



10235 West Little York Road, Suite 256
Houston, Texas 77040

(713) 856-7980 office
(713) 856-7981 fax

June 5, 1998

Salt Creek Farm & Ranch
Attn.: Mr. Bob Naylor
P.O. Box 1973
Roswell, NM 88202

**RE: Transwestern Pipeline Company
Results of Water Well Sampling**

Dear Mr. Naylor,

The purpose of this letter is to transmit the results for the recent sampling of a water well located at the Salt Creek Ranch.

Sampling activities were completed on May 6-7, 1998, by Mr. Clayton Barnhill of CMB Environmental located in Roswell, NM. The primary purpose of these activities was to obtain a measurement of depth to water and a surveyed elevation of the depth to water measuring point at each of three regional aquifer water wells located near Transwestern's Roswell Station. Wagener Engineering of Roswell, NM, provided the surveying services.

Table 1, attached, presents a summary of depth to water measurements and the calculated water surface elevation for the three wells completed within the regional aquifer. This information is also presented in Figure 1 which indicates that the local direction of ground water flow within the regional aquifer is toward the northeast.

A secondary objective was to obtain a sample from the water well located at the Salt Creek Ranch. This water sample was collected purely as a conservative measure. Approximately 3400 gallons of water was purged prior to collecting samples for laboratory analysis. A "Well Data Form" provided by CMB Environmental for the purging and sampling procedure is attached. Table 2, attached, presents a summary of the laboratory analytical results for the ground water samples collected. None of the organic constituents of concern present at Transwestern's Roswell Station former impoundment area were detected in the ground water samples collected from the Salt Creek Ranch water well.

If you have any questions or comments regarding this transmittal, please contact me at telephone number (713) 646-7327.

Sincerely,

George C. Robinson, P.E.
President

xc w/attachment:

Mr. Larry Campbell
Transwestern Pipeline Company
6381 North Main Street
Roswell, NM 88201

Mr. Bill Kendrick
ENRON Gas Pipeline Group
P.O. Box 1188
Houston, TX 77251-1188


Mr. Bill Olson
NM Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, NM 87505

Mr. Jerry Bober
NM Environment Dept./HRMB
2044 Galisteo St., Bldg A
Santa Fe, NM 87505

Mr. Dennis Karnes
Pecos Valley Artesian Conservancy District
P.O. Box 1346
Roswell, NM 88202

Mr. Robert Young
NM State Land Office
310 Old Santa Fe Trail
Santa Fe, NM 87504



Well #5 
355164

355100

355000

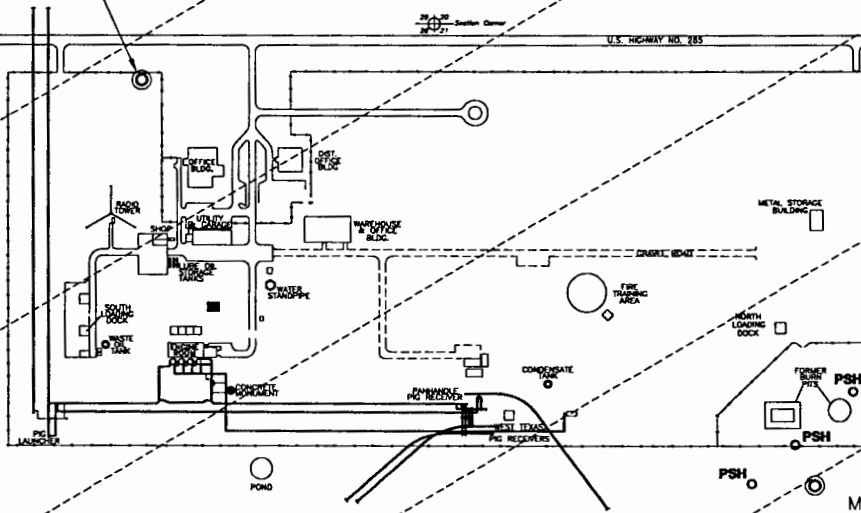
354900

354800

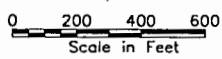
Well #2
3549.80

354700

354600



MW-23D
3545.95



**GROUND WATER ELEVATIONS FOR
THE REGIONAL AQUIFER - MAY 6, 1998**

ROSWELL COMPRESSOR STATION
TRANSWESTERN PIPELINE COMPANY

**Table 1. Summary of Ground Water Surface Elevations in the Regional Aquifer
Compressor Station No. 9 - Roswell, NM**

Well ID	Sampling Date	Top of Casing (ft)	Depth to Water (ft)	Surface Elevation (ft)
MW-23 D	08/19/97	3605.16	62.05	3543.11
	10/30/97		59.11	3546.05
	01/26/98	3604.96 (b)	56.19	3548.97
	05/06/98		59.01	3545.95
	05/07/98		59.08	3545.88
Well #2	05/06/98	3615.28 (b)	65.48	3549.80
	05/07/98		65.51	3549.77
Well #5	05/06/98	3635.39 (b)	83.75	3551.64
	05/07/98		83.79	3551.60

NOTES:

(b) Elevation based on survey by Wagener Engineering dated 5/6/98

MW-23D - Deep monitor well located at NE corner of Roswell Station site

Well #2 - Pecos Valley Artesian Conservancy District monitor well located at SW corner of Roswell Station site

Well #5 - Offsite water well located at approximately 2800 feet W of NW corner of Roswell Station site

