GW - 71-0

MONITORING REPORTS





February 6, 1998

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

CONSERVATION DIVISIO

Dear Mr. Olson:

Please find enclosed reports on the following monitoring wells and waste water streams at the El Paso Natural Gas Co. Chaco Plant. These results are summarized on the attached tables.

Semi-Annual analyses for monitoring wells 1, 8, 9, and 10

Annual analysis for all other monitoring wells

Annual analysis for the non-contact waste water discharge.

The analysis for monitoring wells 2, 3, 4, 5, 6, and 7 did not indicate any abnormally high reading for any analyte.

The organic analyses for well 10 indicates high levels of several hydrocarbons. Since there is no hydrocarbon waste disposed of in the lined contact waste water ponds, the source of the contamination in well 10 is most likely the old flare pit which was closed in 1994.

If you need any additional information for this reporting period, please call me at (505) 599-2256.

Sincerely yours,

David Bay

David Bays Principal Environmental Scientist

cc: Denny Foust - NMOCD - Aztec
 Danny Baker
 Mike Hansen
 S. D. Miller/Chaco Regulatory File

Chaco Plant Groundwater Monitoring Well Results 1997 All Results Expressed as Micrograms/Liter (ppb)

Monitoring Well 1	3/11//97	9/30/97	
Benzene	< 1	< 1	
Toluene	< 1	< 1	
Ethyl Benzene	< 1	< 1	
Xylenes	< 3	< 3	
Cadmium	< 0.0001	< 0.0002	
Chromium	0.0010	< 0.004	
Mercury	< 0.0003	< 0.0002	
Total Naphthalenes	ND	ND	
Total Benzopyrenes	ND	ND	

Monitoring Well 8	3/11/97	9/30/97	
Benzene	< 1	< 1	
Toluene	< 1	< 1	
Ethyl Benzene	< 1	< 1	
Xylenes	< 3	< 3	
Cadmium	< 0.0001	< 0.0002	
Chromium	0.0020	<0.004	
Mercury	< 0.0003	< 0.0002	
Total Naphthalenes	ND	ND	
Total Benzopyrenes	0.34	ND	

NA = Not Analyzed

ND = None Detected

Test	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Non-Contact Wastewater
pH	8.2	8.2	7.9	8.2	8.2	8.0	8.8
Alkalinity - CO_3	0.0	0.0	0.0	0.0	16.4	0.0	44.0
Alkalinity - HCO ₃	365	519	579	391	394	311	266
Calcium	135	78	395	177	68	273	261
Magnesium	30	18	62	39	15	43	47
Total Hardness	461	269	1,242	603	286	858	845
Chloride	264	63	272	47	277	152	83
Sulfate as SO ₄	819	396	2,470	559	1,520	1,180	754
Fluoride	3.3	1.0	1.9	0.7	8.0	3.4	2.0
Nitrate as NO ₃	<0.6	<0.6	7.8	<0.2	<0.6	<0.6	1.0
Nitrate as NO ₂	<0.6	<0.6	<1.1	<0.2	<0.6	<0.6	<0.6
Ammonium as NII4	<0.2	<0.1	<0.3	<0.1	<0.6	<0.1	<0.1
Phosphate	<0.6	<0.6	<1.1	<0.2	<0.6	<0.6	<0.6
Potassium	2.3	2.9	11.6	1.8	1.9	5.7	37.9
Sodium	510	315	1,110	192	1,010	386	178
TDS	1,990	1,160	4,710	1,260	3,180	2,290	1,670
Conductivity	2,800	1,667	5,560	1,702	4,280	2,880	2,010
Cadmium	<0.0002	0.0005	<0.0002	<0,0002	<0.0002	0.0004	<0.0002
Chromium	<0.004	0.0040	<0.004	<0.004	<0.004	<0.004	0.0340
Mercury	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002

Chaco Plant Groundwater Monitoring Well Results 1997

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All Chemical Results Expressed as Milligrams/Liter (ppm) pH Expressed in Standard Units (0 - 14 Scale) Conductivity Expressed as Micromhos/Centimeter

All samples listed on this table were collected on June 24, 1997

Chaco Plant Groundwater Monitoring Well Results 1997 All Chemical Results Expressed as Milligrams/Liter (ppm) pH Expressed in Standard Units (0 - 14 Scale) Conductivity Expressed as Micromhos/Centimeter

