

AP - 018

REPORTS

12/07/1999

**PHASE II ENVIRONMENTAL ASSESSMENT
JUNE 1999 SOIL BORINGS**

**South Langley Jal Unit
Lea County, New Mexico**

RECEIVED

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**ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION**

PHASE II ENVIRONMENTAL ASSESSMENT

JUNE, 1999 SOIL BORINGS

South Langley Jal Unit

Lea County, New Mexico

PREPARED FOR:

Bristol Resources Corporation

Mr. Dan Abney

6655 South Lewis

Tulsa, Oklahoma 74136

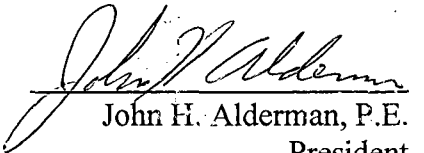
PREPARED BY:

Cornerstone Environmental Resources, Inc.

2997 LBJ Freeway

Suite 103

Dallas, Texas 75234-7606


John H. Alderman, P.E.
President

**PHASE II ENVIRONMENTAL ASSESSMENT
JUNE 1999 SOIL BORINGS**

**South Langley Jal Unit
Lea County, New Mexico**

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1.0 EXECUTIVE SUMMARY

Cornerstone Environmental Resources, Inc. (CERI) conducted an Environmental Assessment (EA) of the South Langley Jal Unit (SLJU) located in Lea County, New Mexico on January 18, 1999 at the request of and on behalf of Bristol Resources Corporation (Bristol). The property is located north of Jal as shown on the Location Map, Figure 1, and Topographic Map, Figure 2. CERI conducted this EA to evaluate the extent of a brine water spill from a leak in an injection line on the subject property. A report was prepared documenting the findings and submitted to the New Mexico Oil Conservation Division's (NMOCD) Hobbs office. Ms. Donna Williams, an environmental engineer with NMOCD, requested additional information be obtained. She requested the following:

1. Bristol Resources demonstrate that any remaining water contaminant will not impact groundwater or environment.
2. Bristol Resources perform Vertical and Horizontal delineation by sampling for BTEX, TPH, and Chlorides.

The purpose of this phase of the study was to respond to Ms. Williams request and further delineate chloride contamination in the subject area. Six soil borings were advanced to depths of 20 to 25 feet to further delineate the chloride concentrations in the area. The soil borings found high chloride concentrations present in the study area at depths of 20 to 25 feet. We do not know at this time if the high chlorides are from the spill from the leak reported in January 1999 are from historical spills in the area.

BTEX above the detection limit of 20 ug/kg was not detected in any of the samples analyzed. There was a TPH diesel range measurement 11.1 mg/kg in the near surface sample of Well #3. There was a TPH gasoline range measurement of 1.12 mg/kg in the near surface sample in Well #6. The other measurements were below the detection limit of 1 mg/kg.

We recommend that a well be drilled to recover a ground water sample and evaluate the ground water quality in the area. We recommend a well location to the south of Well #1 or to the east of Well #2. Other water wells in this area have reported ground water depths of 53 feet and a well in this location should encounter water at approximately this depth.

2.0 INTRODUCTION AND PURPOSE

CERI conducted an EA of the SLJU located in Lea County, New Mexico on January 18, 1999 at the request of and on behalf of Bristol. The property is located north of Jal as shown on the Location Map, Figure 1, and Topographic Map, Figure 2. CERI conducted this EA to evaluate the extent of a brine water spill from a leak in an injection line on the subject property. A report was prepared documenting the findings and submitted to the NMOCD Hobbs office. Ms. Donna Williams, an environmental engineer with NMOCD, requested additional information be obtained. She requested the following:

1. Bristol Resources demonstrate that any remaining water contaminant will not impact groundwater or environment.
2. Bristol Resources perform Vertical and Horizontal delineation by sampling for BTEX, TPH, and Chlorides.

The purpose of this phase of the study was to respond to Ms. Williams request and further delineate chloride contamination in the subject area. The study area is located in the NW Section 18 and the SE Section 7, T25S R37E where a salt water leak was reported between Producing Well #9 and Injection Well #13. The leak occurred in the injection line going to Injection Well #13. Figure 2 shows the two wells and the study area between them.

Trenches dug with a backhoe were used to obtain samples in the January study. A truck mounted drill rig was utilized in this phase to obtain core samples for analysis.

3.0 AQUIFER AND PRODUCED WATER CHARACTERISTICS

3.01 Groundwater

The spill occurred in the NE ¼ of Section 18, R37E, T25S. Mr. Ken Frequez with the State Engineer's office was contacted concerning the depth of ground water in the area. He said there were two water wells in the area. These wells and the depth to ground water are as follows in Table 1.

Table 1

Location	Water Depth	Surface Elevation
NW ¼ Sec 17, T25S, R37E	53 ft.	3104 ft.
SE ¼ Sec 18, T25S, R37E	53 ft.	3107 ft.

Based on water depth in these two wells, the depth of ground water in the area is 53 ft.

3.02 Produced Water

A sample of the injection water was taken on 2/5/99 and analyzed by Martin Water Labs., Inc. The results of the analysis is presented in Appendix A. The chloride concentration in the injection water based on this sample is 26,270 milligrams per liter (mg/L).

4.0 DATA GATHERING AND SAMPLING

Well bores were advanced using a 6 inch hollow-stem auger. A 5 foot split spoon sampler was used to collect cores. An attempt was made on the first well to utilize a probe with a plastic sleeve to obtain core samples. A point of refusal was reached at approximately 8 feet when a hard lime interval was encountered. The probe was abandoned in favor of the auger. A total of 6 wells were advanced in this phase of the study. The locations of the wells in this study and the trenches dug in January, 1999 are shown on Figure 3.

Photo 1 shows the location of Well #1 soil boring. This well was located south of the previously identified surface disturbed area. There was no evidence of surface disturbance at this location. The other well sites are shown in Photos 2 through 6. Well #3 was placed in the surface disturbed area and Well #2 and #6 were placed to the east and west of the area. Wells #4 and #5 were placed to the east of previously dug trenches.

The original plan was to drill all wells to 20 feet. The actual drilled depth ranged from 20 feet in Well #4 to 25 feet in Well #6. The wells were plugged with bentonite and cuttings from the well following the coring.

5.0 SAMPLE ANALYSES AND DISCUSSION

Core diagrams for each of the wells were prepared and are shown on Figure 4. The section line for Figure 4 is shown on Figure 5. The well logs show the sample number and chloride concentration on the left side of the log. The lithology is shown on the right side. A copy of the lab analysis is contained in Appendix A.

Chloride contamination was not detected in the near surface at Wells #1, #2 and #4. High chloride concentrations were detected in the near surface in Well #3 located in the surface disturbed area and in Well #6 located to the west of the surface disturbed area. Elevated chlorides were also found in Well #5.

There were sand stringers and zones of broken lime found at depths between 8 to 15 feet. Elevated chlorides were detected in all of the wells but Well #2.

A pink to red sand was found in the 20 to 25 foot interval in Wells #1, #3, and #6. A soft lime was encountered in the other wells at about 20 feet. All of the wells at this depth had high chloride concentrations in the sand and the lime.

Photo 7 shows cores 1 and 2 from Well #1. The brown sand overlying the caliche zone can be seen in this photo. The hard lime sections with broken section is shown in Photo #8 which is a photo of Core #2 from Well #3. The red sand at the 20 foot level is shown in Photo #9 which shows Core #5 from Well #5.

BTEX above the detection limit of 20 ug/kg was not detected in any of the samples analyzed. There was a TPH diesel range measurement 11.1 mg/kg in the near surface sample of Well #3. There was a TPH gasoline range measurement of 1.12 mg/kg in the near surface sample in Well #6. The other measurements were below the detection limit of 1 mg/kg.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Soil borings show that high chloride concentrations are present in this area at depths of 20 to 25 feet. We do not know at this time if the high chlorides are from the spill from the leak reported in January 1999 are from historical spills in the area.

We recommend that a well be drilled to recover a ground water sample and evaluate the ground water quality in the area. We recommend a well location to the south of Well #1 or to the east of Well #2. Other water wells in this area have reported ground water depths of 53 feet and a well in this location should encounter water at approximately this depth.

FIGURES

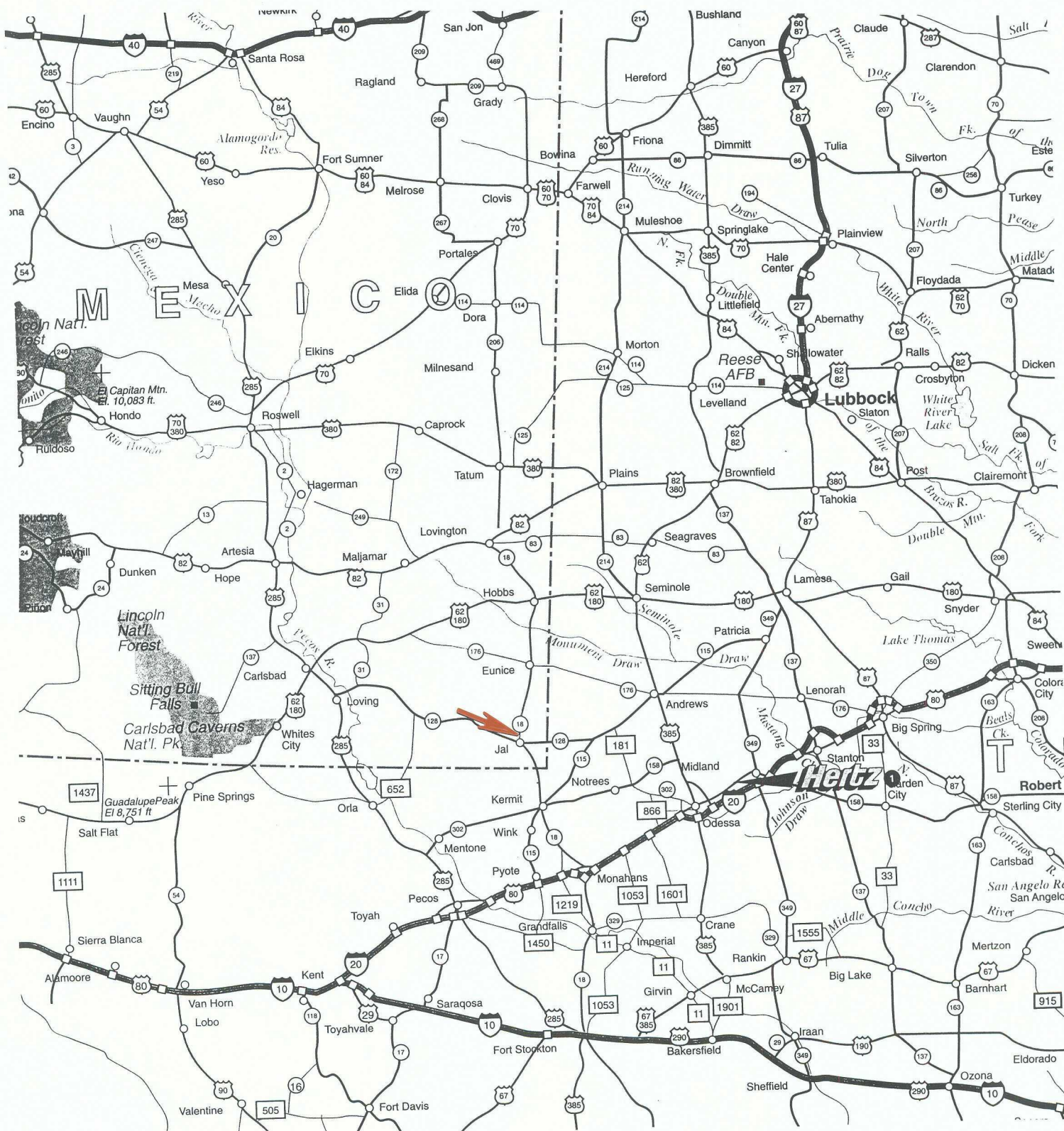
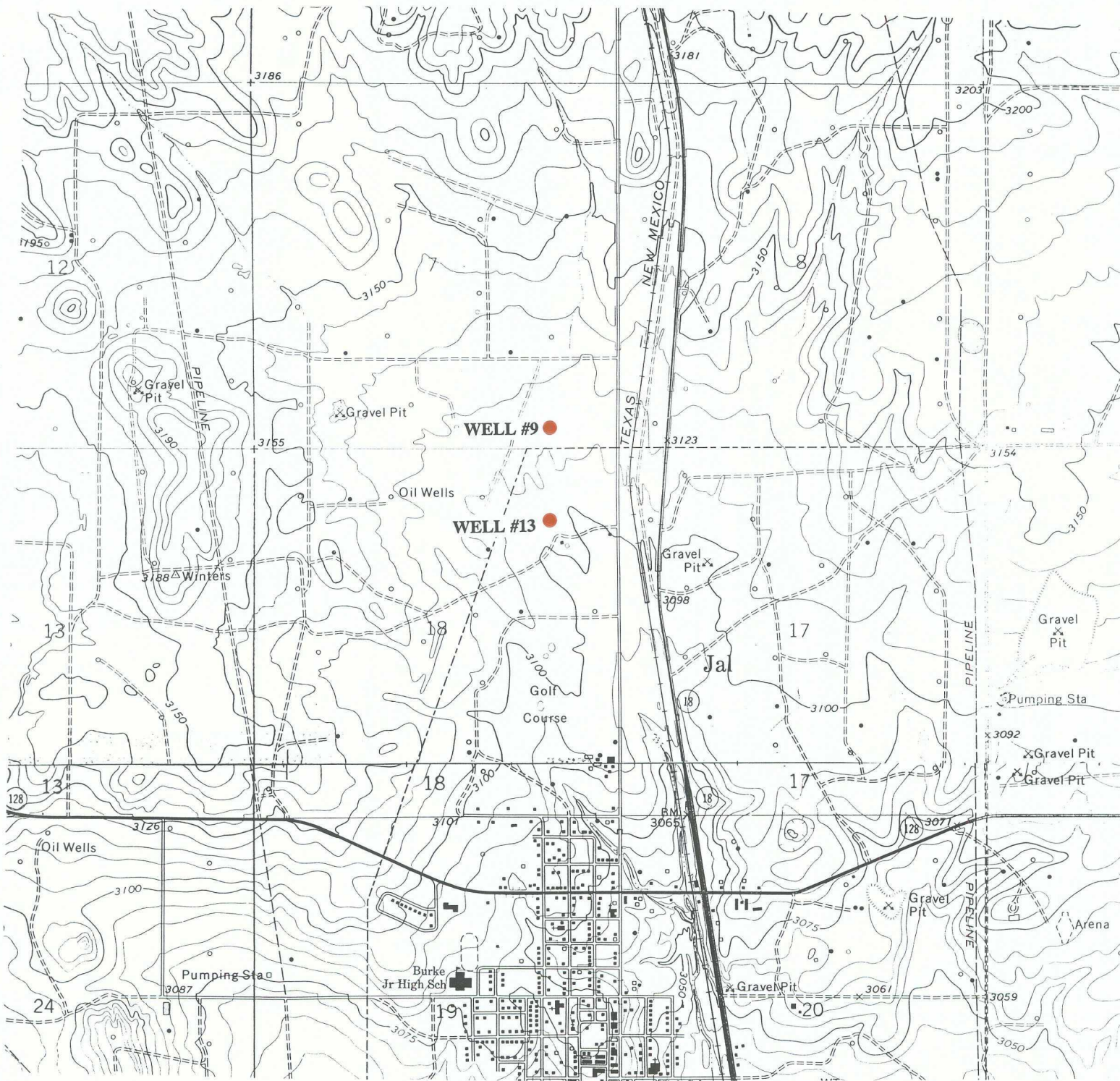