**Table 2. Summary of Ground Water Analyses - Offsite Well #5
Compressor Station No. 9 - Roswell, NM**

Well ID	Sampling Date	Organics (mg/L)		Major Ions (mg/L)								Metals (mg/L)												
		VOCs	PAHs	TDS	Chloride	Sulfate	NO ₂ /NO ₃ - N, total	Calcium	Potassium	Magnesium	Sodium	Total alkalinity (as CaCO ₃)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Selenium	Silver	Zinc
NM/QCC Standard		varies	varies	1000	250	600	10	none	none	none	none	none	0.1	1.0	0.01	0.05	1.0	1.0	0.05	0.20	0.002	0.2	0.05	0.05
Well #5	12/22/94	all ND	—	2420	750	768	1.74	297	1.7	80.5	502	154	< 0.05	0.02	< 0.005	< 0.01	< 0.01	0.32	< 0.05	< 0.01	< 0.0002	< 0.1	< 0.01	< 0.01
	05/07/98	all ND	all ND	1900	680	800	1.48	241	2	69.4	387	141	< 0.1	0.022	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	0.012	< 0.0002	< 0.1	< 0.01	< 0.02

NOTES:

*"—" - A result for this constituent(s) is not available

*"all ND" - Indicates that all of the constituents in this class were reported by the laboratory as Non-Detect

*"VOCs" - Volatile Organic Compounds

*"PAHs" - Polycyclic Aromatic Hydrocarbons

OMB CONSULTING GEOLOGIST

WELL DATA FORM

Type Well <input type="checkbox"/> MW <input type="checkbox"/> Production <input checked="" type="checkbox"/> Other <u>ABANDONED WATER WELL</u>		Type of Data <input type="checkbox"/> Development <input checked="" type="checkbox"/> Sampling <input type="checkbox"/> Pump Test <input type="checkbox"/> Other		Well No. <u>WATER WELL #5</u> Sheet 1 of 1 Sheets	
1. Project <u>Water Well Sampling</u> <u>Cypress Engineering Services</u>		2. Project Location <u>TWP / Roswell Station</u> <u>6381 N. MAIN ST. Roswell, GA</u>		3. Date <u>5/6/98 - 5/7/98</u>	
4. Technician <u>C.M. Bonnell</u>		8. Manufacturer's Designation of Rig <u>DSR-1000</u>		9. Location of Well (Site, Description) <u>WATER WELL #5</u>	
7. Method <input checked="" type="checkbox"/> Pumping <input type="checkbox"/> Surging <input type="checkbox"/> Air Lift <input type="checkbox"/> Bailing <input type="checkbox"/> Other					

Water Levels

Initial	Final	Final + 24 Hours
Date: <u>5/6/98</u> Time: <u>8:55</u>	Date: <u>5/6/98</u> Time: <u>18:10</u>	Date: _____ Time: _____
10. Total Depth of Well (from TOC) <u>360.0</u>	15. Total Depth of Well (from TOC) <u>360.0</u>	20. Total Depth of Well (from TOC)
11. Water Level (from TOC) <u>83.75'</u> ^{83.79'} _{at 5:11/98} _{10:00 a.m.}	16. Water Level (from TOC) <u>83.70</u>	21. Water Level (from TOC)

12. Water Column Height <u>276.25'</u>	Norm Dia x = gal/ft Sch 40 Sch 80	17.3 Well Volumes <u>3381 Gal.</u>	22. Size and Type of Pump or Bailor <u>Pump</u>
13. Well Diameter <u>10" steel casing</u>		18.5 Well Volumes <u>5635 Gal.</u>	<u>Bedrock, 1.8"</u>
14. Well Volume (gal) (s.w.e. height) <u>1127'</u>		19. Purge Volume <u>3422.50</u>	<u>Set @ 190'</u>

Final Field Analysis

23. Total Amount of Water Removed <u>3422.50 Gallons</u>	24. Was Well Pumped Dry? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	25. Was water added to well? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, source: _____	26. Was the Groundwater Sampled? <input checked="" type="checkbox"/> No If yes, what was the sample number & Date: Sampling Personnel? <u>WATER WELL #5</u> <u>5/7/98 CMBonnell @ 16:50</u>
27. Final Parameters	Time <u>16:50</u> Temp F <u>74.8</u>	Conductivity <u>363</u> pH <u>7.35</u> NTUs <u><5</u>	WL Removed <u>84.31</u> Flow Rate <u>3422.50</u> Photo Roll #, Observations <u>11.0 GPM Clear.</u>

IF PETROLEUM IS IN THE WELL, DO NOT TAKE pH AND CONDUCTIVITY PARAMETERS

28. Physical Appearance and Remarks clear with strong sulfur smell

29. Purgewater disposal method: ON SURFACE

Sampling / Development Parameters

Time	Temp F	Conductivity (umhos/cm) ^{x1000}	pH	NTUs	WL (from TOC)	Volume (gallons)	Flow Rate (gpm)	Photo #, Observations (1)
<u>6/98 9:45</u>	<u>69.9</u>	<u>504</u>	<u>7.64</u>	<u><5</u>	<u>83.75</u>	<u>1210</u>	<u>3.0</u>	<u>Clear</u>
<u>5/98 11:35</u>	<u>74.6</u>	<u>1.20</u>	<u>8.86</u>	<u><5</u>	<u>83.79</u>	<u>1115</u>	<u>11.0</u>	<u>Clear</u>
<u>12:35</u>	<u>66.7</u>	<u>3.36</u>	<u>7.47</u>	<u><5</u>	<u>84.31</u>	<u>660</u>	<u>11.0</u>	<u>Clear</u>
<u>13:35</u>	<u>70.0</u>	<u>3.47</u>	<u>7.52</u>	<u><5</u>	<u>84.31</u>	<u>1310</u>	<u>11.0</u>	<u>Clear</u>
<u>14:35</u>	<u>73.7</u>	<u>3.59</u>	<u>7.45</u>	<u><5</u>	<u>84.31</u>	<u>1960</u>	<u>11.0</u>	<u>Clear</u>
<u>15:35</u>	<u>73.6</u>	<u>3.48</u>	<u>7.47</u>	<u><5</u>	<u>84.31</u>	<u>2610</u>	<u>11.0</u>	<u>Clear</u>
<u>16:35</u>	<u>74.0</u>	<u>3.57</u>	<u>7.39</u>	<u><5</u>	<u>84.31</u>	<u>3260</u>	<u>11.0</u>	<u>Clear</u>
<u>16:50</u>	<u>74.8</u>	<u>3.63</u>	<u>7.35</u>	<u><5</u>	<u>84.31</u>	<u>3422</u>	<u>11.0</u>	<u>Clear</u>

(1) Note volume and physical character of sediments removed.

