Trichlorofluoromethane	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
1,2,3-Trichloropropane	EPA 8260B	*500*	ND	1	10/15/99	10/22/99	
1,2,4-Trimethylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
1,3,5-Trimethylbenzene	EPA 8260B	*100*	ND	1	10/15/99	10/22/99	
Vinyl acetate	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
Vinyl chloride	EPA 8260B	*250*	ND	1	10/15/99	10/22/99	
Surrogate: Dibromofluoromethane (70-125%)			*96.0 %*				
Surrogate: Toluene-d8 (50-135%)			*112 %*				
Surrogate: 4-Bromofluorobenzene (70-130%)			*112 %*				

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Phoenix AZ, 85008-1583
Attention: Brad Johnston

Client Project ID: 98004.09/Task 1

Report Number: PIJ0472

Sampled 10/13/99
Received: 10/13/99

TOTAL METALS

Analyte	Method	Reporting Limit *mg/kg*	Sample Result *mg/kg*	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: PIJ0472-01 (T-12-7 - Soil)							
Cadmium	EPA 6010B	0.50	**1.9**	5	10/15/99	10/24/99	
Chromium	EPA 6010B	2.0	**20**	5	10/15/99	10/24/99	
Lead	EPA 6010B	2.5	**9.5**	5	10/15/99	10/24/99	
Sample ID: PIJ0472-02 (T-13-9 - Soil)							
Cadmium	EPA 6010B	0.50	**1.6**	5	10/15/99	10/24/99	
Chromium	EPA 6010B	2.0	**11**	5	10/15/99	10/24/99	
Lead	EPA 6010B	2.5	**37**	5	10/15/99	10/24/99	
Sample ID: PIJ0472-03 (T-18-8 - Soil)							
Cadmium	EPA 6010B	0.50	**1.4**	5	10/15/99	10/24/99	
Chromium	EPA 6010B	2.0	**14**	5	10/15/99	10/24/99	
Lead	EPA 6010B	2.5	**3.9**	5	10/15/99	10/24/99	

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METHOD BLANK/QC DATA

Sampled: 10/13/99
Received: 10/13/99

VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	*Data Qualifiers*
Batch P9J2602										
Blank (P9J2602-BLK1)										
Xylenes, Total	ND	300	ug/kg							
Acetone	ND	1000	ug/kg							
Benzene	ND	100	ug/kg							
Bromobenzene	ND	250	ug/kg							
Bromochloromethane	ND	250	ug/kg							
Bromodichloromethane	ND	100	ug/kg							
Bromoform	ND	250	ug/kg							
Bromomethane	ND	250	ug/kg							
2-Butanone (MEK)	ND	500	ug/kg							
n-Butylbenzene	ND	250	ug/kg							
sec-Butylbenzene	ND	250	ug/kg							
tert-Butylbenzene	ND	250	ug/kg							
Carbon Disulfide	ND	250	ug/kg							
Carbon tetrachloride	ND	250	ug/kg							
Chlorobenzene	ND	100	ug/kg							
Chloroethane	ND	250	ug/kg							
2-Chloroethyl vinyl ether	ND	250	ug/kg							
Chloroform	ND	100	ug/kg							
Chloromethane	ND	250	ug/kg							
2-Chlorotoluene	ND	250	ug/kg							
4-Chlorotoluene	ND	250	ug/kg							
Dibromochloromethane	ND	100	ug/kg							
1,2-Dibromo-3-chloropropane	ND	250	ug/kg							
1,2-Dibromoethane (EDB)	ND	100	ug/kg							
Dibromomethane	ND	100	ug/kg							
1,2-Dichlorobenzene	ND	100	ug/kg							
1,3-Dichlorobenzene	ND	100	ug/kg							
1,4-Dichlorobenzene	ND	100	ug/kg							
Dichlorodifluoromethane	ND	250	ug/kg							

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VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	*Data Qualifiers*
Batch P9J2602										
Blank (P9J2602-BLK1)										
1,1-Dichloroethane	ND	100	ug/kg							
1,2-Dichloroethane	ND	100	ug/kg							
1,1-Dichloroethene	ND	250	ug/kg							
cis-1,2-Dichloroethene	ND	100	ug/kg							
trans-1,2-Dichloroethene	ND	100	ug/kg							
1,2-Dichloropropane	ND	100	ug/kg							
1,3-Dichloropropane	ND	100	ug/kg							
2,2-Dichloropropane	ND	100	ug/kg							
1,1-Dichloropropene	ND	100	ug/kg							
cis-1,3-Dichloropropene	ND	100	ug/kg							
trans-1,3-Dichloropropene	ND	100	ug/kg							
Ethylbenzene	ND	100	ug/kg							
Hexachlorobutadiene	ND	250	ug/kg							
2-Hexanone	ND	500	ug/kg							
Iodomethane	ND	100	ug/kg							
Isopropylbenzene	ND	100	ug/kg							
p-Isopropyltoluene	ND	100	ug/kg							
Methylene chloride	ND	500	ug/kg							
4-Methyl-2-pentatnone (MIBK)	ND	500	ug/kg							
Methyl-tert-butyl Ether (MTBE)	ND	250	ug/kg							
Naphthalene	ND	250	ug/kg							
n-Propylbenzene	ND	100	ug/kg							
Styrene	ND	100	ug/kg							
1,1,1,2-Tetrachloroethane	ND	250	ug/kg							
1,1,2,2-Tetrachloroethane	ND	100	ug/kg							
Tetrachloroethene	ND	100	ug/kg							
Toluene	ND	100	ug/kg							
1,2,3-Trichlorobenzene	ND	250	ug/kg							
1,2,4-Trichlorobenzene	ND	250	ug/kg							
1,1,1-Trichloroethane	ND	100	ug/kg							
1,1,2-Trichloroethane	ND	100	ug/kg							
Trichloroethene	ND	100	ug/kg							
Trichlorofluoromethane	ND	250	ug/kg							
1,2,3-Trichloropropane	ND	500	ug/kg							
1,2,4-Trimethylbenzene	ND	100	ug/kg							

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VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	*Data Qualifiers*
Batch P9J2602										
Blank (P9J2602-BLK1)										
1,3,5-Trimethylbenzene	ND	100	ug/kg							
Vinyl acetate	ND	250	ug/kg							
Vinyl chloride	ND	250	ug/kg							
Surrogate: Dibromofluoromethane	*1110*		ug/kg	*1250*		*88.8*	*70-125*			
Surrogate: Toluene-d8	*1160*		ug/kg	*1250*		*92.8*	*50-135*			
Surrogate: 4-Bromofluorobenzene	*1270*		ug/kg	*1250*		*102*	*70-130*			
LCS (P9J2602-BS1)										
Benzene	475	100	ug/kg	500		95.0	66-142			
Chlorobenzene	542	100	ug/kg	500		108	60-133			
1,1-Dichloroethene	343	250	ug/kg	500		68.6	59-172			
Toluene	537	100	ug/kg	500		107	59-139			
Trichloroethene	505	100	ug/kg	500		101	62-137			
Surrogate: Dibromofluoromethane	*1270*		ug/kg	*1250*		*102*	*70-125*			
Surrogate: Toluene-d8	*1440*		ug/kg	*1250*		*115*	*50-135*			
Surrogate: 4-Bromofluorobenzene	*1490*		ug/kg	*1250*		*119*	*70-130*			
Matrix Spike (P9J2602-MS1)					**Source: PIJ0519-01**					
Benzene	385	100	ug/kg	500	ND	77.0	66-142			
Chlorobenzene	456	100	ug/kg	500	ND	91.2	60-133			
1,1-Dichloroethene	ND	250	ug/kg	500	ND	30.0	59-172			M
Toluene	420	100	ug/kg	500	ND	84.0	59-139			
Trichloroethene	406	100	ug/kg	500	ND	81.2	62-137			
Surrogate: Dibromofluoromethane	*1080*		ug/kg	*1250*		*86.4*	*70-125*			
Surrogate: Toluene-d8	*1210*		ug/kg	*1250*		*96.8*	*50-135*			
Surrogate: 4-Bromofluorobenzene	*1500*		ug/kg	*1250*		*120*	*70-130*			
Matrix Spike Dup (P9J2602-MSD1)					**Source: PIJ0519-01**					
Benzene	398	100	ug/kg	500	ND	79.6	66-142	3.32	35	
Chlorobenzene	470	100	ug/kg	500	ND	94.0	60-133	3.02	35	
1,1-Dichloroethene	ND	250	ug/kg	500	ND	31.4	59-172	4.56	35	M
Toluene	441	100	ug/kg	500	ND	88.2	59-139	4.88	35	
Trichloroethene	421	100	ug/kg	500	ND	84.2	62-137	3.63	35	
Surrogate: Dibromofluoromethane	*1050*		ug/kg	*1250*		*84.0*	*70-125*			
Surrogate: Toluene-d8	*1260*		ug/kg	*1250*		*101*	*50-135*			

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Kim Eberenz
Project Manager

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VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	*Data Qualifiers*
Batch P9J2602										
Matrix Spike Dup (P9J2602-MSD1)					**Source: PIJ0519-01**					
Surrogate: 4-Bromofluorobenzene	*1550*		ug/kg	*1250*		*124*	*70-130*			

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TOTAL METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	*Data Qualifiers*
Batch P9J1502										
Blank (P9J1502-BLK1)										
Cadmium	ND	0.10	mg/kg							
Chromium	ND	0.40	mg/kg							
Lead	ND	0.50	mg/kg							
LCS (P9J1502-BS1)										
Cadmium	45.1	0.10	mg/kg	50.0		90.2	80-120			
Chromium	47.1	0.40	mg/kg	50.0		94.2	80-120			
Lead	47.1	0.50	mg/kg	50.0		94.2	80-120			
Matrix Spike (P9J1502-MS1)					**Source: PIJ0490-01**					
Cadmium	48.5	0.50	mg/kg	50.0	2.1	92.8	75-125			
Chromium	70.2	2.0	mg/kg	50.0	24	92.4	75-125			
Lead	56.2	2.5	mg/kg	50.0	9.1	94.2	75-125			
Matrix Spike Dup (P9J1502-MSD1)					**Source: PIJ0490-01**					
Cadmium	48.3	0.50	mg/kg	50.0	2.1	92.4	75-125	0.413	20	
Chromium	70.5	2.0	mg/kg	50.0	24	93.0	75-125	0.426	20	
Lead	55.0	2.5	mg/kg	50.0	9.1	91.8	75-125	2.16	20	

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Project Manager

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SCS Engineers - Phoenix
2702 N. 44th St. Ste. 105-B
Phoenix AZ, 85008-1583
Attention: Brad Johnston

Client Project ID: 98004.09/Task 1

Report Number: PIJ0472-01

Sampled: 10/13/99
Received: 10/13/99

DATA QUALIFIERS AND DEFINITIONS

M	M = The MS and/or MSD were outside of the acceptance limits due to sample matrix interference. See LCS.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

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Project Manager

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SCS Engineering	Client Project ID: PIJ0472.SCS	Sampled: Oct 13, 1999
2702 N. 44th St. Ste. 105-B		Received: Oct 13, 1999
Phoenix, AZ 85008	Sample Descript: Soil, PIJ0472-01	Extracted: Oct 18, 1999
Attention: Brad Johnston	Lab Number: CIJ00745	Analyzed: Oct 19, 1999
	QC Batch: IJ18PA1S	Reported: Oct 20, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	50	N.D.
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(a)pyrene	2.0	N.D.
Benzo(b)fluoranthene	5.0	N.D.
Benzo(g,h,i)perylene	5.0	N.D.
Benzo(k)fluoranthene	2.0	N.D.
Chrysene	5.0	N.D.
Dibenz(a,h)anthracene	5.0	N.D.
Fluoranthene	5.0	N.D.
Fluorene	5.0	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	20	N.D.
Phenanthrene	5.0	N.D.
Pyrene	5.0	N.D.

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL (ELAP #1169)

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene (50-110)....	80%

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SCS Engineering	Client Project ID: PIJ0472.SCS	Sampled: Oct 13, 1999
2702 N. 44th St. Ste. 105-B		Received: Oct 13, 1999
Phoenix, AZ 85008	Sample Descript: Soil, PIJ0472-02	Extracted: Oct 18, 1999
Attention: Brad Johnston	Lab Number: CIJ00746	Analyzed: Oct 19, 1999
	QC Batch: IJ18PA1S	Reported: Oct 20, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	50	N.D.
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(a)pyrene	2.0	N.D.
Benzo(b)fluoranthene	5.0	N.D.
Benzo(g,h,i)perylene	5.0	N.D.
Benzo(k)fluoranthene	2.0	N.D.
Chrysene	5.0	N.D.
Dibenz(a,h)anthracene	5.0	N.D.
Fluoranthene	5.0	N.D.
Fluorene	5.0	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	20	N.D.
Phenanthrene	5.0	N.D.
Pyrene	5.0	N.D.

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL (ELAP #1169)

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene (50-110)....	80%

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SCS Engineering	Client Project ID: PIJ0472.SCS	Sampled: Oct 13, 1999
2702 N. 44th St. Ste. 105-B		Received: Oct 13, 1999
Phoenix, AZ 85008	Sample Descript: Soil, PIJ0472-03	Extracted: Oct 18, 1999
Attention: Brad Johnston	Lab Number: CIJ00747	Analyzed: Oct 19, 1999
	QC Batch: IJ18PA1S	Reported: Oct 20, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	50	N.D.
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(a)pyrene	2.0	N.D.
Benzo(b)fluoranthene	5.0	N.D.
Benzo(g,h,i)perylene	5.0	N.D.
Benzo(k)fluoranthene	2.0	N.D.
Chrysene	5.0	N.D.
Dibenz(a,h)anthracene	5.0	N.D.
Fluoranthene	5.0	N.D.
Fluorene	5.0	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	20	N.D.
Phenanthrene	5.0	N.D.
Pyrene	5.0	N.D.

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL (ELAP #1169)

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene (50-110)....	74%

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SCS Engineering
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008
Attention: Brad Johnston

Method Blank

QC Batch: IJ18PA1S

Extracted: Oct 18, 1999
Analyzed: Oct 19, 1999
Reported: Oct 20, 1999
Matrix: Soil

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	50	N.D.
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(a)pyrene	2.0	N.D.
Benzo(b)fluoranthene	2.0	N.D.
Benzo(g,h,i)perylene	5.0	N.D.
Benzo(k)fluoranthene	2.0	N.D.
Chrysene	5.0	N.D.
Dibenz(a,h)anthracene	5.0	N.D.
Fluoranthene	5.0	N.D.
Fluorene	20	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	20	N.D.
Phenanthrene	5.0	N.D.
Pyrene	5.0	N.D.

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL (ELAP #1169)

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene (50-110)....	80%

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MS/MSD Data Sheet

Method: EPA 8310
Matrix: Soil

Date: 10/19/99

Sample #: CIJ00757

Batch: IJ18PA1S

Analyte	R1	Sp	MS	MSD	PR1	PR2	RPD	MEAN PR	Acceptance Limits RPD	Acceptance Limits Mean PR
	ppb	ppb	ppb	ppb	%	%	%	%	%	%
Naphthalene	0	80	57	60	72%	75%	4%	73%	35	45-110
Benzo(a)anthracene	0	8	6.0	6.6	76%	82%	9%	79%	35	50-115
Benzo(a)pyrene*	0	8	5.6	6.1	70%	77%	10%	73%	40	45-105

Definition of Terms:

R1..... Result of Sample Analysis

Sp..... Spike Concentration Added to Sample

MS..... Matrix Spike Result

MSD..... Matrix Spike Duplicate Result

PR1..... Percent Recovery of MS; ((MS-R1) / SP) X 100

PR2..... Percent Recovery of MSD; ((MSD-R1) / SP) X 100

RPD..... Relative Percent Difference; ((MS-MSD)/((MS+MSD)/2)) X 100

Acceptance Limits..... Statistically determined on an annual basis.

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LCS Data Report

Method: EPA 8310
Matrix: Soil

Date: 10/19/99

Sample #: LCS

Batch: IJ18PA1S

Analyte	Sp (ppb)	LCS (ppb)	PR1 (%)	Acceptance Limits (%)
Naphthalene	80	59	74%	45-115
Benzo(a)anthracene	8	6.3	79%	65-105
Benzo(a)pyrene*	8	5.9	74%	45-100

Definition of Terms:

Sp. . . . . Spike Concentration Added to Sample

LCS. . . . . Laboratory Control Sample Result

PR1. . . . . Percent Recovery of LCS; (LCS / Sp) X 100

Acceptance Limits. . . . . Statistically determined on an annual basis.

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CHAIN OF CUSTODY FORM

Quote #: _____ Page _____ of _____

Client Name/Address: SCS Engineers, 2702 North 44th St, Phoenix, AZ

Project/PO Number: 98004.09 Task 1

Project Manager: Bud Johnston

Phone Number: 602-840-2596

Sampler: Josh Bernthal

Fax Number: 602-224-0572

Analysis Required: Total Pb, Cd, Cr; 8310

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservatives	Total Pb, Cd, Cr	8310											Special Instructions
T-12-7	SOIL	Brass	1	10-13-99 1:10	~~ICE~~ N/A	X	X											PIJ0472-01
~~T-13-9~~ T-13-9	↓	↓	1	10-13-99 1:40	↓	X	X											-02
T-18-8	↓	↓	1	10-13-99 3:00	↓	X	X											-03

Relinquished By:	Date /Time:	Received by:	Date /Time:	Turnaround Time: (Check)
[signature]	10-13-99 5:15			same day ____ 72 hours ____
Relinquished By:	Date /Time:	Received by:	Date /Time:	24 hours ____ 5 days ____
				48 hours ____ normal X
Relinquished By:	Date /Time:	Received in Lab by: [signature]	Date /Time: 10-13-99 5:15pm	Sample Integrity: (Check) intact ✓ on ice ✓

Note: By relinquishing samples to Del Mar Analytical, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

COC-GB

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LABORATORY REPORT

Prepared For: SCS Engineers - Phoenix
Brad Johnston
2702 N. 44th St. Ste. 105-B
Phoenix AZ, 85008-1583

Project: 98004.09

Sampled: 10/08/99
Received 10/08/99
Reported: 10/25/99

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PIJ0418

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SCS Engineers - Phoenix
2702 N. 44th St. Ste. 105-B
Phoenix AZ, 85008-1583
Attention: Brad Johnston

Client Project ID: 98004.09

Report Number: PIJ0418

Sampled 10/08/99
Received: 10/08/99

CASE NARRATIVE

LABORATORY NUMBER	SAMPLE DESCRIPTION	SAMPLE MATRIX
PIJ0418-01	MC-S-2-4	Soil
PIJ0418-02	MC-S-1-7.5	Soil
PIJ0418-03	MC-S-T5-8	Soil

SAMPLE RECEIPT: Samples were received intact, on ice, and with chain of custody documentation.

HOLDING TIMES: Holding times were met.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria.

OBSERVATIONS: No significant observations were made.

SUBC ONTRACTED: Analysis for EPA 8310 was completed at Del Mar Analytical-Colton (AZ0062) Results attached.

DEL MAR ANALYTICAL , PHOENIX (AZ0426)

Del Mar Analytical

Kim Eberenz
Project Manager

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SCS Engineers - Phoenix
2702 N. 44th St. Ste. 105-B
Phoenix AZ, 85008-1583
Attention: Brad Johnston

Client Project ID: 98004.09

Report Number: PIJ0418

Sampled 10/08/99
Received: 10/08/99

TOTAL METALS

Analyte	Method	Reporting Limit *mg/kg*	Sample Result *mg/kg*	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: PIJ0418-01 (MC-S-2-4 - Soil)							
Cadmium	EPA 6010B	0.50	**4.2**	5	10/12/99	10/14/99	
Chromium	EPA 6010B	2.0	**29**	5	10/12/99	10/14/99	
Lead	EPA 6010B	2.5	**130**	5	10/12/99	10/14/99	
Sample ID: PIJ0418-02 (MC-S-1-7.5 - Soil)							
Cadmium	EPA 6010B	0.50	**1.9**	5	10/12/99	10/14/99	
Chromium	EPA 6010B	2.0	**17**	5	10/12/99	10/14/99	
Lead	EPA 6010B	2.5	**2.5**	5	10/12/99	10/14/99	
Sample ID: PIJ0418-03 (MC-S-T5-8 - Soil)							
Cadmium	EPA 6010B	0.50	**1.4**	5	10/12/99	10/14/99	
Chromium	EPA 6010B	2.0	**11**	5	10/12/99	10/14/99	
Lead	EPA 6010B	2.5	**2.5**	5	10/12/99	10/14/99	

Del Mar Analytical

Kim Eberenz
Project Manager

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers - Phoenix
2702 N. 44th St. Ste. 105-B
Phoenix AZ, 85008-1583
Attention: Brad Johnston

METHOD BLANK/QC DATA

Sampled: 10/08/99
Received: 10/08/99

TOTAL METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	*Data Qualifiers*
Batch P9J1204										
Blank (P9J1204-BLK1)										
Cadmium	ND	0.50	mg/kg							
Chromium	ND	2.0	mg/kg							
Lead	ND	2.5	mg/kg							
LCS (P9J1204-BS1)										
Cadmium	41.9	0.50	mg/kg	50.0		83.8	80-120			
Chromium	42.8	2.0	mg/kg	50.0		85.6	80-120			
Lead	41.2	2.5	mg/kg	50.0		82.4	80-120			
Matrix Spike (P9J1204-MS1)					**Source: PIJ0423-01**					
Cadmium	51.5	2.5	mg/kg	50.0	17	69.0	75-125			M
Chromium	80.3	10	mg/kg	50.0	38	84.6	75-125			
Lead	967	13	mg/kg	50.0	790	354	75-125			M
Matrix Spike Dup (P9J1204-MSD1)					**Source: PIJ0423-01**					
Cadmium	57.5	2.5	mg/kg	50.0	17	81.0	75-125	11.0	20	
Chromium	89.2	10	mg/kg	50.0	38	102	75-125	10.5	20	
Lead	1030	13	mg/kg	50.0	790	480	75-125	6.31	20	M

Del Mar Analytical

Kim Eberenz
Project Manager

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SCS Engineers - Phoenix
2702 N. 44th St. Ste. 105-B
Phoenix AZ, 85008-1583
Attention: Brad Johnston

Client Project ID: 98004.09

Report Number: PIJ0418-01

Sampled: 10/08/99
Received: 10/08/99

DATA QUALIFIERS AND DEFINITIONS

M	M = The MS and/or MSD were outside of the acceptance limits due to sample matrix interference. See LCS.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

Del Mar Analytical

Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St., Suite 105B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 98004.09

Sample Descript: MC-S-2-4
Lab Number: PIJ0418-01

Sampled: Oct 8, 1999
Received: Oct 8, 1999
Extracted: Oct 12, 1999
Analyzed: Oct 13, 1999
Reported: Oct 21, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	50	N.D.
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(a)pyrene	2.0	N.D.
Benzo(b)fluoranthene	2.0	N.D.
Benzo(g,h,i)perylene	5.0	N.D.
Benzo(k)fluoranthene	2.0	N.D.
Chrysene	5.0	N.D.
Dibenz(a,h)anthracene	5.0	N.D.
Fluoranthene	5.0	N.D.
Fluorene	20	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	20	N.D.
Phenanthrene	5.0	N.D.
Pyrene	5.0	N.D.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

KEl

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	82%

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers	Client Project ID: 98004.09	Sampled:	Oct 8, 1999
2702 N. 44th St., Suite 105B		Received:	Oct 8, 1999
Phoenix, AZ 85008-1583	Sample Descript: MC-S-1-7.5	Extracted:	Oct 12, 1999
Attention: Brad Johnston	Lab Number: PIJ0418-02	Analyzed:	Oct 13, 1999
		Reported:	Oct 21, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	50	N.D.
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(a)pyrene	2.0	N.D.
Benzo(b)fluoranthene	2.0	N.D.
Benzo(g,h,i)perylene	5.0	N.D.
Benzo(k)fluoranthene	2.0	N.D.
Chrysene	5.0	N.D.
Dibenz(a,h)anthracene	5.0	N.D.
Fluoranthene	5.0	N.D.
Fluorene	20	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	20	N.D.
Phenanthrene	5.0	N.D.
Pyrene	5.0	N.D.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	80%

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SCS Engineers
2702 N. 44th St., Suite 105B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 98004.09
Sample Descript: MC-S-T5-8
Lab Number: PIJ0418-03

Sampled: Oct 8, 1999
Received: Oct 8, 1999
Extracted: Oct 12, 1999
Analyzed: Oct 13, 1999
Reported: Oct 21, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	50	N.D.
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(a)pyrene	2.0	N.D.
Benzo(b)fluoranthene	2.0	N.D.
Benzo(g,h,i)perylene	5.0	N.D.
Benzo(k)fluoranthene	2.0	N.D.
Chrysene	5.0	N.D.
Dibenz(a,h)anthracene	5.0	N.D.
Fluoranthene	5.0	N.D.
Fluorene	20	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	20	N.D.
Phenanthrene	5.0	N.D.
Pyrene	5.0	N.D.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	87%

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SCS Engineers
2702 N. 44th St., Suite 105B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Method Blank

Extracted: Oct 12, 1999
Analyzed: Oct 12, 1999
Reported: Oct 21, 1999
Matrix: Soil

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	50	N.D.
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(a)pyrene	2.0	N.D.
Benzo(b)fluoranthene	2.0	N.D.
Benzo(g,h,i)perylene	5.0	N.D.
Benzo(k)fluoranthene	2.0	N.D.
Chrysene	5.0	N.D.
Dibenz(a,h)anthracene	5.0	N.D.
Fluoranthene	5.0	N.D.
Fluorene	20	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	20	N.D.
Phenanthrene	5.0	N.D.
Pyrene	5.0	N.D.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

KE

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	73%

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MS/MSD DATA REPORT

EPA Method: 8310
Matrix: Soil
Instrument: HPLC

Date: 10/12/99
Sample #: CIJ00259
Batch #: IJ12PA1S

Analyte	R1	Sp	MS	MSD	PR1	PR2	RPD	Acceptance Limits RPD	Acceptance Limits PR1/PR2
	ppb	ppb	ppb	ppb	%	%	%	%	%
Naphthalene	0	80.0	74.0	74.4	93%	93%	1%	35	45-110
Benzo(a)anthracene	3.27	8.0	8.03	9.11	60%	73%	13%	35	50-115
Benzo(a)pyrene	5.17	8.0	9.64	11.3	56%	77%	16%	40	45-105

Definition of Terms

R1..... Result of Sample Analysis
Sp..... Spike Concentration added to sample
MS..... Matrix Spike Result
MSD..... Matrix Spike Duplicate Result
PR1..... Percent Recovery of MS; ((MS-R1)/SP) x 100
PR2..... Percent Recovery of MSD; ((MSD-R1)/SP) x 100
RPD..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2) x 100
Acceptance Limits..... Statistically determined on an annual basis.

QA/QC Criteria..... All QA/QC was within acceptance limits.