FIGURE 1
LOCATION MAP

Bristol Resources Corporation
South Langley Jal Unit
Lea County, New Mexico

Scale: NONE

Date: 02/99



ROAD CLASSIFICATION

Heavy-duty		Light duty	
Medium-duty		Unimproved dirt	

	Interstate Route		U.S. Route		State Route
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CI: 10' SCALE: 1:24,000

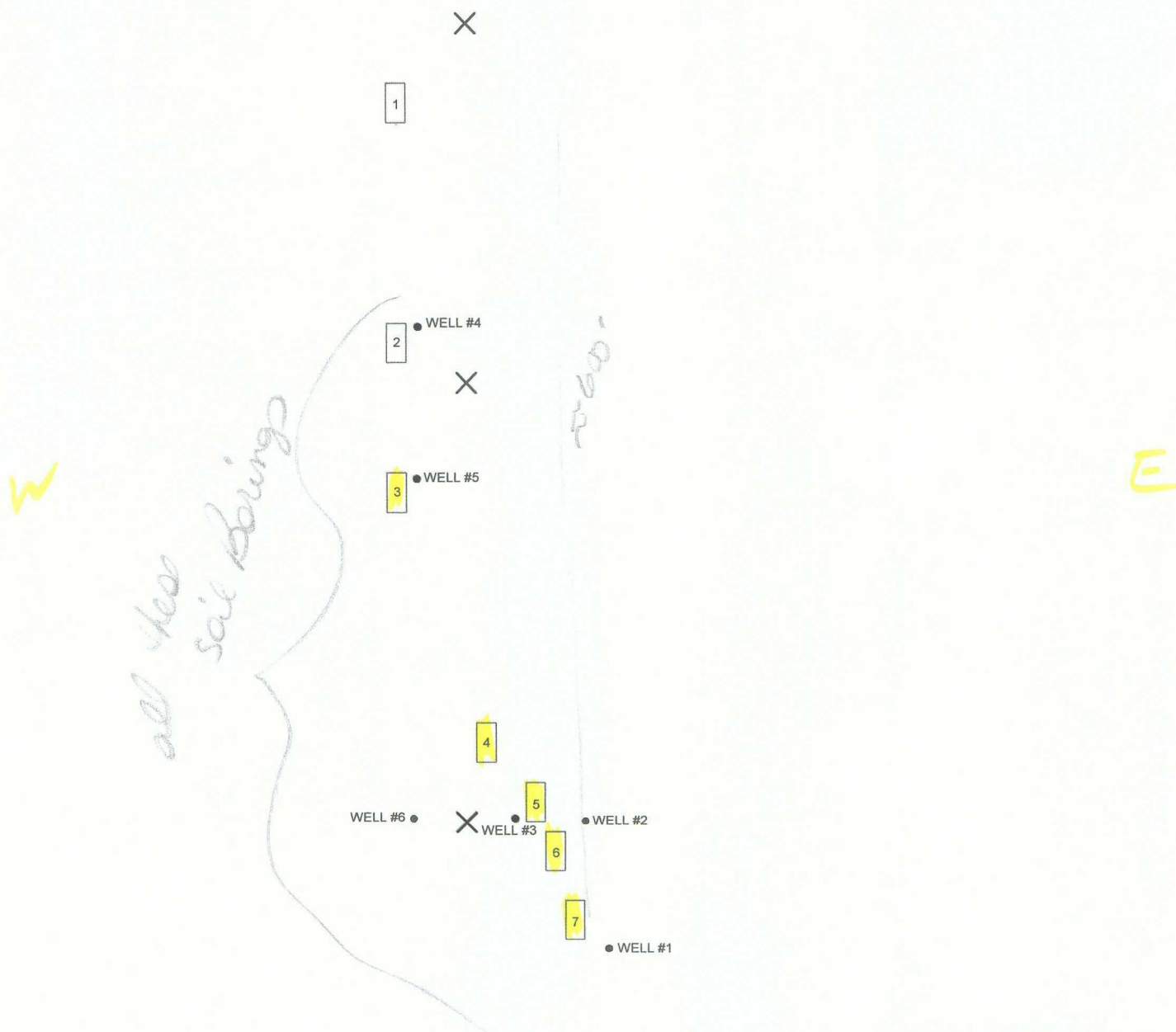


**FIGURE 2
TOPOGRAPHIC MAP**

Bristol Resources Corporation
South Langley Jal Unit
Lea County, New Mexico
Jal NW Quadrangle

Date: 02/99

Producing well *unit* **Level** 30' South West



KEY

- X = Power Line pole
- = Soil Boring (6/15-16/99)
- [] = Trench (1/18/99)

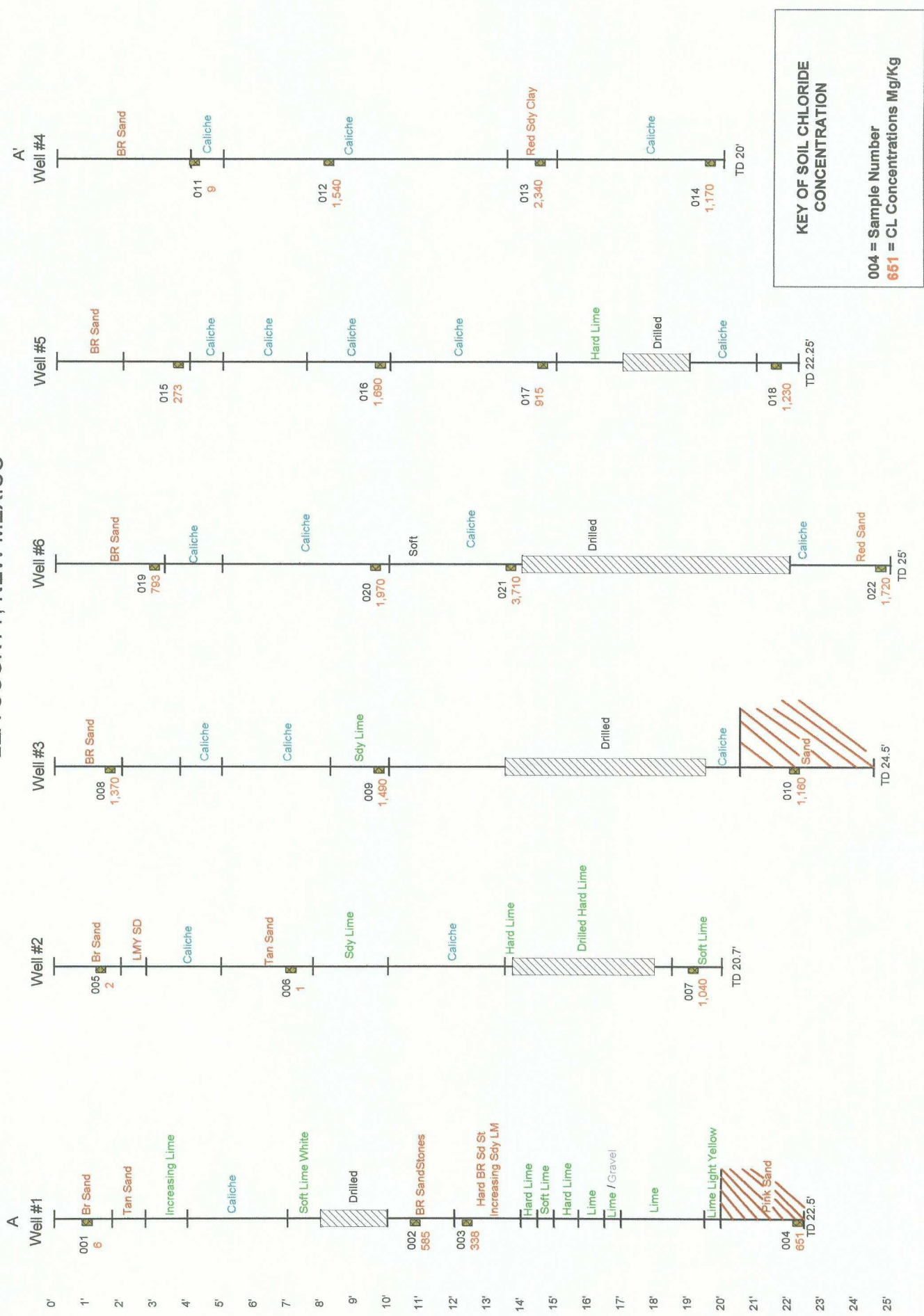
FIGURE 3 LOCATION MAP OF TRENCHES AND SOIL BORINGS

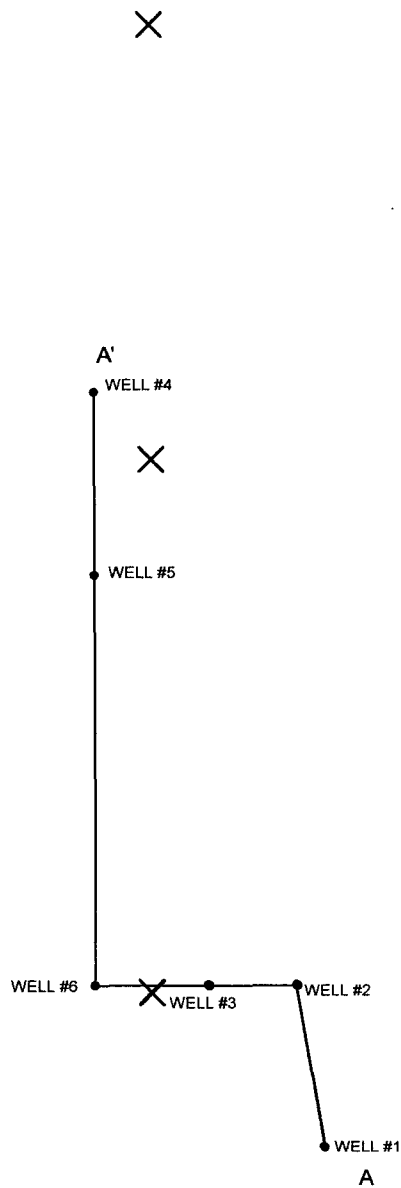
South Langley Jal Unit
Lea County, New Mexico