NTU = Nephelometric turbidity units
 WL = Water Level from Top of PVC casing

Checked By

C.M. Bonnell CAG #7145

Date 5/7/98

WAGENER **WE**
ENGINEERING

1410 N. Missouri Ave.
Roswell, N.M. 88201
(505) 623-8382

May 7, 1998

George C. Robinson, P.E.
CYPRESS ENGINEERING
10235 West Little York Road
Suite 256
Houston, Texas 77040

RE: Transwestern's Roswell Compressor Station

Dear George,

Transmitted herewithin are the X Y & Z coordinates of the wells Clayton Barnhill requested. The elevation of the two water wells were shot at the north rim on the steel casing. The elevation for monitoring well 23-D was shot on the north rim of the PVC casing. The elevations were measured to one hundredth of a foot. Horizontal locations are within one tenth of a foot.

The bench mark and coordinate system are the same ones used during the August 1995, September 1996 and August 1997 surveys for D.B. Stephens & Associates, Inc.

DESCRIPTION	NORTHING	EASTING	ELEVATION
BENCH MARK	100.00	-200.00	3613.81
NORTH RIM WELL CASING WELL No. 2	-176.59	-867.06	3615.28
NORTH RIM WELL CASING WELL No. 5	2566.04	-3685.00	3635.39
NORTH RIM WELL CASING MW 23-D	1915.28	393.56	3604.96

I, Todd P. Wagener, New Mexico Registered Professional Surveyor, No. 9242, certify that I conducted and am responsible for this unclassified survey, and that this survey meets the Minimum Standards for Surveying in New Mexico.


Todd P. Wagener NMRPS No. 9242

May 6, 1998
Date of Survey

May 7, 1998
Date of certification





HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

May 26, 1998

Mr. George Robinson
CYPRESS ENGINEERING, INC.
10235 W. Little York Rd. #256
Houston, TX 77040

The following report contains analytical results for the sample(s) received at Southern Petroleum Laboratories (SPL) on May 9, 1998. The sample(s) was assigned to Certificate of Analysis No.(s) 9805418 and analyzed for all parameters as listed on the chain of custody.

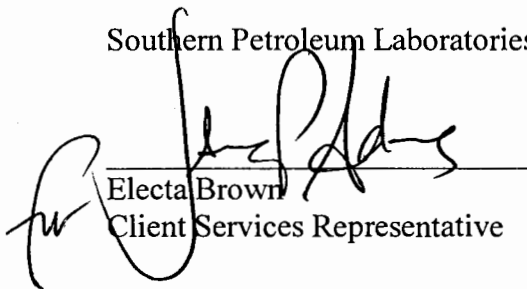
Sample "Water Well #5" (SPL ID: 9805418-01) was randomly chosen as a Quality Control sample for metals analysis by SW-846 method 6010. The Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries were outside of advisable limits for Calcium (Ca) and Sodium (Na). A Laboratory Control Sample (LCS) was analyzed as a Quality Control check for the analytical batch and all recoveries were within acceptable limits.

Any data flag or quality control exception associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s).

If you have any questions or comments pertaining to this data report, please do not hesitate to contact me. Please reference the above Certificate of Analysis No. during any inquiries.

Again, SPL is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Southern Petroleum Laboratories

A handwritten signature in black ink, appearing to read "Electa Brown", is written over a horizontal line. To the left of the signature, there is a small, stylized handwritten mark that looks like "EB".

Electa Brown
Client Services Representative



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 98-05-418

Approved for Release by:



Electa Brown, Client Services Representative

5/21/98
Date:

Greg Grandits
Laboratory Director

Cynthia Schreiner
Quality Assurance Officer

The attached analytical data package may not be reproduced except in full without the express written approval of this laboratory.



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

Certificate of Analysis No. H9-9805418-01

Cypress Engineering, Inc.
 10235 W. Little York Rd #256
 Houston, TX 77040
 ATTN: George Robinson

DATE: 05/22/98

PROJECT: Transwestern Pipeline
SITE: Roswell Station #9
SAMPLED BY: Cypress Engineering
SAMPLE ID: Water Well #5

PROJECT NO:
MATRIX: WATER
DATE SAMPLED: 05/07/98 16:50:00
DATE RECEIVED: 05/09/98

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Alkalinity, as CaCO3 Method 310.1 * Analyzed by: JS Date: 05/20/98 13:45:00	141	1	mg/L
Chloride Method 325.3 * Analyzed by: ET Date: 05/19/98 18:00:00	680	10	mg/L
Sulfate Method 375.4 * Analyzed by: DAM Date: 05/18/98 15:00:00	800	50	mg/L
Total Dissolved Solids Method 160.1 * Analyzed by: KS Date: 05/13/98 16:30:00	1900	100	mg/L
Nitrate-Nitrite, as N Method 353.3 * Analyzed by: EM Date: 05/11/98 11:00:00	1.48	0.05	mg/L
Liquid-liquid extraction SEMIVOLATILES Method 3520C *** Analyzed by: AS Date: 05/12/98 12:00:00	05/12/98		

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
 **Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
 ***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.