Del Mar Analytical (AZ0426) This analysis was performed at Del Mar Analytical-Colton (AZ0062).

Del Mar Analytical
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CHAIN OF CUSTODY FORM

Quote #: _____ Page _____ of _____

Client Name/Address: SCS Engineers, 2702 N 44th Street, Phoenix AZ

Project/PO Number: 98004.09

Project Manager: Brad Johnston

Phone Number: 602-840-2598

Sampler: Josh Bernthal

Fax Number: 602-224-0572

Analysis Required

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservatives	Total Pb, Cd, Cr	8310										Special Instructions
MC-S-2-4	SOIL	JARS	1	10-8-99 7:45	ICE	X	X						PIJ 0418-01				
MC-S-1-7.5	↓	↓	1	10-8-99 8:30	↓	X	X						418-02				
~~MC-S-T6-8~~				~~10-8-99 12:05~~													
MC-S-T5-8	↓	↓	1	10-8-99 11:30	↓	X	X						418-03				

Relinquished By:	Date /Time:	Received by:	Date /Time:	Turnaround Time: (Check)
Josh Bernthal	10-8-99 4:20 PM	[signature]	10/8/99 420/PM	same day ____ 72 hours ____
[signature]	10/8/99 5:26 PM	Received by:	Date /Time:	24 hours ____ 5 days ____
				48 hours ____ normal X
Relinquished By:	Date /Time:	Received in Lab by: [signature]	Date /Time: 10-8-99 526pm	Sample Integrity: (Check) intact ✓ on ice ✓

Note: By relinquishing samples to Del Mar Analytical, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

COC-GB

Page ___ of ___

CHAIN OF CUSTODY

EMC Laboratories
7342 E. Thomas Road
Scottsdale, Arizona 85251
(480) 990-2069 (480)990-8468 Fax

LAB#: 59811
TAT: 6 days
Rec'd: OCT 20 P.M.

COMPANY NAME: SCS ENGINEERS
2702 N. 44TH STREET, STE 105B
PHOENIX, AZ 85008-1583

FAXED 10/28

CONTACT: ~~BRAD ANDERER~~ BRAD JOHNSTON
Phone / Fax 840-2596 / 224-0572

BILL TO: (If different Location)

Now Accepting: VISA - MASTERCARD - (Indicate Payment Method)

Price Quoted: $_____ / Sample
$_____ / Layers

_____ EXP DATE _____ SIGNATURE _____

COMPLETE ITEMS 1-4: (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. **TURNAROUND TIME:** [4hr rush] [8hr rush] [1-Day] [2-Day] [3-Day] [5-Day] [6-10 Day]

****Prior confirmation of turnaround time is required for one day analysis or analysis of more than 50 samples per shipment.
****Additional charges for rush analysis (please call marketing department for pricing details).
****For no Federal Express charges, a minimum of 20 asbestos or 6 lead samples must be enclosed.

2. **TYPE OF ANALYSIS:** [Bulk-PLM] [Air-PCM] [Lead] [Point Count] [TEM-Air] [TEM-Bulk]
3. **DISPOSAL INSTRUCTIONS:** [Dispose of samples at EMC] / [Return samples to me at my expense]
(If you do not indicate preference, EMC will dispose of samples 60 days from analysis.)

4. **Project Name:** McIntyre
P.O. Number: 98004.09 **Project Number:** 98004.09

EMC SAMPLE #	CLIENT SAMPLE #	DATE SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS ON	OFF	FLOW RATE
1	T-12-A	10-13-99	SOIL DEBRIS	Y N			
2	T-14-B	10-13-99		Y N			
3	T-14-A	10-13-99		Y N			
4	T-12-B	10-13-99		Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			

SPECIAL INSTRUCTIONS: _____

Relinquished by: [signature] Date: 10-20-99 Received by: [signature] Date: 10/20/99
Relinquished by: Diana Rodriguez Date: 10/20/99 Received by: _____ Date: _____
Relinquished by: _____ Date: _____ Received by: _____ Date: _____

*In the event of any dispute between the above parties for these services or otherwise, parties agree that jurisdiction and venue will be in Scottsdale, Arizona and prevailing party will be entitled to attorney's fees and court costs

BULK MATERIAL REPORT

LAB: 59811

REPORT Laboratory Analysis: BULK MATERIAL **Methodology:** EPA 600/M4-82-020

Client: SCS ENGINEERS **P/O#:** 98004.09

Reported to: BRAD JOHNSTON **Proj:** 98004.09

Sampled from: McINTYRE **By:** Client

Shipped via: FEDERAL EXPRESS **Received:** 10/20/99 **Reported:** 10/28/99

SAMPLE	IDENTIFICATION	PARAMETER	TEST RESULTS
01	T-12-A soil, debris, tar paper black SOIL DEBRIS	Asbestos	Positive. This sample contains approx. 50% Chrysotile, 50% Quartz , Binder
02	T-14-B soil, debris, transite panel gray, beige SOIL DEBRIS	Asbestos	Positive. This sample contains approx. 15% Chrysotile, 85% Quartz , CaCO , CaSO , Mica , Binder
03	T-14-A soil, debris, transite panel gray, beige SOIL DEBRIS	Asbestos	Positive. This sample contains approx. 15% Chrysotile, 85% Quartz , CaCO , CaSO , Mica , Binder
04	T-12-B soil, debris, tar paper black SOIL DEBRIS	Asbestos	Positive. This sample contains approx. 50% Chrysotile, 50% Quartz , CaCO , Binder

THE REPORT APPLIES TO THE STANDARDS OR PROCEDURES IDENTIFIED AND TO THE SAMPLE(S) TESTED. THE TEST RESULTS ARE NOT NECESSARILY INDICATIVE OR REPRESENTATIVE OF THE QUALITIES OF THE LOT FROM WHICH THE SAMPLE WAS TAKEN OR OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS, NOR DO THEY REPRESENT AN ONGOING QUALITY ASSURANCE PROGRAM UNLESS SO NOTED. THESE REPORTS ARE FOR THE EXCLUSIVE USE OF THE ADDRESSED CLIENT AND ARE RENDERED UPON THE CONDITION THAT THEY WILL NOT BE REPRODUCED WHOLLY OR IN PART FOR ADVERTISING OR OTHER PURPOSES OVER OUR SIGNATURE OR IN CONNECTION WITH OUR NAME WITHOUT SPECIAL WRITTEN PERMISSION. SAMPLES NOT DESTROYED IN TESTING ARE RETAINED A MAXIMUM OF THIRTY DAYS.
ACCREDITED BY THE NATIONAL INSTITUTE OF STANDARDS TECHNOLOGY, VOLUNTARY LABORATORY ACCREDITATION PROGRAM FOR SELECTED TEST METHOD FOR ASBESTOS. THE ACCREDITATION OR ANY REPORTS GENERATED BY THIS LABORATORY IN NO WAY CONSTITUTES OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY. ALL ANALYSES ARE DERIVED FROM CALIBRATED VISUAL ESTIMATE UNLESS OTHERWISE NOTED. POLARIZED-LIGHT IS NOT CONSISTENTLY RELIABLE IN DETECTING ASBESTOS IN FLOOR COVERINGS AND SIMILAR NON-FRIABLE ORGANICALLY BOUND MATERIALS. QUANTITATIVE TRANSMISSION ELECTRON MICROSCOPY IS CURRENTLY THE ONLY METHOD THAT CAN BE USED TO DETERMINE IF THIS MATERIAL CAN BE CONSIDERED OR TREATED AS NON-ASBESTOS-CONTAINING.

Analyst: Paul D. Hofer By: Kurt Kettler

NVLAP Accreditation #1926, CA ELAP #1913, TX DOH #30-0094
7342 EAST THOMAS ROAD SCOTTSDALE, ARIZONA 85251-7216 (602) 990-2069 FAX: (602) 990-8468

ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 59811

LABORATORY ANALYSIS OF BULK ASBESTOS — Method Interim EPA 600/M4-82-020

Client SCS ENGINEERS — Purchase Order # 98004.09

Reported To BRAD JOHNSTON — Date Received 10/20/99

Sampled From McINTYRE — Sampled By Client — Shipped Via FEDERAL EXPR

Client Sample ID# T-12-A — Lab Sample ID# 59811-01 — Sample Description soil, debris, tar paper

Colors black — Materials soil, debris, tar paper

FIBROUS MATERIAL 30% — NONFIBROUS 70% — HOMOGENEOUS Y

Textures resinous,fibrous — Location Description SOIL DEBRIS

ESTIMATED FIBROUS CONSTITUENTS 30% chrysotile

PLM ANALYSIS

Chrysotile 50%

- X Wavy Fibers
- X Sign of Elongation (+)
- X Parallel Extinction
- X Perpendicular Extinction
- X Birefringence Low
- X w blue e yellow
- X D.St. - || Mag.- _|_ Blue
- X Becke Line Used
- n || 1.557 n _|_ 1.548
- N Pleochroic @ 40X

Amosite 0%

- ___ Straight Fibers
- ___ Sign of Elongation (+)
- ___ Parallel Extinction
- ___ Perpendicular Extinction
- ___ Birefringence Mediu
- ___ w blue e yellow
- ___ D.St. - || Gold- _|_ Blue
- ___ Becke Line Used
- n || ___ n _|_ ___
- ___ Pleochroic @ 40X

Crocidolite 0%

- ___ Straight Fibers
- ___ Sign of Elongation (-)
- ___ Parallel Extinction
- ___ Perpendicular Extinction
- ___ Birefringence Mediu
- ___ w tan e Blue
- ___ D.St. - || Yellow _|_ Yellow
- ___ Becke Line Used
- n || ___ n _|_ ___
- ___ Pleochroic @ 40X

Anthophyllite 0%

- ___ Straight Fibers
- ___ Sign of Elongation (+)
- ___ Parallel Extinction
- ___ Birefringence Mediu
- ___ w Blue e yellow
- ___ D.St. - || Gold -_|_ Blue
- ___ Becke Line Used
- n || ___ n _|_ ___
- N Pleochroic @ 40X

Actinolite 0%

- ___ Straight Fibers
- ___ Sign of Elongation (+)
- ___ Parallel Extinction
- ___ Birefringence Low
- ___ w Blue e Yellow
- ___ D.St. - || Gold - _|_ Blue
- ___ Becke Line Used
- n || ___ n _|_ ___
- ___ Pleochroic @ 40X

Tremolite 0%

- ___ Straight Fibers
- ___ Sign of Elongation (+)
- ___ Parallel Extinction
- ___ Oblique Extinction 0 Angle
- ___ Birefringence Low
- ___ w Blue e Yellow
- ___ D.St. - || Gold - _|_ Blue
- ___ Becke Line Used
- n || ___ n _|_ ___
- N Pleochroic @ 40X

Cellulose 0%

- ___ Flat Twisted Fibers
- ___ Anisotropic

Synthetics 0%

- ___ Even Edges
- ___ High Birefringence

Mineral Wool 0%

- ___ Irregular Shapes
- ___ Isotropic

Glass Fibers 0%

- ___ Straight Fibers
- ___ Isotropic

Perlite ___
Quartz X
Wollastonite 0%
CaCO ___
CaSO ___
Mica ___
Binder X

Other FIbers ___

Other nonfibers ___

Comments ___

Analyst Paul D. Hofer — NVLAP #1926

7342 EAST THOMAS ROAD SCOTTSDALE, ARIZONA 85251-7216 (602) 990-2069 FAX: (602) 990-8468

ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 59811

LABORATORY ANALYSIS OF BULK ASBESTOS — Method Interim EPA 600/M4-82-020

Client SCS ENGINEERS — Purchase Order # 98004.09

Reported To BRAD JOHNSTON — Date Received 10/20/99

Sampled From McINTYRE — Sampled By Client — Shipped Via FEDERAL EXPR

Client Sample ID# T-14-B — Lab Sample ID# 59811-02 — Sample Description soil, debris, transite panel

Colors gray, beige — Materials soil, debris, transite panel

FIBROUS MATERIAL 15% — NONFIBROUS 85% — HOMOGENEOUS Y

Textures hard, granular, fibrous — Location Description SOIL DEBRIS

ESTIMATED FIBROUS CONSTITUENTS 15% chrysotile

PLM ANALYSIS

Chrysotile 15%

- X Wavy Fibers
- X Sign of Elongation (+)
- X Parallel Extinction
- X Perpendicular Extinction
- X Birefringence Low
- X w blue e yellow
- X D.St. - || Mag.- _|_ Blue
- X Becke Line Used
- n || 1.557 n _|_ 1.548
- N Pleochroic @ 40X

Amosite 0%

- ___ Straight Fibers
- ___ Sign of Elongation (+)
- ___ Parallel Extinction
- ___ Perpendicular Extinction
- ___ Birefringence Mediu
- ___ w blue e yellow
- ___ D.St. - || Gold- _|_ Blue
- ___ Becke Line Used
- n || ___ n _|_ ___
- ___ Pleochroic @ 40X

Crocidolite 0%

- ___ Straight Fibers
- ___ Sign of Elongation (-)
- ___ Parallel Extinction
- ___ Perpendicular Extinction
- ___ Birefringence Mediu
- ___ w tan e Blue
- ___ D.St. - || Yellow _|_ Yellow
- ___ Becke Line Used
- n || ___ n _|_ ___
- ___ Pleochroic @ 40X

Anthophyllite 0%

- ___ Straight Fibers
- ___ Sign of Elongation (+)
- ___ Parallel Extinction
- ___ Birefringence Mediu
- ___ w Blue e yellow
- ___ D.St. - || Gold -_|_ Blue
- ___ Becke Line Used
- n || ___ n _|_ ___
- N Pleochroic @ 40X

Actinolite 0%

- ___ Straight Fibers
- ___ Sign of Elongation (+)
- ___ Parallel Extinction
- ___ Birefringence Low
- ___ w Blue e Yellow
- ___ D.St. - || Gold - _|_ Blue
- ___ Becke Line Used
- n || ___ n _|_ ___
- ___ Pleochroic @ 40X

Tremolite 0%

- ___ Straight Fibers
- ___ Sign of Elongation (+)
- ___ Parallel Extinction
- ___ Oblique Extinction 0 Angle
- ___ Birefringence Low
- ___ w Blue e Yellow
- ___ D.St. - || Gold - _|_ Blue
- ___ Becke Line Used
- n || ___ n _|_ ___
- N Pleochroic @ 40X

Cellulose 0%

- ___ Flat Twisted Fibers
- ___ Anisotropic

Synthetics 0%

- ___ Even Edges
- ___ High Birefringence

Mineral Wool 0%

- ___ Irregular Shapes
- ___ Isotropic

Glass Fibers 0%

- ___ Straight Fibers
- ___ Isotropic

Perlite ___

Quartz X

Wollastonite 0%

CaCO X

CaSO X

Mica X

Binder X

Other FIbers ___

Other nonfibers ___

Comments ___

Analyst Paul D. Hofer — NVLAP #1926

7342 EAST THOMAS ROAD SCOTTSDALE, ARIZONA 85251-7216 (602) 990-2069 FAX: (602) 990-8468

ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 59811

LABORATORY ANALYSIS OF BULK ASBESTOS — Method Interim EPA 600/M4-82-020

Client SCS ENGINEERS — Purchase Order # 98004.09

Reported To BRAD JOHNSTON — Date Received 10/20/99

Sampled From McINTYRE — Sampled By Client — Shipped Via FEDERAL EXPR

Client Sample ID# T-14-A — Lab Sample ID# 59811-03 — Sample Description soil, debris, transite panel

Colors gray, beige — Materials soil, debris, transite panel

FIBROUS MATERIAL 15% — NONFIBROUS 85% — HOMOGENEOUS Y

Textures hard, granular, fibrous — Location Description SOIL DEBRIS

ESTIMATED FIBROUS CONSTITUENTS 15% chrysotile

PLM ANALYSIS

Chrysotile 15%

X Wavy Fibers
X Sign of Elongation (+)
X Parallel Extinction
X Perpendicular Extinction
X Birefringence Low
X w blue e yellow
X D.St. - || Mag.- _|_ Blue
X Becke Line Used
n || 1.557 n _|_ 1.548
N Pleochroic @ 40X

Amosite 0%

___ Straight Fibers
___ Sign of Elongation (+)
___ Parallel Extinction
___ Perpendicular Extinction
___ Birefringence Mediu
___ w blue e yellow
___ D.St. - || Gold- _|_ Blue
___ Becke Line Used
n || ___ n _|_ ___
___ Pleochroic @ 40X

Crocidolite 0%

___ Straight Fibers
___ Sign of Elongation (-)
___ Parallel Extinction
___ Perpendicular Extinction
___ Birefringence Mediu
___ w tan e Blue
___ D.St. - || Yellow _|_ Yellow
___ Becke Line Used
n || ___ n _|_ ___
___ Pleochroic @ 40X

Anthophyllite 0%

___ Straight Fibers
___ Sign of Elongation (+)
___ Parallel Extinction
___ Birefringence Mediu
___ w Blue e yellow
___ D.St. - || Gold -_|_ Blue
___ Becke Line Used
n || ___ n _|_ ___
N Pleochroic @ 40X

Actinolite 0%

___ Straight Fibers
___ Sign of Elongation (+)
___ Parallel Extinction
___ Birefringence Low
___ w Blue e Yellow
___ D.St. - || Gold - _|_ Blue
___ Becke Line Used
n || ___ n _|_ ___
___ Pleochroic @ 40X

Tremolite 0%

___ Straight Fibers
___ Sign of Elongation (+)
___ Parallel Extinction
___ Oblique Extinction 0 Angle
___ Birefringence Low
___ w Blue e Yellow
___ D.St. - || Gold - _|_ Blue
___ Becke Line Used
n || ___ n _|_ ___
N Pleochroic @ 40X

Cellulose 0%

___ Flat Twisted Fibers
___ Anisotropic

Synthetics 0%

___ Even Edges
___ High Birefringence

Mineral Wool 0%

___ Irregular Shapes
___ Isotropic

Glass Fibers 0%

___ Straight Fibers
___ Isotropic

Perlite ___
Quartz X
Wollastonite 0%
CaCO X
CaSO X
Mica X
Binder X

Other Fibers ___

Other nonfibers ___

Comments ___

Analyst Paul D. Hofer — NVLAP #1926

7342 EAST THOMAS ROAD SCOTTSDALE, ARIZONA 85251-7216 (602) 990-2069 FAX: (602) 990-8468

ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 59811

LABORATORY ANALYSIS OF BULK ASBESTOS — Method Interim EPA 600/M4-82-020

Client SCS ENGINEERS — Purchase Order # 98004.09

Reported To BRAD JOHNSTON — Date Received 10/20/99

Sampled From McINTYRE — Sampled By Client — Shipped Via FEDERAL EXPR

Client Sample ID# T-12-B — Lab Sample ID# 59811-04 — Sample Description soil, debris, tar paper

Colors black — Materials soil, debris, tar paper

FIBROUS MATERIAL 30% — NONFIBROUS 70% — HOMOGENEOUS Y

Textures resinous,fibrous — Location Description SOIL DEBRIS

ESTIMATED FIBROUS CONSTITUENTS 30% chrysotile

PLM ANALYSIS

Chrysotile 50%

X Wavy Fibers
X Sign of Elongation (+)
X Parallel Extinction
X Perpendicular Extinction
X Birefringence Low
X w blue e yellow
X D.St. - || Mag.- _|_ Blue
X Becke Line Used
n || 1.557 n _|_ 1.548
N Pleochroic @ 40X

Amosite 0%

___ Straight Fibers
___ Sign of Elongation (+)
___ Parallel Extinction
___ Perpendicular Extinction
___ Birefringence Mediu
___ w blue e yellow
___ D.St. - || Gold- _|_ Blue
___ Becke Line Used
n || ___ n _|_ ___
___ Pleochroic @ 40X

Crocidolite 0%

___ Straight Fibers
___ Sign of Elongation (-)
___ Parallel Extinction
___ Perpendicular Extinction
___ Birefringence Mediu
___ w tan e Blue
___ D.St. - || Yellow _|_ Yellow
___ Becke Line Used
n || ___ n _|_ ___
___ Pleochroic @ 40X

Anthophyllite 0%

___ Straight Fibers
___ Sign of Elongation (+)
___ Parallel Extinction
___ Birefringence Mediu
___ w Blue e yellow
___ D.St. - || Gold -_|_ Blue
___ Becke Line Used
n || ___ n _|_ ___
N Pleochroic @ 40X

Actinolite 0%

___ Straight Fibers
___ Sign of Elongation (+)
___ Parallel Extinction
___ Birefringence Low
___ w Blue e Yellow
___ D.St. - || Gold - _|_ Blue
___ Becke Line Used
n || ___ n _|_ ___
___ Pleochroic @ 40X

Tremolite 0%

___ Straight Fibers
___ Sign of Elongation (+)
___ Parallel Extinction
___ Oblique Extinction 0 Angle
___ Birefringence Low
___ w Blue e Yellow
___ D.St. - || Gold - _|_ Blue
___ Becke Line Used
n || ___ n _|_ ___
N Pleochroic @ 40X

Cellulose 0%

___ Flat Twisted Fibers
___ Anisotropic

Synthetics 0%

___ Even Edges
___ High Birefringence

Mineral Wool 0%

___ Irregular Shapes
___ Isotropic

Glass Fibers 0%

___ Straight Fibers
___ Isotropic

Perlite ___
Quartz X
Wollastonite 0%
CaCO X
CaSO ___
Mica ___
Binder X

Other FIbers ___

Other nonfibers ___

Comments ___

Analyst Paul D. Hofer — NVLAP #1926

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SECTION 4
GRADE CONTROL SOIL BORINGS

OVERVIEW

The objective of this characterization was to identify the potential presence of waste materials that may be present behind the river banks at the potential location of a grade control structure. The grade control structure will be situated just downstream (west) of the Central Avenue bridge. The areas of concern include the area immediately west of Central Avenue on the north and south river banks, since these locations would be excavated for installation of the grade control structures.

METHODOLOGY

A total of six soil borings (three on the north bank and three on the south bank) were drilled with a percussion-hammer drill rig that advanced borings approximately 10 inches in diameter. Drilling activities occurred on October 22, 1999. The borings were advanced to depths ranging from 25 to 36 feet below ground surface, depending on the depth at which moist drill cuttings indicated the presence of groundwater immediately beneath the drill bit. Groundwater was not penetrated since this would have required permits from the Arizona Department of Water Resources (ADWR).

The borings were visually logged by inspection of drill cuttings discharged by the cyclone. Logging was performed to identify lithological changes, the presence of waste, and depth and thickness of waste (if any). Collection and laboratory analysis of soil or waste samples was not performed since visual logging and field monitoring of cuttings did not indicate the potential presence of contamination.

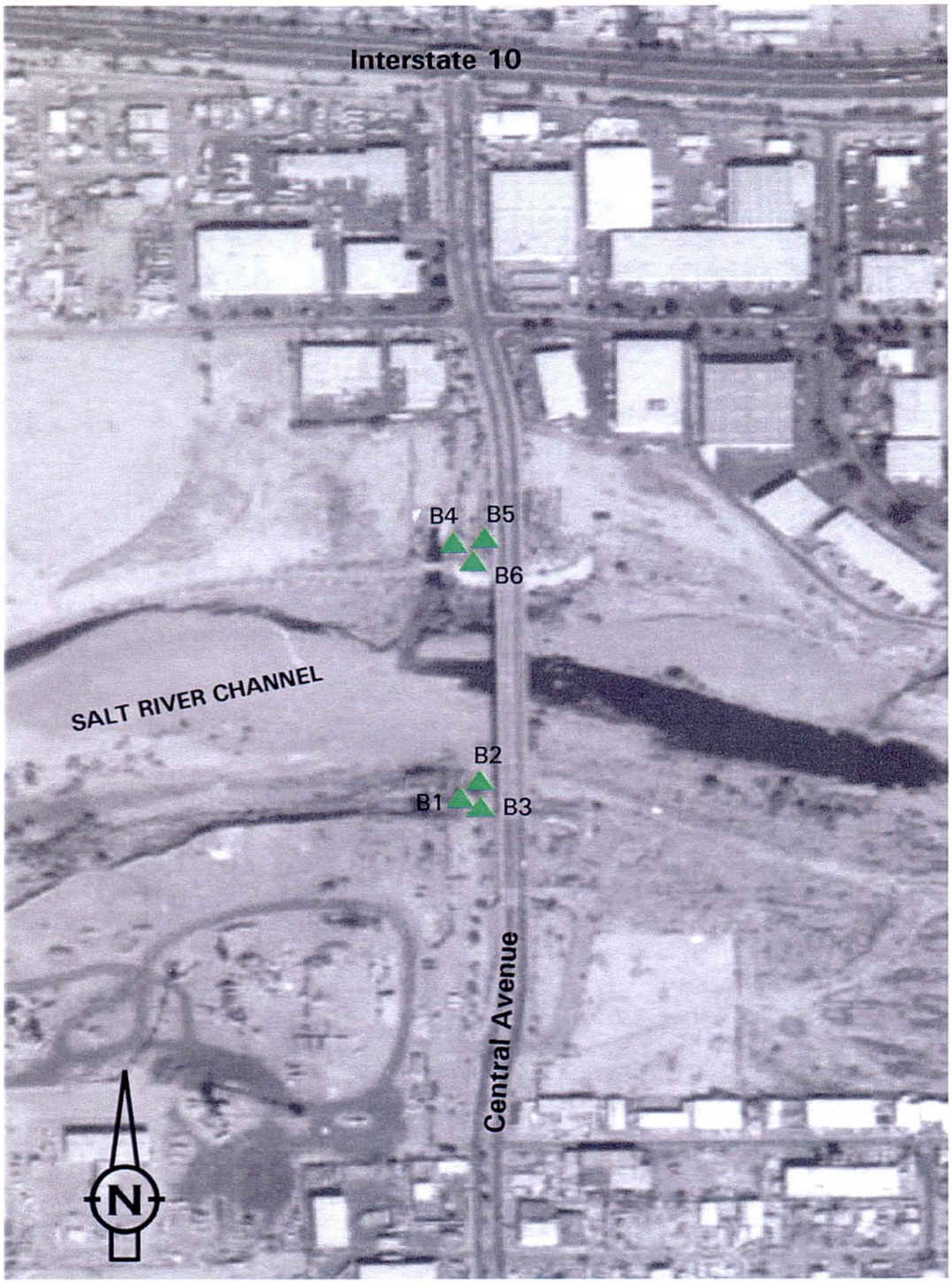
A chain link fence enclosing a stormwater outfall crossed through the area of interest on the north river bank. A portion of this fence and two fence posts were temporarily removed to

provide access to the boring locations for the drill rig. The fence posts were replaced and the fence restored to its original condition on October 26, 1999.

RESULTS

None of the borings encountered waste materials. However, exploratory backhoe trenching (Test Pits B22, 23, and 24) confirmed the presence of tires that had apparently been dumped over the river bank and then covered with a minimal amount of fine-grained soils on the south bank of the river in the vicinity of the proposed grade control structure.