Scale : 1" = 100'

Date: 07/99

FIGURE 4
CORE DIAGRAM OF WELLS DRILLED 6/5 & 6/6/99
SOUTH LANGLEY JAL UNIT
LEA COUNTY, NEW MEXICO





KEY

X = Power Line pole
 ● = Soil Boring

FIGURE 5
 CROSS SECTION LINE A - A'

South Langley Jal Unit
 Lea County, New Mexico

Scale : 1" = 100'

Date: 07/99

PHOTOGRAPHS

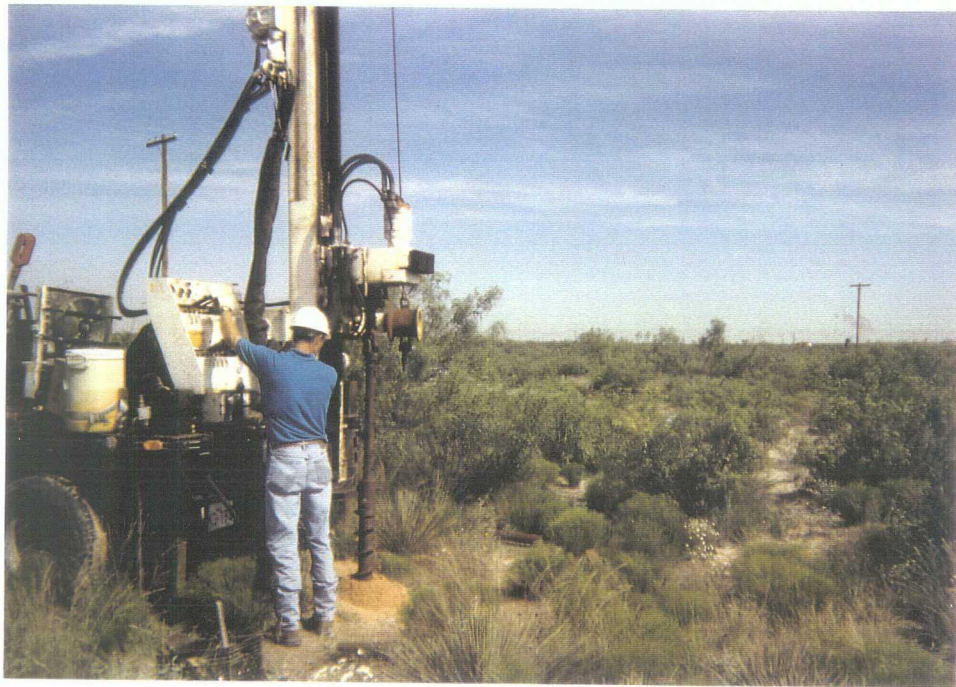


PHOTO 1: Well #1 location south of surface disturbed area.



PHOTO 2: Well #2 location on the east edge of the surface disturbed area.



PHOTO 3: Well #3 location in the contaminated area.



PHOTO 4: Well #6 location on the west of the surface disturbed area.



PHOTO 5: Well #4 location west of Trench 2.

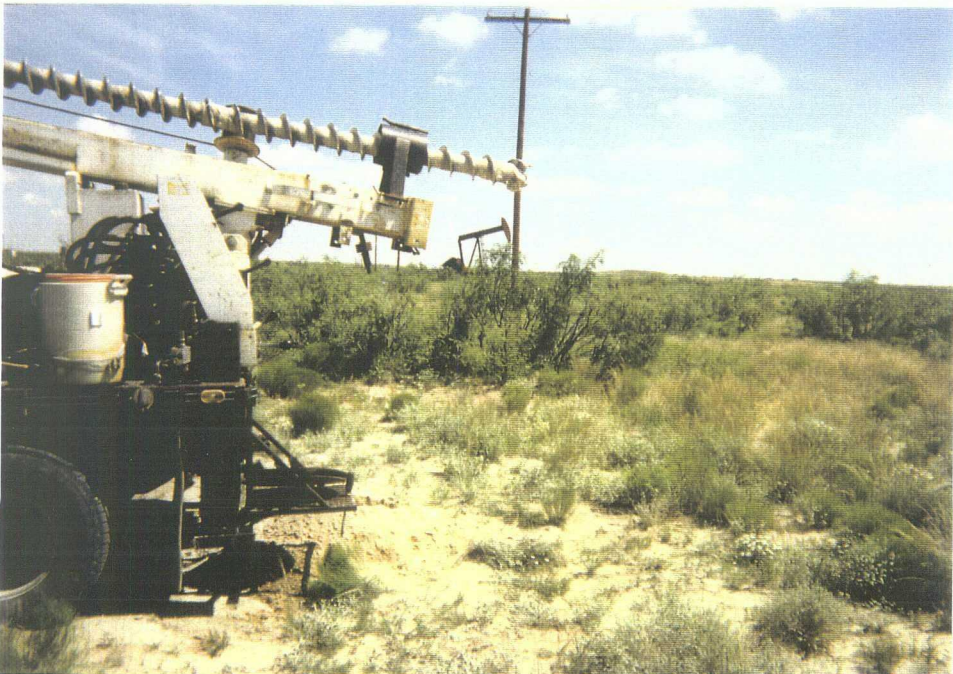


PHOTO 6: Well #5 location west of Trench 3.



PHOTO 7: Cores 1 and 2 from well #1 showing brown sand at surface overlaying caliche zone. Top of cores are at the bottom of the photo.



PHOTO 8: Core 2 from well #3 shows hard lime with broken lime section at approximately 10 feet. Top of core is to the left.



PHOTO 9: Core 5 from well #5 shows red sand at bottom of lime section. Top of core is to the left.

APPENDIX "A"



GULF STATES ANALYTICAL

07/01/99

Mr. John Alderman
Cornerstone Environmental
2997 LBJ Frwy., Ste. 103
Dallas, TX 75234

Reference:

Project: S.Langley JAL Unit
Project No.: 99003
Date Received: 06/17/99
GSA Group: 50693 Group Report Date: 07/01/99

Dear Mr. Alderman:

Enclosed are the analytical results for your project referenced above. The following samples are included in the report.

9003001 A,B,C :264904	9003002 A :264905
9003003 A :264906	9003004 A,B,C,D :264907
9003005 A :264908	9003006 A :264909
9003007 A :264910	9003008 A,B,C,D :264911
9003009 A :264912	9003010 A,B,C,D :264913
9003011 A,B,C,D :264914	9003012 A :264915
9003013 A :264916	9003014 A :264917
9003015 A,B,C,D :264918	9003016 A :264919
9003017 A :264920	9003018 A,B,C,D :264921
9003019 A,B,C,D :264922	9003020 A :264923
9003021 A :264924	9003022 A,B,C,D :264925
Trip Blank :264926	

All holding times were met for the tests performed on these samples.

Our A2LA accreditation requires that, should this report be reproduced, it must be reproduced in total.

Enclosed please find the Quality Control Summary. All quality control results for the QC batch that are applicable to this sample(s) are acceptable except as noted in the QC batch reports.

If the report is acceptable, please approve the enclosed invoice and forward it for payment.

Thank you for selecting Core Lab - Gulf States Analytical to serve as your analytical laboratory on this project. If you have any questions concerning these results, please feel free to contact me at any time.



GULF STATES ANALYTICAL

07/01/99

Reference:

Project: S.Langley JAL Unit

Project No.: 99003

Date Received: 06/17/99

GSA Group: 50693 Group Report Date: 07/01/99

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We look forward to working with you on future projects.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Ed Fry", written over a horizontal line.

Ed Fry
Project Manager

Enclosure



GULF STATES ANALYTICAL

ANALYSIS SUMMARY REPORT

Cornerstone Environmental
2997 LBJ Frwy., Ste. 103
Dallas, TX 75234-7606

GSA Group: 50693
Date Reported: 07/01/1999
Date Received: 06/17/1999

Attn: Mr. John Alderman
Project: S.Langley JAL Unit

Purchase Order: N/A
Project No.: 99003

<u>Test Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample:264904 - 06/15/1999 - 9003001 A,B,C			
ICSTB Metals by ICP, Solids, Trace			
Magnesium	4,360	mg/kg	200
Potassium	1,210	mg/kg	200
Sodium	ND	mg/kg	200
9056A Anions by IC, Solid			
Chloride	6	mg/kg	1
Bromide	ND	mg/kg	1
Sulfate	12	mg/kg	1
0538H TPH, Gasoline Range Organics, SW			
0511E Purgeable Aromatics, BTEX Solids	ND	ug/kg	1,000
Benzene	ND	ug/kg	20
Toluene	ND	ug/kg	20
Ethylbenzene	ND	ug/kg	20
Xylene (total)	ND	ug/kg	60
0539H TPH, Diesel Range Organics			
	ND	ug/kg	8,300
Sample:264905 - 06/15/1999 - 9003002 A			
9056A Anions by IC, Solid			
Chloride	585	mg/kg	10
Sample:264906 - 06/15/1999 - 9003003 A			
9056A Anions by IC, Solid			
Chloride	338	mg/kg	10
Sample:264907 - 06/15/1999 - 9003004 A,B,C,D			
ICSTB Metals by ICP, Solids, Trace			
Magnesium	599	mg/kg	200
Potassium	402	mg/kg	200
Sodium	453	mg/kg	200
9056A Anions by IC, Solid			
Chloride	651	mg/kg	10
Bromide	5	mg/kg	1
Sulfate	150	mg/kg	1
0538H TPH, Gasoline Range Organics, SW			
0511E Purgeable Aromatics, BTEX Solids	ND	ug/kg	1,000
Benzene	ND	ug/kg	20

Core Laboratories, Inc.

6310 Rothway, Houston, Texas 77040, (713) 690-4444, Fax (713) 690-5646



GULF STATES ANALYTICAL

ANALYSIS SUMMARY REPORT

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Cornerstone Environmental

GSA Group: 50693

Test Analysis	Results as Received	Units	Limit of Quantitation
Sample:264907 - 06/15/1999 - 9003004 A,B,C,D			
0511E Purgeable Aromatics, BTEX Solids			
Toluene	ND	ug/kg	20
Ethylbenzene	ND	ug/kg	20
Xylene (total)	ND	ug/kg	60
0539H TPH, Diesel Range Organics	ND	ug/kg	8,300
Sample:264908 - 06/15/1999 - 9003005 A			
9056A Anions by IC, Solid			
Chloride	2	mg/kg	1
Sample:264909 - 06/15/1999 - 9003006 A			
9056A Anions by IC, Solid			
Chloride	1	mg/kg	1
Sample:264910 - 06/15/1999 - 9003007 A			
9056A Anions by IC, Solid			
Chloride	1,040	mg/kg	10
Sample:264911 - 06/15/1999 - 9003008 A,B,C,D			
ICSTB Metals by ICP, Solids, Trace			
Magnesium	6,580	mg/kg	200
Potassium	1,790	mg/kg	200
Sodium	782	mg/kg	200
9056A Anions by IC, Solid			
Chloride	1,370	mg/kg	10
Bromide	7	mg/kg	1
Sulfate	558	mg/kg	10
0538H TPH, Gasoline Range Organics, SW	ND	ug/kg	1,000
0511E Purgeable Aromatics, BTEX Solids			
Benzene	ND	ug/kg	20
Toluene	ND	ug/kg	20
Ethylbenzene	ND	ug/kg	20
Xylene (total)	ND	ug/kg	60
0539H TPH, Diesel Range Organics *	* 11,100	ug/kg	8,300
Sample:264912 - 06/15/1999 - 9003009 A			
9056A Anions by IC, Solid			
Chloride	1,490	mg/kg	10
Sample:264913 - 06/15/1999 - 9003010 A,B,C,D			
ICSTB Metals by ICP, Solids, Trace			
Magnesium	6,570	mg/kg	200