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 Houston, TX 77040
 ATTN: George Robinson

DATE: 05/22/98

PROJECT: Transwestern Pipeline
 SITE: Roswell Station #9
 SAMPLED BY: Cypress Engineering
 SAMPLE ID: Water Well #5

PROJECT NO:
 MATRIX: WATER
 DATE SAMPLED: 05/07/98 16:50:00
 DATE RECEIVED: 05/09/98

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
Silver, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00	ND	0.01	mg/L	
Arsenic, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00	ND	0.1	mg/L	
Barium, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00	0.022	0.005	mg/L	
Calcium, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00	241	0.1	mg/L	
Cadmium, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00	ND	0.005	mg/L	
Chromium, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00	ND	0.01	mg/L	

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
 **Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
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HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

Certificate of Analysis No. H9-9805418-01

Cypress Engineering, Inc.
 10235 W. Little York Rd #256
 Houston, TX 77040
 ATTN: George Robinson

DATE: 05/22/98

PROJECT: Transwestern Pipeline
SITE: Roswell Station #9
SAMPLED BY: Cypress Engineering
SAMPLE ID: Water Well #5

PROJECT NO:
MATRIX: WATER
DATE SAMPLED: 05/07/98 16:50:00
DATE RECEIVED: 05/09/98

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
Copper, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00	ND	0.01	mg/L	
Iron, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00	ND	0.02	mg/L	
Mercury, Dissolved Method 7470 A*** Analyzed by: AG Date: 05/15/98 15:23:00	ND	0.0002	mg/L	
Potassium, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00	2	2	mg/L	
Magnesium, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00	69.4	0.1	mg/L	
Manganese, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00	0.012	0.005	mg/L	

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
 **Ref: Standard Methods for Examination of Water & Wastewater, 18th ed
 ***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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Certificate of Analysis No. H9-9805418-01

Cypress Engineering, Inc.
 10235 W. Little York Rd #256
 Houston, TX 77040
 ATTN: George Robinson

DATE: 05/22/98

PROJECT: Transwestern Pipeline
SITE: Roswell Station #9
SAMPLED BY: Cypress Engineering
SAMPLE ID: Water Well #5

PROJECT NO:
MATRIX: WATER
DATE SAMPLED: 05/07/98 16:50:00
DATE RECEIVED: 05/09/98

PARAMETER	ANALYTICAL DATA	RESULTS	DETECTION LIMIT	UNITS
Sodium, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00		387	0.5	mg/L
Dissolved Metals Prep. Method 3005A *** Analyzed by: SRC Date: 05/11/98 08:30:00		05/11/98		
Lead, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00		ND	0.05	mg/L
Selenium, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00		ND	0.1	mg/L
Zinc, Dissolved Method 6010B *** Analyzed by: JM Date: 05/22/98 08:08:00		ND	0.02	mg/L

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
 **Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
 ***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.



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Certificate of Analysis No. H9-9805418-01

Cypress Engineering, Inc.
10235 W. Little York Rd #256
Houston, TX 77040
ATTN: George Robinson

05/22/98

PROJECT: Transwestern Pipeline
SITE: Roswell Station #9
SAMPLED BY: Cypress Engineering
SAMPLE ID: Water Well #5

PROJECT NO:
MATRIX: WATER
DATE SAMPLED: 05/07/98 16:50:00
DATE RECEIVED: 05/09/98

PARAMETER	RESULTS	PQL*	UNITS
Benzene	ND	5	ug/L
Bromobenzene	ND	5	ug/L
Bromochloromethane	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
n-Butylbenzene	ND	5	ug/L
sec-Butylbenzene	ND	5	ug/L
tert-Butylbenzene	ND	5	ug/L
Carbon tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chlorodibromomethane	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
2-Chlorotoluene	ND	5	ug/L
4-Chlorotoluene	ND	5	ug/L
1,2-Dibromo-3-chloropropane	ND	5	ug/L
1,2-Dibromoethane	ND	5	ug/L
Dibromomethane	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
Dichlorodifluoromethane	ND	10	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
cis-1,2-Dichloroethene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
1,3-Dichloropropane	ND	5	ug/L
2,2-Dichloropropane	ND	5	ug/L
1,1-Dichloropropene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Isopropylbenzene	ND	5	ug/L
p-Isopropyltoluene	ND	5	ug/L
Methylene chloride	ND	5	ug/L

METHOD: 8260 Water, Volatile Organics
(continued on next page)



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

Certificate of Analysis No. H9-9805418-01

Cypress Engineering, Inc.

SAMPLE ID: Water Well #5

ANALYTICAL DATA (continued)

PARAMETER	RESULTS	PQL*	UNITS	
Naphthalene	ND	5	ug/L	
n-Propylbenzene	ND	5	ug/L	
Styrene	ND	5	ug/L	
1,1,1,2-Tetrachloroethane	ND	5	ug/L	
1,1,2,2-Tetrachloroethane	ND	5	ug/L	
Tetrachloroethene	ND	5	ug/L	
Toluene	ND	5	ug/L	
1,2,3-Trichlorobenzene	ND	5	ug/L	
1,2,4-Trichlorobenzene	ND	5	ug/L	
1,1,1-Trichloroethane	ND	5	ug/L	
1,1,2-Trichloroethane	ND	5	ug/L	
Trichloroethene	ND	5	ug/L	
Trichlorofluoromethane	ND	5	ug/L	
1,2,3-Trichloropropane	ND	5	ug/L	
1,2,4-Trimethylbenzene	ND	5	ug/L	
1,3,5-Trimethylbenzene	ND	5	ug/L	
Vinyl chloride	ND	10	ug/L	
Xylenes (total)	ND	5	ug/L	
Acetone	ND	100	ug/L	
Carbon Disulfide	ND	5	ug/L	
Vinyl Acetate	ND	10	ug/L	
2-Butanone	ND	20	ug/L	
1,2-Dichloroethene (total)	ND	5	ug/L	
2-Chloroethylvinylether	ND	10	ug/L	
4-Methyl-2-Pentanone	ND	10	ug/L	
cis-1,3-Dichloropropene	ND	5	ug/L	
trans-1,3-Dichloropropene	ND	5	ug/L	
2-Hexanone	ND	10	ug/L	