GRADE CONTROL STRUCTURE SOIL BORING LOCATION MAP



SCS ENGINEERS

GRADE CONTROL STRUCTURE SOIL BORING LOCATIONS

GRADE CONTROL STRUCTURE SOIL BORING LOGS

SCS ENGINEERS

BORING LOG

2702 North 44th Street, Suite 105B
Phoenix, Arizona 85008

BORING NUMBER: B-1

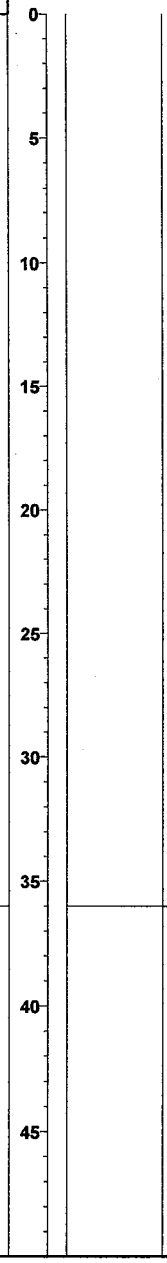
Rio Salado
Phoenix, Arizona

JOB NUMBER: 1098004.09

REMARKS:

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0							
	2							
1	4							
	6							Silty SAND, few subround Gravel, dry
2	8							
3	10							Small subangular GRAVEL, some Silty Sand, dry
	12							
4	14							
5	16							Medium subrounded GRAVEL, some fine Sand, dry
	18							
6	20							Medium subrounded GRAVEL, some fine Sand, dry
	22							
7	24							
8	26							Medium subrounded GRAVEL, some fine Sand, dry
	28							
9	30							Large GRAVEL, COBBLES, some fine Sand, dry
10	32							
	34							
11	36							Fine brown SAND, some small Gravel, moist
	38							
12	40							
13	42							
	44							
14	46							
	48							
15	50							

Completion Detail



Drilling Company:	**Layne Christensen Company**	Date Started: **10/22/99**	Time Started: **8:00 am**
Drilling Method:	**Becker Hammer**	Date Ended: **10/22/99**	Time Ended: **12:00 pm**
Logged By:	**Josh Bernthal**	Boring Diameter:	
Sampling Method:		Total Depth: **36.0**	Depth to Water:

SCS ENGINEERS

BORING LOG

2702 North 44th Street, Suite 105B
Phoenix, Arizona 85008

BORING NUMBER: B-2

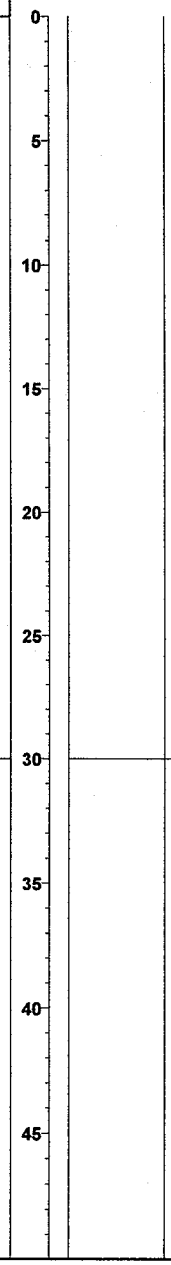
Rio Salado
Phoenix, Arizona

JOB NUMBER: 1098004.09

REMARKS:

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0							
	2							
1	4							
	6							Silty SAND, some medium Gravel, dry
2	8							
3	10							Silty SAND, some medium Gravel, dry
	12							
4	14							
5	16							Silty SAND, some medium Gravel, dry
	18							
6	20							Coarse SAND, some small Gravel, dry
	22							
7	24							
8	26							Coarse SAND, some small Gravel, dry
	28							
9	30							Coarse SAND, some small Gravel, moist
10	32							
	34							
11	36							
	38							
12	40							
13	42							
	44							
14	46							
	48							
15	50							

Completion Detail



Drilling Company:	**Layne Christensen Company**	Date Started: **10/22/99**	Time Started: **8:00 am**
Drilling Method:	**Becker Hammer**	Date Ended: **10/22/99**	Time Ended: **12:00 pm**
Logged By:	**Josh Bernthal**	Boring Diameter:	
Sampling Method:		Total Depth: **30.0**	Depth to Water:

SCS ENGINEERS

BORING LOG

2702 North 44th Street, Suite 105B
Phoenix, Arizona 85008

BORING NUMBER: B-3

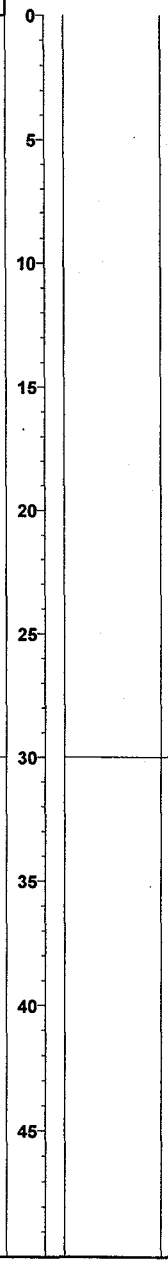
Rio Salado
Phoenix, Arizona

JOB NUMBER: 1098004.09

REMARKS:

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0							
	2							
1	4							
	6							Silty SAND with some small GRAVEL, dry
2	8							
3	10							Small GRAVEL with some Silty Sand, dry
	12							
4	14							
5	16							
	18							
6	20							
	22							
7	24							
8	26							COBBLES with little Silty Sand, dry
	28							
9	30							
	32							
10	34							
11	36							
	38							
12	40							
	42							
13	44							
14	46							
	48							
15	50							

Completion Detail



Drilling Company:	**Layne Christensen Company**	Date Started: **10/22/99**	Time Started: **8:00 am**
Drilling Method:	**Becker Hammer**	Date Ended: **10/22/99**	Time Ended: **12:00 pm**
Logged By:	**Josh Bernthal**	Boring Diameter:	
Sampling Method:		Total Depth: **30.0**	Depth to Water:

SCS ENGINEERS

BORING LOG

2702 North 44th Street, Suite 105B
Phoenix, Arizona 85008

BORING NUMBER: B-4

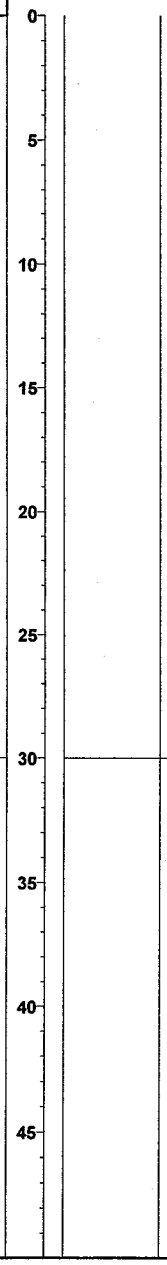
Rio Salado
Phoenix, Arizona

JOB NUMBER: 1098004.09

REMARKS:

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0							
	2							
1	4							
	6							Small GRAVEL, few Silty Sand, dry
2	8							
3	10							
	12							
4	14							
5	16							
	18							
6	20							COBBLES with some coarse Sand, dry
7	22							
	24							
8	26							
	28							Fine brown SAND with some large Gravel, moist
9	30							
10	32							
	34							
11	36							
	38							
12	40							
13	42							
	44							
14	46							
	48							
15	50							

Completion Detail



Drilling Company:	**Layne Christensen Company**	Date Started: **10/22/99**	Time Started: **8:00 am**
Drilling Method:	**Becker Hammer**	Date Ended: **10/22/99**	Time Ended: **12:00 pm**
Logged By:	**Josh Bernthal**	Boring Diameter:	
Sampling Method:		Total Depth: **30.0**	Depth to Water:

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BORING LOG

2702 North 44th Street, Suite 105B
Phoenix, Arizona 85008

BORING NUMBER: B-5

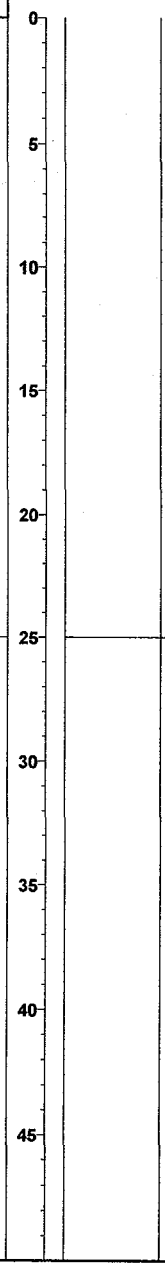
Rio Salado
Phoenix, Arizona

JOB NUMBER: 1098004.09

REMARKS:

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0							Coarse SAND with little medium Gravel, dry
	2							
1	4							
	6							
2	8							
3	10							
	12							
4	14							
	16							Coarse SAND with little small Gravel, dry
5	18							
6	20							Coarse SAND with little small Gravel, moist
	22							
7	24							Fine brown SAND, little medium Gravel, moist
8	26							
	28							
9	30							
	32							
10	34							
11	36							
	38							
12	40							
	42							
13	44							
14	46							
	48							
15	50							

Completion Detail



Drilling Company:	**Layne Christensen Company**	Date Started: **10/22/99**	Time Started: **8:00 am**
Drilling Method:	**Becker Hammer**	Date Ended: **10/22/99**	Time Ended: **12:00 pm**
Logged By:	**Josh Bernthal**	Boring Diameter:	
Sampling Method:		Total Depth: **25.0**	Depth to Water:

SCS ENGINEERS

BORING LOG

2702 North 44th Street, Suite 105B
Phoenix, Arizona 85008

BORING NUMBER: B-6

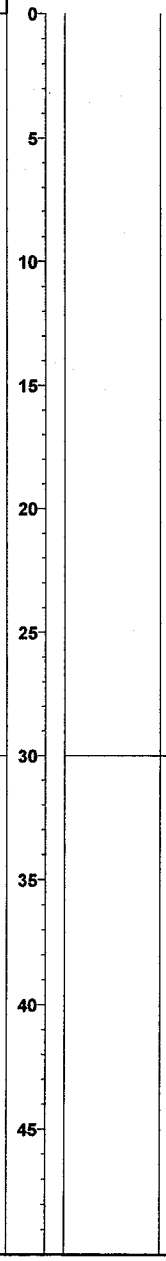
Rio Salado
Phoenix, Arizona

JOB NUMBER: 1098004.09

REMARKS:

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0							
	2							
1	4							
	6							Small GRAVEL, some Silty Sand, dry
2	8							
3	10							Large GRAVEL and COBBLES, some Silty Sand, dry
	12							
4	14							
5	16							
	18							
6	20							Coarse brown SAND, little medium Gravel, moist
	22							
7	24							
8	26							
	28							
9	30							Fine brown SAND, little medium Gravel, moist
	32							
10	34							
11	36							
	38							
12	40							
13	42							
	44							
14	46							
	48							
15	50							

Completion Detail



Drilling Company:	**Layne Christensen Company**	Date Started: **10/22/99**	Time Started: **8:00 am**
Drilling Method:	**Becker Hammer**	Date Ended: **10/22/99**	Time Ended: **12:00 pm**
Logged By:	**Josh Bernthal**	Boring Diameter:	
Sampling Method:		Total Depth: **30.0**	Depth to Water:

SECTION 5
GUIDE DIKE TRENCHING

OVERVIEW

The primary objective of the shallow subsurface exploration was to evaluate the potential presence of buried waste materials in the vicinity of the proposed guide dike locations. The secondary objective was to visually characterize the nature of waste encountered.

METHODOLOGY

Between December 7 and 10, 1999, a total of 17 trenches were excavated across 14 proposed guide dike locations at the locations shown on the attached site map. The City of Phoenix specified which guide dike locations to investigate, and Martin Engineering staked each guide dike at its end nearest the river bank (identified as Point D on guide dike plans). Trenches were generally 20 feet long and 10 feet deep, and were excavated at right angles to the proposed guide dike as close as possible to the staked location. For longer guide dikes and when debris was encountered, one or more additional trenches were excavated near the channel end of the proposed dike location.

In addition to evaluating guide dike locations, an additional 24 exploratory trenches were excavated with the track excavator after guide dike trenches were completed. These additional trench locations were generally in the river bottom area, where excavation had not been possible with the smaller backhoe due to the presence of boulders.

A track excavator with a depth reach of approximately 20 to 22 feet was used to excavate trenches. Each trench was visually inspected to determine the depth and type of cover material over waste, and the nature of waste materials. Soil or waste samples were not collected for laboratory analysis.

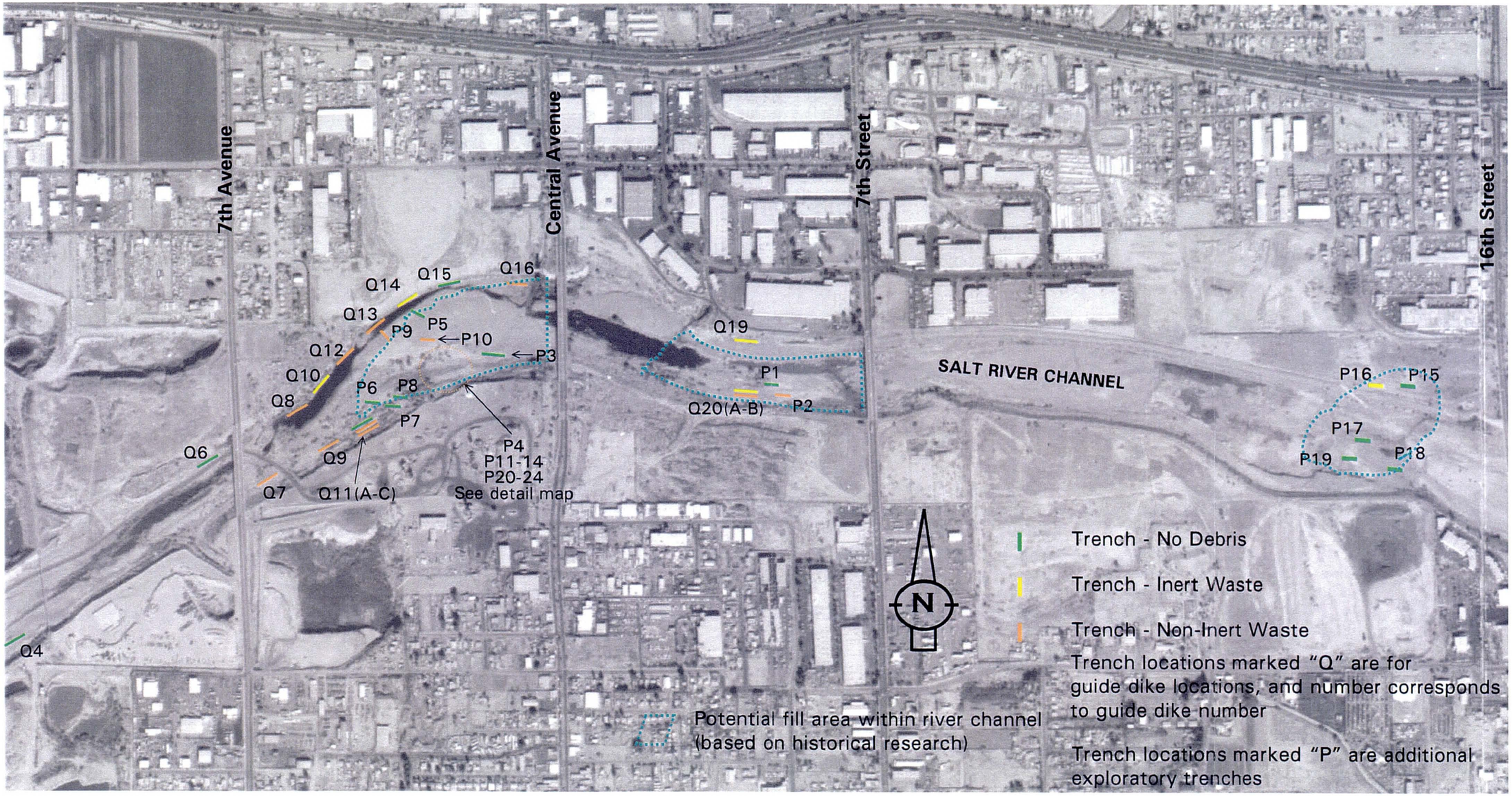
RESULTS

The attached table summarizes the results of visual logging of the guide dike and additional exploratory trenches. Cover material consisted primarily of coarse-grained soils and boulders, at thicknesses ranging from zero (concrete and asphalt debris exposed at the ground surface) to four feet. Several trenches contained little to no waste. Waste types included the following:

- tires
- concrete
- metal debris
- wood and lumber
- household trash (mostly cloth and furniture)

Additional exploratory trench P-14 contained tires, plastic, wood, metal, and cloth from the ground surface to a depth of at least 10 feet below ground surface (bgs). Debris located between 8-10 feet bgs in this trench was below the groundwater surface, and included tires, plastic, wood, and metal. Based on this trench, additional trenching was performed in an attempt to characterize the lateral extent of debris in the area. Trenches P-13, P-21, and P-22 contained debris similar to that in P-14. These trenches did not contain debris below the groundwater surface, although debris in trench P-22 extended to 13 feet bgs (groundwater was located at 15 feet bgs in this trench). However, soils in this trench between the depths of 13 to 15 feet bgs were stained and exhibited an unidentifiable odor. This area of buried waste was located approximately 730 feet west of the Central Avenue Bridge, and measured approximately 325 feet north-south by 300 feet east-west.

GUIDE DIKE AND ADDITIONAL EXPLORATORY TRENCH LOCATION MAPS



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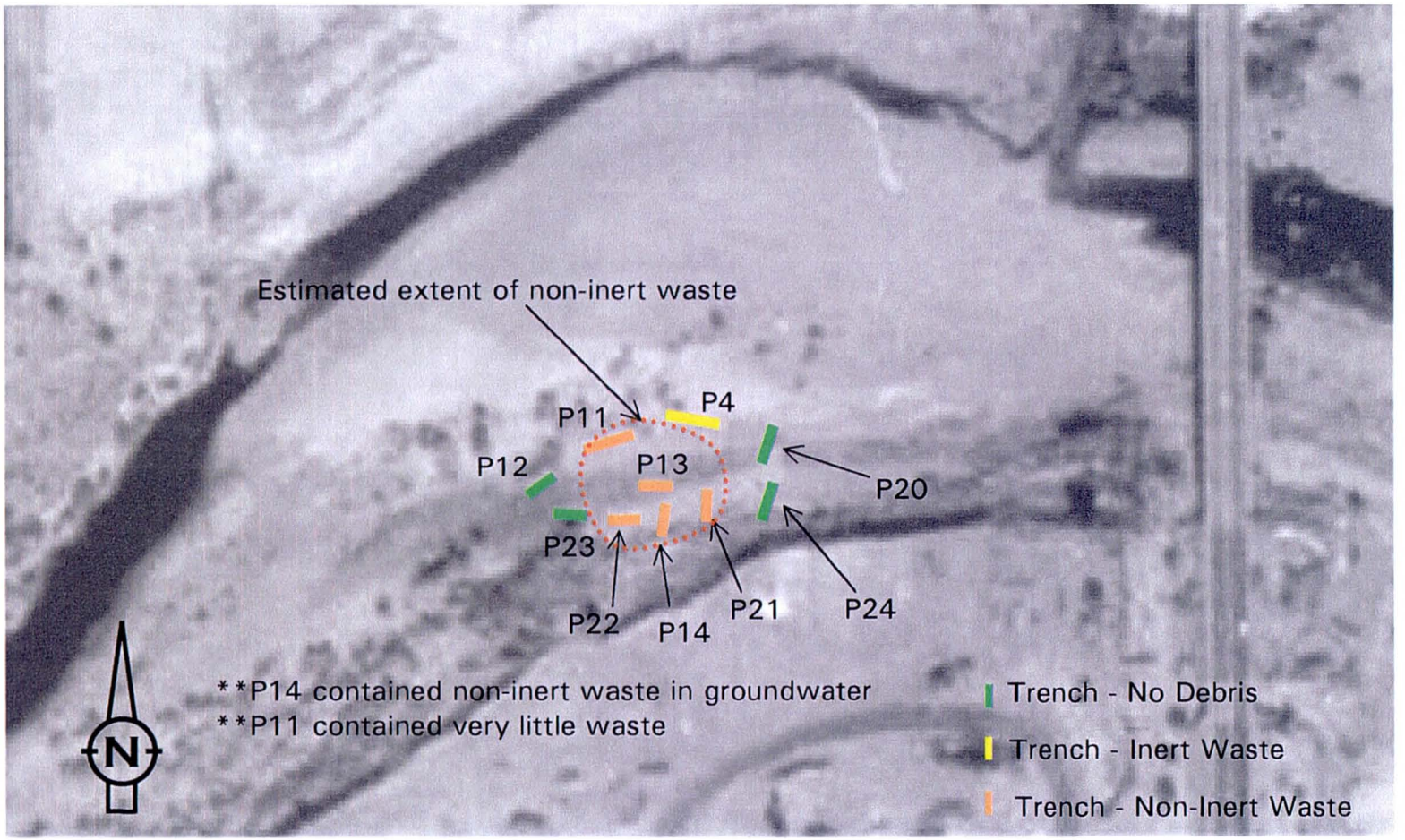
GUIDE DIKE AND ADDITIONAL EXPLORATORY TRENCH LOCATIONS



SCS ENGINEERS

DETAIL VIEW OF ADDITIONAL EXPLORATORY TRENCHES WEST OF CENTRAL AVENUE

SUMMARY TABLES
GUIDE DIKE AND ADDITIONAL EXPLORATORY TRENCHES

GUIDE DIKE AND ADDITIONAL EXPLORATORY TRENCHES

TRENCH ID	COVER THICKNESS	COVER TYPE	VEGETATIVE DEBRIS	METAL, CABLE	CONCRETE, BRICK	AUTO BATTERIES	TIRES	HOUSEHOLD TRASH	FLOOR TILES	WOOD	GLASS	DECAY LAYER
Guide Dike Trenches												
Q- 4	10'	B										
Q- 6	10'	B										
Q- 7	3'	B		X	X			X				
Q- 8	.5'	B			X			X				
Q- 9	1'	B		X	X		X	X				
Q- 10	2'	B			X							
Q- 11A	0'	C		X	X		X	X		X		
Q- 11B	0'	C		X			X	X		X		
Q- 11C	13'	B										
Q- 12	10'	B			X			X				
Q- 13	10'	B		X	X			X				
Q- 14	10'	B			X							
Q- 15	9'	B										
Q- 16	3'	B			X		X					
Q- 19	1'	B		X	X							
Q- 20A	.5'	B			X			X				
Q- 20B	10'	B			X							
Additional Exploratory Trenches												
P- 1	6'	B										
P- 2	0'	C					X					
P- 3	10'	B										
P- 4	3'	B		X	X							
P- 5	10'	B										
P- 6	10'	B										
P- 7	10'	B										
P- 8	10'	B										
P- 9	10'	B		X				X				
P- 10	.5'	B						X				
P- 11	13'	B		X				X				
P- 12	12'	A										
P- 13	0'	C		X			X	X		X		
P- 14	0'	C		X			X	X		X		
P- 15	10'	B										

TRENCH ID	COVER THICKNESS	COVER TYPE	VEGETATIVE DEBRIS	METAL, CABLE	CONCRETE, BRICK	AUTO BATTERIES	TIRES	HOUSEHOLD TRASH	FLOOR TILES	WOOD	GLASS	DECAY LAYER
P- 16	10'	B		X	X							
P- 17	10'	B										
P- 18	8'	B										
P- 19	10'	B										
P- 20	10'	B										
P- 21	0'	C		X	X		X	X		X		
P- 22	0'	C		X			X	X		X		
P- 23	10'	B										
P- 24	10'	B			X							

Notes:

Trenches excavated at proposed guide dike locations are designated by the letter "Q" followed by a number that corresponds to the guide dike number. In cases where more than one trench was excavated at a guide dike location, the guide dike number is followed by A, B, or C for each additional trench.

Additional exploratory trenches are designated by the letter "P"

Q-11A 5 feet north of stake, Q-11B 45 feet north of stake, Q-11C 90 feet north of stake.

Q-20A 15 feet north of stake, Q-20B95 feet north of stake.

Cover Types:

A=predominantly fine-grained soils (fine sand, silt, clay)
B=predominantly coarse-grained soils (coarse sand, gravel, cobbles)
C=predominantly debris (concrete, asphalt)

SECTION 6
SOIL VAPOR SURVEY

OVERVIEW

The objectives of this phase of investigation were to evaluate whether landfill gas (primarily methane) is being generated by buried wastes in the investigation areas, and whether volatile organic compounds may be present as an indicator of the presence of these compounds in buried waste material. Evaluation of the lateral extent or migration potential of such gases and vapors was not performed at this time.

METHODOLOGY

The soil vapor survey included sampling of ten locations as shown on the attached site map. A truck-mounted hydraulic ram equipped with a one-inch diameter steel push probe was used to collect each vapor sample. The intended depth of sampling was 10 feet below ground surface (bgs), but sampling depths ranged from 4 to 10 feet bgs since probe refusal occurred at several locations.

After advancing the steel push probe to the sample depth, the probe was evacuated using a vacuum pump. Field instrumentation was used to screen the discharged air from the vacuum pump for the presence of methane. After purging the probe, an air sample was collected into a Tedlar bag that was then preserved and transported to the permanent laboratory facility for laboratory analysis. The air samples were analyzed for the presence of methane using EPA Method 3C-Modified, and volatile organic compounds in accordance with EPA Method 624-Modified. Results are summarized in the attached tables, followed by complete laboratory reports.

RESULTS

Area 2 - McDonald and Wilhelm

Methane was detected in four of the six samples, at concentrations ranging from non-detect to 33 percent. VOCs were detected in two of the six samples, and included low concentrations of ethylbenzene, toluene, and xylenes, which are commonly associated with petroleum products.