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GULF STATES ANALYTICAL

ANALYSIS SUMMARY REPORT

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Cornerstone Environmental

GSA Group: 50693

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:264913 - 06/15/1999 - 9003010 A,B,C,D				
ICSTB Metals by ICP, Solids, Trace				
	Potassium	1,780	mg/kg	200
	Sodium	781	mg/kg	200
9056A Anions by IC, Solid				
	Chloride	1,160	mg/kg	10
	Bromide	5	mg/kg	1
	Sulfate	625	mg/kg	10
0538H	TPH, Gasoline Range Organics, SW	ND	ug/kg	1,000
0511E Purgeable Aromatics, BTEX Solids				
	Benzene	ND	ug/kg	20
	Toluene	ND	ug/kg	20
	Ethylbenzene	ND	ug/kg	20
	Xylene (total)	ND	ug/kg	60
0539H	TPH, Diesel Range Organics	ND	ug/kg	8,300
Sample:264914 - 06/16/1999 - 9003011 A,B,C,D				
ICSTB Metals by ICP, Solids, Trace				
	Magnesium	9,200	mg/kg	200
	Potassium	2,350	mg/kg	200
	Sodium	ND	mg/kg	200
9056A Anions by IC, Solid				
	Chloride	9	mg/kg	1
	Bromide	ND	mg/kg	1
	Sulfate	5	mg/kg	1
0538H	TPH, Gasoline Range Organics, SW	ND	ug/kg	1,000
0511E Purgeable Aromatics, BTEX Solids				
	Benzene	ND	ug/kg	20
	Toluene	ND	ug/kg	20
	Ethylbenzene	ND	ug/kg	20
	Xylene (total)	ND	ug/kg	60
0539H	TPH, Diesel Range Organics	ND	ug/kg	8,300
Sample:264915 - 06/16/1999 - 9003012 A				
9056A Anions by IC, Solid				
	Chloride	1,540	mg/kg	10
Sample:264916 - 06/16/1999 - 9003013 A				
9056A Anions by IC, Solid				
	Chloride	2,340	mg/kg	10

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GULF STATES ANALYTICAL

ANALYSIS SUMMARY REPORT

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Cornerstone Environmental

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<u>Test</u>	<u>Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample:264917 - 06/16/1999 - 9003014 A				
9056A	Anions by IC, Solid Chloride	1,770	mg/kg	10
Sample:264918 - 06/16/1999 - 9003015 A,B,C,D				
ICSTB	Metals by ICP, Solids, Trace			
	Magnesium	7,430	mg/kg	200
	Potassium	1,820	mg/kg	200
	Sodium	217	mg/kg	200
9056A	Anions by IC, Solid			
	Chloride	273	mg/kg	10
	Bromide	ND	mg/kg	1
	Sulfate	17	mg/kg	1
0538H	TPH, Gasoline Range Organics, SW	ND	ug/kg	1,000
0511E	Purgeable Aromatics, BTEX Solids			
	Benzene	ND	ug/kg	20
	Toluene	ND	ug/kg	20
	Ethylbenzene	ND	ug/kg	20
	Xylene (total)	ND	ug/kg	60
0539H	TPH, Diesel Range Organics	ND	ug/kg	8,300
Sample:264919 - 06/16/1999 - 9003016 A				
9056A	Anions by IC, Solid			
	Chloride	1,690	mg/kg	10
Sample:264920 - 06/16/1999 - 9003017 A				
9056A	Anions by IC, Solid			
	Chloride	915	mg/kg	10
Sample:264921 - 06/16/1999 - 9003018 A,B,C,D				
ICSTB	Metals by ICP, Solids, Trace			
	Magnesium	1,620	mg/kg	200
	Potassium	1,090	mg/kg	200
	Sodium	959	mg/kg	200
9056A	Anions by IC, Solid			
	Chloride	1,230	mg/kg	10
	Bromide	6	mg/kg	1
	Sulfate	367	mg/kg	10
0538H	TPH, Gasoline Range Organics, SW	ND	ug/kg	1,000
0511E	Purgeable Aromatics, BTEX Solids			
	Benzene	ND	ug/kg	20

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GULF STATES ANALYTICAL

ANALYSIS SUMMARY REPORT

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Cornerstone Environmental

GSA Group: 50693

<u>Test</u>	<u>Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample:264921 - 06/16/1999 - 9003018 A,B,C,D				
0511E	Purgeable Aromatics, BTEX Solids			
	Toluene	ND	ug/kg	20
	Ethylbenzene	ND	ug/kg	20
	Xylene (total)	ND	ug/kg	60
0539H	TPH, Diesel Range Organics	ND	ug/kg	8,300
Sample:264922 - 06/16/1999 - 9003019 A,B,C,D				
ICSTB	Metals by ICP, Solids, Trace			
	Magnesium	5,540	mg/kg	200
	Potassium	1,170	mg/kg	200
	Sodium	ND	mg/kg	200
9056A	Anions by IC, Solid			
	Chloride	793	mg/kg	10
	Bromide	4	mg/kg	1
	Sulfate	31	mg/kg	1
0538H	TPH, Gasoline Range Organics, SW	1,120	ug/kg	1,000
0511E	Purgeable Aromatics, BTEX Solids			
	Benzene	ND	ug/kg	20
	Toluene	ND	ug/kg	20
	Ethylbenzene	ND	ug/kg	20
	Xylene (total)	ND	ug/kg	60
0539H	TPH, Diesel Range Organics	ND	ug/kg	8,300
Sample:264923 - 06/16/1999 - 9003020 A				
9056A	Anions by IC, Solid			
	Chloride	1,970	mg/kg	10
Sample:264924 - 06/16/1999 - 9003021 A				
9056A	Anions by IC, Solid			
	Chloride	3,710	mg/kg	100
Sample:264925 - 06/16/1999 - 9003022 A,B,C,D				
ICSTB	Metals by ICP, Solids, Trace			
	Magnesium	1,760	mg/kg	200
	Potassium	1,280	mg/kg	200
	Sodium	1,300	mg/kg	200
9056A	Anions by IC, Solid			
	Chloride	1,720	mg/kg	10
	Bromide	8	mg/kg	1

Core Laboratories, Inc.

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GULF STATES ANALYTICAL

ANALYSIS SUMMARY REPORT

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Cornerstone Environmental

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<u>Test Analysis</u>	<u>Results as Received</u>	<u>Units</u>	<u>Limit of Quantitation</u>
Sample: 264925 - 06/16/1999 - 9003022 A,B,C,D			
9056A Anions by IC, Solid			
Sulfate	752	mg/kg	10
0538H TPH, Gasoline Range Organics, SW	ND	ug/kg	1,000
0511E Purgeable Aromatics, BTEX Solids			
Benzene	ND	ug/kg	20
Toluene	ND	ug/kg	20
Ethylbenzene	ND	ug/kg	20
Xylene (total)	ND	ug/kg	60
0539H TPH, Diesel Range Organics	ND	ug/kg	8,300

Test Method Summary:

0511E- SW-846 8021B
9056A- SW-846 9056 MOD

0538H- SW-846 8015A MOD
ICSTB- SW-846 6010B

0539H- SW-846 8015A MOD

ND - Compound was analyzed but not detected.

Respectfully Submitted,
Reviewed and Approved by:

Ed Fry
Project Manager

Core Lab-Gulf States Analytical
Daily QC Batching Data
Data Released for Reporting

07/01/99
16:40:09
Group: 50693

Analysis Batch Number: 0511E-06/02/99-1274-9

Test Identification : 0511E-Purgeable Aromatics, BTEX Solids

Units: ug/kg

Sequence: BTX145Q

Number of Samples : 50

Batch Data-Date/Time : 06/22/99 / 09:59:28

ANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
061799	Benzene	14.4829	20.0000
	Toluene	14.6860	20.0000
	Ethylbenzene	17.1053	20.0000
	o-Xylene	18.5899	20.0000
	m,p-Xylene	37.9287	60.0000
061799-2	Benzene	14.7014	20.0000
	Toluene	15.1255	20.0000
	Ethylbenzene	18.2096	20.0000
	o-Xylene	17.9982	20.0000
	m,p-Xylene	38.8248	60.0000
061899-3	Benzene	17.0619	20.0000
	Toluene	6.0819	20.0000
	Ethylbenzene	4.9111	20.0000
	o-Xylene	4.8968	20.0000
	m,p-Xylene	11.1480	60.0000
061899-4	Benzene	5.5838	20.0000
	Toluene	8.8997	20.0000
	Ethylbenzene	5.8457	20.0000
	o-Xylene	4.9779	20.0000
	m,p-Xylene	11.8375	60.0000

SPIKE						QC LIMITS	
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	LOWER	UPPER
0693-264925	Benzene	1000.0000	11.6928	1038.1923	102.6	70.0	130.0
	Toluene	1000.0000	0.0000	1037.5448	103.8	70.0	130.0
	Ethylbenzene	1000.0000	0.0000	1051.1600	105.1	70.0	130.0
	o-Xylene	1000.0000	0.0000	1095.3858	109.5	70.0	130.0
	m,p-Xylene	2000.0000	0.0000	2317.5707	115.9	70.0	130.0
50693-264925-2	Benzene	1000.0000	7.0439	1042.1475	103.5	70.0	130.0
	Toluene	1000.0000	4.7519	1061.7772	105.7	70.0	130.0
	Ethylbenzene	1000.0000	0.0000	1066.4847	106.6	70.0	130.0
	o-Xylene	1000.0000	0.0000	1107.4890	110.7	70.0	130.0
	m,p-Xylene	2000.0000	3.1921	2354.9119	117.6	70.0	130.0
0702-264968-3	Benzene	1000.0000	10.0129	823.1896	81.3	70.0	130.0
	Toluene	1000.0000	0.0000	835.7119	83.6	70.0	130.0
	Ethylbenzene	1000.0000	0.0000	849.3133	84.9	70.0	130.0
	o-Xylene	1000.0000	0.0000	893.1022	89.3	70.0	130.0
	m,p-Xylene	2000.0000	0.0000	1871.1682	93.6	70.0	130.0
50702-264968-4	Benzene	1000.0000	9.6450	832.8130	82.3	70.0	130.0
	Toluene	1000.0000	0.0000	856.5824	85.7	70.0	130.0
	Ethylbenzene	1000.0000	0.0000	865.8840	86.6	70.0	130.0
	o-Xylene	1000.0000	0.0000	913.0291	91.3	70.0	130.0
	m,p-Xylene	2000.0000	0.0000	1914.7739	95.7	70.0	130.0

MSD						QC LIMITS			
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	LOWER	UPPER	RPD #	LIMIT
50242-262925	Benzene	1000.0000	11.6928	1038.0258	102.6	70.0	130.0	0.0	20.0
	Toluene	1000.0000	0.0000	1038.7928	103.9	70.0	130.0	0.1	20.0
	Ethylbenzene	1000.0000	0.0000	1059.3042	105.9	70.0	130.0	0.8	20.0
	o-Xylene	1000.0000	0.0000	1094.9726	109.5	70.0	130.0	0.0	20.0

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Number of Samples : 50

Batch Data-Date/Time : 06/22/99 / 09:59:28

MSD

SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	QC LIMITS		RPD #	LIMIT
						LOWER	UPPER		
50242-262925	m,p-Xylene	2000.0000	0.0000	2329.4894	116.5	70.0	130.0	0.5	20.0
50242-262925-2	Benzene	1000.0000	7.0439	1033.2191	102.6	70.0	130.0	0.9	20.0
	Toluene	1000.0000	4.7519	1060.7599	105.6	70.0	130.0	0.1	20.0
	Ethylbenzene	1000.0000	0.0000	1068.5383	106.9	70.0	130.0	0.3	20.0
	o-Xylene	1000.0000	0.0000	1103.3445	110.3	70.0	130.0	0.4	20.0
	m,p-Xylene	2000.0000	3.1921	2362.1622	117.9	70.0	130.0	0.3	20.0
50702-264968-3	Benzene	1000.0000	10.0129	782.8960	77.3	70.0	130.0	5.0	20.0
	Toluene	1000.0000	0.0000	798.8724	79.9	70.0	130.0	4.5	20.0
	Ethylbenzene	1000.0000	0.0000	809.6762	81.0	70.0	130.0	4.7	20.0
	o-Xylene	1000.0000	0.0000	866.8364	86.7	70.0	130.0	3.0	20.0
	m,p-Xylene	2000.0000	0.0000	1792.8705	89.6	70.0	130.0	4.4	20.0
50702-264968-4	Benzene	1000.0000	9.6450	789.7632	78.0	70.0	130.0	5.4	20.0
	Toluene	1000.0000	0.0000	812.7880	81.3	70.0	130.0	5.3	20.0
	Ethylbenzene	1000.0000	0.0000	818.8838	81.9	70.0	130.0	5.6	20.0
	o-Xylene	1000.0000	0.0000	876.0926	87.6	70.0	130.0	4.1	20.0
	m,p-Xylene	2000.0000	0.0000	1814.3295	90.7	70.0	130.0	5.4	20.0