Test	Well 9 7/25/97	Well 9 9/30/97	Well 10 7/25/97	Well 10 9/30/97
pH	8.3	7.8	7.3	7.25
Alkalinity - CO ₃	5.6	0	0.0	0
Alkalinity - HCO ₃	495	508	1,250	1,105
Calcium	66	60.4	78	78.5
Magnesium	19	17.2	28	31.4
Total Hardness	242	222	310	325
Chloride	75	60.0	426	561
Sulfate as SO ₄	341	325	206	168
Fluoride	1.7	2.02	1.4	1.61
Nitrate as NO ₃	<0.1	<0.1	<0.1	<0.6
Nitrate as NO ₂	<0.1	<0.1	<0.1	<0.6
Ammonium as NH ₄	<0.1	<0.1	<0.1	<0.3
Phosphate	<0.1	<0.1	1.3	<0.6
Potassium	4.0	1.46	7.4	1.68
Sodium	274	277	708	678
TDS	1,060	1,010	2,150	2,150
Conductivity	1,610	1,450	3,340	3,190
Cadmium	0.0003	<0.002	< 0.0002	<0.0002
Chromium	< 0.004	< 0.004	0.0040	< 0.004
Mercury	<0.0002	<0.002	<0.0002	< 0.0002

Chaco Plant Groundwater Monitoring Well Results 1997 All Results Expressed as Micrograms/Liter (ppb)

Monitoring Well 9	8/29/97	9/30/97	
Benzene	<1	< 1	
Toluene	< 1	< 1	
Ethyl Benzene	< 1	< 1	
Xylenes	< 3	< 3	
Cadmium	< 0.0001	<0.0002	
Chromium	0.0010	< 0.004	
Mercury	< 0.0003	< 0.0002	
Total Naphthalenes	ND	ND	
Total Benzopyrenes	ND	ND	

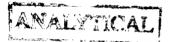
Monitoring Well 10	8/29/97	9/30/97	
Benzene	530	702	
Toluene	790	493	
Ethyl Benzene	42	34.6	
Xylenes	287	241	
Cadmium	< 0.0001	< 0.0002	
Chromium	0.0020	< 0.004	
Mercury	< 0.0003	< 0.0002	
Total Naphthalenes	45	100	
Total Benzopyrenes	ND	ND	

NA = Not Analyzed

ND = None Detected

April 7, 1997

Semi-Annual ANALYTICAL REPORT



Chaco Plant Monitor Well #1 and #8 Lab Sample #'s 970194 and 970196 Sampled 3/11/97 Sampled by Dennis Bird

REMARKS:

These samples represents the first round 1997 semi-annual testing requirements for these two monitor wells. Monitor well #1 began producing water again this month and was sampled/tested (this well is used as the background well and had not produced any water since September of 1995). The New Mexico WQCC limits for Benzene, Polyaromatic Hydrocarbons, Cadmium, Chromium and Mercury were not exceeded in any sample.

Distribution:

Sandra Miller - W/O Attachments David Bays - W/Attachments Mike Hanson - W/O Attachments Results Log Book

Attachments

						CHAN OF CUSTORY BECORD	unu Presso		A 2251	
Project No. Project Name			112 11 626		Type			Requested Analysis		
Samplers: (Signature)				Date:	and No. Sample	echnique echnique preservation	onbu		Remarks	
Date Time	Comp. GRAB	GRAB	Sa	Sample Number	Contain- ers					
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Monitor Well #1

FIELD SERVICES FIELD SERVICES LABORATORY

EL PASO

ANALYTICAL REPORT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970194
MTR CODE SITE NAME:	N/A	Chaco Plant MW-1
SAMPLE DATE TIME (Hrs):	3/11/97	1503
PROJECT:	March 1997	7 Semi-Annual
DATE OF BTEX EXT. ANAL.:	3/20/97	3/20/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS		QUALIFI	ERS	
			DF	Q	$\frac{1}{2} \sum_{i=1}^{N-1} \frac{1}{2} \sum_{i=1}^{N-1$	
BENZENE	<1	РРВ				- <u></u>
TOLUENE	<1	РРВ				
ETHYL BENZENE	<1	PPB				
TOTAL XYLENES	<3	PPB				
TOTAL BTEX	<6	РРВ				<u> </u>

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at ______% for this sample All QA/QC was acceptable. DF = Dilution Factor Used

Narrative:

Approved By: ______ olim Jawbelin

Date: ______4/7/97

970194bt,4/7/97



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

EPFS LAB ID:	970194
DATE SAMPLED:	03/11/97
TIME SAMPLED (Hrs):	1503
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	NA
SAMPLE SITE NAME:	Chaco Plant
SAMPLE POINT:	Monitor Well MW-1

REMARKS:

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PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
CADMIUM	<.0001	1.00
CHROMIUM	0.0010	0.010
MERCURY	<.0003	0.050

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NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

References:

Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts, Test Methods for Evaluating Solid Waste, SW-846, Sept., 1994. Method 7081, Barium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992. Method 7131, Cadmium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 7741A, Selenium (Atomic Absorption, Gaseous Hydride), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1994.