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/L	98	76	114
Toluene-d8	50 ug/L	100	88	110
4-Bromofluorobenzene	50 ug/L	104	86	115

ANALYZED BY: JC

DATE/TIME: 05/14/98 15:49:00

METHOD: 8260 Water, Volatile Organics

NOTES: * - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

QUALITY CONTROL

DOCUMENTATION

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL

Contract:

Lab Code:

Case No.: 9805418 SAS No.:

SDG No.:

Matrix Spike - EPA Sample No.: WATER WELL #5

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	0	62	124	61-145
Trichloroethene	50	0	43	86	71-120
Benzene	50	0	48	96	76-127
Toluene	50	0	42	84	76-125
Chlorobenzene	50	0	47	94	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	50	58	116	7	14	61-145
Trichloroethene	50	44	88	2	14	71-120
Benzene	50	48	96	0	11	76-127
Toluene	50	41	82	2	13	76-125
Chlorobenzene	50	48	96	2	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits due to matrix interference

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

SPL Houston Labs

RECOVERY REPORT

Client Name: Client SDG: n980514
 Sample Matrix: LIQUID Fraction: VOA
 Lab Smp Id: LCS Operator: JC
 Level: LOW SampleType: LCS
 Data Type: MS DATA Quant Type: ISTD
 SpikeList File: 8260_water.spk
 Sublist File: 8260.sub
 Method File: /var/chem/n.i/n980514.b/n8260w.m
 Misc Info: N134W1//N134CW1

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
8 1,1-Dichloroethene	50	67	134.00	61-145
29 Trichloroethene	50	51	102.00	71-120
25 Benzene	50	52	104.00	76-127
37 Toluene	50	47	94.00	76-125
45 Chlorobenzene	50	52	104.00	75-130

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 21 1,2-Dichloroethane	50	45	90.00	76-114
\$ 36 Toluene-d8	50	47	94.00	88-110
\$ 56 Bromofluorobenzene	50	52	104.00	86-115



SPL Blank QC Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 960-9000

Matrix: Aqueous
Sample ID: VLBLK
Batch: N980514122720

Reported on: 05/15/98 14:59
Analyzed on: 05/14/98 08:36
Analyst: JC

METHOD 8260/8240 N134B01

Compound	Result	Detection Limit	Units
Dichlorodifluoromethane	ND	10	ug/L
Chloromethane	ND	10	ug/L
Vinyl Chloride	ND	10	ug/L
Bromomethane	ND	10	ug/L
Chloroethane	ND	10	ug/L
Trichlorofluoromethane	ND	5	ug/L
Acetone	ND	100	ug/L
1,1-Dichloroethene	ND	5	ug/L
Methylene Chloride	ND	5	ug/L
Carbon Disulfide	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
Vinyl Acetate	ND	10	ug/L
2-Butanone	ND	20	ug/L
cis-1,2-Dichloroethene	ND	5	ug/L
1,2-Dichloroethene (total)	ND	5	ug/L
2,2-Dichloropropane	ND	5	ug/L
Bromochloromethane	ND	5	ug/L
Chloroform	ND	5	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,1-Dichloropropene	ND	5	ug/L
Benzene	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Dibromomethane	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
2-Chloroethylvinylether	ND	10	ug/L
4-Methyl-2-Pentanone	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Toluene	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L

Notes

ND - Not detected.



SPL Blank QC Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 992-9900Matrix: Aqueous
Sample ID: VLBLK
Batch: N980514122720Reported on: 05/15/98 14:5
Analyzed on: 05/14/98 08:3
Analyst: JC

METHOD 8260/8240 N134B01

Compound	Result	Detection Limit	Units
1,3-Dichloropropane	ND	5	ug/L
2-Hexanone	ND	10	ug/L
Dibromochloromethane	ND	5	ug/L
1,2-Dibromoethane	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
1,1,1,2-Tetrachloroethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Bromoform	ND	5	ug/L
Styrene	ND	5	ug/L
Xylene (Total)	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,2,3-Trichloropropane	ND	5	ug/L
Isopropylbenzene	ND	5	ug/L
Bromobenzene	ND	5	ug/L
N-Propylbenzene	ND	5	ug/L
2-Chlorotoluene	ND	5	ug/L
4-Chlorotoluene	ND	5	ug/L
1,3,5-Trimethylbenzene	ND	5	ug/L
tert-Butylbenzene	ND	5	ug/L
1,2,4-Trimethylbenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
sec-Butylbenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
p-Isopropyltoluene	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
n-Butylbenzene	ND	5	ug/L
1,2-Dibromo-3-Chloropropan	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
Naphthalene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
1,2,3-Trichlorobenzene	ND	5	ug/L

Notes

ND - Not detected.



SPL Blank QC Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-9000

Matrix: Aqueous
Sample ID: VLBLK
Batch: N980514122720

Reported on: 05/15/98 14:59
Analyzed on: 05/14/98 08:36
Analyst: JC

METHOD 8260/8240 N134B01

Surrogate	Result	QC Criteria	Units
1,2-Dichloroethane-d4	104	76-114	% Recovery
Toluene-d8	102	88-110	% Recovery
Bromofluorobenzene	104	86-115	% Recovery

Samples in Batch 9805418-01

Notes

ND - Not detected.