CONTROL

SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	QC LIMITS	
					LOWER	UPPER
2-061799	Benzene	913.4591	1000.0000	91.3	80.0	120.0
	Toluene	930.4897	1000.0000	93.0	80.0	120.0
	Ethylbenzene	974.3666	1000.0000	97.4	80.0	120.0
	o-Xylene	969.4595	1000.0000	96.9	80.0	120.0
	m,p-Xylene	2100.3019	2000.0000	105.0	80.0	120.0
2-061799-2	Benzene	924.4429	1000.0000	92.4	80.0	120.0
	Toluene	956.0117	1000.0000	95.6	80.0	120.0
	Ethylbenzene	991.8017	1000.0000	99.2	80.0	120.0
	o-Xylene	982.3963	1000.0000	98.2	80.0	120.0
	m,p-Xylene	2127.4121	2000.0000	106.4	80.0	120.0
31-061899-3	Benzene	860.5531	1000.0000	86.1	80.0	120.0
	Toluene	873.1502	1000.0000	87.3	80.0	120.0
	Ethylbenzene	913.7415	1000.0000	91.4	80.0	120.0
	o-Xylene	904.9895	1000.0000	90.5	80.0	120.0
	m,p-Xylene	1959.1982	2000.0000	98.0	80.0	120.0
31-061899-4	Benzene	861.7468	1000.0000	86.2	80.0	120.0
	Toluene	893.4710	1000.0000	89.3	80.0	120.0
	Ethylbenzene	927.3486	1000.0000	92.7	80.0	120.0
	o-Xylene	915.3936	1000.0000	91.5	80.0	120.0
	m,p-Xylene	1982.9190	2000.0000	99.1	80.0	120.0

CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	QC LIMITS	
					LOWER	UPPER
1-061899	Benzene	50.0000	46.2216	92.4	85.0	115.0
	Toluene	50.0000	48.2463	96.5	85.0	115.0
	Ethylbenzene	50.0000	48.9084	97.8	85.0	115.0
	o-Xylene	50.0000	48.9231	97.8	85.0	115.0
	m,p-Xylene	100.0000	107.1553	107.2	85.0	115.0
1-061899-2	Benzene	50.0000	46.8273	93.7	85.0	115.0
	Toluene	50.0000	48.9987	98.0	85.0	115.0

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Batch Data-Date/Time : 06/22/99 / 09:59:28

CV #	ANALYTE	TRUE VALUE	BATCH READ	QC LIMITS	
				% REC #	LOWER UPPER
1-061899-2	Ethylbenzene	50.0000	49.8329	99.7	85.0 115.0
	o-Xylene	50.0000	49.4882	99.0	85.0 115.0
	m,p-Xylene	100.0000	108.8931	108.9	85.0 115.0
16-061899-3	Benzene	50.0000	43.5220	87.0	85.0 115.0
	Toluene	50.0000	45.2712	90.5	85.0 115.0
	Ethylbenzene	50.0000	46.4873	93.0	85.0 115.0
	o-Xylene	50.0000	46.6330	93.3	85.0 115.0
	m,p-Xylene	100.0000	101.9591	102.0	85.0 115.0
	Benzene	50.0000	44.3958	88.8	85.0 115.0
	Toluene	50.0000	46.4322	92.9	85.0 115.0
	Ethylbenzene	50.0000	47.4796	95.0	85.0 115.0
6-061899-4	o-Xylene	50.0000	47.2084	94.4	85.0 115.0
	m,p-Xylene	100.0000	103.5371	103.5	85.0 115.0
	Benzene	50.0000	47.4837	95.0	85.0 115.0
	Toluene	50.0000	48.9230	97.8	85.0 115.0
30-061899-5	Ethylbenzene	50.0000	49.7368	99.5	85.0 115.0
	o-Xylene	50.0000	49.5378	99.1	85.0 115.0
	m,p-Xylene	100.0000	108.5280	108.5	85.0 115.0
	Benzene	50.0000	47.7672	95.5	85.0 115.0
0-061899-6	Toluene	50.0000	49.8155	99.6	85.0 115.0
	Ethylbenzene	50.0000	50.6382	101.3	85.0 115.0
	o-Xylene	50.0000	50.3428	100.7	85.0 115.0
	m,p-Xylene	100.0000	110.3436	110.3	85.0 115.0
49-061999-7	Benzene	50.0000	46.9702	93.9	85.0 115.0
	Toluene	50.0000	48.4616	96.9	85.0 115.0
	Ethylbenzene	50.0000	49.1138	98.2	85.0 115.0
	o-Xylene	50.0000	49.3087	98.6	85.0 115.0
	m,p-Xylene	100.0000	106.9031	106.9	85.0 115.0
	Benzene	50.0000	47.4697	94.9	85.0 115.0
	Toluene	50.0000	49.4894	99.0	85.0 115.0
	Ethylbenzene	50.0000	49.8412	99.7	85.0 115.0
9-061999-8	o-Xylene	50.0000	50.0512	100.1	85.0 115.0
	m,p-Xylene	100.0000	109.0180	109.0	85.0 115.0

SURG #:21-0511E-S-SU

SAMPLE#	TFT #	BFB #
SAMPLE 50693-264925	63(B1)	90
SAMPLE 50693-264925	63(A)	92
SAMPLE 50693-264904	62(B1)	85
SAMPLE 50693-264904	63(A)	85
SAMPLE 50693-264907	77	108
SAMPLE 50693-264907	79	110
SAMPLE 50693-264911	71	98
SAMPLE 50693-264911	72	100
SAMPLE 50693-264913	78	111
SAMPLE 50693-264913	79	112
SAMPLE 50693-264914	82	116
SAMPLE 50693-264914	82	118
SAMPLE 50693-264918	79	111

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SURG #:21-0511E-S-SU

SAMPLE#	TFT #	BFB #
SAMPLE 50693-264918	80	113
SAMPLE 50693-264921	75	109
SAMPLE 50693-264921	76	110
SAMPLE 50693-264922	76	110
SAMPLE 50693-264922	78	111
SAMPLE 50586-264369	87	94
SAMPLE 50586-264369	87	95
SAMPLE 50658-264729	87	96
SAMPLE 50658-264729	89	98
SAMPLE 50658-264730	119	94
SAMPLE 50658-264730	150(A)	144(A)
SAMPLE 50658-264722	73	77
SAMPLE 50658-264722	65(A)	84
SAMPLE 50765-265267	104	121
SAMPLE 50765-265267	101	122
SAMPLE 50765-265266	344(D)	119
SAMPLE 50765-265266	344(D)	170(D)
SAMPLE 50702-264968	69(G)	90
SAMPLE 50702-264968	71	92
SAMPLE 50702-264969	65(D)	83
SAMPLE 50702-264969	63(D)	86
SAMPLE 50702-264970	53(B1)	74
SAMPLE 50702-264970	56(A)	76
SAMPLE 50702-264971	65(D)	91
SAMPLE 50702-264971	68(D)	93
SAMPLE 50739-265135	62(B1)	76
SAMPLE 50739-265135	59(A)	82
SAMPLE 50739-265136	86	115
SAMPLE 50739-265136	87	122
SAMPLE 50768-265277	70(D)	84
SAMPLE 50768-265277	79	91
SAMPLE 50768-265278	67(D)	89
SAMPLE 50768-265278	72	94
SAMPLE 50739-265137	97	95
SAMPLE 50739-265137	81	104
SAMPLE 50739-265138	48(D)	97
SAMPLE 50739-265138	76	120
BLK 1 3-061799	94	97
BLK 2 3-061799	98	99
BLK 3 32-061899	94	98
BLK 4 32-061899	96	100
SPK 1 50693-264925	79	107
SPK 2 50693-264925	78	108
SPK 3 50702-264968	58(A)	77
SPK 4 50702-264968	59(A)	79
CTL 1 2-061799	90	101
CTL 2 2-061799	92	103
CTL 3 31-061899	88	93
CTL 4 31-061899	89	94

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Units: ug/kg

Sequence: BTX145Q

Number of Samples : 50

Batch Data-Date/Time : 06/22/99 / 09:59:28

SURG #:21-0511E-S-SU

SAMPLE#	TFT #	BFB #
CCV 1 1-061899	93	92
CCV 2 1-061899	96	94
CCV 3 16-061899	90	93
CCV 4 16-061899	95	95
CCV 5 30-061899	97	98
CCV 6 30-061899	99	100
CCV 7 49-061999	96	97
CCV 8 49-061999	99	99
MSD 1 50242-262925	82	106
MSD 2 50242-262925	80	107
MSD 3 50702-264968	50(A)	75
MSD 4 50702-264968	52(A)	77

21-0511E-S-SU - BTEX SOLIDS SURROGATE

SRG ABRV = SURROGATE DESCRIPTION

		QC LIMITS	
		LOWER	UPPER
FT	Trifluorotoluene	70.0	130.0
BFB	p-Bromofluorobenzene	70.0	130.0

----- Result Footnotes -----

- (B1) - Sample(s) rerun to confirm matrix interference.
- (A) - Matrix Interference
- (D) - Surrogate is diluted out
- (G) - Marginal Outlier

Groups & Samples

50242-262925	50586-264369	50658-264722	50658-264729	50658-264730	50693-264904	50693-264907	50693-264911
50693-264913	50693-264914	50693-264918	50693-264921	50693-264922	50693-264925	50702-264968	50702-264969
50702-264970	50702-264971	50739-265135	50739-265136	50739-265137	50739-265138	50765-265266	50765-265267
50768-265277	50768-265278						

Core Lab-Gulf States Analytical
Daily QC Batching Data
Data Released for Reporting

07/01/99
16:40:15
Group: 50693

Analysis Batch Number: 0538H-06/09/99-1274-2

Test Identification : 0538H-TPH, Gasoline Range Organics, SW

Units: ug/kg

Sequence: GR07139Q

Number of Samples : 17

Batch Data-Date/Time : 06/25/99 / 16:18:00

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
70-061799	Gasoline	714.9900	1000.0000
85-061899-2	Gasoline	928.7200	1000.0000
96-061899-3	Gasoline	1039.3700(M)	1000.0000
97-061899-4	Gasoline	304.3900	1000.0000

SPIKE						QC LIMITS	
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	LOWER	UPPER
50693-264925	Gasoline	5000.0000	531.4500	5187.9900	93.1	70.0	130.0
50739-265135-2	Gasoline	25000.0000	41748.0000	112978.0000	284.9(A)	70.0	130.0
50739-265135-3	Gasoline	250000.0000	38759.0000	112632.0000	29.5(A)	70.0	130.0
50739-265135-4	Gasoline	5000.0000	775.1800	5545.0700	95.4	70.0	130.0

MSD						QC LIMITS			
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	LOWER	UPPER	RPD #	LIMIT
50693-264925	Gasoline	5000.0000	531.4500	4949.6300	88.4	70.0	130.0	5.2	27.0
50739-265135-2	Gasoline	25000.0000	41748.0000	107251.0000	262.0(A)	70.0	130.0	8.4	27.0
50739-265135-3	Gasoline	250000.0000	38759.0000	107746.0000	27.6(A)	70.0	130.0	6.7	27.0
50739-265135-4	Gasoline	5000.0000	775.1800	5403.5600	92.6	70.0	130.0	3.0	27.0

CONTROL					QC LIMITS	
SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	LOWER	UPPER
69-061799	Gasoline	4632.4100	5000.0000	92.6	75.2	121.4
84-061899-2	Gasoline	5156.8200	5000.0000	103.1	75.2	121.4
95-061899-3	Gasoline	5288.1800	5000.0000	105.8	75.2	121.4

CCV #	ANALYTE	TRUE VALUE	BATCH READ	QC LIMITS	
				% REC #	LOWER UPPER
68-061899	Gasoline	250.0000	235.5900	94.2	85.0 115.0
83-061899-2	Gasoline	250.0000	233.7400	93.5	85.0 115.0
93-061899-3	Gasoline	250.0000	254.5700	101.8	85.0 115.0
94-062199-4	Gasoline	250.0000	268.5300	107.4	85.0 115.0
106-062199-5	Gasoline	250.0000	240.0700	96.0	85.0 115.0