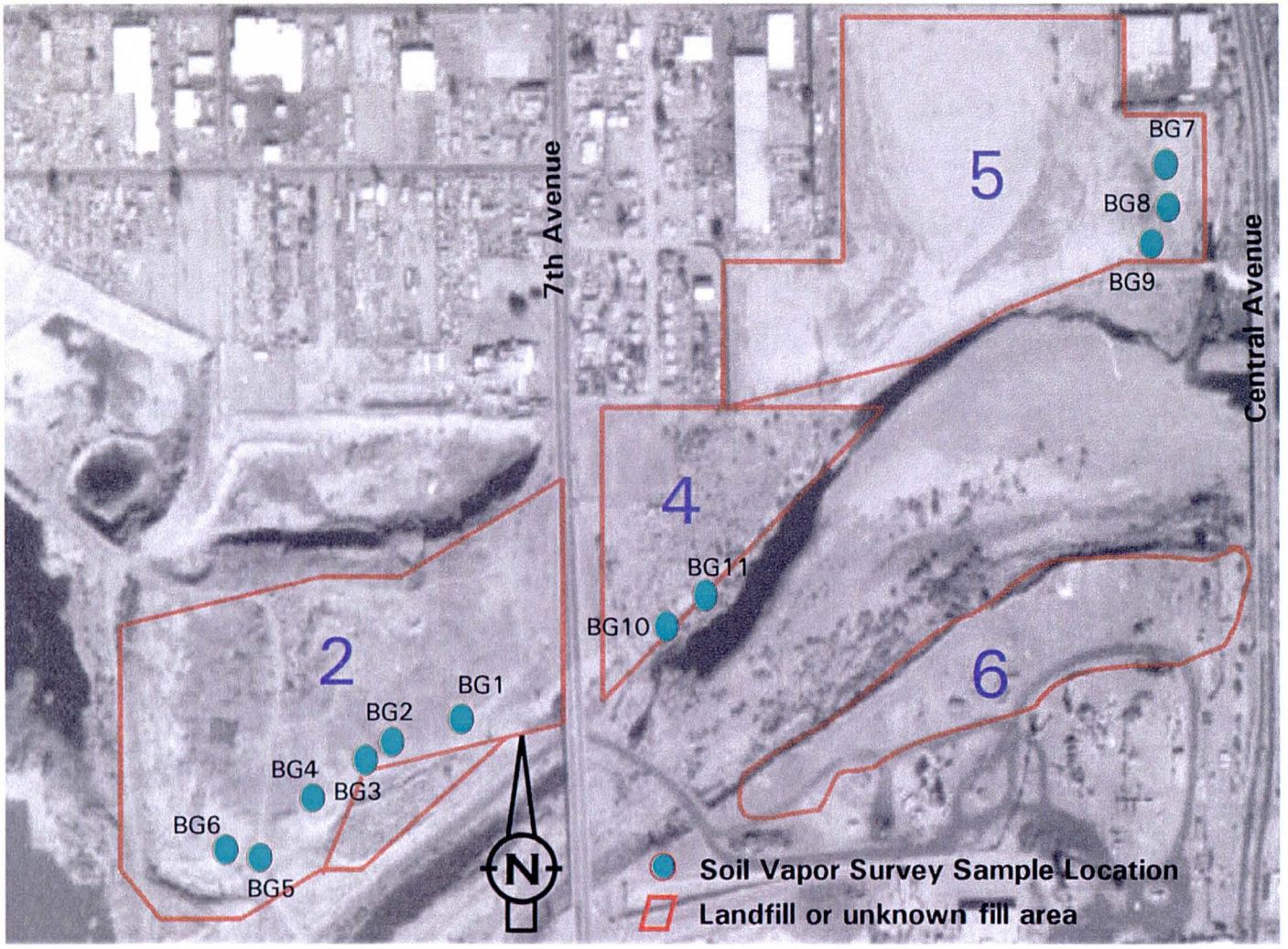
Area 4 - City of Phoenix

Methane or VOCs were not detected in the two samples collected from this area.

Area 5 - United Metro

Methane was detected in both of the two analyzed samples (one sample was not recovered), at concentrations of 7 and 41 percent. VOCs were detected in one of the samples, and included low concentrations of benzene, ethylbenzene, and toluene, which are commonly associated with petroleum products.

SOIL VAPOR SURVEY SAMPLE LOCATION MAP



SCS ENGINEERS

SOIL VAPOR SURVEY SAMPLE LOCATIONS

SOIL VAPOR SURVEY SUMMARY TABLE

SOIL VAPOR SURVEY SUMMARY TABLE

SAMPLE LOCATION	DEPTH (FT)	METHANE (%)	VOCS (µg/L)
Area 2 - McDonald and Wilhelm			
BG1	10	33	ethylbenzene 2.4 toluene 2.9 xylenes 10
BG2	5	<0.33	ND
BG3	6	<0.33	ND
BG4	8	2.9	ND
BG5	5	17	ethylbenzene 1.2 toluene 1.2 xylenes 2.2
BG6	8	0.43	ND
Area 5 - United Metro			
BG7	5	7.0	ND
BG8	no sample	no sample	no sample
BG9	7	41	benzene 2.0 ethylbenzene 2.4 toluene 1.4
Area 4 - City of Phoenix			
BG10	4	<0.33	ND
BG11	10	<0.33	ND

Notes:

ND=not detected (detection limit varies by compound, refer to laboratory reports)

LABORATORY REPORT
SOIL VAPOR SURVEY

TRANSWEST GEOCHEM

TGI ID: A911033

December 01, 1999

SCS Engineers
2702 North 44th Street, Suite #105B
Phoenix, Arizona 85008

Attention: Brad Johnston

Project Name/No: Rio Salado Landfill
Samples Received: 1/8/99
Matrix: Soil Vapor
Mobile Lab No.: TGI01

Transwest Geochem, Inc. received eleven (11) vapor samples on the above date(s). The samples were analyzed by EPA Methods 624-modified and EPA 3C-modified for soil vapor. The results of these analyses and the quality control data are enclosed.

Sampling services were subcontracted to Johnson Environmental Technologies, Inc. All samples were analyzed within the recommended 72 hour holding time for Tedlar bags.

If you have any questions or comments, please do not hesitate to contact us at (480) 756-1400.

Sincerely,

Michael E. Barber

Michael E. Barber
Laboratory Director

ADHS License No.: AZM133/AZ0133

1810 West Drake Drive • Suite 103 • Tempe, AZ 85283 • Phone (480) 756-1400 • Fax (480) 756-1410

Transwest Geochem, Inc.
Analytical Results

Client Name: SCS Engineers
Project Name/No.: Rio Salado Landfill
Samples Received: 1/8/99

TGI ID No.: A911033
ADHS Cert. No.: AZM133/AZ0133

TGI ID/ SAMPLE NUMBER	CLIENT ID	Matrix	Units	Methane by EPA 3C-Modified			
				Date Sampled	Date Analyzed	Dil.	Methane
A911033 -01	Blank	Vapor	%	11/8/99	11/9/99	1	<0.33
A911033 -02	BG1-10	Vapor	%	11/8/99	11/9/99	30	**33**
A911033 -03	BG2-5	Vapor	%	11/8/99	11/9/99	1	<0.33
A911033 -04	BG3-6	Vapor	%	11/8/99	11/9/99	1	<0.33
A911033 -05	BG4-8	Vapor	%	11/8/99	11/9/99	2	**2.9**
A911033 -06	BG5-6	Vapor	%	11/8/99	11/9/99	20	**17**
A911033 -07	BG6-8	Vapor	%	11/8/99	11/9/99	1	**0.43**
A911033 -08	BG7-5	Vapor	%	11/8/99	11/9/99	5	**7.0**
A911033 -09	BG9-7	Vapor	%	11/8/99	11/9/99	40	**41**
A911033 -10	BG10-4	Vapor	%	11/8/99	11/9/99	1	<0.33
A911033 -11	BG11-10	Vapor	%	11/8/99	11/9/99	1	<0.33

Transwest Geochem, Inc.
Analytical Results

Client Name: SCS Engineers
Project Name/No.: Rio Salado Landfill
Samples Received: 1/8/99

TGI ID No.: A911033
ADHS Cert. No.: AZM133/AZ0133

EPA Method 624M						
	Lab ID	A911033-1	A911033-2	A911033-3	A911033-4	A911033-5
	Sample ID	Blank	BG1-10	BG2-5	BG3-6	BG4-8
	Date Analyzed	11/9/99	11/9/99	11/9/99	11/9/99	11/9/99
	Dilution Factor	1	1	1	1	1
ANALYTE	**Units**	ug/l	ug/l	ug/l	ug/l	ug/l
Benzene		<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane		<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform		<1	<1	<1	<1	<1
Bromomethane		<5	<5	<5	<5	<5
Carbon Tetrachloride		<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform		<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane		<5	<5	<5	<5	<5
Chloromethane		<5	<5	<5	<5	<5
Dibromochloromethane		<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane (Freon-12)		<5	<5	<5	<5	<5
1,1-Dichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene		<1	<1	<1	<1	<1
cis-1,2-Dichloroethene		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene		<1	**2.4**	<1	<1	<1
Methylene Chloride		<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane		<1	<1	<1	<1	<1
Tetrachloroethene		<0.5	<0.5	<0.5	<0.5	<0.5
Toluene		<1	**2.9**	<1	<1	<1
1,1,1-Trichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene		<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane (Freon-11)		<5	<5	<5	<5	<5
Vinyl Chloride		<5	<5	<5	<5	<5
Xylenes		<1.5	**10**	<1.5	<1.5	<1.5
Surrogate - 1,2-Dichloroethane-d4 %		97%	113%	105%	108%	97%
Surrogate - Toluene-d8 %		95%	104%	100%	100%	95%
Surrogate - Bromofluorobenzene %		93%	112%	104%	96%	106%
Surrogate - Dibromofluoromethane %		92%	94%	96%	95%	91%

Notes:

D *Indicates the compound was analyzed at a greater dilution.*
* *Result is out of quality control limits due to matrix interference.*
** *Due to the necessary dilution of the sample, result was not attainable.*

Transwest Geochem, Inc.
Analytical Results

Client Name: SCS Engineers
Project Name/No.: Rio Salado Landfill
Samples Received: 1/8/99

TGI ID No.: A911033
ADHS Cert. No.: AZM133/AZ0133

EPA Method 624M						
	Lab ID	A911033-6	A911033-7	A911033-8	A911033-9	A911033-10
	Sample ID	BG5-6	BG6-8	BG7-5	BG9-7	BG10-4
	Date Analyzed	11/9/99	11/9/99	11/9/99	11/9/99	11/9/99
	Dilution Factor	1	1	1	1	1
ANALYTE	**Units**	ug/l	ug/l	ug/l	ug/l	ug/l
Benzene		<0.5	<0.5	<0.5	**2.0**	<0.5
Bromodichloromethane		<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform		<1	<1	<1	<1	<1
Bromomethane		<5	<5	<5	<5	<5
Carbon Tetrachloride		<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform		<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane		<5	<5	<5	<5	<5
Chloromethane		<5	<5	<5	<5	<5
Dibromochloromethane		<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane (Freon-12)		<5	<5	<5	<5	<5
1,1-Dichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene		<1	<1	<1	<1	<1
cis-1,2-Dichloroethene		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene		**1.2**	<1	<1	**2.4**	<1
Methylene Chloride		<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane		<1	<1	<1	<1	<1
Tetrachloroethene		<0.5	<0.5	<0.5	<0.5	<0.5
Toluene		**1.2**	<1	<1	**1.4**	<1
1,1,1-Trichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene		<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane (Freon-11)		<5	<5	<5	<5	<5
Vinyl Chloride		<5	<5	<5	<5	<5
Xylenes		**2.2**	<1.5	<1.5	<1.5	<1.5
Surrogate - 1,2-Dichloroethane-d4 %		106%	107%	111%	108%	114%
Surrogate - Toluene-d8 %		96%	98%	100%	98%	105%
Surrogate - Bromofluorobenzene %		102%	96%	97%	99%	100%
Surrogate - Dibromofluoromethane %		91%	95%	94%	89%	94%

Notes:

D *Indicates the compound was analyzed at a greater dilution.*
* *Result is out of quality control limits due to matrix interference.*
** *Due to the necessary dilution of the sample, result was not attainable.*

Transwest Geochem, Inc.
Analytical Results

Client Name: SCS Engineers
Project Name/No.: Rio Salado Landfill
Samples Received: 1/8/99

TGI ID No.: A911033
ADHS Cert. No.: AZM133/AZ0133

EPA Method 624M		
	Lab ID	A911033-11
	Sample ID	BG11-10
	Date Analyzed	11/9/99
	Dilution Factor	1
ANALYTE	**Units**	ug/l
Benzene		<0.5
Bromodichloromethane		<0.5
Bromoform		<1
Bromomethane		<5
Carbon Tetrachloride		<0.5
Chlorobenzene		<0.5
Chloroform		<0.5
Chloroethane		<5
Chloromethane		<5
Dibromochloromethane		<0.5
1,2-Dichlorobenzene		<0.5
1,3-Dichlorobenzene		<0.5
1,4-Dichlorobenzene		<0.5
Dichlorodifluoromethane (Freon-12)		<5
1,1-Dichloroethane		<0.5
1,2-Dichloroethane		<0.5
1,1-Dichloroethene		<1
cis-1,2-Dichloroethene		<0.5
trans-1,2-Dichloroethene		<0.5
1,2-Dichloropropane		<0.5
cis-1,3-Dichloropropene		<0.5
trans-1,3-Dichloropropene		<0.5
Ethylbenzene		<1
Methylene Chloride		<1
1,1,2,2-Tetrachloroethane		<1
Tetrachloroethene		<0.5
Toluene		<1
1,1,1-Trichloroethane		<0.5
1,1,2-Trichloroethane		<0.5
Trichloroethene		<0.5
Trichlorofluoromethane (Freon-11)		<5
Vinyl Chloride		<5
Xylenes		<1.5
Surrogate - 1,2-Dichloroethane-d4 %		112%
Surrogate - Toluene-d8 %		102%
Surrogate - Bromofluorobenzene %		97%
Surrogate - Dibromofluoromethane %		90%

Notes:

D *Indicates the compound was analyzed at a greater dilution.*
* *Result is out of quality control limits due to matrix interference.*
** *Due to the necessary dilution of the sample, result was not attainable.*

Transwest Geochem, Inc.
Analytical Quality Control Data
Reagent Blank EPA Method 3C-Modified

Client Name: SCS Engineers
Project Name/No.: Rio Salado Landfill
Samples Received: 1/8/99

TGI ID No.: A911033
ADHS Cert. No.: AZM133/AZ0133

Units:	%
Matrix:	Vapor
Methane:	<0.33
Date Sampled:	N/A
Date Analyzed:	11/9/99
Samples Linked:	A911033 -(1-11)

Transwest Geochem, Inc.
Analytical Quality Control Data
EPA Method 3C-Modified

Client Name: SCS Engineers
Project Name/No.: Rio Salado Landfill
Samples Received: 1/8/99

TGI ID No.: A911033
ADHS Cert. No.: AZM133/AZ0133

	Methane
Units:	%
Matrix:	Vapor
Sample Result:	17
Duplicate Result:	17
RPD:	0%
Date Analyzed:	11/9/99
Samples Duplicated:	A911033 -6
Samples Linked:	A911033 -(1-6)

	Methane
Units:	%
Matrix:	Vapor
Sample Result:	7.0
Duplicate Result:	6.9
RPD:	1%
Date Analyzed:	11/9/99
Samples Duplicated:	A911033 -8
Samples Linked:	A911033 -(7-11)

Transwest Geochem, Inc.
Analytical Results
624M QC Summary

Client Name: SCS Engineers
Project Name/No.: Rio Salado Landfill
Samples Received: 1/8/99

TGI ID No.: A911033
ADHS Cert. No.: AZM133/AZ0133

EPA Method 624M			Sample	Duplicate	
	Lab ID	Reagent Blank	A911033-6	A911033-6	
	Sample ID	n/a	BG5-6	BG5-6	
	Date Analyzed	11/9/99	11/9/99	11/9/99	
	Dilution Factor	1	1	1	
ANALYTE	**Units**	ug/L	ug/l	ug/l	% RPD
Benzene		<0.5	<0.5	<0.5	n/a
Bromodichloromethane		<0.5	<0.5	<0.5	n/a
Bromoform		<1	<1	<1	n/a
Bromomethane		<5	<5	<5	n/a
Carbon Tetrachloride		<0.5	<0.5	<0.5	n/a
Chlorobenzene		<0.5	<0.5	<0.5	n/a
Chloroform		<0.5	<0.5	<0.5	n/a
Chloroethane		<5	<5	<5	n/a
Chloromethane		<5	<5	<5	n/a
Dibromochloromethane		<0.5	<0.5	<0.5	n/a
1,2-Dichlorobenzene		<0.5	<0.5	<0.5	n/a
1,3-Dichlorobenzene		<0.5	<0.5	<0.5	n/a
1,4-Dichlorobenzene		<0.5	<0.5	<0.5	n/a
Dichlorodifluoromethane (Freon-12)		<5	<5	<5	n/a
1,1-Dichloroethane		<0.5	<0.5	<0.5	n/a
1,2-Dichloroethane		<0.5	<0.5	<0.5	n/a
1,1-Dichloroethene		<1	<1	<1	n/a
cis-1,2-Dichloroethene		<0.5	<0.5	<0.5	n/a
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5	n/a
1,2-Dichloropropane		<0.5	<0.5	<0.5	n/a
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5	n/a
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5	n/a
Ethylbenzene		<1	**1.2**	**1.2**	0%
Methylene Chloride		<1	<1	<1	n/a
1,1,2,2-Tetrachloroethane		<1	<1	<1	n/a
Tetrachloroethene		<0.5	<0.5	<0.5	n/a
Toluene		<1	**1.2**	**1.1**	9%
1,1,1-Trichloroethane		<0.5	<0.5	<0.5	n/a
1,1,2-Trichloroethane		<0.5	<0.5	<0.5	n/a
Trichloroethene		<0.5	<0.5	<0.5	n/a
Trichlorofluoromethane (Freon-11)		<5	<5	<5	n/a
Vinyl Chloride		<5	<5	<5	n/a
Xylenes		<1.5	**2.2**	**2.3**	4%
Surrogate - 1,2-Dichloroethane-d4 %		99%	106%	111%	
Surrogate - Toluene-d8 %		98%	96%	97%	
Surrogate - Bromofluorobenzene %		98%	102%	106%	
Surrogate - Dibromofluoromethane %		97%	91%	89%	

Transwest Geochem, Inc.
Analytical Results
624M QC Summary

Client Name: SCS Engineers
Project Name/No.: Rio Salado Landfill
Samples Received: 1/8/99

TGI ID No.: A911033
ADHS Cert. No.: AZM133/AZ0133

EPA Method 624M					
	Lab ID	Reagent Blank	Sample	Duplicate	
	Sample ID	n/a	A911033-2	A911033-2	
	Date Analyzed	11/9/99	BG1-10	BG1-10	
	Dilution Factor	1	11/9/99	11/9/99	
ANALYTE	**Units**	ug/L	1	1	
			ug/l	ug/l	% RPD
Benzene		<0.5	<0.5	<0.5	n/a
Bromodichloromethane		<0.5	<0.5	<0.5	n/a
Bromoform		<1	<1	<1	n/a
Bromomethane		<5	<5	<5	n/a
Carbon Tetrachloride		<0.5	<0.5	<0.5	n/a
Chlorobenzene		<0.5	<0.5	<0.5	n/a
Chloroform		<0.5	<0.5	<0.5	n/a
Chloroethane		<5	<5	<5	n/a
Chloromethane		<5	<5	<5	n/a
Dibromochloromethane		<0.5	<0.5	<0.5	n/a
1,2-Dichlorobenzene		<0.5	<0.5	<0.5	n/a
1,3-Dichlorobenzene		<0.5	<0.5	<0.5	n/a
1,4-Dichlorobenzene		<0.5	<0.5	<0.5	n/a
Dichlorodifluoromethane (Freon-12)		<5	<5	<5	n/a
1,1-Dichloroethane		<0.5	<0.5	<0.5	n/a
1,2-Dichloroethane		<0.5	<0.5	<0.5	n/a
1,1-Dichloroethene		<1	<1	<1	n/a
cis-1,2-Dichloroethene		<0.5	<0.5	<0.5	n/a
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5	n/a
1,2-Dichloropropane		<0.5	<0.5	<0.5	n/a
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5	n/a
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5	n/a
Ethylbenzene		<1	**2.4**	**2.3**	4%
Methylene Chloride		<1	<1	<1	n/a
1,1,2,2-Tetrachloroethane		<1	<1	<1	n/a
Tetrachloroethene		<0.5	<0.5	<0.5	n/a
Toluene		<1	**2.9**	**2.9**	0%
1,1,1-Trichloroethane		<0.5	<0.5	<0.5	n/a
1,1,2-Trichloroethane		<0.5	<0.5	<0.5	n/a
Trichloroethene		<0.5	<0.5	<0.5	n/a
Trichlorofluoromethane (Freon-11)		<5	<5	<5	n/a
Vinyl Chloride		<5	<5	<5	n/a
Xylenes		<1.5	**10**	**11**	10%
Surrogate - 1,2-Dichloroethane-d4 %		99%	113%	98%	
Surrogate - Toluene-d8 %		98%	104%	94%	
Surrogate - Bromofluorobenzene %		98%	112%	92%	
Surrogate - Dibromofluoromethane %		97%	94%	88%	

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CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

TRANSWEST GEOCHEM, INC. 1810 W. DRAKE DRIVE, SUITE 103 TEMPE, AZ 85283 480-756-1400 480-756-1410 FAX

Project Manager:	Brad Johnston
Client Name:	SCS Engineers
Address:	2702 N. 44th St., Suite 105B
City, State ZIP	Phoenix, AZ 85008
Phone:	602-840-2596
Fax:	602-224-0572

Bill to:	Brad Johnston
Company:	SCS Engineers
Address:	2702 N. 44th St., Suite 105B
City, State ZIP	Phoenix, AZ 85008
Phone:	602-840-2596
Fax:	602-224-0572

Date:	11·8·99
Page:	1 of 1
Laboratory:	TGI# 01
Lab Number:	A911033

Project Name:	Rio Salado Land fill
Project Number:	

P.O. No.:	

Analysis Requested

Sample Identification	Date Sampled	Time Sampled	Matrix	Relinquished By:	Time Relinquished:	Date Relinquished:	Received By:	Lab ID:	TRPH (418.1AZ)	BTEX (8021B)	TPH - (8015AZ)	GCMS-(8260B/624)	Methane	624 MOD				No. Containers:	Container Type/ Remarks
BLANK	11/8/99	0843	AIR	[illegible]	17:35	11/8/99	[illegible]	01					X	X				1	
BG1-10		0915						02											
BG2-5		1005						03											
BG3-6		1030						04											
BG4-8		1110						05											
BG5-6		1140						06											
BG6-8		1220						07											
BG7-5		1400						08											
BG9-7		1440						09											
BG10-4		1540						10											
BG11-10		1630						11											

Initials:	Printed Name:	Signature:	Date Relinquished:	Time Relinquished:
[illegible]	Scott Johnson	[illegible]		
[illegible]	GAIL Goodman	[illegible]		

Date:	
Start Time:	
Stop Time:	
Hours:	
Client Sign-off:	

Total Containers:	11
Received Intact:	yes
Received Cold:	na
Custody Seals:	na

White copy to TGI, Yellow copy for final report, Pink copy to field sampler

Revised: 6/15/99

SECTION 7
SURFACE SOIL SAMPLING

OVERVIEW

The objective of this task was to evaluate the nature of apparent stained or discolored soils observed at the ground surface. Surface soil sampling was performed at the United Metro Plant 1 site (Area 6) and the McIntyre site (Area 13). Subsurface sampling beneath some of the surface sample locations was performed at the McIntyre site (Area 13) in conjunction with exploratory trenching, as discussed previously in this report.

METHODOLOGY

Area 6 - United Metro

On August 2, 1999, five soil samples were collected from the northern margin of the United Metro Plant 1 parcel. The top of the river bank on this parcel was lined with piles containing the following materials:

- Visibly clean pea gravel and sand (apparently from cleanup of processed material stockpiles to the south);
- Large concrete barrier blocks;
- A few tires;
- Piles of asphalt paving, ranging in size up to six inches; and
- Soil piles, some with oily staining and asphalt oil.

The western portion of the material piles contained most of the asphalt-containing piles, while the eastern portion contained primarily clean sand and gravel piles.

Three soil samples (UM-P-1, UM-P-2, and UM-P-3) were collected directly from material piles at a depth of approximately six to 12 inches. These samples were collected from soils that exhibited oily staining or other unusual coloration; piles of asphalt paving and visibly clean pea gravel and sand were not sampled. It is estimated that the amount of material represented by these samples is less than 5% of the total volume of the material piles.

Two soil samples (UM-S-4 and UM-S-5) were collected from the ground surface adjacent to the material piles. These two locations were areas of runoff accumulation, and the ground surface exhibited brown staining. Soil samples were collected from a depth of zero to six inches.

Samples were analyzed for volatile organic compounds (EPA Method 8021 full list), total petroleum hydrocarbons (ADHS Method 8015AZR1 for gasoline, diesel, and oil ranges), and polyaromatic hydrocarbons (EPA Method 8310).

Area 13 - McIntyre

On August 5, 1999, five soil samples were collected from the northern margin of the McIntyre site, outside of the fence and block wall surrounding the automobile salvage operations. Samples were collected from the following materials:

- Sample MCI-S-1, surface deposit of dark material, apparently ash, with glass and metallic car parts;
- Sample MCI-S-2, dark burned material, collected from the sidewall of the footing trench for the adjacent block wall;
- Sample MCI-S-3, dark soil with slag, metallic car parts, and glass, excavated by others from the footing for the adjacent block wall;
- Sample MCI-S-4, encrusted soil with no discoloration;

- MCI-S-5, surface deposit of ash and automobile parts.

The five soil samples were collected directly from the ground surface at the described locations. Soil samples were collected from a depth of zero to six inches.

Samples were analyzed for volatile organic compounds (EPA Method 8021B), total petroleum hydrocarbons (ADHS Method 8015AZR1 for gasoline, diesel, and oil ranges), polychlorinated biphenyls (EPA Method 8082), polyaromatic hydrocarbons (EPA Method 8310), and total RCRA metals (EPA Methods 6010B and 7471A).

RESULTS

Area 6 - United Metro

All five of the soil samples contained detectable petroleum hydrocarbons in the regulated range (C10-32), ranging from 1,400 mg/kg to 14,000 mg/kg. Only one sample (UM-P-2, collected from a stockpile of soil and pea gravel) exceeded the residential Soil Remediation Level (SRL). This sample did not exceed the non-residential SRL. The only volatile organic compound detected by EPA Method 8021 was naphthalene, at a concentration of 1.5 mg/kg. This detection is below the residential SRL of 2,600 mg/kg.

Three samples contained detectable concentrations of polynuclear aromatic hydrocarbons (PAH), but at low concentrations. UM-P-1 and UM-P-3 contained 0.51 and 0.57 mg/kg fluoranthene, respectively, and UM-S-5 contained 0.53 mg/kg benzo(a)anthracene and 2.1 mg/kg fluoranthene. These detections are below the residential SRLs of 6.1 mg/kg for benzo(a)anthracene and 2,600 mg/kg for fluoranthene.

Potential sources of these detected compounds are believed to be asphalt oil and possibly diesel fuel associated with nearby asphalt blending activities.