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL

Contract:

Lab Code:

Case No.: 980512

SAS No.:

SDG No.:

Matrix Spike - EPA Sample No.: Blank Spike/Spike-Dup

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Phenol	75	0	27	36	12-110
2-Chlorophenol	75	0	57	76	27-123
1,4-Dichlorobenzene	50	0	37	74	36- 97
N-Nitroso-di-n-prop. (1)	50	0	43	86	41-116
1,2,4-Trichlorobenzene	50	0	39	78	39- 98
4-Chloro-3-methylphenol	75	0	58	77	23- 97
Acenaphthene	50	0	41	82	46-118
4-Nitrophenol	75	0	26	35	30-150
2,4-Dinitrotoluene	50	0	43	86	50-150
Pentachlorophenol	75	0	56	75	9-125
Pyrene	50	0	42	84	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
Phenol	75	26	35	3	42	12-110
2-Chlorophenol	75	55	73	4	40	27-123
1,4-Dichlorobenzene	50	34	68	8	28	36- 97
N-Nitroso-di-n-prop. (1)	50	38	76	12	38	41-116
1,2,4-Trichlorobenzene	50	38	76	3	28	39- 98
4-Chloro-3-methylphenol	75	55	73	5	42	23- 97
Acenaphthene	50	38	76	8	31	46-118
4-Nitrophenol	75	23	31	12	50	30-150
2,4-Dinitrotoluene	50	40	80	7	50	50-150
Pentachlorophenol	75	53	71	5	50	9-125
Pyrene	50	36	72	15	31	26-127

(1) N-Nitroso-di-n-propylamine

* Values outside of QC limits due to diluted out

RPD: 0 out of 11 outside limits

Spike Recovery: 0 out of 22 outside limits



SPL Blank QC Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Aqueous
Sample ID: BLANK
Batch: E980512042258

Reported on: 05/15/98 11:15
Analyzed on: 05/13/98 15:20
Analyst: RY

METHOD 8270 J132B03

Compound	Result	Detection Limit	Units
Naphthalene	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
1-Methylnaphthalene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Acenaphthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Phenanthrene	ND	5	ug/L
Anthracene	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Pyrene	ND	5	ug/L
Benzo[a]anthracene	ND	5	ug/L
Chrysene	ND	5	ug/L
Benzo[b]fluoranthene	ND	5	ug/L
Benzo[k]fluoranthene	ND	5	ug/L
Benzo[a]pyrene	ND	5	ug/L
Indeno[1,2,3-cd]pyrene	ND	5	ug/L
Dibenz[a,h]anthracene	ND	5	ug/L
Benzo[g,h,i]perylene	ND	5	ug/L

Surrogate	Result	QC Criteria	Units
Nitrobenzene-d5	74	35-114	% Recovery
2-Fluorobiphenyl	88	43-116	% Recovery
Terphenyl-d14	76	33-141	% Recovery
Phenol-d5	37	10-110	% Recovery
2-Fluorophenol	47	21-110	% Recovery
2,4,6-Tribromophenol	84	10-123	% Recovery

Samples in Batch 9805418-01

Notes

ND - Not detected.

ICP Specscopy Method 6010 Quality Control Report



Matrix: DISSOLVED Units: mg/L

Analyst: JM

Date:052298 Time:0808 File Name: 052298C2

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
Checked: *JM 5/26/98*
PHONE (713) 660-0950

Laboratory Control Sample

Element	Mth. Blank	True Value	Result	% Recovery	Lower Limit	Upper Limit
Silver	ND	2.00	2.03	101	1.60	2.40
Aluminum						
Arsenic	ND	4.00	4.03	101	3.20	4.80
Barium	ND	2.00	1.99	99	1.60	2.40
Beryllium						
Calcium	ND	20.00	20.03	100	16.00	24.00
Cadmium	ND	2.00	1.96	98	1.60	2.40
Cobalt						
Chromium	ND	2.00	2.00	100	1.60	2.40
Copper	ND	2.00	2.03	101	1.60	2.40
Iron	ND	2.00	1.99	100	1.60	2.40
Potassium	ND	20.00	19.92	100	16.00	24.00
Magnesium	ND	20.00	20.30	102	16.00	24.00
Manganese	ND	2.00	2.02	101	1.60	2.40
Sodium	ND	20.00	19.36	97	16.00	24.00
Nickel						
Lead	ND	2.00	2.03	102	1.60	2.40
Antimony						
Selenium	ND	4.00	4.02	101	3.20	4.80
Thallium						
Vanadium						
Zinc	ND	2.00	2.03	101	1.60	2.40

Work Orders in Batch

Work Order Fractions

98-05-418 01E

Matrix Spike - Spike Duplicate Results

Work Order Spiked: 9805418-01E

Element	Sample Result	Spike Added	Matrix Spike		Matrix Spike Duplicate		QC Limits		Spike RPD %	QC Limits %
			Result	Recovery	Result	Recovery	% Recovery	% Recovery		
Silver	0.0035	1.0	0.9227	91.9	0.8608	85.7	80	120	7.0	20.0
Aluminum										
Arsenic	ND	2.0	2.039	102.0	2.044	102.2	80	120	0.2	20.0
Barium	0.0219	1.0	0.9695	94.8	0.9602	93.8	80	120	1.0	20.0
Beryllium										
Calcium	240.6	10.0	243.9	33.0 *	246.7	61.0 *	80	120	59.6	** 20.0
Cadmium	ND	1.0	0.9791	97.9	0.9903	99.0	80	120	1.1	20.0
Cobalt										
Chromium	ND	1.0	0.9626	96.3	0.9725	97.3	80	120	1.0	20.0
Copper	ND	1.0	0.9919	99.2	0.9855	98.6	80	120	0.6	20.0
Iron	ND	1.0	0.9761	97.6	0.9816	98.2	80	120	0.6	20.0
Potassium	2.066	10.0	13.1	110.3	13.2	111.3	80	120	0.9	20.0
Magnesium	69.4	10.0	77.48	80.8	77.49	80.9	80	120	0.1	20.0
Manganese	0.012	1.0	0.9822	97.0	0.9889	97.7	80	120	0.7	20.0
Sodium	387	10.0	392.6	56.0 *	389.2	22.0 *	80	120	87.2	** 20.0
Nickel										
Lead	ND	1.0	1.002	100.2	1.019	101.9	80	120	1.7	20.0
Antimony										
Selenium	ND	2.0	2.036	101.8	2.027	101.4	80	120	0.4	20.0
Thallium										
Vanadium										
Zinc	ND	1.0	1.019	101.9	1.027	102.7	80	120	0.8	20.0

* Values Outside QC Range Due To Matrix Interference.