Reported By: Adc

Approved By: John Jakoba

Date: 4/5/97

EL PASO FIELD SERVICES

Well Development and Purging Data

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Development Durging

Meter Code

-MW

Well Number

X Temperature Meter X Other D. O. CHEMETS KIT

> Gallons to be Removed

Water Volume in Well Cubic Feet Gallons 3

Do Monitor

Instruments

KUTZ SEPARATOR

Water Disposal

Development Criteria

Site Name_CHACO

 X
 3 to 5 Casing Volumes of Water Removel

 Stabilization of Indicator Parameters

 Other

Methods of Development

Pump Baller Centrifugal X Bottom Valve Submersible Double Check Valve Peristattic Stainless-steel Kemmerer

Gravel Pack Drilling Fluids

Item Well Casing

Other

Total

Develo		Development		Removal	Intake	Ending Water	Water Volume	'olume	Product	Product Volume	Temperature		Conductivity Dissolved	Dissolved		
Date	Time	Method		Rate			Removi	Removed (gal)	Removed	Removed (gallons)	ပ	Hd	humho/cm Oxygen	Oxygen	Comments	
		Pump	Bailer	(gal/min)	(feet)	(feet)	Increment	Increment Cumulativ Increment Cumulative	Increment	Cumulative				mg/L		
3-11-97 1336	1336										16.3					
3-1-97 1342	1342						5:0	50			149		1550			
3-11-17 1350	1350						2.0	70			15.4		1580	45		
											-					
	RAV.	50 0	100	6 7	0	BAILED DAY @ 70 GALLONS	•									
Comments																

Date

Date 3-11.97 Reviewer Muckella

Developer's Signature of Mining Bride

Monitor Well #8

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

	Field ID	Lab ID		
SAMPLE NUMBER:	N/A	970196		
MTR CODE SITE NAME:	N/A	Chaco Plant MW-8		
SAMPLE DATE TIME (Hrs):	3/11/97	1632		
PROJECT:	March 1997 Semi-Annual			
DATE OF BTEX EXT. ANAL.:	3/20/97	3/21/97		
TYPE DESCRIPTION:	Monitor Well	Water		

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS		QUALIF	IERS	
			DF	e de Q		
BENZENE	<1	PPB				
TOLUENE	<1	РРВ				
ETHYL BENZENE	<1	PPB				
TOTAL XYLENES	<3	РРВ				
TOTAL BTEX	<6	PPB				

--BTEX is by EPA Method 8020 --

% for this sample All QA/QC was acceptable.

The Surrogate Recovery was at 99.4 DF = Dilution Factor Used

Narrative:

Jam Labelen Approved By: _

Date: 4/7/97

970196bt,4/7/97



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

EPFS LAB ID:	970196
DATE SAMPLED:	03/11/97
TIME SAMPLED (Hrs):	1632
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	NA
SAMPLE SITE NAME:	Chaco Plant
SAMPLE POINT:	Monitor Well MW-8

REMARKS:

	RESULTS	
PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
CADMIUM	<.0001	1.00
CHROMIUM	0.0020	0.010
MERCURY	<.0003	0.050

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

References:

Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts, Test Methods for Evaluating Solid Waste, SW-846, Sept., 1994. Method 7081, Barium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992. Method 7131, Cadmium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 7741A, Selenium (Atomic Absorption, Gasecus Hydride), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1994.

Reported By:_ Mde

Approved By: Aundald

Date: 4/5/97

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Well Development and Purging Data

Development Purging

Meter Code

Well Number $\mathcal{M}W - \mathcal{P}$

Development Criteria

Site Name <u>CHACO</u> PCAM

Water Volume Calculation

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Bailer	X Bottom Valve	Double Check Valve
Pump	Centrifugal	Submersible

	Stainless-steel Kemmerer	
ſ		
-	Peristattic	

		10.45	lok	Gallons to be	Removed	20.7			
21.80	1135		Gravel Pack	ie in Well	Gallons	6.9			
	Nater (feet)	Height of Water Column in Well (feet)	s): Well 4	Water Volume in Well	Cubic Feet				
Initial Depth of Well (feet)	Initial Depth to Water (feet)	Height of Water	Diameter (inches): Well		ltem	Well Casing	Gravel Pack	Drilling Fluids	

Total

→ pH Meter DO Monitor Conductivity Meter Temperature Meter Other <u>D. O. CACM 675</u> KIT