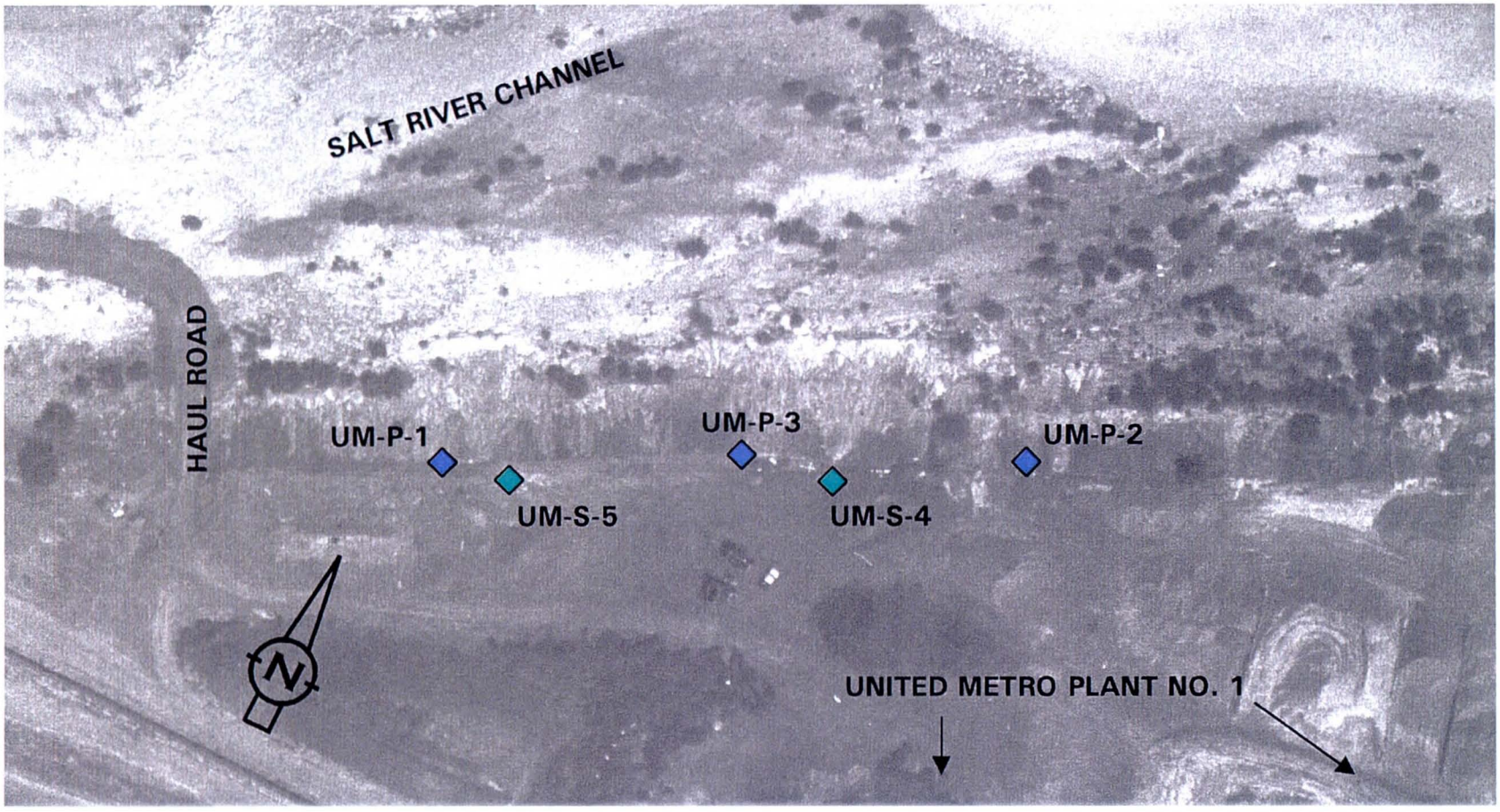
Area 13 - McIntyre

Petroleum hydrocarbons were not detected in the collected samples. The only volatile organic compound detected by EPA Method 8021 was naphthalene, at a concentration of 0.66 mg/kg in sample MCI-S-3. This detection is below the residential SRL of 2,600 mg/kg. Two samples contained detectable PCBs (Arochlor 1260), but the concentrations of 0.16 and 0.068 were well below the residential SRL of 2.5 mg/kg.

Up to 13 different polynuclear aromatic hydrocarbons were detected in the analyzed samples. However, detected concentrations were well below residential SRLs. All samples contained detectable RCRA Metals including barium, cadmium, chromium, lead, and mercury. Sample MCI-S-1 contained lead at a concentration of 400 mg/kg, which is equal to the residential SRL. All other detections were below SRLs.

The sources of these compounds appeared to be staining and debris at the ground surface that was associated with automobile salvage activities. It should be noted that there were numerous small (less than 10 square feet) oil stains on the ground surface near many of the automobiles, but the extent of these stains was not assessed.

SURFACE SOIL SAMPLE LOCATION MAPS



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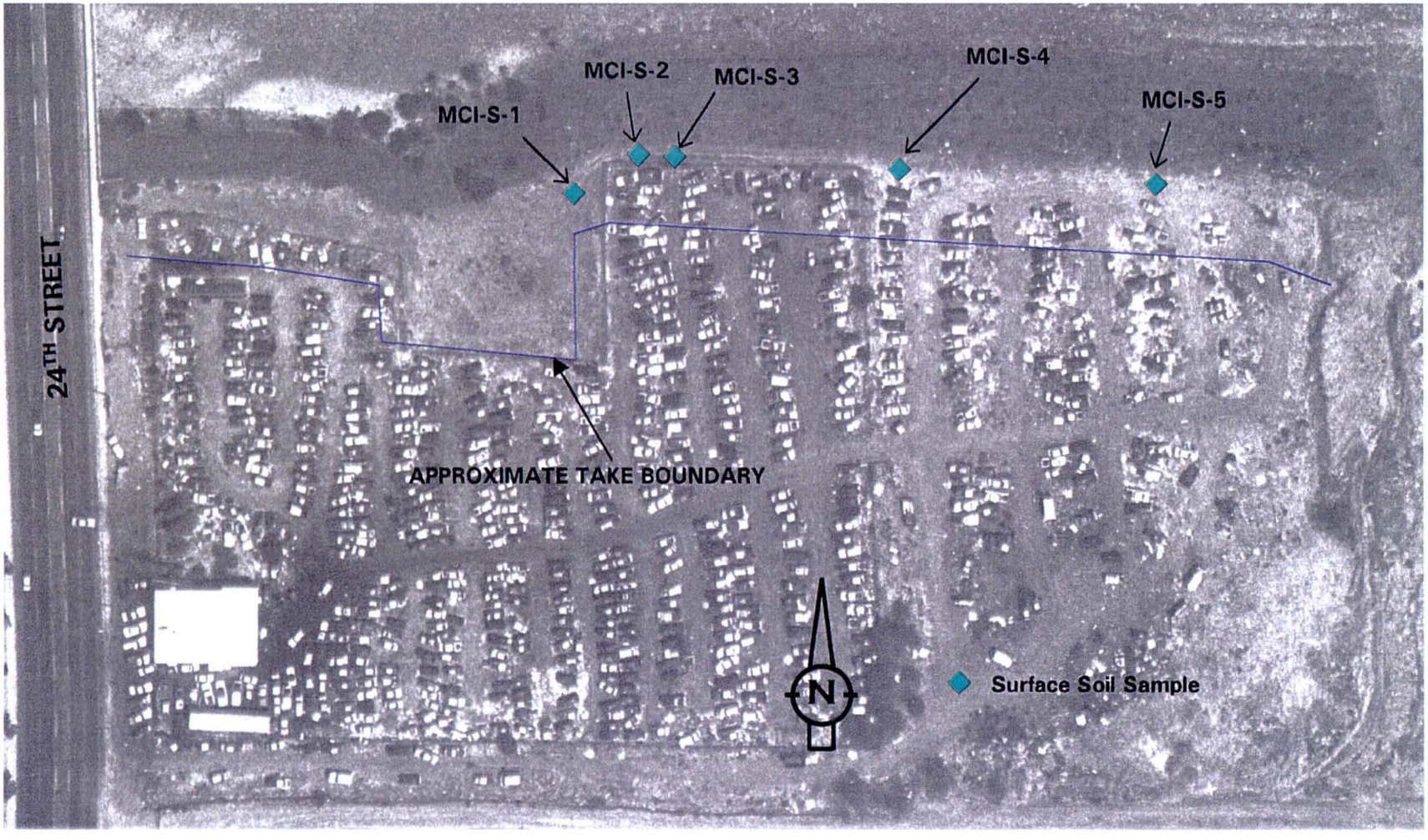
AREA 6 UNITED METRO SOIL SAMPLE LOCATIONS



SCS ENGINEERS

AREA 13 MCINTYRE SURFACE SAMPLE LOCATIONS

SURFACE SOIL SAMPLING SUMMARY TABLES

SURFACE SOIL SAMPLE RESULTS

AREA 6 - UNITED METRO PLANT #1

SAMPLE LOCATION	PETROLEUM HYDROCARBONS (mgkg)	VOLATILE ORGANIC COMPOUNDS (mg/kg)	POLYNUCLEAR AROMATIC HYDROCARBONS (mg/kg)
UM-P-1	C_{6-10} <20 C_{10-32} 1900	ND	fluoranthene 0.51
UM-P-2	C_{6-10} <20 C_{10-32} **14,000**	ND	ND
UM-P-3	C_{6-10} <20 C_{10-32} 1400	naphthalene 1.5	fluoranthene 0.57
UM-S-4	C_{6-10} <20 C_{10-32} 1700	ND	ND
UM-S-5	C_{6-10} <20 C_{10-32} 2000	ND	benzo(a)anthracene 0.53 fluoranthene 2.1
SOIL REMEDIATION LEVELS (res/non-res)	C_{6-10} NA C_{10-32} 4100/18,000	naphthalene 2600/27,000	benzo(a)anthracene 6.1/26 fluoranthene 2600/27,000

Notes:

ND=not detected (detection limit varies by compound, refer to laboratory reports)
NA=not available

SURFACE SOIL SAMPLE RESULTS

AREA 13 - MCINTYRE

SAMPLE LOCATION	PETROLEUM HYDROCARBONS (mg/kg)	VOLATILE ORGANIC COMPOUNDS (mg/kg)	PCBs (mg/kg)	POLYNUCLEAR AROMATIC HYDROCARBONS (mg/kg)	TOTAL RCRA METALS (mg/kg)
MCI-S-1	C_{6-10} <20 C_{10-32} <130	ND	ND	acenaphthene 0.080 benzo(a)anthracene 0.013 benzo(a)pyrene 0.02 benzo(b)fluoranthene 0.017 benzo(g,h,i)perylene 0.025 benzo(k)fluoranthene 0.0098 chrysene 0.021 dibenz(a,h)anthracene 0.019 fluoranthene 0.059 indeno(1,2,3cd)pyrene 0.019 naphthalene 0.046 phenanthrene 0.012 pyrene 0.029	arsenic <5 barium 290 cadmium 14 chromium 45 lead **400** mercury 0.038 selenium <10 silver <2.5
MCI-S-2	C_{6-10} <20 C_{10-32} <130	ND	ND	acenaphthene 0.086 naphthalene 0.240	arsenic <5 barium 170 cadmium 3.1 chromium 19 lead 140 mercury <0.02 selenium <10 silver <2.5
MCI-S-3	C_{6-10} <20 C_{10-32} <130	naphthalene 0.66	0.16	benzo(a)anthracene 0.0041 benzo(a)pyrene 0.0062 benzo(b)fluoranthene 0.0066 benzo(g,h,i)perylene 0.013 benzo(k)fluoranthene 0.0035 chrysene 0.01 dibenz(a,h)anthracene 0.0082 fluoranthene 0.0058 naphthalene 0.03 phenanthrene 0.0074	arsenic <5 barium 170 cadmium 9.7 chromium 710 lead 300 mercury 0.075 selenium <10 silver <2.5

SAMPLE LOCATION	PETROLEUM HYDROCARBONS (mg/kg)	VOLATILE ORGANIC COMPOUNDS (mg/kg)	PCBs (mg/kg)	POLYNUCLEAR AROMATIC HYDROCARBONS (mg/kg)		TOTAL RCRA METALS (mg/kg)	
MCI-S-4	C_{6-10} <20 C_{10-32} <130	ND	ND	benzo(a)pyrene benzo(b)fluoranthene benzo(g,h,i)perylene benzo(k)fluoranthene chrysene dibenz(a,h)anthracene fluoranthene indeno(1,2,3cd)pyrene naphthalene phenanthrene	0.0064 0.006 0.0086 0.0038 0.0097 0.0076 0.017 0.0065 0.025 0.0095	arsenic barium cadmium chromium lead mercury selenium silver	<5 140 0.93 15 21 <0.02 <10 <2.5
MCI-S-5	C_{6-10} <20 C_{10-32} <130	ND	0.068	acenaphthene acenaphthylene benzo(a)anthracene benzo(a)pyrene benzo(b)fluoranthene benzo(g,h,i)perylene benzo(k)fluoranthene chrysene dibenz(a,h)anthracene fluoranthene naphthalene phenanthrene pyrene	0.086 0.08 0.0079 0.016 0.014 0.021 0.0084 0.024 0.02 0.044 0.099 0.0089 0.029	arsenic barium cadmium chromium lead mercury selenium silver	<5 110 2.6 18 150 0.026 <10 <2.5

SAMPLE LOCATION	PETROLEUM HYDROCARBONS (mg/kg)		VOLATILE ORGANIC COMPOUNDS (mg/kg)		PCBs (mg/kg)	POLYNUCLEAR AROMATIC HYDROCARBONS (mg/kg)		TOTAL RCRA METALS (mg/kg)	
SOIL REMEDIATION LEVELS (res/non-res)	C_{6-10}	NA	naphthalene	2600/27,000	2.5/13	acenaphthene	3900/41,000	arsenic	10/10
	C_{10-32}	4100/18,000				acenaphthylene	NA	barium	5300/110,000
						benzo(a)anthracene	6.1/26	cadmium	38/850
						benzo(a)pyrene	0.61/2.6	chromium	2100/4500
						benzo(b)fluoranthene	6.1/26	lead	400/2000
						benzo(g,h,i)perylene	NA	mercury	6.7/180
						benzo(k)fluoranthene	61/260	selenium	380/8500
						chrysene	610/2600	silver	380/8500
						dibenz(a,h)anthracene	0.61/2.6		
						fluoranthene	2600/27,000		
						indeno(1,2,3cd)pyrene	6.1/26		
						naphthalene	2600/27,000		
						phenanthrene	NA		
						pyrene	2000/20,000		

Notes:

ND=not detected (detection limit varies by compound, refer to laboratory reports)
NA=not available

LABORATORY REPORT
SURFACE SOIL SAMPLING
AREA 6-UNITED METRO PLANT 1

Del Mar Analytical

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09

Report Number: PIH00046

Sampled: Aug 2, 1999
Received: Aug 2, 1999
Extracted: Aug 3-6, 1999
Analyzed: Aug 4-9, 1999
Reported: Aug 10, 1999

CASE NARRATIVE

LABORATORY NUMBER	SAMPLE DESCRIPTION	SAMPLE MATRIX	EPA ANALYSES
PIH00046	UM-P-1	Soil	8015AZR1, 8021B & 8310
PIH00047	UM-P-2	Soil	8015AZR1, 8021B & 8310
PIH00048	UM-P-3	Soil	8015AZR1, 8021B & 8310
PIH00049	UM-S-4	Soil	8015AZR1, 8021B & 8310
PIH00050	UM-S-5	Soil	8015AZR1, 8021B & 8310

SAMPLE RECEIPT: Samples were received intact, on ice, and with chain of custody documentation. Soil volatiles were submitted in brass sleeve sample containers.

HOLDING TIMES: Holding times were met.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

PROBLEMS ENCOUNTERED: No problems were encountered during sample analysis.

QA/QC CRITERIA: All analyses met method criteria.

OBSERVATIONS: No significant observations were made.

SUBCONTRACTED: No analyses were subcontracted to an outside laboratory.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

RR. for
Kim Eberenz
Project Manager

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09
Analysis Method: ADHS 8015AZR1
First Sample #: PIH00046

Sampled: Aug 2, 1999
Received: Aug 2, 1999
Extracted: Aug 3, 1999
Analyzed: Aug 4-6, 1999
Reported: Aug 10, 1999

EXTRACTABLE FUEL HYDROCARBONS (ADHS METHOD 8015AZR1)

Laboratory Number QC Batch IH03DEIS	Sample Description Soil	DRO C10-C22 mg/Kg (ppm) (Reporting Limit)	ORO C22-C32 mg/Kg (ppm) (Reporting Limit)	TOTAL C10-C32 mg/Kg (ppm) (Reporting Limit)	(Dilution Factor)	Surrogate Recovery o-Terphenyl % (Acceptance Limits: 70-130%)
PIH00046	UM-P-1	N.D.	1,900	1,900		Diluted Out
		300	1,000	1,300	10	
PIH00047	UM-P-2	1,200	13,000	14,000		Diluted Out
		300	1,000	1,300	10	
PIH00048	UM-P-3	N.D.	1,400	1,400		Diluted Out
		300	1,000	1,300	10	
PIH00049	UM-S-4	N.D.	1,700	1,700		Diluted Out
		300	1,000	1,300	10	
PIH00050	UM-S-5	N.D.	2000	2000		Diluted Out
		300	1,000	1,300	10	

Extractable fuel hydrocarbons are quantitated against diesel and oil fuel standards by direct injection.
Analytes reported as N.D. were not present at or above the reporting limit. Reporting limits for each analyte are listed directly below the analytical results.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

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2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09

Analysis Method: ADHS Method 8015AZR1
First Sample #: PIH00046

Sampled: Aug 2, 1999
Received: Aug 2, 1999
Extracted: Aug 4, 1999
Analyzed: Aug 9, 1999
Reported: Aug 10, 1999

VOLATILE FUEL HYDROCARBONS (ADHS METHOD 8015AZR1)

Laboratory Number QC Batch IH04BEIS	Sample Description Soil	GRO C6-C10 mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)	Dilution Factor	Surrogate Recovery 4-BFB % (Acceptance Limits: 70-130%)
PIH00046	UM-P-1	N.D.	20	1.0	80
PIH00047	UM-P-2	N.D.	20	1.0	82
PIH00048	UM-P-3	N.D.	20	1.0	82
PIH00049	UM-S-4	N.D.	20	1.0	75
PIH00050	UM-S-5	N.D.	20	1.0	79

Volatile Fuel Hydrocarbons are quantitated against a gasoline standard by purge & trap. Hydrocarbons detected by this method range from C6 to C10.

Analytes reported as N.D. were not present at or above the reporting limit

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09
Sample Descript: Soil, UM-P-1
Lab Number: PIH00046

Sampled: Aug 2, 1999
Received: Aug 2, 1999
Extracted: Aug 4, 1999
Analyzed: Aug 5, 1999
Reported: Aug 10, 1999

HALOGENATED AND AROMATIC VOLATILES (EPA 8021B)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)	Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Benzene	50	N.D.	Ethylbenzene	50	N.D.
Bromobenzene	100	N.D.	Hexachlorobutadiene	100	N.D.
Bromochloromethane	100	N.D.	Isopropylbenzene	100	N.D.
Bromodichloromethane	50	N.D.	p-Isopropyltoluene	100	N.D.
Bromoform	50	N.D.	Methylene chloride	200	N.D.
Bromomethane	100	N.D.	Naphthalene	100	N.D.
n-Butylbenzene	100	N.D.	n-Propylbenzene	100	N.D.
sec-Butylbenzene	100	N.D.	Styrene	100	N.D.
tert-Butylbenzene	100	N.D.	1,1,1,2-Tetrachloroethane	100	N.D.
Carbon tetrachloride	50	N.D.	1,1,2,2-Tetrachloroethane	50	N.D.
Chlorobenzene	50	N.D.	Tetrachloroethene	50	N.D.
Chloroethane	250	N.D.	Toluene	50	N.D.
Chloroform	50	N.D.	1,2,3-Trichlorobenzene	100	N.D.(L)
Chloromethane	100	N.D.	1,2,4-Trichlorobenzene	100	N.D.
2-Chlorotoluene	100	N.D.	1,1,1-Trichloroethane	50	N.D.
4-Chlorotoluene	100	N.D.	1,1,2-Trichloroethane	50	N.D.
Dibromochloromethane	50	N.D.	Trichloroethene	50	N.D.
1,2-Dibromo-3-chloropropane	100	N.D.	Trichlorofluoromethane	100	N.D.
1,2-Dibromoethane	100	N.D.	1,2,3-Trichloropropane	100	N.D.
Dibromomethane	100	N.D.	1,2,4-Trimethylbenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.	1,3,5-Trimethylbenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.	Vinyl chloride	100	N.D.
1,4-Dichlorobenzene	100	N.D.	o-Xylene	50	N.D.
Dichlorodifluoromethane	250	N.D.	m,p-Xylenes	100	N.D.
1,1-Dichloroethane	50	N.D.			
1,2-Dichloroethane	50	N.D.			
1,1-Dichloroethene	50	N.D.			
cis-1,2-Dichloroethene	50	N.D.			
trans-1,2-Dichloroethene	50	N.D.			
1,2-Dichloropropane	50	N.D.			
1,3-Dichloropropane	100	N.D.			
2,2-Dichloropropane	100	N.D.			
1,1-Dichloropropene	100	N.D.			
cis-1,3-Dichloropropene	50	N.D.			
trans-1,3-Dichloropropene	100	N.D.			

Analytes reported as N.D. were not present at or above the reporting limit.
L=Laboratory Control Sample recovery was above the method control limits; Data not impacted.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept. Limits):	
1-Chloro-3-fluorobenzene (70-130).	106%
a,a,a-Trifluorotoluene (70-130).....	105%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09
Sample Descript: Soil, UM-P-2
Lab Number: PIH00047

Sampled: Aug 2, 1999
Received: Aug 2, 1999
Extracted: Aug 4, 1999
Analyzed: Aug 5, 1999
Reported: Aug 10, 1999

HALOGENATED AND AROMATIC VOLATILES (EPA 8021B)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)	Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Benzene	50	N.D.	Ethylbenzene	50	N.D.
Bromobenzene	100	N.D.	Hexachlorobutadiene	100	N.D.
Bromochloromethane	100	N.D.	Isopropylbenzene	100	N.D.
Bromodichloromethane	50	N.D.	p-Isopropyltoluene	100	N.D.
Bromoform	50	N.D.	Methylene chloride	200	N.D.
Bromomethane	100	N.D.	Naphthalene	100	N.D.
n-Butylbenzene	100	N.D.	n-Propylbenzene	100	N.D.
sec-Butylbenzene	100	N.D.	Styrene	100	N.D.
tert-Butylbenzene	100	N.D.	1,1,1,2-Tetrachloroethane	100	N.D.
Carbon tetrachloride	50	N.D.	1,1,2,2-Tetrachloroethane	50	N.D.
Chlorobenzene	50	N.D.	Tetrachloroethene	50	N.D.
Chloroethane	250	N.D.	Toluene	50	N.D.
Chloroform	50	N.D.	1,2,3-Trichlorobenzene	100	N.D.(L)
Chloromethane	100	N.D.	1,2,4-Trichlorobenzene	100	N.D.
2-Chlorotoluene	100	N.D.	1,1,1-Trichloroethane	50	N.D.
4-Chlorotoluene	100	N.D.	1,1,2-Trichloroethane	50	N.D.
Dibromochloromethane	50	N.D.	Trichloroethene	50	N.D.
1,2-Dibromo-3-chloropropane	100	N.D.	Trichlorofluoromethane	100	N.D.
1,2-Dibromoethane	100	N.D.	1,2,3-Trichloropropane	100	N.D.
Dibromomethane	100	N.D.	1,2,4-Trimethylbenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.	1,3,5-Trimethylbenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.	Vinyl chloride	100	N.D.
1,4-Dichlorobenzene	100	N.D.	o-Xylene	50	N.D.
Dichlorodifluoromethane	250	N.D.	m,p-Xylenes	100	N.D.
1,1-Dichloroethane	50	N.D.			
1,2-Dichloroethane	50	N.D.			
1,1-Dichloroethene	50	N.D.			
cis-1,2-Dichloroethene	50	N.D.			
trans-1,2-Dichloroethene	50	N.D.			
1,2-Dichloropropane	50	N.D.			
1,3-Dichloropropane	100	N.D.			
2,2-Dichloropropane	100	N.D.			
1,1-Dichloropropene	100	N.D.			
cis-1,3-Dichloropropene	50	N.D.			
trans-1,3-Dichloropropene	100	N.D.			

Analytes reported as N.D. were not present at or above the reporting limit.
L=Laboratory Control Sample recovery was above the method control limits; Data not impacted.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.
Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept. Limits):	
1-Chloro-3-fluorobenzene (70-130).	112%
a,a,a-Trifluorotoluene (70-130).....	106%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09

Sample Descript: Soil, UM-P-3
Lab Number: PIH00048

Sampled: Aug 2, 1999
Received: Aug 2, 1999
Extracted: Aug 4, 1999
Analyzed: Aug 5, 1999
Reported: Aug 10, 1999

HALOGENATED AND AROMATIC VOLATILES (EPA 8021B)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)	Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Benzene	50	N.D.	Ethylbenzene	50	N.D.
Bromobenzene	100	N.D.	Hexachlorobutadiene	100	N.D.
Bromochloromethane	100	N.D.	Isopropylbenzene	100	N.D.
Bromodichloromethane	50	N.D.	p-Isopropyltoluene	100	N.D.
Bromoform	50	N.D.	Methylene chloride	200	N.D.
Bromomethane	100	N.D.	**Naphthalene**	**100**	**1,500**
n-Butylbenzene	100	N.D.	n-Propylbenzene	100	N.D.
sec-Butylbenzene	100	N.D.	Styrene	100	N.D.
tert-Butylbenzene	100	N.D.	1,1,1,2-Tetrachloroethane	100	N.D.
Carbon tetrachloride	50	N.D.	1,1,2,2-Tetrachloroethane	50	N.D.
Chlorobenzene	50	N.D.	Tetrachloroethene	50	N.D.
Chloroethane	250	N.D.	Toluene	50	N.D.
Chloroform	50	N.D.	1,2,3-Trichlorobenzene	100	N.D.(L)
Chloromethane	100	N.D.	1,2,4-Trichlorobenzene	100	N.D.
2-Chlorotoluene	100	N.D.	1,1,1-Trichloroethane	50	N.D.
4-Chlorotoluene	100	N.D.	1,1,2-Trichloroethane	50	N.D.
Dibromochloromethane	50	N.D.	Trichloroethene	50	N.D.
1,2-Dibromo-3-chloropropane	100	N.D.	Trichlorofluoromethane	100	N.D.
1,2-Dibromoethane	100	N.D.	1,2,3-Trichloropropane	100	N.D.
Dibromomethane	100	N.D.	1,2,4-Trimethylbenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.	1,3,5-Trimethylbenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.	Vinyl chloride	100	N.D.
1,4-Dichlorobenzene	100	N.D.	o-Xylene	50	N.D.
Dichlorodifluoromethane	250	N.D.	m,p-Xylenes	100	N.D.
1,1-Dichloroethane	50	N.D.			
1,2-Dichloroethane	50	N.D.			
1,1-Dichloroethene	50	N.D.			
cis-1,2-Dichloroethene	50	N.D.			
trans-1,2-Dichloroethene	50	N.D.			
1,2-Dichloropropane	50	N.D.			
1,3-Dichloropropane	100	N.D.			
2,2-Dichloropropane	100	N.D.			
1,1-Dichloropropene	100	N.D.			
cis-1,3-Dichloropropene	50	N.D.			
trans-1,3-Dichloropropene	100	N.D.			