** Values Outside QC Range.

Elements Bench Spiked:ALL



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL QUALITY CONTROL REPORT **

Matrix: Aqueous

Reported on: 05/15/98

Analyzed on: 05/15/98

Analyst: AG

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Mercury, Dissolved
Method 7470 A***

SPL Sample ID Number	Blank Value ug/L	LCS Concentration ug/L	Measured Concentration ug/L	% Recovery	QC Limits Recovery
LCS	ND	2.00	1.93	96.5	80 - 120

-9805535

Samples in batch:

9805418-01E 9805567-01B 9805567-02B 9805567-03B

COMMENTS:

LCS = SPL ID# 94-452-45-21



** SPL QUALITY CONTROL REPORT **

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Aqueous

Reported on: 05/15/98
Analyzed on: 05/15/98
Analyst: AG

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Mercury, Dissolved
Method 7470 A***

SPL Sample ID Number	Method Blank ug/L	Sample Result ug/L	Spike Added ug/L	Matrix Spike		Matrix Spike Duplicate		RPD (%)	QC LIMITS (Advisory)		
				Result ug/L	Recovery %	Result ug/L	Recovery %		RPD Max	% REC	
9805418-01E	ND	ND	2.00	1.91	95.5	1.83	91.5	4.3	20	75	-125

-9805535

Samples in batch:

9805418-01E 9805567-01B 9805567-02B 9805567-03B

COMMENTS:

LCS = SPL ID# 94-452-45-21



** SPL QUALITY CONTROL REPORT **

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Aqueous

Reported on: 05/20/98

Analyzed on: 05/20/98

Analyst: JS

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Alkalinity, as CaCO3
Method 310.1 *

SPL Sample ID Number	Blank Value mg/L	LCS Concentration mg/L	Measured Concentration mg/L	% Recovery	QC Limits Recovery
LCS	ND	65	65	100	95 - 113

-9805688

Samples in batch:

9805418-01B	9805543-01D	9805543-02D	9805543-03D
9805543-04D	9805543-05D	9805544-02G	9805544-04G
9805544-05G	9805621-02C		

COMMENTS:

LCS#94453192-24



** SPL QUALITY CONTROL REPORT **

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Aqueous

Reported on: 05/20/98

Analyzed on: 05/20/98

Analyst: JS

This sample was randomly selected for use in the SPL quality control program. The results are as follows:

Alkalinity, as CaCO3
Method 310.1 *

-- DUPLICATE ANALYSIS --

SPL Sample ID	Original Sample Concentration mg/L	Duplicate Sample mg/L	RPD	RPD Max.
9805418-01B	141	142	0.7	18

-9805687

Samples in batch:

9805418-01B 9805543-01D 9805543-02D 9805543-03D
9805543-04D 9805543-05D 9805544-02G 9805544-04G
9805544-05G 9805621-02C

COMMENTS:



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

**** SPL QUALITY CONTROL REPORT ****

Matrix: Aqueous

Reported on: 05/19/98

Analyzed on: 05/19/98

Analyst: ET

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Chloride
 Method 325.3 *

SPL Sample ID Number	Blank Value mg/L	LCS Concentration mg/L	Measured Concentration mg/L	% Recovery	QC Limits Recovery
LCS	ND	170	169.27	99.6	94 - 106

-9805652

Samples in batch:

9805418-01B 9805543-01D 9805543-02D 9805543-03D
 9805543-04D 9805543-05D 9805550-03A 9805551-03A
 9805785-01A 9805829-01A

COMMENTS:

LCS = SPL ID#94453192-24



** SPL QUALITY CONTROL REPORT **

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Aqueous

Reported on: 05/19/98
Analyzed on: 05/19/98
Analyst: ET

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Chloride
Method 325.3 *

SPL Sample ID Number	Method Blank mg/L	Sample Result mg/L	Spike Added mg/L	Matrix Spike		Matrix Spike Duplicate		RPD (%)	QC LIMITS (Advisory)	
				Result mg/L	Recovery %	Result mg/L	Recovery %		RPD Max	% REC
9805829-01A	ND	36.16	50.00	86.85	101	86.50	101	0	5	92 -109

-9805640

Samples in batch:

9805418-01B	9805543-01D	9805543-02D	9805543-03D
9805543-04D	9805543-05D	9805550-03A	9805551-03A
9805785-01A	9805829-01A		

COMMENTS:



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

**** SPL QUALITY CONTROL REPORT ****

Matrix: Aqueous

Reported on: 05/18/98

Analyzed on: 05/18/98

Analyst: DAM

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Sulfate
 Method 375.4 *

SPL Sample ID Number	Blank Value mg/L	LCS Concentration mg/L	Measured Concentration mg/L	% Recovery	QC Limits Recovery
LCS	ND	9.14	9.32	102	82 - 111

-9805603

Samples in batch:

9805274-01H 9805274-02H 9805274-03H 9805274-04H
 9805274-05H 9805274-06H 9805408-01F 9805408-02F
 9805418-01B 9805478-02A

COMMENTS:

LCS = SPL ID#:94453192-24



** SPL QUALITY CONTROL REPORT **

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Aqueous

Reported on: 05/18/98
Analyzed on: 05/18/98
Analyst: DAM

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Sulfate
Method 375.4 *

SPL Sample	Method	Sample	Spike	Matrix Spike		Matrix Spike Duplicate		RPD	QC LIMITS (Advisory)		
				Result	Recovery	Result	Recovery		(%)	RPD Max	% REC
ID Number	Blank mg/L	Result mg/L	Added mg/L	Result mg/L	Recovery %	Result mg/L	Recovery %	(%)	RPD Max	% REC	
9805274-01H	ND	ND	10.0	9.61	96.1	9.79	97.9	1.9	9.5	84	-120