SURG #:20-0538 -S-SU

SAMPLE#	TFT #	BFB #
SAMPLE 50693-264904	78	93
SAMPLE 50693-264907	119	122
SAMPLE 50693-264911	100	111
SAMPLE 50693-264913	112	122
SAMPLE 50693-264914	117	131(B1)
SAMPLE 50693-264918	109	120
SAMPLE 50693-264921	111	122
SAMPLE 50693-264922	116	123
SAMPLE 50693-264925	97	103
SAMPLE 50693-264914	120	133(A)
SAMPLE 50739-265135	96	130
SAMPLE 50739-265136	90	104
SAMPLE 50765-265266	84	139(D)
SAMPLE 50765-265267	144(A)	87
SAMPLE 50739-265135	104	183(D)

Analysis Batch Number: 0538H-06/09/99-1274-2
Test Identification : 0538H-TPH, Gasoline Range Organics, SW Units: ug/kg Sequence: GR07139Q
Number of Samples : 17
Batch Data-Date/Time : 06/25/99 / 16:18:00

URG #:20-0538 -S-SU

SAMPLE#	TFT #	BFB #
SAMPLE 50739-265136	0(D)	121
SAMPLE 50765-265267	0(D)	474(D)
BLK 1 70-061799	116	120
BLK 2 85-061899	86	102
BLK 3 96-061899	112	118
BLK 4 97-061899	99	117
SPK 1 50693-264925	113	117
SPK 2 50739-265135	100	128
SPK 3 50739-265135	0(D)	137(D)
SPK 4 50739-265135	81	51(D)
CTL 1 69-061799	111	121
CTL 2 84-061899	98	101
CTL 3 95-061899	87	100
CCV 1 68-061899	85	97
CCV 2 83-061899	96	98
CCV 3 93-061899	89	94
CCV 4 94-062199	92	103
CCV 5 106-062199	81	93
MSD 1 50693-264925	102	116
MSD 2 50739-265135	82	134(D)
MSD 3 50739-265135	0(D)	132(D)
MSD 4 50739-265135	41(D)	72

20-0538 -S-SU - TPH GRO SURROGATES, SOIL

SRG ABRV = SURROGATE DESCRIPTION		QC LIMITS	
		LOWER	UPPER
FT	Trifluorotoluene	70.0	130.0
BFB	p-Bromofluorobenzene	70.0	130.0

----- Result Footnotes -----
(M) - QC Sample Was Reanalyzed
(A) - Matrix Interference
(B1) - Sample(s) rerun to confirm matrix interference.
(D) - Surrogate is diluted out

----- Batch Notes -----
NOTE: The matrix of the sample 50739 caused the spike and spike duplicate to be high, so a bench spike of the sample itself was analyzed and reported also.

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Groups & Samples

50693-264904	50693-264907	50693-264911	50693-264913	50693-264914	50693-264918	50693-264921	50693-264922
50693-264925	50739-265135	50739-265136	50765-265266	50765-265267			

Analysis Batch Number: 0539G-06/22/99-1230-1

Test Identification : 0539G-TPH, Diesel Range Organics

Units: ug/kg

Sequence: TPH1679Q

Number of Samples : 39

Batch Data-Date/Time : 06/29/99 / 13:46:15

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
BLK	none detected		
BLK-2	none detected		

SPIKE							QC LIMITS	
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	LOWER	UPPER	
50807-265505	Diesel fuel	67000.0000	63298.0000	115283.0000	77.6	70.0	130.0	
50739-265138-2	Diesel fuel	67000.0000	0.0000	76519.0000	114.2	70.0	130.0	

MSD							QC LIMITS			
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	LOWER	UPPER	RPD #	LIMIT	
50807-265505	Diesel fuel	67000.0000	63298.0000	108181.0000	67.0(B)	70.0	130.0	14.7	26.9	
50739-265138-2	Diesel fuel	67000.0000	0.0000	73889.0000	110.3	70.0	130.0	3.5	26.9	

CONTROL							QC LIMITS	
SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	LOWER	UPPER		
LCS	Diesel fuel	68736.0000	67000.0000	102.6	61.2	128.1		
LCS-2	Diesel fuel	75796.0000	67000.0000	113.1	61.2	128.1		

SURG #:26-0539 -S-SU

SAMPLE#	O-TP #
SAMPLE 50807-265484	1(A)
SAMPLE 50807-265486	92
SAMPLE 50807-265477	4(A)
SAMPLE 50807-265496	91
SAMPLE 50807-265478	6(A)
SAMPLE 50807-265500	94
SAMPLE 50807-265479	129
SAMPLE 50807-265505	109
SAMPLE 50807-265481	122
SAMPLE 50807-265482	127
SAMPLE 50807-265483	121
SAMPLE 50807-265509	99
SAMPLE 50807-265480	124
SAMPLE 50807-265511	76
SAMPLE 50807-265491	122
SAMPLE 50807-265502	92
SAMPLE 50807-265494	126
SAMPLE 50807-265504	78
SAMPLE 50807-265498	121
SAMPLE 50807-265508	48(A)
SAMPLE 50807-265514	123
SAMPLE 50807-265515	73
SAMPLE 50807-265517	93
SAMPLE 50739-265137	22(A)
SAMPLE 50693-264904	99
SAMPLE 50739-265138	75
SAMPLE 50693-264907	86
SAMPLE 50693-264911	117
SAMPLE 50693-264913	104
SAMPLE 50880-265844	77

Analysis Batch Number: 0539G-06/22/99-1230-1

Test Identification : 0539G-TPH, Diesel Range Organics

Units: ug/kg

Sequence: TPH1679Q

Number of Samples : 39

Batch Data-Date/Time : 06/29/99 / 13:46:15

URG #:26-0539 -S-SU

<u>SAMPLE#</u>	<u>Q-TP #</u>
SAMPLE 50693-264914	108
SAMPLE 50880-265846	82
SAMPLE 50693-264918	118
SAMPLE 50880-265848	75
SAMPLE 50693-264921	111
SAMPLE 50880-265850	82
SAMPLE 50693-264922	120
SAMPLE 50880-265852	84
SAMPLE 50693-264925	105
BLK 1 BLK	108
BLK 2 BLK	125
PK 1 50807-265505	101
PK 2 50739-265138	105
CTL 1 LCS	118
CTL 2 LCS	74
MSD 1 50807-265505	99
MSD 2 50739-265138	37(B)

26-0539 -S-SU - DRO SURROGATE SOIL

SRG ABRV = SURROGATE DESCRIPTION

QC LIMITS

<u>Q-TP</u>	<u>o-Terphenyl</u>	<u>LOWER</u>	<u>UPPER</u>
		70.0	130.0

----- Result Footnotes -----

(B) - Difficult to homogenize due to the nature of the sample

(A) - Matrix Interference

Groups & Samples

50693-264904	50693-264907	50693-264911	50693-264913	50693-264914	50693-264918	50693-264921	50693-264922
50693-264925	50739-265137	50739-265138	50807-265477	50807-265478	50807-265479	50807-265480	50807-265481
50807-265482	50807-265483	50807-265484	50807-265486	50807-265491	50807-265494	50807-265496	50807-265498
50807-265500	50807-265502	50807-265504	50807-265505	50807-265508	50807-265509	50807-265511	50807-265514
50807-265515	50807-265517	50880-265844	50880-265846	50880-265848	50880-265850	50880-265852	

Core Lab-Gulf States Analytical
Daily QC Batching Data
Data Released for Reporting

07/01/99
16:40:21
Group: 50693

Analysis Batch Number: 1213 -06/02/99-1274-6

Test Identification : 1213 -Purgeable Aromatics, BTEX Solids

Units: ug/kg

Sequence: BTX145Q

Number of Samples : 12

Batch Data-Date/Time : 06/22/99 / 10:02:28

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
3-061799	Benzene	14.4829	20.0000
	Toluene	14.6860	20.0000
	Ethylbenzene	17.1053	20.0000
	o-Xylene	18.5899	20.0000
	m,p-Xylene	37.9287	60.0000
3-061799-2	Benzene	14.7014	20.0000
	Toluene	15.1255	20.0000
	Ethylbenzene	18.2096	20.0000
	o-Xylene	17.9982	20.0000
	m,p-Xylene	38.8248	60.0000
32-061899-3	Benzene	17.0619	20.0000
	Toluene	6.0819	20.0000
	Ethylbenzene	4.9111	20.0000
	o-Xylene	4.8968	20.0000
	m,p-Xylene	11.1480	60.0000
32-061899-4	Benzene	5.5838	20.0000
	Toluene	8.8997	20.0000
	Ethylbenzene	5.8457	20.0000
	o-Xylene	4.9779	20.0000
	m,p-Xylene	11.8375	60.0000

SPIKE						QC LIMITS	
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	LOWER	UPPER
50693-264925	Benzene	1000.0000	11.6928	1038.1923	102.6	60.1	111.9
	Toluene	1000.0000	0.0000	1037.5448	103.8	69.1	120.8
	o-Xylene	1000.0000	0.0000	1095.3858	109.5	51.6	153.8
	m,p-Xylene	2000.0000	0.0000	2317.5707	115.9	69.6	122.0
	Ethylbenzene	1000.0000	0.0000	1051.1600	105.1	69.0	121.8
50693-264925-2	Benzene	1000.0000	7.0439	1042.1475	103.5	60.1	111.9
	Toluene	1000.0000	4.7519	1061.7772	105.7	69.1	120.8
	o-Xylene	1000.0000	0.0000	1107.4890	110.7	51.6	153.8
	m,p-Xylene	2000.0000	3.1921	2354.9119	117.6	69.6	122.0
	Ethylbenzene	1000.0000	0.0000	1066.4847	106.6	69.0	121.8
50702-264968-3	Benzene	1000.0000	10.0129	823.1896	81.3	60.1	111.9
	Toluene	1000.0000	0.0000	835.7119	83.6	69.1	120.8
	o-Xylene	1000.0000	0.0000	893.1022	89.3	51.6	153.8
	m,p-Xylene	2000.0000	0.0000	1871.1682	93.6	69.6	122.0
	Ethylbenzene	1000.0000	0.0000	849.3133	84.9	69.0	121.8
50702-264968-4	Benzene	1000.0000	9.6450	832.8130	82.3	60.1	111.9
	Toluene	1000.0000	0.0000	856.5824	85.7	69.1	120.8
	o-Xylene	1000.0000	0.0000	913.0291	91.3	51.6	153.8
	m,p-Xylene	2000.0000	0.0000	1914.7739	95.7	69.6	122.0
	Ethylbenzene	1000.0000	0.0000	865.8840	86.6	69.0	121.8

MSD						QC LIMITS			
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	LOWER	UPPER	RPD #	LIMIT
50242-262925	Benzene	1000.0000	11.6928	1038.0258	102.6	60.1	111.9	0.0	17.5
	Toluene	1000.0000	0.0000	1038.7928	103.9	69.1	120.8	0.1	17.3
	o-Xylene	1000.0000	0.0000	1094.9726	109.5	51.6	153.8	0.0	17.1
	m,p-Xylene	2000.0000	0.0000	2329.4894	116.5	69.6	122.0	0.5	19.7

Core Lab-Gulf States Analytical
Daily QC Batching Data
Data Released for Reporting

07/01/99
16:40:22
Group: 50693

Analysis Batch Number: 1213 -06/02/99-1274-6

Test Identification : 1213 -Purgeable Aromatics, BTEX Solids

Units: ug/kg

Sequence: BTX145Q

Number of Samples : 12

Batch Data-Date/Time : 06/22/99 / 10:02:28

SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	QC LIMITS		RPD #	LIMIT
						LOWER	UPPER		
50242-262925	Ethylbenzene	1000.0000	0.0000	1059.3042	105.9	69.0	121.8	0.8	18.8
50242-262925-2	Benzene	1000.0000	7.0439	1033.2191	102.6	60.1	111.9	0.9	17.5
	Toluene	1000.0000	4.7519	1060.7599	105.6	69.1	120.8	0.1	17.3
	o-Xylene	1000.0000	0.0000	1103.3445	110.3	51.6	153.8	0.4	17.1
	m,p-Xylene	2000.0000	3.1921	2362.1622	117.9	69.6	122.0	0.3	19.7
	Ethylbenzene	1000.0000	0.0000	1068.5383	106.9	69.0	121.8	0.3	18.8
50702-264968-3	Benzene	1000.0000	10.0129	782.8960	77.3	60.1	111.9	5.0	17.5
	Toluene	1000.0000	0.0000	798.8724	79.9	69.1	120.8	4.5	17.3
	o-Xylene	1000.0000	0.0000	866.8364	86.7	51.6	153.8	3.0	17.1
	m,p-Xylene	2000.0000	0.0000	1792.8705	89.6	69.6	122.0	4.4	19.7
	Ethylbenzene	1000.0000	0.0000	809.6762	81.0	69.0	121.8	4.7	18.8
50702-264968-4	Benzene	1000.0000	9.6450	789.7632	78.0	60.1	111.9	5.4	17.5
	Toluene	1000.0000	0.0000	812.7880	81.3	69.1	120.8	5.3	17.3
	o-Xylene	1000.0000	0.0000	876.0926	87.6	51.6	153.8	4.1	17.1
	m,p-Xylene	2000.0000	0.0000	1814.3295	90.7	69.6	122.0	5.4	19.7
	Ethylbenzene	1000.0000	0.0000	818.8838	81.9	69.0	121.8	5.6	18.8

SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	QC LIMITS	
					LOWER	UPPER
1-061799	Benzene	913.4591	1000.0000	91.3	64.4	139.6
	Toluene	930.4897	1000.0000	93.0	74.4	134.6
	Ethylbenzene	974.3666	1000.0000	97.4	74.5	139.0
	o-Xylene	969.4595	1000.0000	96.9	70.1	143.7
	m,p-Xylene	2100.3019	2000.0000	105.0	72.9	135.5
2-061799-2	Benzene	924.4429	1000.0000	92.4	64.4	139.6
	Toluene	956.0117	1000.0000	95.6	74.4	134.6
	Ethylbenzene	991.8017	1000.0000	99.2	74.5	139.0
	o-Xylene	982.3963	1000.0000	98.2	70.1	143.7
	m,p-Xylene	2127.4121	2000.0000	106.4	72.9	135.5
11-061899-3	Benzene	860.5531	1000.0000	86.1	64.4	139.6
	Toluene	873.1502	1000.0000	87.3	74.4	134.6
	Ethylbenzene	913.7415	1000.0000	91.4	74.5	139.0
	o-Xylene	904.9895	1000.0000	90.5	70.1	143.7
	m,p-Xylene	1959.1982	2000.0000	98.0	72.9	135.5
31-061899-4	Benzene	861.7468	1000.0000	86.2	64.4	139.6
	Toluene	893.4710	1000.0000	89.3	74.4	134.6
	Ethylbenzene	927.3486	1000.0000	92.7	74.5	139.0
	o-Xylene	915.3936	1000.0000	91.5	70.1	143.7
	m,p-Xylene	1982.9190	2000.0000	99.1	72.9	135.5

CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	QC LIMITS	
					LOWER	UPPER
1-061899	Benzene	50.0000	46.2216	92.4	85.0	115.0
	Toluene	50.0000	48.2463	96.5	85.0	115.0
	Ethylbenzene	50.0000	48.9084	97.8	85.0	115.0
	o-Xylene	50.0000	48.9231	97.8	85.0	115.0
	m,p-Xylene	100.0000	107.1553	107.2	85.0	115.0
11-061899-2	Benzene	50.0000	46.8273	93.7	85.0	115.0
	Toluene	50.0000	48.9987	98.0	85.0	115.0

Core Lab-Gulf States Analytical
Daily QC Batching Data
Data Released for Reporting

07/01/99
16:40:23
Group: 50693

Analysis Batch Number: 1213 -06/02/99-1274-6

Test Identification : 1213 -Purgeable Aromatics, BTEX Solids

Units: ug/kg

Sequence: BTX145Q

Number of Samples : 12

Batch Data-Date/Time : 06/22/99 / 10:02:28

CCV #	ANALYTE	TRUE VALUE	BATCH READ	QC LIMITS	
				% REC #	LOWER UPPER
1-061899-2	Ethylbenzene	50.0000	49.8329	99.7	85.0 115.0
	o-Xylene	50.0000	49.4882	99.0	85.0 115.0
	m,p-Xylene	100.0000	108.8931	108.9	85.0 115.0
16-061899-3	Benzene	50.0000	43.5220	87.0	85.0 115.0
	Toluene	50.0000	45.2712	90.5	85.0 115.0
	Ethylbenzene	50.0000	46.4873	93.0	85.0 115.0
	o-Xylene	50.0000	46.6330	93.3	85.0 115.0
	m,p-Xylene	100.0000	101.9591	102.0	85.0 115.0
	Benzene	50.0000	44.3958	88.8	85.0 115.0
16-061899-4	Toluene	50.0000	46.4322	92.9	85.0 115.0
	Ethylbenzene	50.0000	47.4796	95.0	85.0 115.0
	o-Xylene	50.0000	47.2084	94.4	85.0 115.0
	m,p-Xylene	100.0000	103.5371	103.5	85.0 115.0
	Benzene	50.0000	47.4837	95.0	85.0 115.0
30-061899-5	Toluene	50.0000	48.9230	97.8	85.0 115.0
	Ethylbenzene	50.0000	49.7368	99.5	85.0 115.0
	o-Xylene	50.0000	49.5378	99.1	85.0 115.0
	m,p-Xylene	100.0000	108.5280	108.5	85.0 115.0
	Benzene	50.0000	47.7672	95.5	85.0 115.0
30-061899-6	Toluene	50.0000	49.8155	99.6	85.0 115.0
	Ethylbenzene	50.0000	50.6382	101.3	85.0 115.0
	o-Xylene	50.0000	50.3428	100.7	85.0 115.0
	m,p-Xylene	100.0000	110.3436	110.3	85.0 115.0
	Benzene	50.0000	46.9702	93.9	85.0 115.0
49-061999-7	Toluene	50.0000	48.4616	96.9	85.0 115.0
	Ethylbenzene	50.0000	49.1138	98.2	85.0 115.0
	o-Xylene	50.0000	49.3087	98.6	85.0 115.0
	m,p-Xylene	100.0000	106.9031	106.9	85.0 115.0
	Benzene	50.0000	47.4697	94.9	85.0 115.0
49-061999-8	Toluene	50.0000	49.4894	99.0	85.0 115.0
	Ethylbenzene	50.0000	49.8412	99.7	85.0 115.0
	o-Xylene	50.0000	50.0512	100.1	85.0 115.0
	m,p-Xylene	100.0000	109.0180	109.0	85.0 115.0

SURG #:21-1213 -S-SU

SAMPLE#	TFT #	BFB #
SAMPLE 50639-264653	85	75
SAMPLE 50639-264653	75	80
SAMPLE 50640-264654	68	82
SAMPLE 50640-264654	80	185(D)
SAMPLE 50641-264655	74	86
SAMPLE 50641-264655	79	94
SAMPLE 50640-264654	90	71
SAMPLE 50640-264654	78	192(D)
SAMPLE 50739-265137	97	95
SAMPLE 50739-265137	81	104
SAMPLE 50739-265138	48(D)	97
SAMPLE 50739-265138	76	120
BLK 1 3-061799	94	97

Analysis Batch Number: 1213 -06/02/99-1274-6

Test Identification : 1213 -Purgeable Aromatics, BTEX Solids Units: ug/kg Sequence: BTX145Q

Number of Samples : 12

Batch Data-Date/Time : 06/22/99 / 10:02:28

SURG #:21-1213 -S-SU

SAMPLE#	TFT #	BFB #
BLK 2 3-061799	98	99
BLK 3 32-061899	94	98
BLK 4 32-061899	96	100
SPK 1 50693-264925	79	107
SPK 2 50693-264925	78	108
SPK 3 50702-264968	58(A)	77
SPK 4 50702-264968	59	79
CTL 1 2-061799	90	101
CTL 2 2-061799	92	103
CTL 3 31-061899	88	93
CTL 4 31-061899	89	94
CCV 1 1-061899	93	92
CCV 2 1-061899	96	94
CCV 3 16-061899	90	93
CCV 4 16-061899	95	95
CCV 5 30-061899	97	98
CCV 6 30-061899	99	100
CCV 7 49-061999	96	97
CCV 8 49-061999	99	99
MSD 1 50242-262925	82	106
MSD 2 50242-262925	80	107
MSD 3 50702-264968	50(A)	75
MSD 4 50702-264968	52(A)	77

21-1213 -S-SU - SOLID BTEX SURROGATE

SURG ABRV = SURROGATE DESCRIPTION		QC LIMITS	
		LOWER	UPPER
FT	Trifluorotoluene	58.4	139.7
BFB	p-Bromofluorobenzene	37.9	158.5

----- Result Footnotes -----

(D) - Surrogate is diluted out

(A) - Matrix Interference

Groups & Samples

50242-262925 50639-264653 50640-264654 50641-264655 50693-264925 50702-264968 50739-265137 50739-265138

Core Lab-Gulf States Analytical
Daily QC Batching Data
Data Released for Reporting

07/01/99
16:40:25
Group: 50693

Analysis Batch Number: 9056A-06/25/99-1204-1

Test Identification : 9056A-Anions by IC. Solid

Number of Samples : 37

Batch Data-Date/Time : 06/28/99 / 11:49:37

Units: mg/kg

Sequence: 9F25

SPIKE

SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS	
						LOWER	UPPER
50693-264905	Chloride	100.0000	444.0430	450.8590	6.8(I1)	80.0	120.0
	Bromide	100.0000	3.2177	106.3050	103.1	80.0	120.0
	Sulfate	100.0000	237.1230	328.5140	91.4	80.0	120.0
50693-264905-2	Chloride	1000.0000	584.9560	1624.0000	103.9	80.0	120.0
	Bromide	1000.0000	88.5209	1026.4600	93.8	80.0	120.0
	Sulfate	1000.0000	226.3150	1283.3600	105.7	80.0	120.0
50693-264916-3	Chloride	100.0000	0.0000	0.0000	0.0(I1)	80.0	120.0
	Bromide	100.0000	11.4711	115.7340	104.3	80.0	120.0
	Sulfate	100.0000	513.7200	543.6390	29.9(I1)	80.0	120.0
50693-264916-4	Chloride	1000.0000	2342.5700	3200.4300	85.8	80.0	120.0
	Bromide	1000.0000	15.7840	1041.3200	102.6	80.0	120.0
	Sulfate	1000.0000	628.7310	1683.8200	105.5	80.0	120.0

DUPLICATE

SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
50693-264905	Chloride	444.0430	444.1490	0.0	20.0	1.00
	Bromide	3.2177	2.1538	39.6(3a)	20.0	1.00
	Sulfate	237.1230	237.0230	0.0	20.0	1.00
50693-264905-2	Chloride	584.9560	583.5600	0.2	20.0	10.00
	Bromide	88.5209	0.0000	200.0(3a)	20.0	10.00
	Sulfate	226.3150	225.8850	0.2	20.0	10.00
50693-264916-3	Chloride	0.0000	0.0000	0.0	20.0	1.00
	Bromide	11.4711	11.8831	3.5	20.0	1.00
	Sulfate	513.7200	512.9950	0.1	20.0	1.00
50693-264916-4	Chloride	2342.5700	2349.4600	0.3	20.0	10.00
	Bromide	15.7840	13.1518	18.2	20.0	10.00
	Sulfate	628.7310	632.3940	0.6	20.0	10.00

CONTROL

SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	QC LIMITS	
					LOWER	UPPER
0-62599	Chloride	102.8530	100.0000	102.9	90.0	110.0
	Bromide	104.8780	100.0000	104.9	90.0	110.0
	Sulfate	106.3760	100.0000	106.4	90.0	110.0
0-62599-2	Chloride	103.0880	100.0000	103.1	90.0	110.0
	Bromide	105.0440	100.0000	105.0	90.0	110.0
	Sulfate	104.5200	100.0000	104.5	90.0	110.0

QC LIMITS

CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	LOWER	UPPER
0-62599	Chloride	100.0000	102.8080	102.8	95.0	105.0
	Bromide	100.0000	102.6500	102.7	95.0	105.0
	Sulfate	100.0000	105.2240	105.2(G)	95.0	105.0
0-62599-2	Chloride	100.0000	102.3510	102.4	95.0	105.0
	Bromide	100.0000	101.4370	101.4	95.0	105.0
	Sulfate	100.0000	104.5030	104.5	95.0	105.0
0-62599-3	Chloride	100.0000	101.9300	101.9	95.0	105.0
	Bromide	100.0000	101.7690	101.8	95.0	105.0
	Sulfate	100.0000	104.2730	104.3	95.0	105.0
0-62599-4	Chloride	100.0000	102.6870	102.7	95.0	105.0

Core Lab-Gulf States Analytical
Daily QC Batching Data
Data Released for Reporting07/01/99
16:40:26
Group: 50693

Analysis Batch Number: 9056A-06/25/99-1204-1

Test Identification : 9056A-Anions by IC, Solid

Units: mg/kg

Sequence: 9F25

Number of Samples : 37

Batch Data-Date/Time : 06/28/99 / 11:49:37

CV #	ANALYTE	TRUE VALUE	BATCH READ	QC LIMITS	
				% REC #	LOWER UPPER
0-62599-4	Bromide	100.0000	102.0740	102.1	95.0 105.0
	Sulfate	100.0000	103.2190	103.2	95.0 105.0
-62599-5	Chloride	100.0000	102.9870	103.0	95.0 105.0
	Bromide	100.0000	103.3030	103.3	95.0 105.0
-62599-6	Sulfate	100.0000	103.5990	103.6	95.0 105.0
	Chloride	100.0000	104.0460	104.0	95.0 105.0
	Bromide	100.0000	103.7820	103.8	95.0 105.0
	Sulfate	100.0000	103.8350	103.8	95.0 105.0

LCB#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
0-62599	Chloride	ND	1.0000
	Bromide	ND	1.0000
	Sulfate	ND	1.0000
0-62599	Chloride	ND	1.0000
	Bromide	ND	1.0000
	Sulfate	ND	1.0000
0-62599	Chloride	ND	1.0000
	Bromide	ND	1.0000
	Sulfate	ND	1.0000
-62599	Chloride	0.0039	1.0000
	Bromide	ND	1.0000
	Sulfate	ND	1.0000
-62599	Chloride	ND	1.0000
	Bromide	ND	1.0000
	Sulfate	ND	1.0000
-62599	Chloride	0.1576	1.0000
	Bromide	ND	1.0000
	Sulfate	ND	1.0000

----- Result Footnotes -----

(11) - Matrix spike outlier due to compound over calibration range.