Analytes reported as N.D. were not present at or above the reporting limit.
L=Laboratory Control Sample recovery was above the method control limits; Data not impacted.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Surrogate Standard Recoveries (Accept. Limits):	
1-Chloro-3-fluorobenzene (70-130).	111%
a,a,a-Trifluorotoluene (70-130).....	107%

Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09
Sample Descript: Soil, UM-S-4
Lab Number: PIH00049

Sampled: Aug 2, 1999
Received: Aug 2, 1999
Extracted: Aug 4, 1999
Analyzed: Aug 5, 1999
Reported: Aug 10, 1999

HALOGENATED AND AROMATIC VOLATILES (EPA 8021B)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)	Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Benzene	50	N.D.	Ethylbenzene	50	N.D.
Bromobenzene	100	N.D.	Hexachlorobutadiene	100	N.D.
Bromochloromethane	100	N.D.	Isopropylbenzene	100	N.D.
Bromodichloromethane	50	N.D.	p-Isopropyltoluene	100	N.D.
Bromoform	50	N.D.	Methylene chloride	200	N.D.
Bromomethane	100	N.D.	Naphthalene	100	N.D.
n-Butylbenzene	100	N.D.	n-Propylbenzene	100	N.D.
sec-Butylbenzene	100	N.D.	Styrene	100	N.D.
tert-Butylbenzene	100	N.D.	1,1,1,2-Tetrachloroethane	100	N.D.
Carbon tetrachloride	50	N.D.	1,1,2,2-Tetrachloroethane	50	N.D.
Chlorobenzene	50	N.D.	Tetrachloroethene	50	N.D.
Chloroethane	250	N.D.	Toluene	50	N.D.
Chloroform	50	N.D.	1,2,3-Trichlorobenzene	100	N.D.(L)
Chloromethane	100	N.D.	1,2,4-Trichlorobenzene	100	N.D.
2-Chlorotoluene	100	N.D.	1,1,1-Trichloroethane	50	N.D.
4-Chlorotoluene	100	N.D.	1,1,2-Trichloroethane	50	N.D.
Dibromochloromethane	50	N.D.	Trichloroethene	50	N.D.
1,2-Dibromo-3-chloropropane	100	N.D.	Trichlorofluoromethane	100	N.D.
1,2-Dibromoethane	100	N.D.	1,2,3-Trichloropropane	100	N.D.
Dibromomethane	100	N.D.	1,2,4-Trimethylbenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.	1,3,5-Trimethylbenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.	Vinyl chloride	100	N.D.
1,4-Dichlorobenzene	100	N.D.	o-Xylene	50	N.D.
Dichlorodifluoromethane	250	N.D.	m,p-Xylenes	100	N.D.
1,1-Dichloroethane	50	N.D.			
1,2-Dichloroethane	50	N.D.			
1,1-Dichloroethene	50	N.D.			
cis-1,2-Dichloroethene	50	N.D.			
trans-1,2-Dichloroethene	50	N.D.			
1,2-Dichloropropane	50	N.D.			
1,3-Dichloropropane	100	N.D.			
2,2-Dichloropropane	100	N.D.			
1,1-Dichloropropene	100	N.D.			
cis-1,3-Dichloropropene	50	N.D.			
trans-1,3-Dichloropropene	100	N.D.			

Analytes reported as N.D. were not present at or above the reporting limit.
L=Laboratory Control Sample recovery was above the method control limits; Data not impacted.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Surrogate Standard Recoveries (Accept. Limits):	
1-Chloro-3-fluorobenzene (70-130).	107%
a,a,a-Trifluorotoluene (70-130).....	106%

Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09

Sample Descript: Soil, UM-S-5
Lab Number: PIH00050

Sampled: Aug 2, 1999
Received: Aug 2, 1999
Extracted: Aug 4, 1999
Analyzed: Aug 5, 1999
Reported: Aug 10, 1999

HALOGENATED AND AROMATIC VOLATILES (EPA 8021B)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)	Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Benzene	50	N.D.	Ethylbenzene	50	N.D.
Bromobenzene	100	N.D.	Hexachlorobutadiene	100	N.D.
Bromochloromethane	100	N.D.	Isopropylbenzene	100	N.D.
Bromodichloromethane	50	N.D.	p-Isopropyltoluene	100	N.D.
Bromoform	50	N.D.	Methylene chloride	200	N.D.
Bromomethane	100	N.D.	Naphthalene	100	N.D.
n-Butylbenzene	100	N.D.	n-Propylbenzene	100	N.D.
sec-Butylbenzene	100	N.D.	Styrene	100	N.D.
tert-Butylbenzene	100	N.D.	1,1,1,2-Tetrachloroethane	100	N.D.
Carbon tetrachloride	50	N.D.	1,1,2,2-Tetrachloroethane	50	N.D.
Chlorobenzene	50	N.D.	Tetrachloroethene	50	N.D.
Chloroethane	250	N.D.	Toluene	50	N.D.
Chloroform	50	N.D.	1,2,3-Trichlorobenzene	100	N.D.(L)
Chloromethane	100	N.D.	1,2,4-Trichlorobenzene	100	N.D.
2-Chlorotoluene	100	N.D.	1,1,1-Trichloroethane	50	N.D.
4-Chlorotoluene	100	N.D.	1,1,2-Trichloroethane	50	N.D.
Dibromochloromethane	50	N.D.	Trichloroethene	50	N.D.
1,2-Dibromo-3-chloropropane	100	N.D.	Trichlorofluoromethane	100	N.D.
1,2-Dibromoethane	100	N.D.	1,2,3-Trichloropropane	100	N.D.
Dibromomethane	100	N.D.	1,2,4-Trimethylbenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.	1,3,5-Trimethylbenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.	Vinyl chloride	100	N.D.
1,4-Dichlorobenzene	100	N.D.	o-Xylene	50	N.D.
Dichlorodifluoromethane	250	N.D.	m,p-Xylenes	100	N.D.
1,1-Dichloroethane	50	N.D.			
1,2-Dichloroethane	50	N.D.			
1,1-Dichloroethene	50	N.D.			
cis-1,2-Dichloroethene	50	N.D.			
trans-1,2-Dichloroethene	50	N.D.			
1,2-Dichloropropane	50	N.D.			
1,3-Dichloropropane	100	N.D.			
2,2-Dichloropropane	100	N.D.			
1,1-Dichloropropene	100	N.D.			
cis-1,3-Dichloropropene	50	N.D.			
trans-1,3-Dichloropropene	100	N.D.			

Analytes reported as N.D. were not present at or above the reporting limit.
L=Laboratory Control Sample recovery was above the method control limits; Data not impacted.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept. Limits):	
1-Chloro-3-fluorobenzene (70-130).	121%
a,a,a-Trifluorotoluene (70-130).....	118%

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers	Client Project ID: 10.98004.09	Sampled:	Aug 2, 1999
2702 N. 44th St. Ste. 105-B		Received:	Aug 2, 1999
Phoenix, AZ 85008-1583	Sample Descript: Soil, UM-P-1	Extracted:	Aug 6, 1999
Attention: Brad Johnston	Lab Number: PIH00046	Analyzed:	Aug 7, 1999
		Reported:	Aug 10, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	5,000	N.D.
Acenaphthylene	5,000	N.D.
Anthracene	200	N.D.
Benzo(a)anthracene	200	N.D.
Benzo(a)pyrene	200	N.D.
Benzo(b)fluoranthene	200	N.D.
Benzo(g,h,i)perylene	500	N.D.
Benzo(k)fluoranthene	200	N.D.
Chrysene	500	N.D.
Dibenz(a,h)anthracene	500	N.D.
Fluoranthene	**500**	**510**
Fluorene	2,000	N.D.
Indeno(1,2,3-cd)pyrene	500	N.D.
Naphthalene	2,000	N.D.
Phenanthrene	500	N.D.
Pyrene	500	N.D.

*Due to sample matrix effects, the surrogate recovery was outside acceptance limits.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit. Due to matrix effects and/or other factors, the sample required dilution. Reporting limits for this sample have been raised by a factor of 100.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	*

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers	Client Project ID: 10.98004.09	Sampled: Aug 2, 1999
2702 N. 44th St. Ste. 105-B		Received: Aug 2, 1999
Phoenix, AZ 85008-1583	Sample Descript: Soil, UM-P-2	Extracted: Aug 6, 1999
Attention: Brad Johnston	Lab Number: PIH00047	Analyzed: Aug 7, 1999
		Reported: Aug 10, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	500	N.D.
Acenaphthylene	500	N.D.
Anthracene	20	N.D.
Benzo(a)anthracene	20	N.D.
Benzo(a)pyrene	20	N.D.
Benzo(b)fluoranthene	20	N.D.
Benzo(g,h,i)perylene	50	N.D.
Benzo(k)fluoranthene	20	N.D.
Chrysene	50	N.D.
Dibenz(a,h)anthracene	50	N.D.
Fluoranthene	50	N.D.
Fluorene	200	N.D.
Indeno(1,2,3-cd)pyrene	50	N.D.
Naphthalene	200	N.D.
Phenanthrene	50	N.D.
Pyrene	50	N.D.

*Due to sample matrix effects, the surrogate recovery was outside acceptance limits.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit. Due to matrix effects and/or other factors, the sample required dilution. Reporting limits for this sample have been raised by a factor of 10.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	*

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SCS Engineers	Client Project ID: 10.98004.09	Sampled:	Aug 2, 1999
2702 N. 44th St. Ste. 105-B		Received:	Aug 2, 1999
Phoenix, AZ 85008-1583	Sample Descript: Soil, UM-P-3	Extracted:	Aug 6, 1999
Attention: Brad Johnston	Lab Number: PIH00048	Analyzed:	Aug 7, 1999
		Reported:	Aug 10, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	5,000	N.D.
Acenaphthylene	5,000	N.D.
Anthracene	200	N.D.
Benzo(a)anthracene	200	N.D.
Benzo(a)pyrene	200	N.D.
Benzo(b)fluoranthene	200	N.D.
Benzo(g,h,i)perylene	500	N.D.
Benzo(k)fluoranthene	200	N.D.
Chrysene	500	N.D.
Dibenz(a,h)anthracene	500	N.D.
Fluoranthene	**500**	**570**
Fluorene	2,000	N.D.
Indeno(1,2,3-cd)pyrene	500	N.D.
Naphthalene	2,000	N.D.
Phenanthrene	500	N.D.
Pyrene	500	N.D.

*Due to sample matrix effects, the surrogate recovery was outside acceptance limits.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit. Due to matrix effects and/or other factors, the sample required dilution. Reporting limits for this sample have been raised by a factor of 100.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	*

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SCS Engineers	Client Project ID: 10.98004.09	Sampled: Aug 2, 1999
2702 N. 44th St. Ste. 105-B		Received: Aug 2, 1999
Phoenix, AZ 85008-1583	Sample Descript: Soil, UM-S-4	Extracted: Aug 6, 1999
Attention: Brad Johnston	Lab Number: PIH00049	Analyzed: Aug 7, 1999
		Reported: Aug 10, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	10,000	N.D.
Acenaphthylene	10,000	N.D.
Anthracene	400	N.D.
Benzo(a)anthracene	400	N.D.
Benzo(a)pyrene	400	N.D.
Benzo(b)fluoranthene	400	N.D.
Benzo(g,h,i)perylene	1,000	N.D.
Benzo(k)fluoranthene	400	N.D.
Chrysene	1,000	N.D.
Dibenz(a,h)anthracene	1,000	N.D.
Fluoranthene	1,000	N.D.
Fluorene	4,000	N.D.
Indeno(1,2,3-cd)pyrene	1,000	N.D.
Naphthalene	4,000	N.D.
Phenanthrene	1,000	N.D.
Pyrene	1,000	N.D.

*Due to sample matrix effects, the surrogate recovery was outside acceptance limits.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit. Due to matrix effects and/or other factors, the sample required dilution. Reporting limits for this sample have been raised by a factor of 200.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	*

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SCS Engineers	Client Project ID: 10.98004.09	Sampled: Aug 2, 1999
2702 N. 44th St. Ste. 105-B		Received: Aug 2, 1999
Phoenix, AZ 85008-1583	Sample Descript: Soil, UM-S-5	Extracted: Aug 6, 1999
Attention: Brad Johnston	Lab Number: PIH00050	Analyzed: Aug 7, 1999
		Reported: Aug 10, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	10,000	N.D.
Acenaphthylene	10,000	N.D.
Anthracene	400	N.D.
Benzo(a)anthracene	**400**	**530**
Benzo(a)pyrene	400	N.D.
Benzo(b)fluoranthene	400	N.D.
Benzo(g,h,i)perylene	1,000	N.D.
Benzo(k)fluoranthene	400	N.D.
Chrysene	1,000	N.D.
Dibenz(a,h)anthracene	1,000	N.D.
Fluoranthene	**1,000**	**2,100**
Fluorene	4,000	N.D.
Indeno(1,2,3-cd)pyrene	1,000	N.D.
Naphthalene	4,000	N.D.
Phenanthrene	1,000	N.D.
Pyrene	1,000	N.D.

*Due to sample matrix effects, the surrogate recovery was outside acceptance limits.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit. Due to matrix effects and/or other factors, the sample required dilution. Reporting limits for this sample have been raised by a factor of 200.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.
Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	*

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Method Blank

Extracted: Aug 3, 1999
Analyzed: Aug 4, 1999
Reported: Aug 10, 1999
Matrix: Soil

EXTRACTABLE FUEL HYDROCARBONS (ADHS METHOD 8015 AZR1)

Laboratory Number QC Batch IH03DEIS	Sample Description Soil	TOTAL C10-C32 mg/Kg (ppm) (Reporting Limit)	(Dilution Factor)	Surrogate Recovery o-Terphenyl % (Acceptance Limits: 70-130%)
Method Blank	N.A.	N.D.		84
		130	1	

Extractable fuel hydrocarbons are quantitated against diesel and oil fuel standards by direct injection.

Analytes reported as N.D. were not present at or above the reporting limit. Reporting limits for each analyte are listed directly below the analytical results.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Method Blank

Extracted: Aug 4, 1999
Analyzed: Aug 9, 1999
Reported: Aug 10, 1999
Matrix: Soil

VOLATILE FUEL HYDROCARBONS (ADHS METHOD 8015AZR1)

Laboratory Number QC Batch IH04BEIS	Sample Description Soil	GRO C6-C10 mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)	Dilution Factor	Surrogate Recovery 4-BFB % (Acceptance Limits: 70-130%)
Method Blank	N.A.	N.D.	20	1.0	85

Volatile Fuel Hydrocarbons are quantitated against a gasoline standard by purge & trap. Hydrocarbons detected by this method range from C6 to C10.

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.
Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Method Blank

Extracted: Aug 4, 1999
Analyzed: Aug 5, 1999
Reported: Aug 10, 1999
Matrix: Soil

HALOGENATED AND AROMATIC VOLATILES (EPA 8021B)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)	Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Benzene	50	N.D.	Ethylbenzene	50	N.D.
Bromobenzene	100	N.D.	Hexachlorobutadiene	100	N.D.
Bromochloromethane	100	N.D.	Isopropylbenzene	100	N.D.
Bromodichloromethane	50	N.D.	p-Isopropyltoluene	100	N.D.
Bromoform	50	N.D.	Methylene chloride	200	N.D.
Bromomethane	100	N.D.	Naphthalene	100	N.D.
n-Butylbenzene	100	N.D.	n-Propylbenzene	100	N.D.
sec-Butylbenzene	100	N.D.	Styrene	100	N.D.
tert-Butylbenzene	100	N.D.	1,1,1,2-Tetrachloroethane	100	N.D.
Carbon tetrachloride	50	N.D.	1,1,2,2-Tetrachloroethane	50	N.D.
Chlorobenzene	50	N.D.	Tetrachloroethene	50	N.D.
Chloroethane	250	N.D.	Toluene	50	N.D.
Chloroform	50	N.D.	1,2,3-Trichlorobenzene	100	N.D.(L)
Chloromethane	100	N.D.	1,2,4-Trichlorobenzene	100	N.D.
2-Chlorotoluene	100	N.D.	1,1,1-Trichloroethane	50	N.D.
4-Chlorotoluene	100	N.D.	1,1,2-Trichloroethane	50	N.D.
Dibromochloromethane	50	N.D.	Trichloroethene	50	N.D.
1,2-Dibromo-3-chloropropane	100	N.D.	Trichlorofluoromethane	100	N.D.
1,2-Dibromoethane	100	N.D.	1,2,3-Trichloropropane	100	N.D.
Dibromomethane	100	N.D.	1,2,4-Trimethylbenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.	1,3,5-Trimethylbenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.	Vinyl chloride	100	N.D.
1,4-Dichlorobenzene	100	N.D.	o-Xylene	50	N.D.
Dichlorodifluoromethane	250	N.D.	m,p-Xylenes	100	N.D.
1,1-Dichloroethane	50	N.D.			
1,2-Dichloroethane	50	N.D.			
1,1-Dichloroethene	50	N.D.			
cis-1,2-Dichloroethene	50	N.D.			
trans-1,2-Dichloroethene	50	N.D.			
1,2-Dichloropropane	50	N.D.			
1,3-Dichloropropane	100	N.D.			
2,2-Dichloropropane	100	N.D.			
1,1-Dichloropropene	100	N.D.			
cis-1,3-Dichloropropene	50	N.D.			
trans-1,3-Dichloropropene	100	N.D.			

Analytes reported as N.D. were not present at or above the reporting limit.
L=Laboratory Control Sample recovery was above the method control limits; Data not impacted.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recoveries:	
1-Chloro-3-fluorotoluene(70-130)	109%
aaa-Trifluorotoluene(70-130)	97%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Method Blank

Extracted: Aug 6, 1999
Analyzed: Aug 6, 1999
Reported: Aug 10, 1999
Matrix: Soil

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	50	N.D.
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(a)pyrene	2.0	N.D.
Benzo(b)fluoranthene	2.0	N.D.
Benzo(g,h,i)perylene	5.0	N.D.
Benzo(k)fluoranthene	2.0	N.D.
Chrysene	5.0	N.D.
Dibenz(a,h)anthracene	5.0	N.D.
Fluoranthene	5.0	N.D.
Fluorene	20	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	20	N.D.
Phenanthrene	5.0	N.D.
Pyrene	5.0	N.D.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	51%

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MS/MSD DATA REPORT

EPA Method: 8310
Matrix: Soil
Instrument: HPLC

Date: 08/06/99
Sample #: CIH00116
Batch #: IH06PA1S

Analyte	R1	Sp	MS	MSD	PR1	PR2	RPD	Acceptance Limits RPD	Acceptance Limits PR1/PR2
	ppb	ppb	ppb	ppb	%	%	%	%	%
Naphthalene	0	80.0	66.1	69.0	83%	86%	4%	35	45-110
Benzo(a)anthracene	0	8.0	7.00	6.98	88%	87%	0%	35	50-115
Benzo(a)pyrene	0	8.0	6.51	6.69	81%	84%	3%	40	45-105

Definition of Terms

R1..... Result of Sample Analysis
Sp..... Spike Concentration added to sample
MS..... Matrix Spike Result
MSD..... Matrix Spike Duplicate Result
PR1..... Percent Recovery of MS; ((MS-R1)/SP) x 100
PR2..... Percent Recovery of MSD; ((MSD-R1)/SP) x 100
RPD..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2) x 100
Acceptance Limits..... Statistically determined on an annual basis.

QA/QC Criteria..... All QA/QC was within acceptance limits.

Del Mar Analytical (AZ0426) This analysis was performed at Del Mar Analytical-Colton (AZ0062).

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MS/SD/LFB DATA REPORT

ADHS Method 8015AZ (C6-C10)

Matrix: Soil

Instrument: GC4

Date: 08/09/99

MS Sample #: PIH00046

DUP Sample #: PIH00046

Batch #: IH04BE1S

Analyte	R1 ppm	Sp ppm	MS ppm	PR %	Acceptance Limits RPD %	Acceptance Limits PR %
Matrix Spike						
GRO (C6-C10)	0.0	25.0	23.0	92	N/A	70-130

Sample Duplicate	S ppm	SD ppm	RPD %	RPD %	PR %
GRO (C6-C10)	0.0	0.0	0	≤ 20	N/A

Lab Fortified Blank	St ppm	R1 ppm	PR %	RPD %	PR %
GRO (C6-C10)	25.0	25.9	103	N/A	70-130

Definition of Terms

LFB..... Result of LFB Analysis
MS..... Matrix Spike Result
PR of MS..... Percent Recovery of Matrix Spike; ((MS-R1)/SP) x 100
PR of LFB..... Percent Recovery of LFB Analysis; ((R1/St) x 100
R1..... Result of Sample Analysis
RPD..... Relative Percent Difference; (S-SD)/(S + SD)/2) x 100
S..... Sample Concentration
SD..... Sample Duplicate Concentration
Sp..... Spike Concentration added to sample
St..... Standard Concentration
Acceptance Limits..... Statistically determined on an annual basis.

QA/QC Criteria..... All QA/QC criteria was within acceptance limits.

Del Mar Analytical (AZ0426)

Del Mar Analytical

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MS/MSD/LFB DATA REPORT

ADHS Method 8015AZ (C10-C32)

Matrix: Soil

Instrument: GC-2

Date: 08/04/99

Sample #: PIG01795

Batch #: IH03DE1S

Analyte	R1 ppm	Sp ppm	MS ppm	MSD ppm	%REC MS	%REC MSD	RPD %	Acceptance Limits RPD %	Acceptance Limits PR %
Matrix Spike									
DRO (C10-C22)	0	250	242	241	97	96	0	≤ 20	70-130
ORO (C22-C32)	0	250	178	194	71	78	9	≤ 20	70-130

Lab Fortified Blank	St ppm	R1 ppm	PR %	RPD %	PR %
DRO (C10-C22)	250	247	99	N/A	70-130
ORO (C22-C32)	250	202	81	N/A	70-130

Definition of Terms

LFB..... Result of LFB Analysis
MS..... Matrix Spike Result
MSD..... Matrix Spike Duplicate Result
PR of MS/MSD..... Percent Recovery of Matrix Spikes; ((MS-R1)/SP) x 100
PR of LFB..... Percent Recovery of LFB Analysis; ((R1/St) x 100
R1..... Result of Sample Analysis
RPD..... Relative Percent Difference; (MS-MSD)/(MS + MSD)/2) x 100
S..... Sample Concentration
Sp..... Spike Concentration added to sample
St..... Standard Concentration
Acceptance Limits..... Statistically determined on an annual basis.

QA/QC Criteria..... All QA/QC was within acceptance limits.

Del Mar Analytical (AZ0426)

Del Mar Analytical

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MS/MSD DATA REPORT

EPA Method: 8021B
Matrix: Soil
Instrument: GC

Date: 08/05/99
Sample #: PIH00047
Batch #: IH04VG1S

Analyte	R1	Sp	MS	MSD	PR1	PR2	RPD	Acceptance Limits RPD	Acceptance Limits PR1/PR2
	ppb	ppb	ppb	ppb	%	%	%	%	%
Benzene	0.0	200	221	219	111%	110%	1%	≤ 30	70-130
Chloroform	0.0	200	254	250	127%	125%	2%	≤ 30	70-130
1,1-Dichloroethane	0.0	200	269	266	135%	133%	1%	≤ 30	70-130
1,2-Dichloroethane	0.0	200	242	242	121%	121%	0%	≤ 30	70-130
1,1-Dichloroethene	0.0	200	228	221	114%	111%	3%	≤ 30	70-130
Tetrachloroethene	0.0	200	252	256	126%	128%	2%	≤ 30	70-130
Toluene	0.0	200	222	216	111%	108%	3%	≤ 30	70-130
Trichloroethene	0.0	200	251	252	126%	126%	0%	≤ 30	70-130

Definition of Terms

R1..... Result of Sample Analysis
Sp..... Spike Concentration added to sample
MS..... Matrix Spike Result
MSD..... Matrix Spike Duplicate Result
PR1..... Percent Recovery of MS; ((MS-R1)/SP) x 100
PR2..... Percent Recovery of MSD; ((MSD-R1)/SP) x 100
RPD..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2) x 100
Acceptance Limits..... Statistically determined on an annual basis.

QA/QC Criteria..... The MS/MSD recoveries and/or RPD were outside of acceptance limits due to sample matrix effects. See LCS for batch validation.

Del Mar Analytical (AZ0426)

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

LCS DATA REPORT

EPA Method 8021B

Matrix: Soil

Date: 8/5/99

Batch #: IH04VG1S

Analyte	Spike Conc.	Result	%Recovery	ACP
Benzene	200	209	105%	70-130
Chloroform	200	242	121%	70-130
1,1-Dichloroethane	200	257	129%	70-130
1,2-Dichloroethane	200	236	118%	70-130
1,1-Dichloroethene	200	223	112%	70-130
Tetrachloroethene	200	239	120%	70-130
Toluene	200	208	104%	70-130
Trichloroethene	200	233	117%	70-130

Definition of Terms

LCS..... Laboratory Control Sample

Spike Conc..... Result of Sample Analysis

Result..... Result of Laboratory Control sample Analysis

%Recovery..... Percent Recovery LCS; ((Result - Spike Conc.) / Spike Conc.) X 100

ACP..... Acceptance Limits for Percent Recovery by EPA Method 8021B

Del Mar Analytical

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GC CALIBRATION CHECK CRITERIA

Method: 8021B

Associated Samples: PIG01910-PIG01912, PIH00050

Mid-Point: 2
QC Batch: IH04VG1S, IG30VG1S

Per Method 8000B of SW-846, the percent recovery of the calibration checks for GC analyses must be within ± 15% from the true value (± 20% for the light gases) for each individual compound or the average % recovery of all compounds in the calibration check solution must be within ± 15% recovery. Per Method 8000B, the end user is to be notified if the latter situation occurs.

The % recovery for the following individual compounds fell outside of the ± 15% criteria, however the average % recovery of all compounds in the calibration check solution was within ± 15%, thus meeting the overall calibration check criteria.

Compound	Footnote	% Recovery in Calibration Check
Dichlorodifluoromethane	1	137
1,1-Dichloroethane	1	116
2,2-Dichloropropane	1	117

[1] The calibration demonstrated a high bias for this compound. Any sample with a positive result for this compound was flagged to indicate a possible high bias in the result.
All samples that were ND for this compound were unaffected and reported unqualified.

---

[2] The calibration demonstrated a low bias for this compound. Any sample with a positive result for this compound was flagged to indicate a possible low bias in the result.
An additional check sample at the reporting limit was analyzed. All samples less than the amount found in the reporting limit check sample for this compound were unaffected and reported, unqualified, as ND.

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GC CALIBRATION CHECK CRITERIA

Method: 8021B
Mid-Point: 1
QC Batch: IH04VG1S

Associated Samples: PIH00046-PIH00049

Per Method 8000B of SW-846, the percent recovery of the calibration checks for GC analyses must be within ± 15% from the true value (± 20% for the light gases) for each individual compound or the average % recovery of all compounds in the calibration check solution must be within ± 15% recovery. Per Method 8000B, the end user is to be notified if the latter situation occurs.