-9805602

Samples in batch:

9805274-01H	9805274-02H	9805274-03H	9805274-04H
9805274-05H	9805274-06H	9805408-01F	9805408-02F
9805418-01B	9805478-02A		

COMMENTS:



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL QUALITY CONTROL REPORT **

Matrix: Aqueous

Reported on: 05/14/98

Analyzed on: 05/13/98

Analyst: KS

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Total Dissolved Solids
Method 160.1 *

SPL Sample ID Number	Blank Value mg/L	LCS Concentration mg/L	Measured Concentration mg/L	% Recovery	QC Limits Recovery
LCS	ND	293.2	289	98.6	93 - 107

-9805514

Samples in batch:

9805418-01B 9805545-01F

COMMENTS:

SPL LCS ID# 95535192-17



©

** SPL QUALITY CONTROL REPORT **

HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

Matrix: Aqueous

Reported on: 05/14/98

Analyzed on: 05/13/98

Analyst: KS

This sample was randomly selected for use in the SPL quality control program. The results are as follows:

Total Dissolved Solids
 Method 160.1 *

-- DUPLICATE ANALYSIS --

SPL Sample ID	Original Sample Concentration mg/L	Duplicate Sample mg/L	RPD	RPD Max.
9805418-01B	1860	1940	4.2	5

-9805513

Samples in batch:

9805418-01B 9805545-01F

COMMENTS:



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL QUALITY CONTROL REPORT **

Matrix: Aqueous

Reported on: 05/11/98

Analyzed on: 05/11/98

Analyst: EM

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Nitrate-Nitrite, as N
Method 353.3 *

SPL Sample ID Number	Blank Value mg/L	LCS Concentration mg/L	Measured Concentration mg/L	% Recovery	QC Limits Recovery
LCS	ND	1.00	0.94	94.0	92 - 111

-9805360

Samples in batch:

9805234-01B 9805234-02B 9805418-01C

COMMENTS:

SPL LCS#: 94453190-18



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

**** SPL QUALITY CONTROL REPORT ****

Matrix: Aqueous

Reported on: 05/11/98
 Analyzed on: 05/11/98
 Analyst: EM

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Nitrate-Nitrite, as N
 Method 353.3 *

SPL Sample ID Number	Method Blank mg/L	Sample Result mg/L	Spike Added mg/L	Matrix Spike		Matrix Spike Duplicate		RPD (%)	QC LIMITS (Advisory)	
				Result mg/L	Recovery %	Result mg/L	Recovery %		RPD Max	% REC
9805234-01B	ND	1.06	5.00	5.99	98.6	5.94	97.6	1.0	12	87 -120

-9805359

Samples in batch:

9805234-01B 9805234-02B 9805418-01C

COMMENTS:

CHAIN OF CUSTODY
AND
SAMPLE RECEIPT CHECKLIST



SPL, Inc.

SPL Weborder No:

51312

Analysis Request & Chain of Custody Record

9805418

page of

Client Name: *CYPRESS ENGINEERING SERVICE*
 Address/Phone: *10235 West Little York Rd Houston, TX*
 Client Contact: *MR. George Robinson 713-646-7327*
 Project Name: *TRANS Western Pipeline*
 Project Number:
 Project Location: *Roswell STATION #9*
 Invoice To:

matrix bottle size pres.
 W=water S=soil
 SL=sludge O=other:
 P=plastic A=amber glass
 G=glass V=vial
 1=1 liter 4=4oz 40=vial
 8=8oz 16=16oz
 1=HCl 2=HNO3
 3=H2SO4 O=other:
 Number of Containers

Requested Analysis
 1025 8260 including
 1,2-dichloroethane
 and 3 isomers of dichloroethane
 TDS, CHLORIDE,
 SULFATE
 TOTAL ALKALINITY
 NITRATE & NITRITE
 AS NITROGEN EPA
 Method 353.1
 PAHs, Method 870
 including 2 priority
 naphthalene isomers 1,2
 METALS 7470 Co-Hg
 6010 for all others
 As: Pb, Cd, TATA
 Chromium Cr: Pb,
 Total mercury Hg,
 Se: Ag, Cu, Fe, Ni, Zn
 Ca, K, Na, Mg.

SAMPLE ID	DATE	TIME	comp	grab	W=water SL=sludge O=other:	P=plastic A=amber glass G=glass V=vial	1=1 liter 4=4oz 8=8oz 16=16oz	1=HCl 2=HNO3 3=H2SO4 O=other:	Number of Containers	Requested Analysis															
WATER Well #5	5/7/98	16:50		X	W	G	40/1	1	3	X															
WATER Well #5	5/7/98	16:50		X	W	A	1	NONE	1																
WATER Well #5	5/7/98	16:50		X	W	P	1	NONE	3/liter				X	X				X	X	X					
* Please Add Preservative to Nitrate/Nitrite 1 liter Plastic ASAP																									

Client/Consultant Remarks:
*Any Questions Please Call Mr. Robinson
 713-646-7327*

Laboratory remarks:
RUSH
 In tact? Y N
 Temp: *30c*

Requested TAT: 24hr 72hr 48hr Standard Other

Special Reporting Requirements: Standard QC Level 3 QC Level 4 QC

Special Detection Limits (specify):
 1. Relinquished by Sampler: *Walter G. Bull* date *5/8/98* time *16:40*
 2. Received by:
 3. Relinquished by:
 4. Received by:
 5. Relinquished by:
 6. Received by Laboratory:

- 8880 Interchange Drive, Houston, TX 77054 (713) 660-0901
- 500 Ambassador Caffery Parkway, Scott, LA 70583 (318) 237-4775
- 459-Hughes Drive, Traverse City, MI 49684 (616) 947-5777
- 1501 E Granddome Avenue, Fullerton, CA 92631 (714) 447-6848

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