(3a) - Duplicate is valid because the result is less than 5 times the LOQ

(G) - Marginal Outlier

Groups & Samples

50693-264904	50693-264905	50693-264906	50693-264907	50693-264908	50693-264909	50693-264910	50693-264911
50693-264912	50693-264913	50693-264914	50693-264915	50693-264916	50693-264917	50693-264918	50693-264919
50693-264920	50693-264921	50693-264922	50693-264923				

Core Lab-Gulf States Analytical
Daily QC Batching Data
Data Released for Reporting

07/01/99
16:40:27
Group: 50693

Analysis Batch Number: 9056A-06/28/99-1250-1

Test Identification : 9056A-Anions by IC, Solid

Units: mg/kg

Sequence: 9F28

Number of Samples : 5

Batch Data-Date/Time : 06/28/99 / 14:45:25

SPIKE						QC LIMITS	
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	LOWER	UPPER
50693-264925	Chloride	100.0000	0.0000	0.0000	0.0(I1)	80.0	120.0
	Bromide	100.0000	7.6278	109.0370	101.4	80.0	120.0
	Sulfate	100.0000	545.4700	553.0500	7.6(I1)	80.0	120.0
50693-264925-2	Chloride	1000.0000	1718.2200	2685.5600	96.7	80.0	120.0
	Bromide	1000.0000	6.3906	1045.2900	103.9	80.0	120.0
	Sulfate	1000.0000	751.8150	1793.1400	104.1	80.0	120.0

DUPLICATE						
SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
50693-264924	Chloride	0.0000	0.0000	0.0	20.0	1.00
	Bromide	16.9573	16.8396	0.7	20.0	1.00
	Sulfate	0.0000	0.0000	0.0	20.0	1.00
50693-264924-2	Chloride	3548.1400	3538.3300	0.3	20.0	10.00
	Bromide	17.5230	13.0436	29.3(3a)	20.0	10.00
	Sulfate	2154.5500	2139.6100	0.7	20.0	10.00
50693-264924-3	Chloride	3707.4900	3739.6200	0.9	20.0	100.00
	Bromide	0.0000	0.0000	0.0	20.0	100.00
	Sulfate	2086.2900	2032.6100	2.6	20.0	100.00

CONTROL					QC LIMITS	
SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	LOWER	UPPER
0-62599	Chloride	100.8590	100.0000	100.9	90.0	110.0
	Bromide	102.7270	100.0000	102.7	90.0	110.0
	Sulfate	101.9970	100.0000	102.0	90.0	110.0

				QC LIMITS		
CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	LOWER	UPPER
0-62899	Chloride	100.0000	100.3460	100.3	95.0	105.0
	Bromide	100.0000	100.4670	100.5	95.0	105.0
	Sulfate	100.0000	101.2340	101.2	95.0	105.0
0-62899-2	Chloride	100.0000	101.0060	101.0	95.0	105.0
	Bromide	100.0000	100.4150	100.4	95.0	105.0
	Sulfate	100.0000	100.7450	100.7	95.0	105.0

CCB#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
0-62899	Chloride	ND	1.0000
	Bromide	ND	1.0000
	Sulfate	ND	1.0000
0-62899	Chloride	ND	1.0000
	Bromide	ND	1.0000
	Sulfate	ND	1.0000

----- Result Footnotes -----

(I1) - Matrix spike outlier due to compound over calibration range.

(3a) - Duplicate is valid because the result is less than 5 times the LOQ

Core Lab-Gulf States Analytical
Daily QC Batching Data
Data Released for Reporting

07/01/99
16:40:27
Group: 50693

Analysis Batch Number: 9056A-06/28/99-1250-1

Test Identification : 9056A-Anions by IC, Solid

Units: mg/kg

Sequence: 9F28

Number of Samples : 5

Batch Data-Date/Time : 06/28/99 / 14:45:25

Groups & Samples

50693-264924 50693-264925

Core Lab-Gulf States Analytical
Daily QC Batching Data
Data Released for Reporting

07/01/99
16:40:28
Group: 50693

Analysis Batch Number: ICSTB-07/01/99-1254-1

Test Identification : ICSTB-Metals by ICP, Solids, Trace

Units: mg/kg

Sequence:

Number of Samples : 9

Batch Data-Date/Time : 07/01/99 / 14:12:26

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
BS1-062199	Magnesium	3.2000	200.0000
	Potassium	40.3300	200.0000
	Sodium	33.7600	200.0000

SPIKE

SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS	
						LOWER	UPPER
0693-264907	Magnesium	200.0000	598.8000	669.0000	35.1(B)	75.0	125.0
	Potassium	200.0000	402.4000	473.1000	35.4(B)	75.0	125.0
	Sodium	200.0000	452.7000	630.3000	88.8	75.0	125.0

ISD

SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	QC LIMITS		RPD #	LIMIT
						LOWER	UPPER		
0693-264907	Magnesium	200.0000	598.8000	869.6000	135.4(B)	75.0	125.0	117.7(B)	20.0
	Potassium	200.0000	402.4000	627.8000	112.7	75.0	125.0	104.4(B)	20.0
	Sodium	200.0000	452.7000	642.8000	95.0	75.0	125.0	6.7	20.0

DUPLICATE

SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
50693-264907	Magnesium	598.8000	478.1000	22.4(3a)	20.0	1.00
	Potassium	402.4000	313.8000	24.7(3a)	20.0	1.00
	Sodium	452.7000	444.2000	1.9	20.0	1.00

CONTROL

SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	QC LIMITS	
					LOWER	UPPER
LCSS1-062199	Magnesium	999.0000	1140.0000	87.6	72.1	128.1
	Potassium	1079.6000	1430.0000	75.5	65.9	134.3
	Sodium	576.8000	632.0000	91.3	67.9	132.3

QC LIMITS

CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	LOWER	UPPER
1	Magnesium	5.0000	5.0810	101.6	90.0	110.0
	Potassium	12.5000	11.6200	93.0	90.0	110.0
	Sodium	12.5000	11.9400	95.5	90.0	110.0
2	Magnesium	5.0000	4.9520	99.0	90.0	110.0
	Potassium	12.5000	11.8100	94.5	90.0	110.0
	Sodium	12.5000	11.9000	95.2	90.0	110.0
3	Magnesium	5.0000	5.0880	101.8	90.0	110.0
	Potassium	12.5000	11.7400	93.9	90.0	110.0
	Sodium	12.5000	12.1800	97.4	90.0	110.0

STANDARD#	ANALYTE	DATE EXP	BATCH DATE	DAYS/EXP
1	Magnesium	03/31/00	07/01/99	274
	Potassium	03/31/00	07/01/99	274
	Sodium	03/31/00	07/01/99	274

Result Footnotes

(B) - Difficult to homogenize due to the nature of the sample

(3a) - Duplicate is valid because the result is less than 5 times the LOQ

Core Lab-Gulf States Analytical
Daily QC Batching Data
Data Released for Reporting

07/01/99
16:40:29
Group: 50693

Analysis Batch Number: ICSTB-07/01/99-1254-1
Test Identification : ICSTB-Metals by ICP, Solids, Trace Units: mg/kg Sequence:
Number of Samples : 9
Batch Data-Date/Time : 07/01/99 / 14:12:26

Groups & Samples

50693-264904	50693-264907	50693-264911	50693-264913	50693-264914	50693-264918	50693-264921	50693-264922
50693-264925							



GULF STATES ANALYTICAL

6310 Rothway, Houston, Texas 77040
(713) 690-4444, Fax (713) 690-5646

Company: Address: Tele #: 972-243-7643
2947 LBJ Fwy
Cornerstone Env. Res. Suite 103
Dallas TX 75234
Fax #: 972-247-0617
Reports Sent To: P O #: Project #: 99003
John H. Alderman

Project Name: S. Langley JAL Unit
Project Location: JAL, New Mexico

1	Sampler(s) Name: (Signature) John H. Alderman	2	Field Sample ID	3 Sampling		4 Matrix					Haz. Sample (Y/N)	# of Containers	5					
				Date	Time	Water	Soil	Sludge	Oil	Other			CL	BTEX	TPH	BR	SOH	NA, MW, K
1.	9003001A, B, C	6/15/99	10:05 ^A				X				N	3	X	X	X	X	X	
2.	9003002A	6/15/99	10:30 ^A				X				N	1	X					
3.	9003003A	6/15/99	11:00 ^A				X				N	1	X					
4.	9003004A, B, C, D	6/15/99	11:15 ^A				X				N	4	X	X	X	X	X	
5.	9003005A,	6/15/99	12:32 ^P				X				N	1	X					
6.	9003006A	6/15/99	12:45 ^P				X				N	1	X					
7.	9003007A	6/15/99	3:23 ^P				X				N	1	X					
8.	9003008A, B, C, D	6/15/99	4:05 ^P				X				N	4	X	X	X	X	X	
9.	9003009A	6/15/99	4:20 ^P				X				N	1	X					
10.	9003010A, B, C, D	6/15/99	5:40 ^P				X				N	4	X	X	X	X	X	
11.	9003011A, B, C, D	6/16/99	8:45 ^A				X				N	4	X	X	X	X	X	
12.	9003012A	6/16/99	09:00				X				N	1	X					
13.	9003013A	6/16/99	09:15				X				N	1	X					

QC Package: (check one)
☐ CLP ☐ Site Specific
☐ Tier 1 ☐ Tier 2 ☐ QC Summary

Relinquished by Sampler: (Signature) John H. Alderman	Date 6/16/99	Time: PM 4:45	Received by: (Signature) John Sebastian	Date 6/16/99	Time: 4:45
Relinquished by: (Signature) John Sebastian	Date 6/16/99	Time: Siddam	Received by: (Signature)	Date	Time:
Relinquished by: (Signature)	Date	Time:	Received by Laboratory: (Signature)	Date 6-17-99	Time: 0851

Special Detection Limits
Requested Turnaround
GSAI Group: 50693

Remarks:



GULF STATES ANALYTICAL

6310 Rothway, Houston, Texas 77040
(713) 690-4444, Fax (713) 690-5646

Company: Address: Tele #: 972-243-7643
1 CORNERSTONE 2447 JBS PRWY
SUITE 103
ENVIRONMENTAL RES. DALLAS TX 75234 Fax #: 972-247-0617
Reports Sent To: PO #: Project #: 99003
JOHN H. ALDERMAN

Project Name: S. LAWLEY JAL UNIT
Project Location: JAL, NEW MEXICO

Sampler(s) Name: (Signature)
John H. Alderman

Courier:

Field Sample ID

Sampling
Date Time

Matrix
Water Soil Sludge Oil Other

Haz. Sample (Y/N)
of Containers

Relinquished by Sampler: (Signature)

Date: 6/16/99
Time: 4:45 PM

Received by: (Signature)

Date: 6/16/99
Time: 5:00 PM

Relinquished by: (Signature)

Relinquished by: (Signature)

Date: 6/16/99
Time: 5:00 PM

Received by Laboratory: (Signature)

Date: 6/16/99
Time: 4:45 PM

Date: 6/16/99
Time: 4:45 PM

Date: 6/16/99
Time: 4:45 PM

Remarks:

Requested Turnaround

GSAI Group: 50693

Special Detection Limits

QC Package: (check one)

☐ CLP ☐ Site Specific

☐ Tier 1 ☐ Tier 2 ☐ QC Summary

Request for Analysis