The % recovery for the following individual compounds fell outside of the ± 15% criteria, however the average % recovery of all compounds in the calibration check solution was within ± 15%, thus meeting the overall calibration check criteria.

Compound	Footnote	% Recovery in Calibration Check
Chloromethane	1	121
Dichlorodifluoromethane	1	151
1,1-Dichloroethane	1	117
1,3-Dichloropropane	1	117
1,1,2,2-Tetrachloroethane	1	125
1,2,4-Trichlorobenzene	2	83
1,1,2-Trichloroethane	1	119
1,2,3-Trichloropropane	1	129

[1] The calibration demonstrated a high bias for this compound. Any sample with a positive result for this compound was flagged to indicate a possible high bias in the result.
All samples that were ND for this compound were unaffected and reported unqualified.

[2] The calibration demonstrated a low bias for this compound. Any sample with a positive result for this compound was flagged to indicate a possible low bias in the result.
An additional check sample at the reporting limit was analyzed. All samples less than the amount found in the reporting limit check sample for this compound were unaffected and reported, unqualified, as ND.

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GB- 8591

CHAIN OF CUSTODY FORM

Quote #: _____ Page 1 of 1

Client Name/Address: SCS ENGINEERS

Project/PO Number: 10 98004.09

Project Manager: BRAD JOHNSTON

Phone Number: 840-2596

Sampler: BRAD JOHNSTON

Fax Number: ~~224-05~~

Analysis Required

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservatives	8310	8021 Full	8015 AZRL C6-32									Special Instructions
UM-P-1	SOIL	BRASS	1	8/2/99 4:05	ICE	X	X	X									
UM-P-2				4:10		X	X	X									
UM-P-3				4:13		X	X	X									
UM-S-4				4:25		X	X	X									
UM-S-5				4:45		X	X	X									

Relinquished By:	Date /Time:	Received by:	Date /Time:	Turnaround Time: (Check)
B. Johnston	8/2/99 6:05P			same day ____ 72 hours ____
Relinquished By:	Date /Time:	Received by:	Date /Time:	24 hours ____ 5 days ____
				48 hours ____ normal X
Relinquished By:	Date /Time:	Received in Lab by: Jamie Wood	Date /Time: 8/2/99 6:05P	Sample Integrity: (Check) intact X on ice X

Note: By relinquishing samples to Del Mar Analytical, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

COC-GB

LABORATORY REPORT
SURFACE SOIL SAMPLING
AREA 13-MCINTYRE

Del Mar Analytical

2852 Alton Ave., Irvine, CA 92606 (949) 261-1022 FAX (949) 261-1228
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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4

Report Number: PIH00240

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 6-11, 1999
Analyzed: Aug 9-12, 1999
Reported: Aug 12-18, 1999

CASE NARRATIVE

LABORATORY NUMBER	SAMPLE DESCRIPTION	SAMPLE MATRIX	EPA ANALYSES
PIH00240	MCI-S-1	Soil	8015AZR1, 8021B, 8082, 8310, 6010B & 7471A
PIH00241	MCI-S-2	Soil	8015AZR1, 8021B, 8082, 8310, 6010B & 7471A
PIH00242	MCI-S-3	Soil	8015AZR1, 8021B, 8082, 8310, 6010B & 7471A
PIH00243	MCI-S-4	Soil	8015AZR1, 8021B, 8082, 8310, 6010B & 7471A
PIH00244	MCI-S-5	Soil	8015AZR1, 8021B, 8082, 8310, 6010B & 7471A

SAMPLE RECEIPT: Samples were received intact, on ice, and with chain of custody documentation. Soil volatiles were submitted in brass sleeve sample containers.

HOLDING TIMES: Holding times were met.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

PROBLEMS ENCOUNTERED: No problems were encountered during sample analysis.

QA/QC CRITERIA: All analyses met method criteria.

OBSERVATIONS: No significant observations were made.

SUBCONTRACTED: No analyses were subcontracted to an outside laboratory.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Analysis Method: ADHS 8015AZR1
First Sample #: PIH00240

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 10, 1999
Analyzed: Aug 11, 1999
Reported: Aug 12, 1999

EXTRACTABLE FUEL HYDROCARBONS (ADHS METHOD 8015AZR1)

Laboratory Number QC Batch IH10DE1S	Sample Description Soil	DRO C10-C22 mg/Kg (ppm) (Reporting Limit)	ORO C22-C32 mg/Kg (ppm) (Reporting Limit)	TOTAL C10-C32 mg/Kg (ppm) (Reporting Limit)	(Dilution Factor)	Surrogate Recovery o-Terphenyl % (Acceptance Limits: 70-130%)
PIH00240	MCI-S-1	N.D.	N.D.	N.D.		110
		30	100	130	1	
PIH00241	MCI-S-2	N.D.	N.D.	N.D.		109
		30	100	130	1	
PIH00242	MCI-S-3	N.D.	N.D.	N.D.		112
		30	100	130	1	
PIH00243	MCI-S-4	N.D.	N.D.	N.D.		105
		30	100	130	1	
PIH00244	MCI-S-5	N.D.	N.D.	N.D.		103
		30	100	130	1	

Extractable fuel hydrocarbons are quantitated against diesel and oil fuel standards by direct injection.
Analytes reported as N.D. were not present at or above the reporting limit. Reporting limits for each analyte are listed directly below the analytical results.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Analysis Method: ADHS Method 8015AZR1
First Sample #: PIH00240

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 6, 1999
Analyzed: Aug 10, 1999
Reported: Aug 12, 1999

VOLATILE FUEL HYDROCARBONS (ADHS METHOD 8015AZR1)

Laboratory Number QC Batch IH06BE2S	Sample Description Soil	GRO C6-C10 mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)	Dilution Factor	Surrogate Recovery 4-BFB % (Acceptance Limits: 70-130%)
PIH00240	MCI-S-1	N.D.	20	1	94
PIH00241	MCI-S-2	N.D.	20	1	91
PIH00242	MCI-S-3	N.D.	20	1	100
PIH00243	MCI-S-4	N.D.	20	1	97
PIH00244	MCI-S-5	N.D.	20	1	97

Volatile Fuel Hydrocarbons are quantitated against a gasoline standard by purge & trap. Hydrocarbons detected by this method range from C6 to C10.

Analytes reported as N.D. were not present at or above the reporting limit

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.
Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4

Sample Descript: Soil, MCI-S-1
Lab Number: PIH00240

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 6, 1999
Analyzed: Aug 11, 1999
Reported: Aug 18, 1999

HALOGENATED AND AROMATIC VOLATILES (EPA 8021B)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)	Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Benzene	50	N.D.	Ethylbenzene	50	N.D.
Bromobenzene	100	N.D.	Hexachlorobutadiene	100	N.D.
Bromochloromethane	100	N.D.	Isopropylbenzene	100	N.D.
Bromodichloromethane	50	N.D.	p-Isopropyltoluene	100	N.D.
Bromoform	50	N.D.	Methylene chloride	200	N.D.
Bromomethane	100	N.D.	Naphthalene	100	N.D.
n-Butylbenzene	100	N.D.	n-Propylbenzene	100	N.D.
sec-Butylbenzene	100	N.D.	Styrene	100	N.D.
tert-Butylbenzene	100	N.D.	1,1,1,2-Tetrachloroethane	100	N.D.
Carbon tetrachloride	50	N.D.	1,1,2,2-Tetrachloroethane	50	N.D.
Chlorobenzene	50	N.D.	Tetrachloroethene	50	N.D.
Chloroethane	250	N.D.	Toluene	50	N.D.
Chloroform	50	N.D.	1,2,3-Trichlorobenzene	100	N.D.
Chloromethane	100	N.D.	1,2,4-Trichlorobenzene	100	N.D.
2-Chlorotoluene	100	N.D.	1,1,1-Trichloroethane	50	N.D.
4-Chlorotoluene	100	N.D.	1,1,2-Trichloroethane	50	N.D.
Dibromochloromethane	50	N.D.	Trichloroethene	50	N.D.
1,2-Dibromo-3-chloropropane	100	N.D.	Trichlorofluoromethane	100	N.D.
1,2-Dibromoethane	100	N.D.	1,2,3-Trichloropropane	100	N.D.
Dibromomethane	100	N.D.	1,2,4-Trimethylbenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.	1,3,5-Trimethylbenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.	Vinyl chloride	100	N.D.
1,4-Dichlorobenzene	100	N.D.	o-Xylene	50	N.D.
Dichlorodifluoromethane	250	N.D.	m,p-Xylenes	100	N.D.
1,1-Dichloroethane	50	N.D.			
1,2-Dichloroethane	50	N.D.			
1,1-Dichloroethene	50	N.D.			
cis-1,2-Dichloroethene	50	N.D.			
trans-1,2-Dichloroethene	50	N.D.			
1,2-Dichloropropane	50	N.D.			
1,3-Dichloropropane	100	N.D.			
2,2-Dichloropropane	100	N.D.			
1,1-Dichloropropene	100	N.D.			
cis-1,3-Dichloropropene	50	N.D.			
trans-1,3-Dichloropropene	100	N.D.			

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept. Limits):	
1-Chloro-3-fluorobenzene (70-130).	112%
a,a,a-Trifluorotoluene (70-130).....	107%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Sample Descript: Soil, MCI-S-2
Lab Number: PIH00241

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 6, 1999
Analyzed: Aug 11, 1999
Reported: Aug 18, 1999

HALOGENATED AND AROMATIC VOLATILES (EPA 8021B)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)	Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Benzene	50	N.D.	Ethylbenzene	50	N.D.
Bromobenzene	100	N.D.	Hexachlorobutadiene	100	N.D.
Bromochloromethane	100	N.D.	Isopropylbenzene	100	N.D.
Bromodichloromethane	50	N.D.	p-Isopropyltoluene	100	N.D.
Bromoform	50	N.D.	Methylene chloride	200	N.D.
Bromomethane	100	N.D.	Naphthalene	100	N.D.
n-Butylbenzene	100	N.D.	n-Propylbenzene	100	N.D.
sec-Butylbenzene	100	N.D.	Styrene	100	N.D.
tert-Butylbenzene	100	N.D.	1,1,1,2-Tetrachloroethane	100	N.D.
Carbon tetrachloride	50	N.D.	1,1,2,2-Tetrachloroethane	50	N.D.
Chlorobenzene	50	N.D.	Tetrachloroethene	50	N.D.
Chloroethane	250	N.D.	Toluene	50	N.D.
Chloroform	50	N.D.	1,2,3-Trichlorobenzene	100	N.D.
Chloromethane	100	N.D.	1,2,4-Trichlorobenzene	100	N.D.
2-Chlorotoluene	100	N.D.	1,1,1-Trichloroethane	50	N.D.
4-Chlorotoluene	100	N.D.	1,1,2-Trichloroethane	50	N.D.
Dibromochloromethane	50	N.D.	Trichloroethene	50	N.D.
1,2-Dibromo-3-chloropropane	100	N.D.	Trichlorofluoromethane	100	N.D.
1,2-Dibromoethane	100	N.D.	1,2,3-Trichloropropane	100	N.D.
Dibromomethane	100	N.D.	1,2,4-Trimethylbenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.	1,3,5-Trimethylbenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.	Vinyl chloride	100	N.D.
1,4-Dichlorobenzene	100	N.D.	o-Xylene	50	N.D.
Dichlorodifluoromethane	250	N.D.	m,p-Xylenes	100	N.D.
1,1-Dichloroethane	50	N.D.			
1,2-Dichloroethane	50	N.D.			
1,1-Dichloroethene	50	N.D.			
cis-1,2-Dichloroethene	50	N.D.			
trans-1,2-Dichloroethene	50	N.D.			
1,2-Dichloropropane	50	N.D.			
1,3-Dichloropropane	100	N.D.			
2,2-Dichloropropane	100	N.D.			
1,1-Dichloropropene	100	N.D.			
cis-1,3-Dichloropropene	50	N.D.			
trans-1,3-Dichloropropene	100	N.D.			

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept. Limits):	
1-Chloro-3-fluorobenzene (70-130).	99%
a,a,a-Trifluorotoluene (70-130).....	103%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Sample Descript: Soil, MCI-S-3
Lab Number: PIH00242

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 6, 1999
Analyzed: Aug 11, 1999
Reported: Aug 18, 1999

HALOGENATED AND AROMATIC VOLATILES (EPA 8021B)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)	Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Benzene	50	N.D.	Ethylbenzene	50	N.D.
Bromobenzene	100	N.D.	Hexachlorobutadiene	100	N.D.
Bromochloromethane	100	N.D.	Isopropylbenzene	100	N.D.
Bromodichloromethane	50	N.D.	p-Isopropyltoluene	100	N.D.
Bromoform	50	N.D.	Methylene chloride	200	N.D.
Bromomethane	100	N.D.	**Naphthalene**	**100**	**660**
n-Butylbenzene	100	N.D.	n-Propylbenzene	100	N.D.
sec-Butylbenzene	100	N.D.	Styrene	100	N.D.
tert-Butylbenzene	100	N.D.	1,1,1,2-Tetrachloroethane	100	N.D.
Carbon tetrachloride	50	N.D.	1,1,2,2-Tetrachloroethane	50	N.D.
Chlorobenzene	50	N.D.	Tetrachloroethene	50	N.D.
Chloroethane	250	N.D.	Toluene	50	N.D.
Chloroform	50	N.D.	1,2,3-Trichlorobenzene	100	N.D.
Chloromethane	100	N.D.	1,2,4-Trichlorobenzene	100	N.D.
2-Chlorotoluene	100	N.D.	1,1,1-Trichloroethane	50	N.D.
4-Chlorotoluene	100	N.D.	1,1,2-Trichloroethane	50	N.D.
Dibromochloromethane	50	N.D.	Trichloroethene	50	N.D.
1,2-Dibromo-3-chloropropane	100	N.D.	Trichlorofluoromethane	100	N.D.
1,2-Dibromoethane	100	N.D.	1,2,3-Trichloropropane	100	N.D.
Dibromomethane	100	N.D.	1,2,4-Trimethylbenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.	1,3,5-Trimethylbenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.	Vinyl chloride	100	N.D.
1,4-Dichlorobenzene	100	N.D.	o-Xylene	50	N.D.
Dichlorodifluoromethane	250	N.D.	m,p-Xylenes	100	N.D.
1,1-Dichloroethane	50	N.D.			
1,2-Dichloroethane	50	N.D.			
1,1-Dichloroethene	50	N.D.			
cis-1,2-Dichloroethene	50	N.D.			
trans-1,2-Dichloroethene	50	N.D.			
1,2-Dichloropropane	50	N.D.			
1,3-Dichloropropane	100	N.D.			
2,2-Dichloropropane	100	N.D.			
1,1-Dichloropropene	100	N.D.			
cis-1,3-Dichloropropene	50	N.D.			
trans-1,3-Dichloropropene	100	N.D.			

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.
Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept. Limits):	
1-Chloro-3-fluorobenzene (70-130).	114%
a,a,a-Trifluorotoluene (70-130).....	111%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Sample Descript: Soil, MCI-S-4
Lab Number: PIH00243

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 6, 1999
Analyzed: Aug 11, 1999
Reported: Aug 18, 1999

HALOGENATED AND AROMATIC VOLATILES (EPA 8021B)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)	Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Benzene	50	N.D.	Ethylbenzene	50	N.D.
Bromobenzene	100	N.D.	Hexachlorobutadiene	100	N.D.
Bromochloromethane	100	N.D.	Isopropylbenzene	100	N.D.
Bromodichloromethane	50	N.D.	p-Isopropyltoluene	100	N.D.
Bromoform	50	N.D.	Methylene chloride	200	N.D.
Bromomethane	100	N.D.	Naphthalene	100	N.D.
n-Butylbenzene	100	N.D.	n-Propylbenzene	100	N.D.
sec-Butylbenzene	100	N.D.	Styrene	100	N.D.
tert-Butylbenzene	100	N.D.	1,1,1,2-Tetrachloroethane	100	N.D.
Carbon tetrachloride	50	N.D.	1,1,2,2-Tetrachloroethane	50	N.D.
Chlorobenzene	50	N.D.	Tetrachloroethene	50	N.D.
Chloroethane	250	N.D.	Toluene	50	N.D.
Chloroform	50	N.D.	1,2,3-Trichlorobenzene	100	N.D.
Chloromethane	100	N.D.	1,2,4-Trichlorobenzene	100	N.D.
2-Chlorotoluene	100	N.D.	1,1,1-Trichloroethane	50	N.D.
4-Chlorotoluene	100	N.D.	1,1,2-Trichloroethane	50	N.D.
Dibromochloromethane	50	N.D.	Trichloroethene	50	N.D.
1,2-Dibromo-3-chloropropane	100	N.D.	Trichlorofluoromethane	100	N.D.
1,2-Dibromoethane	100	N.D.	1,2,3-Trichloropropane	100	N.D.
Dibromomethane	100	N.D.	1,2,4-Trimethylbenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.	1,3,5-Trimethylbenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.	Vinyl chloride	100	N.D.
1,4-Dichlorobenzene	100	N.D.	o-Xylene	50	N.D.
Dichlorodifluoromethane	250	N.D.	m,p-Xylenes	100	N.D.
1,1-Dichloroethane	50	N.D.			
1,2-Dichloroethane	50	N.D.			
1,1-Dichloroethene	50	N.D.			
cis-1,2-Dichloroethene	50	N.D.			
trans-1,2-Dichloroethene	50	N.D.			
1,2-Dichloropropane	50	N.D.			
1,3-Dichloropropane	100	N.D.			
2,2-Dichloropropane	100	N.D.			
1,1-Dichloropropene	100	N.D.			
cis-1,3-Dichloropropene	50	N.D.			
trans-1,3-Dichloropropene	100	N.D.			

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept. Limits):	
1-Chloro-3-fluorobenzene (70-130).	113%
a,a,a-Trifluorotoluene (70-130).....	106%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4

Sample Descript: Soil, MCI-S-5
Lab Number: PIH00244

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 6, 1999
Analyzed: Aug 11, 1999
Reported: Aug 18, 1999

HALOGENATED AND AROMATIC VOLATILES (EPA 8021B)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)	Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Benzene	50	N.D.	Ethylbenzene	50	N.D.
Bromobenzene	100	N.D.	Hexachlorobutadiene	100	N.D.
Bromochloromethane	100	N.D.	Isopropylbenzene	100	N.D.
Bromodichloromethane	50	N.D.	p-Isopropyltoluene	100	N.D.
Bromoform	50	N.D.	Methylene chloride	200	N.D.
Bromomethane	100	N.D.	Naphthalene	100	N.D.
n-Butylbenzene	100	N.D.	n-Propylbenzene	100	N.D.
sec-Butylbenzene	100	N.D.	Styrene	100	N.D.
tert-Butylbenzene	100	N.D.	1,1,1,2-Tetrachloroethane	100	N.D.
Carbon tetrachloride	50	N.D.	1,1,2,2-Tetrachloroethane	50	N.D.
Chlorobenzene	50	N.D.	Tetrachloroethene	50	N.D.
Chloroethane	250	N.D.	Toluene	50	N.D.
Chloroform	50	N.D.	1,2,3-Trichlorobenzene	100	N.D.
Chloromethane	100	N.D.	1,2,4-Trichlorobenzene	100	N.D.
2-Chlorotoluene	100	N.D.	1,1,1-Trichloroethane	50	N.D.
4-Chlorotoluene	100	N.D.	1,1,2-Trichloroethane	50	N.D.
Dibromochloromethane	50	N.D.	Trichloroethene	50	N.D.
1,2-Dibromo-3-chloropropane	100	N.D.	Trichlorofluoromethane	100	N.D.
1,2-Dibromoethane	100	N.D.	1,2,3-Trichloropropane	100	N.D.
Dibromomethane	100	N.D.	1,2,4-Trimethylbenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.	1,3,5-Trimethylbenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.	Vinyl chloride	100	N.D.
1,4-Dichlorobenzene	100	N.D.	o-Xylene	50	N.D.
Dichlorodifluoromethane	250	N.D.	m,p-Xylenes	100	N.D.
1,1-Dichloroethane	50	N.D.			
1,2-Dichloroethane	50	N.D.			
1,1-Dichloroethene	50	N.D.			
cis-1,2-Dichloroethene	50	N.D.			
trans-1,2-Dichloroethene	50	N.D.			
1,2-Dichloropropane	50	N.D.			
1,3-Dichloropropane	100	N.D.			
2,2-Dichloropropane	100	N.D.			
1,1-Dichloropropene	100	N.D.			
cis-1,3-Dichloropropene	50	N.D.			
trans-1,3-Dichloropropene	100	N.D.			

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept. Limits):	
1-Chloro-3-fluorobenzene (70-130).	120%
a,a,a-Trifluorotoluene (70-130).....	115%

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers	Client Project ID: 10.98004.09 Task 4	Sampled: Aug 5, 1999
2702 N. 44th St. Ste. 105-B		Received: Aug 5, 1999
Phoenix, AZ 85008-1583	Sample Descript: Soil, MCI-S-1	Extracted: Aug 11, 1999
Attention: Brad Johnston	Lab Number: PIH00240	Analyzed: Aug 12, 1999
		Reported: Aug 18, 1999

POLYCHLORINATED BIPHENYLS (EPA 3550/8082)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Aroclor 1016	50	N.D.
Aroclor 1221	50	N.D.
Aroclor 1232	50	N.D.
Aroclor 1242	50	N.D.
Aroclor 1248	50	N.D.
Aroclor 1254	50	N.D.
Aroclor 1260	50	N.D.

Analysis completed at Del Mar Analytical-Colton (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept Limits):	
Decachlorobiphenyl (25-120).....	83%

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SCS Engineers	Client Project ID: 10.98004.09 Task 4	Sampled: Aug 5, 1999
2702 N. 44th St. Ste. 105-B		Received: Aug 5, 1999
Phoenix, AZ 85008-1583	Sample Descript: Soil, MCI-S-2	Extracted: Aug 11, 1999
Attention: Brad Johnston	Lab Number: PIH00241	Analyzed: Aug 12, 1999
		Reported: Aug 18, 1999

POLYCHLORINATED BIPHENYLS (EPA 3550/8082)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Aroclor 1016	50	N.D.
Aroclor 1221	50	N.D.
Aroclor 1232	50	N.D.
Aroclor 1242	50	N.D.
Aroclor 1248	50	N.D.
Aroclor 1254	50	N.D.
Aroclor 1260	50	N.D.

Analysis completed at Del Mar Analytical-Colton (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept Limits):	
Decachlorobiphenyl (25-120).....	86%

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers	Client Project ID: 10.98004.09 Task 4	Sampled: Aug 5, 1999
2702 N. 44th St. Ste. 105-B		Received: Aug 5, 1999
Phoenix, AZ 85008-1583	Sample Descript: Soil, MCI-S-3	Extracted: Aug 11, 1999
Attention: Brad Johnston	Lab Number: PIH00242	Analyzed: Aug 12, 1999
		Reported: Aug 18, 1999

POLYCHLORINATED BIPHENYLS (EPA 3550/8082)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Aroclor 1016	50	N.D.
Aroclor 1221	50	N.D.
Aroclor 1232	50	N.D.
Aroclor 1242	50	N.D.
Aroclor 1248	50	N.D.
Aroclor 1254	50	N.D.
Aroclor 1260	**50**	**160**

Analysis completed at Del Mar Analytical-Colton (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept Limits):	
Decachlorobiphenyl (25-120).....	68%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4

Sample Descript: Soil, MCI-S-4
Lab Number: PIH00243

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 11, 1999
Analyzed: Aug 12, 1999
Reported: Aug 18, 1999

POLYCHLORINATED BIPHENYLS (EPA 3550/8082)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Aroclor 1016	50	N.D.
Aroclor 1221	50	N.D.
Aroclor 1232	50	N.D.
Aroclor 1242	50	N.D.
Aroclor 1248	50	N.D.
Aroclor 1254	50	N.D.
Aroclor 1260	50	N.D.

Analysis completed at Del Mar Analytical-Colton (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept Limits):	
Decachlorobiphenyl (25-120).....	67%

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers	Client Project ID: 10.98004.09 Task 4	Sampled: Aug 5, 1999
2702 N. 44th St. Ste. 105-B		Received: Aug 5, 1999
Phoenix, AZ 85008-1583	Sample Descript: Soil, MCI-S-5	Extracted: Aug 11, 1999
Attention: Brad Johnston	Lab Number: PIH00244	Analyzed: Aug 12, 1999
		Reported: Aug 18, 1999

POLYCHLORINATED BIPHENYLS (EPA 3550/8082)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Aroclor 1016	50	N.D.
Aroclor 1221	50	N.D.
Aroclor 1232	50	N.D.
Aroclor 1242	50	N.D.
Aroclor 1248	50	N.D.
Aroclor 1254	50	N.D.
Aroclor 1260	**50**	**68**

Analysis completed at Del Mar Analytical-Colton (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept Limits):	
Decachlorobiphenyl (25-120)	55%

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4

Sample Descript: Soil, MCI-S-1
Lab Number: PIH00240

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 9, 1999
Analyzed: Aug 10, 1999
Reported: Aug 18, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	**50**	**80**
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	**2.0**	**13**
Benzo(a)pyrene	**20**	**20(D)**
Benzo(b)fluoranthene	**2.0**	**17**
Benzo(g,h,i)perylene	**5.0**	**25**
Benzo(k)fluoranthene	**2.0**	**9.8**
Chrysene	**5.0**	**21**
Dibenz(a,h)anthracene	**5.0**	**19**
Fluoranthene	**5.0**	**59**
Fluorene	20	N.D.
Indeno(1,2,3-cd)pyrene	**5.0**	**19**
Naphthalene	**20**	**46**
Phenanthrene	**5.0**	**12**
Pyrene	**5.0**	**29**

D= Due to matrix effects and/or other factors, the sample required dilution. Reporting limits for this sample have been raised.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.
Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	90%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Sample Descript: Soil, MCI-S-2
Lab Number: PIH00241

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 9, 1999
Analyzed: Aug 9, 1999
Reported: Aug 18, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	**50**	**86**
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(a)pyrene	2.0	N.D.
Benzo(b)fluoranthene	2.0	N.D.
Benzo(g,h,i)perylene	5.0	N.D.
Benzo(k)fluoranthene	2.0	N.D.
Chrysene	5.0	N.D.
Dibenz(a,h)anthracene	5.0	N.D.
Fluoranthene	5.0	N.D.
Fluorene	20	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	**20**	**240**
Phenanthrene	5.0	N.D.
Pyrene	5.0	N.D.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	76%

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Sample Descript: Soil, MCI-S-3
Lab Number: PIH00242

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 9, 1999
Analyzed: Aug 10, 1999
Reported: Aug 18, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	50	N.D.
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	**2.0**	**4.1**
Benzo(a)pyrene	**2.0**	**6.2**
Benzo(b)fluoranthene	**2.0**	**6.6**
Benzo(g,h,i)perylene	**5.0**	**13**
Benzo(k)fluoranthene	**2.0**	**3.5**
Chrysene	**5.0**	**10**
Dibenz(a,h)anthracene	**5.0**	**8.2**
Fluoranthene	**5.0**	**5.8**
Fluorene	20	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	**20**	**30**
Phenanthrene	**5.0**	**7.4**
Pyrene	5.0	N.D.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	86%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Sample Descript: Soil, MCI-S-4
Lab Number: PIH00243

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 9, 1999
Analyzed: Aug 10, 1999
Reported: Aug 18, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	50	N.D.
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(a)pyrene	**2.0**	**6.4**
Benzo(b)fluoranthene	**2.0**	**6.0**
Benzo(g,h,i)perylene	**5.0**	**8.6**
Benzo(k)fluoranthene	**2.0**	**3.8**
Chrysene	**5.0**	**9.7**
Dibenz(a,h)anthracene	**5.0**	**7.6**
Fluoranthene	**5.0**	**17**
Fluorene	20	N.D.
Indeno(1,2,3-cd)pyrene	**5.0**	**6.5**
Naphthalene	**20**	**25**
Phenanthrene	**5.0**	**9.5**
Pyrene	5.0	N.D.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	87%

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SCS Engineers	Client Project ID: 10.98004.09 Task 4	Sampled: Aug 5, 1999
2702 N. 44th St. Ste. 105-B		Received: Aug 5, 1999
Phoenix, AZ 85008-1583	Sample Descript: Soil, MCI-S-5	Extracted: Aug 9, 1999
Attention: Brad Johnston	Lab Number: PIH00244	Analyzed: Aug 10, 1999
		Reported: Aug 18, 1999

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	**50**	**86**
Acenaphthylene	**50**	**80**
Anthracene	2.0	N.D.
Benzo(a)anthracene	**2.0**	**7.9**
Benzo(a)pyrene	**2.0**	**16**
Benzo(b)fluoranthene	**2.0**	**14**
Benzo(g,h,i)perylene	**5.0**	**21**
Benzo(k)fluoranthene	**2.0**	**8.4**
Chrysene	**5.0**	**24**
Dibenz(a,h)anthracene	**5.0**	**20**
Fluoranthene	**5.0**	**44**
Fluorene	20	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	**20**	**99**
Phenanthrene	**5.0**	**8.9**
Pyrene	**5.0**	**29**

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	80%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Sample Descript: Soil, MCI-S-1
Lab Number: PIH00240

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 9, 1999
Analyzed: Aug 9-10, 1999
Reported: Aug 12, 1999

RCRA METALS

Analyte	EPA Method	Reporting Limit mg/Kg (ppm)	Sample Result mg/Kg (ppm)	Date Extracted	Date Analyzed
Arsenic	6010B	5.0	N.D.	08/09/99	08/10/99
Barium	6010B	1.0	290	08/09/99	08/10/99
Cadmium	6010B	0.50	14	08/09/99	08/10/99
Chromium	6010B	2.0	45	08/09/99	08/10/99
Lead	6010B	2.5	400	08/09/99	08/10/99
Mercury	7471A	0.020	0.038	08/09/99	08/09/99
Selenium	6010B	10	N.D.	08/09/99	08/10/99
Silver	6010B	2.5	N.D.	08/09/99	08/10/99

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Sample Descript: Soil, MCI-S-2
Lab Number: PIH00241

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 9, 1999
Analyzed: Aug 9-11, 1999
Reported: Aug 12, 1999

RCRA METALS

Analyte	EPA Method	Reporting Limit mg/Kg (ppm)	Sample Result mg/Kg (ppm)	Date Extracted	Date Analyzed
Arsenic	6010B	5.0	N.D.	08/09/99	08/11/99
Barium	6010B	1.0	170	08/09/99	08/11/99
Cadmium	6010B	0.50	3.1	08/09/99	08/11/99
Chromium	6010B	2.0	19	08/09/99	08/11/99
Lead	6010B	2.5	140	08/09/99	08/11/99
Mercury	7471A	0.020	N.D.	08/09/99	08/09/99
Selenium	6010B	10	N.D.	08/09/99	08/11/99
Silver	6010B	2.5	N.D.	08/09/99	08/11/99

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Sample Descript: Soil, MCI-S-3
Lab Number: PIH00242

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 9, 1999
Analyzed: Aug 9-11, 1999
Reported: Aug 12, 1999

RCRA METALS

Analyte	EPA Method	Reporting Limit mg/Kg (ppm)	Sample Result mg/Kg (ppm)	Date Extracted	Date Analyzed
Arsenic	6010B	5.0	N.D.	08/09/99	08/11/99
Barium	6010B	1.0	170	08/09/99	08/11/99
Cadmium	6010B	0.50	9.7	08/09/99	08/11/99
Chromium	6010B	2.0	710	08/09/99	08/11/99
Lead	6010B	2.5	300	08/09/99	08/11/99
Mercury	7471A	0.020	0.075	08/09/99	08/09/99
Selenium	6010B	10	N.D.	08/09/99	08/11/99
Silver	6010B	2.5	N.D.	08/09/99	08/11/99

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Sample Descript: Soil, MCI-S-4
Lab Number: PIH00243

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 9, 1999
Analyzed: Aug 9-11, 1999
Reported: Aug 12, 1999

RCRA METALS

Analyte	EPA Method	Reporting Limit mg/Kg (ppm)	Sample Result mg/Kg (ppm)	Date Extracted	Date Analyzed
Arsenic	6010B	5.0	N.D.	08/09/99	08/11/99
Barium	6010B	1.0	140	08/09/99	08/11/99
Cadmium	6010B	0.50	0.93	08/09/99	08/11/99
Chromium	6010B	2.0	15	08/09/99	08/11/99
Lead	6010B	2.5	21	08/09/99	08/11/99
Mercury	7471A	0.020	N.D.	08/09/99	08/09/99
Selenium	6010B	10	N.D.	08/09/99	08/11/99
Silver	6010B	2.5	N.D.	08/09/99	08/11/99

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Client Project ID: 10.98004.09 Task 4
Sample Descript: Soil, MCI-S-5
Lab Number: PIH00244

Sampled: Aug 5, 1999
Received: Aug 5, 1999
Extracted: Aug 9, 1999
Analyzed: Aug 9-11, 1999
Reported: Aug 12, 1999

RCRA METALS

Analyte	EPA Method	Reporting Limit mg/Kg (ppm)	Sample Result mg/Kg (ppm)	Date Extracted	Date Analyzed
Arsenic	6010B	5.0	N.D.	08/09/99	08/11/99
Barium	6010B	1.0	110	08/09/99	08/11/99
Cadmium	6010B	0.50	2.6	08/09/99	08/11/99
Chromium	6010B	2.0	18	08/09/99	08/11/99
Lead	6010B	2.5	150	08/09/99	08/11/99
Mercury	7471A	0.020	0.026	08/09/99	08/09/99
Selenium	6010B	10	N.D.	08/09/99	08/11/99
Silver	6010B	2.5	N.D.	08/09/99	08/11/99

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Method Blank

Extracted: Aug 10, 1999
Analyzed: Aug 11, 1999
Reported: Aug 12, 1999
Matrix: Soil

EXTRACTABLE FUEL HYDROCARBONS (ADHS METHOD 8015 AZR1)

Laboratory Number QC Batch IH10DE1S	Sample Description Soil	TOTAL C10-C32 mg/Kg (ppm) (Reporting Limit)	(Dilution Factor)	Surrogate Recovery o-Terphenyl % (Acceptance Limits: 70-130%)
Method Blank	N.A.	N.D.		108
		130	1	

Extractable fuel hydrocarbons are quantitated against diesel and oil fuel standards by direct injection.

Analytes reported as N.D. were not present at or above the reporting limit. Reporting limits for each analyte are listed directly below the analytical results.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

Kim Eberenz
Project Manager

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Method Blank

Extracted: Aug 6, 1999
Analyzed: Aug 10, 1999
Reported: Aug 12, 1999
Matrix: Soil

VOLATILE FUEL HYDROCARBONS (ADHS METHOD 8015AZR1)

Laboratory Number QC Batch IH06BE2S	Sample Description Soil	GRO C6-C10 mg/Kg (ppm)	Reporting Limit mg/Kg (ppm)	Dilution Factor	Surrogate Recovery 4-BFB % (Acceptance Limits: 70-130%)
Method Blank	N.A.	N.D.	20	1	95

Volatile Fuel Hydrocarbons are quantitated against a gasoline standard by purge & trap. Hydrocarbons detected by this method range from C6 to C10.

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

Kim Eberenz
Project Manager

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Method Blank

Extracted: Aug 6, 1999
Analyzed: Aug 11, 1999
Reported: Aug 18, 1999
Matrix: Soil

HALOGENATED AND AROMATIC VOLATILES (EPA 8021B)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)	Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Benzene	50	N.D.	Ethylbenzene	50	N.D.
Bromobenzene	100	N.D.	Hexachlorobutadiene	100	N.D.
Bromochloromethane	100	N.D.	Isopropylbenzene	100	N.D.
Bromodichloromethane	50	N.D.	p-Isopropyltoluene	100	N.D.
Bromoform	50	N.D.	Methylene chloride	200	N.D.
Bromomethane	100	N.D.	Naphthalene	100	N.D.
n-Butylbenzene	100	N.D.	n-Propylbenzene	100	N.D.
sec-Butylbenzene	100	N.D.	Styrene	100	N.D.
tert-Butylbenzene	100	N.D.	1,1,1,2-Tetrachloroethane	100	N.D.
Carbon tetrachloride	50	N.D.	1,1,2,2-Tetrachloroethane	50	N.D.
Chlorobenzene	50	N.D.	Tetrachloroethene	50	N.D.
Chloroethane	250	N.D.	Toluene	50	N.D.
Chloroform	50	N.D.	1,2,3-Trichlorobenzene	100	N.D.
Chloromethane	100	N.D.	1,2,4-Trichlorobenzene	100	N.D.
2-Chlorotoluene	100	N.D.	1,1,1-Trichloroethane	50	N.D.
4-Chlorotoluene	100	N.D.	1,1,2-Trichloroethane	50	N.D.
Dibromochloromethane	50	N.D.	Trichloroethene	50	N.D.
1,2-Dibromo-3-chloropropane	100	N.D.	Trichlorofluoromethane	100	N.D.
1,2-Dibromoethane	100	N.D.	1,2,3-Trichloropropane	100	N.D.
Dibromomethane	100	N.D.	1,2,4-Trimethylbenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.	1,3,5-Trimethylbenzene	100	N.D.
1,3-Dichlorobenzene	100	N.D.	Vinyl chloride	100	N.D.
1,4-Dichlorobenzene	100	N.D.	o-Xylene	50	N.D.
Dichlorodifluoromethane	250	N.D.	m,p-Xylenes	100	N.D.
1,1-Dichloroethane	50	N.D.			
1,2-Dichloroethane	50	N.D.			
1,1-Dichloroethene	50	N.D.			
cis-1,2-Dichloroethene	50	N.D.			
trans-1,2-Dichloroethene	50	N.D.			
1,2-Dichloropropane	50	N.D.			
1,3-Dichloropropane	100	N.D.			
2,2-Dichloropropane	100	N.D.			
1,1-Dichloropropene	100	N.D.			
cis-1,3-Dichloropropene	50	N.D.			
trans-1,3-Dichloropropene	100	N.D.			

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recoveries:	
1-Chloro-3-fluorotoluene(70-130)....	117%
aaa-Trifluorotoluene(70-130).....	110%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Method Blank

Extracted: Aug 11, 1999
Analyzed: Aug 12, 1999
Reported: Aug 18, 1999
Matrix: Soil

POLYCHLORINATED BIPHENYLS by GC (EPA 3550/8082)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Aroclor 1016	50	N.D.
Aroclor 1221	50	N.D.
Aroclor 1232	50	N.D.
Aroclor 1242	50	N.D.
Aroclor 1248	50	N.D.
Aroclor 1254	50	N.D.
Aroclor 1260	50	N.D.

Analysis completed at Del Mar Analytical-Colton (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recoveries (Accept Limits):	
Decachlorobiphenyl (25-120).....	65%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Method Blank

Extracted: Aug 9, 1999
Analyzed: Aug 9, 1999
Reported: Aug 18, 1999
Matrix: Soil

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 3550/8310)

Analyte	Reporting Limit µg/Kg (ppb)	Sample Result µg/Kg (ppb)
Acenaphthene	50	N.D.
Acenaphthylene	50	N.D.
Anthracene	2.0	N.D.
Benzo(a)anthracene	2.0	N.D.
Benzo(a)pyrene	2.0	N.D.
Benzo(b)fluoranthene	2.0	N.D.
Benzo(g,h,i)perylene	5.0	N.D.
Benzo(k)fluoranthene	2.0	N.D.
Chrysene	5.0	N.D.
Dibenz(a,h)anthracene	5.0	N.D.
Fluoranthene	5.0	N.D.
Fluorene	20	N.D.
Indeno(1,2,3-cd)pyrene	5.0	N.D.
Naphthalene	20	N.D.
Phenanthrene	5.0	N.D.
Pyrene	5.0	N.D.

Analysis completed at Del Mar Analytical-COLTON (AZ0062)

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

K.E.

Kim Eberenz
Project Manager

Surrogate Standard Recovery:	
2-Methylanthracene(50-110)	62%

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SCS Engineers
2702 N. 44th St. Ste. 105-B
Phoenix, AZ 85008-1583
Attention: Brad Johnston

Method Blank

Extracted: Aug 9, 1999
Analyzed: Aug 9-11, 1999
Reported: Aug 12, 1999
Matrix: Soil

RCRA METALS

Analyte	EPA Method	Reporting Limit mg/Kg (ppm)	Sample Result mg/Kg (ppm)	Date Extracted	Date Analyzed
Arsenic	6010B	5.0	N.D.	08/09/99	Aug 10-11, 1999
Barium	6010B	1.0	N.D.	08/09/99	Aug 10-11, 1999
Cadmium	6010B	0.50	N.D.	08/09/99	Aug 10-11, 1999
Chromium	6010B	2.0	N.D.	08/09/99	Aug 10-11, 1999
Lead	6010B	2.5	N.D.	08/09/99	Aug 10-11, 1999
Mercury	7471A	0.020	N.D.	08/09/99	08/09/99
Selenium	6010B	10	N.D.	08/09/99	Aug 10-11, 1999
Silver	6010B	2.5	N.D.	08/09/99	Aug 10-11, 1999

Analytes reported as N.D. were not present at or above the reporting limit.

DEL MAR ANALYTICAL, PHOENIX (AZ0426)

KE

Kim Eberenz
Project Manager

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MS/MSD/LFB DATA REPORT

ADHS Method 8015AZ (C10-C32)

Matrix: Soil
Instrument: GC-2

Date: 08/11/99
Sample #: PIH00201
Batch #: IH10DE1S

Analyte	R1 ppm	Sp ppm	MS ppm	MSD ppm	%REC MS	%REC MSD	RPD %	Acceptance Limits RPD %	Acceptance Limits PR %
Matrix Spike									
DRO (C10-C22)	0	250	229	234	92	94	2	≤ 20	70-130
ORO (C22-C32)	0	250	181	195	72	78	7	≤ 20	70-130

Lab Fortified Blank	St ppm	R1 ppm	PR %	RPD %	PR %
DRO (C10-C22)	250	242	97	N/A	70-130
ORO (C22-C32)	250	212	85	N/A	70-130

Definition of Terms

LFB..... Result of LFB Analysis
MS..... Matrix Spike Result
MSD..... Matrix Spike Duplicate Result
PR of MS/MSD..... Percent Recovery of Matrix Spikes; ((MS-R1)/SP) x 100
PR of LFB..... Percent Recovery of LFB Analysis; ((R1/St) x 100
R1..... Result of Sample Analysis
RPD..... Relative Percent Difference; (MS-MSD)/(MS + MSD)/2) x 100
S..... Sample Concentration
Sp..... Spike Concentration added to sample
St..... Standard Concentration
Acceptance Limits..... Statistically determined on an annual basis.

QA/QC Criteria..... All QA/QC was within acceptance limits.

Del Mar Analytical (AZ0426)

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MS/SD/LFB DATA REPORT

ADHS Method 8015AZ (C6-C10)

Matrix: Soil

Instrument: GC3

Date: 08/10/99

MS Sample #: PIH00240

DUP Sample #: PIH00240

Batch #: IH06BE2S

Analyte	R1 ppm	Sp ppm	MS ppm	PR %	Acceptance Limits RPD %	Acceptance Limits PR %
Matrix Spike						
GRO (C6-C10)	0.0	25.0	29.6	118	N/A	70-130

Sample Duplicate	S ppm	SD ppm	RPD %	RPD %	PR %
GRO (C6-C10)	0.0	0.0	0	≤ 20	N/A

Lab Fortified Blank	St ppm	R1 ppm	PR %	RPD %	PR %
GRO (C6-C10)	25.0	29.8	119	N/A	70-130

Definition of Terms

LFB..... Result of LFB Analysis
MS..... Matrix Spike Result
PR of MS..... Percent Recovery of Matrix Spike; ((MS-R1)/SP) x 100
PR of LFB..... Percent Recovery of LFB Analysis; ((R1/St) x 100
R1..... Result of Sample Analysis
RPD..... Relative Percent Difference; (S-SD)/(S + SD)/2) x 100
S..... Sample Concentration
SD..... Sample Duplicate Concentration
Sp..... Spike Concentration added to sample
St..... Standard Concentration
Acceptance Limits..... Statistically determined on an annual basis.

QA/QC Criteria..... All QA/QC criteria was within acceptance limits.

Del Mar Analytical (AZ0426)

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MS/MSD DATA REPORT

EPA Method: 8021B
Matrix: Soil
Instrument: GC

Date: 08/11/99
Sample #: PIH00200
Batch #: IH06VG1S

Analyte	R1	Sp	MS	MSD	PR1	PR2	RPD	Acceptance Limits RPD	Acceptance Limits PR1/PR2
	ppb	ppb	ppb	ppb	%	%	%	%	%
Benzene	0.0	250	238	252	95%	101%	6%	≤ 30	70-130
Chloroform	0.0	250	265	282	106%	113%	6%	≤ 30	70-130
1,1-Dichloroethane	0.0	250	292	300	117%	120%	3%	≤ 30	70-130
1,2-Dichloroethane	0.0	250	254	255	102%	102%	0%	≤ 30	70-130
1,1-Dichloroethene	0.0	250	258	275	103%	110%	6%	≤ 30	70-130
Tetrachloroethene	0.0	250	235	242	94%	97%	3%	≤ 30	70-130
Toluene	0.0	250	249	260	100%	104%	4%	≤ 30	70-130
Trichloroethene	0.0	250	239	253	96%	101%	6%	≤ 30	70-130

Definition of Terms

R1..... Result of Sample Analysis
Sp..... Spike Concentration added to sample
MS..... Matrix Spike Result
MSD..... Matrix Spike Duplicate Result
PR1..... Percent Recovery of MS; ((MS-R1)/SP) x 100
PR2..... Percent Recovery of MSD; ((MSD-R1)/SP) x 100
RPD..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2) x 100
Acceptance Limits..... Statistically determined on an annual basis.

QA/QC Criteria..... All QA/QC criteria was within acceptance limits.

Del Mar Analytical (AZ0426)

Del Mar Analytical
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GC CALIBRATION CHECK CRITERIA

Method: 8021B

Associated Samples: PIH00323, PIH00179, PIH00240-PIH00244

Mid-Point: 2
QC Batch: IH06VG1S, IH09VG1S

Per Method 8000B of SW-846, the percent recovery of the calibration checks for GC analyses must be within ± 15% from the true value (± 20% for the light gases) for each individual compound or the average % recovery of all compounds in the calibration check solution must be within ± 15% recovery. Per Method 8000B, the end user is to be notified if the latter situation occurs.

The % recovery for the following individual compounds fell outside of the ± 15% criteria, however the average % recovery of all compounds in the calibration check solution was within ± 15%, thus meeting the overall calibration check criteria.

Compound	Footnote	% Recovery in Calibration Check
1,2-Dibromo-3-chloropropane	2	63
Dichlorodifluoromethane	1	157
1,1-Dichloroethane	1	121
2,2-Dichloropropane	1	116
Naphthalene	2	74
1,2,3-Trichlorobenzene	1	122

[1] The calibration demonstrated a high bias for this compound. Any sample with a positive result for this compound was flagged to indicate a possible high bias in the result.
All samples that were ND for this compound were unaffected and reported unqualified.

---

[2] The calibration demonstrated a low bias for this compound. Any sample with a positive result for this compound was flagged to indicate a possible low bias in the result.
An additional check sample at the reporting limit was analyzed. All samples less than the amount found in the reporting limit check sample for this compound were unaffected and reported, unqualified, as ND.

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MS/MSD DATA REPORT

EPA Method: 8082 (PCB's only)
Matrix: Soil
Instrument: GC

Date: 8/11/99
Sample #: CIG00252
Batch #: IH11PB1S

Analyte	R1	Sp	MS	MSD	PR1	PR2	RPD	Acceptance Limits RPD	Acceptance Limits PR1/PR2
	ppb	ppb	ppb	ppb	%	%	%	%	%
PCB 1016 (Arochlor)	0	200	135	119	68%	60%	13%	30	35-115
PCB 1260 (Arochlor)	0	200	135	137	68%	69%	1%	30	40-115

Definition of Terms

R1..... Result of Sample Analysis
Sp..... Spike Concentration added to sample
MS..... Matrix Spike Result
MSD..... Matrix Spike Duplicate Result
PR1..... Percent Recovery of MS; ((MS-R1)/SP) x 100
PR2..... Percent Recovery of MSD; ((MSD-R1)/SP) x 100
RPD..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2) x 100
Acceptance Limits..... Statistically determined on an annual basis.

QA/QC Criteria..... All QA/QC was within acceptance limits.

Del Mar Analytical (AZ0426) This analysis was performed at Del Mar Analytical-Colton (AZ0062).

Del Mar Analytical

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MS/MSD DATA REPORT

EPA Method: 8310
Matrix: Soil
Instrument: HPLC

Date: 08/09/99
Sample #: CIH00258
Batch #: IH09PA1S

Analyte	R1	Sp	MS	MSD	PR1	PR2	RPD	Acceptance Limits RPD	Acceptance Limits PR1/PR2
	ppb	ppb	ppb	ppb	%	%	%	%	%
Naphthalene	0	80.0	60.9	59.7	76%	75%	2%	35	45-110
Benzo(a)anthracene	0	8.0	6.23	6.23	78%	78%	0%	35	50-115
Benzo(a)pyrene	0	8.0	5.33	5.37	67%	67%	1%	40	45-105

Definition of Terms

R1..... Result of Sample Analysis
Sp..... Spike Concentration added to sample
MS..... Matrix Spike Result
MSD..... Matrix Spike Duplicate Result
PR1..... Percent Recovery of MS; ((MS-R1)/SP) x 100
PR2..... Percent Recovery of MSD; ((MSD-R1)/SP) x 100
RPD..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2) x 100
Acceptance Limits..... Statistically determined on an annual basis.

QA/QC Criteria..... All QA/QC was within acceptance limits.

Del Mar Analytical (AZ0426) This analysis was performed at Del Mar Analytical-Colton (AZ0062).

Del Mar Analytical

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MS/MSD DATA REPORT

METHOD: 6010B
INSTRUMENT: ICP
MATRIX: Soil

Date: 8/10/99
Sample #: PIH00288

Analyte	R1	SP	MS	MSD	PR1	PR2	RPD	MEAN PR
	ppm	ppm	ppm	ppm	%	%	%	%
Arsenic	8.35	50.0	52.6	51.4	89%	86%	2.3%	87%
Barium	104	50.0	149	155.0	90%	102%	3.9%	96%
Cadmium	0.507	50.0	46.9	47.1	93%	93%	0.4%	93%
Chromium	11.5	50.0	63.3	60.3	104%	98%	4.9%	101%
Lead	10.6	50.0	58.8	57.0	96%	93%	3.1%	95%
Selenium	0	50.0	43.9	45.6	88%	91%	3.8%	90%
Silver	0.0502	50.0	48.7	49.2	97%	98%	1.0%	98%

Definition or Terms:

R1..... Result of Sample Analysis
Sp..... Spike Concentration Added to Sample
MS..... Matrix Spike Result
MSD..... Matrix Spike Duplicate Result
PR1..... Percent Recovery of MS; ((MS-R1) / SP) X 100
PR2..... Percent Recovery of MSD; ((MSD-R1) / SP) X 100
RPD..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2)) X 100
Acceptance Limits ..... RPD: < or = 20%
MS/MSD: 75-125%

QA/QC Criteria: All QA/QC was within acceptance limits.

Del Mar Analytical (AZ0426)

Del Mar Analytical

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MS/MSD DATA REPORT

EPA Method: 7471A
Matrix: Soil
Instrument: N/A

Date: 08/09/99
Sample #: PIH00179
Batch #: IH09HG1S

Analyte	R1	Sp	MS	MSD	PR1	PR2	RPD	Acceptance Limits RPD	Acceptance Limits PR1/PR2
	ppm	ppm	ppm	ppm	%	%	%	%	%
Mercury	0	0.333	0.289	0.298	87%	89%	3%	≤ 20	85-115%

Definition of Terms

R1..... Result of Sample Analysis
Sp..... Spike Concentration added to sample
MS..... Matrix Spike Result
MSD..... Matrix Spike Duplicate Result
PR1..... Percent Recovery of MS; ((MS-R1)/SP) x 100
PR2..... Percent Recovery of MSD; ((MSD-R1)/SP) x 100
RPD..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2) x 100
Acceptance Limits..... Statistically determined on an annual basis.

QA/QC Criteria..... All QA/QC was within acceptance limits.

Del Mar Analytical (AZ0426)

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GB- 8125

CHAIN OF CUSTODY FORM

Quote #: _____ Page 1 of 1

Client Name/Address: SCS ENGINEERS

Project/PO Number: 1098004.09 Task 4

Project Manager: BRAD JOHNSTON

Phone Number: 840-2596

Sampler: BRAD JOHNSTON

Fax Number: 224-0572

Analysis Required

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservatives	8015AZR1 C6-C32	8310	8021 (full)	Total RCRA metals	PCB/8081							Special Instructions
MCI-S-1	SOIL	BRASS	1	8/5/99 8:40	ICE	X	X	X	X	X							PIH00240
MCI-S-2				8:50		X	X	X	X	X							PIH00241
MCI-S-3				8:55		X	X	X	X	X							PIH00242
MCI-S-4				9:05		X	X	X	X	X							PIH00243
MCI-S-5				9:15		X	X	X	X	X							PIH00244

Relinquished By:	Date /Time:	Received by:	Date /Time:	Turnaround Time: (Check)
[signature]	8/5/99 6:00P			same day ____ 72 hours ____
Relinquished By:	Date /Time:	Received by:	Date /Time:	24 hours ____ 5 days ____
				48 hours ____ normal X
Relinquished By:	Date /Time:	Received in Lab by: [signature]	Date /Time: 8/5/99 6:00P	Sample Integrity: (Check) intact X on ice X

Note: By relinquishing samples to Del Mar Analytical, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

COC-GB