Instruments

Water Disposal

SEPARATOR KUTZ

Water Removal Data

Other

								 _	_		-
	Comments										
Dissolved	Oxygen	mg/L					50				
Conductivity Dissolved	µmho/cm Oxygen		2290	2240	2260	2300	2350 5.0				
	Н										
Temperature	ပ္		149	126	12.6	129	13.3				
Product Volume	Removed (gallons)	Increment Cumulative									
Product	1	Increment									
olume	ed (gal)	Cumulativ		5.0	190	15:0	200				
Water Volume	Removed (gal)	Increment Cumulativ		5.0	5.0	50	50				
Ending Water	Depth	(feet)									
intake	Depth	(feet)	1								
Removal	Rate	Bailer (gal/min)									
Development	Method	Bailer								 	
Develo	Met	Dump									
	Time		1663	1559	1605	1613	1621				
	Date		3-11-97 1663	3-11-97 1559	3-11-97 1605	3-11-97 1613	3-11-87 1621				

Ennie O Developer's Signature

Comments

Date 3-11-97 Reviewed

Date

Quality Control



QUALITY CONTROL REPORT EPA METHOD 8020 - BTEX

Samples: 970194, 970195, 970196

QA/QC for 03/20/97 Sample S

LABORATORY CALIBRATION CHECKS / LABORATORY CONTROL SAMPLES:

SAMPLE	· ·	EXPECTED	ANALYTICAL		ACC	CEPTAB	LE
NUMBER	ТҮРЕ	RESULT	RESULT	%R			
ICV LA-52589		PPB	РРВ			YES	NO
50 PPB					RANGE		
Benzene	Standard	50.0	51.3	103	75 - 125 %	Х	
Toluene	Standard	50.0	51.3	103	75 - 125 %	Х	
Ethylbenzene	Standard	50.0	51.0	102	75 - 125 %	х	
m & p - Xylene	Standard	100	102	102	75 - 125 %	Х	
o - Xylene	Standard	50.0	51.0	102	<u>75 - 125 %</u>	X	
SAMPLE		EXPECTED	ANALYTICAL		AC	CEPTAE	LE
NUMBER	TYPE	RESULT	RESULT	%R			
LCS LA-45476		PPB	PPB			YES	NO
25 PPB					RANGE		
Benzene	Standard	25.0	25.9	104	39 - 150	Х	
Toluene	Standard	25.0	26.1	104	46 - 148	х	
Ethylbenzene	Standard	25.0	26.0	104	32 - 160	Х	
m & p - Xylene	Standard	50.0	52.7	105	Not Given	х	
o - Xylene	Standard	25.0	26.0	104	Not Given	X	
SAMPLE		EXPECTED	ANALYTICAL		ACC	EPTAB	LE
							I
NUMBER	ТҮРЕ	RESULT	RESULT	%R			
NUMBER CCV LA-52589	ТҮРЕ			%R		YES	NO
	ТҮРЕ	RESULT	RESULT	%R	RANGE		
CCV LA-52589	TYPE Standard	RESULT	RESULT	%R 104			
CCV LA-52589 50 PPB		RESULT PPB	RESULT PPB		RANGE	YES	
CCV LA-52589 50 PPB Benzene	Standard	RESULT PPB 50.0	RESULT PPB 52.0	104	RANGE 75 - 125 %	YES X	
CCV LA-52589 50 PPB Benzene Toluene	Standard Standard	RESULT PPB 50.0 50.0	RESULT PPB 52.0 51.7	104 103	RANGE 75 - 125 % 75 - 125 %	YES X X	
CCV LA-52589 50 PPB Benzene Toluene Ethylenzene	Standard Standard Standard	RESULT PPB 50.0 50.0 50.0	RESULT PPB 52.0 51.7 51.3	104 103 103 102	BANGE 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X	
CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene	Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100	RESULT PPB 52.0 51.7 51.3 102	104 103 103 102	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X	NO
CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene	Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0	RESULT PPB 52.0 51.7 51.3 102 51.5	104 103 103 102	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X X X	NO
CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE	Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 100 50.0 EXPECTED	RESULT PPB 52.0 51.7 51.3 102 51.5 31.5	104 103 103 102 103	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X X X	NO
CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER	Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0 EXPECTED RESULT	RESULT PPB 52.0 51.7 51.3 102 51.5 ANALYTICAL RESULT	104 103 103 102 103	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X X CEPTAB	NO
CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER CCV LA-52589	Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0 EXPECTED RESULT	RESULT PPB 52.0 51.7 51.3 102 51.5 ANALYTICAL RESULT	104 103 103 102 103	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % ACC	YES X X X X X CEPTAB	NO
CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER CCV LA-52589 50 PPB	Standard Standard Standard Standard Standard TYPE	RESULT PPB 50.0 50.0 50.0 100 50.0 EXPECTED RESULT PPB	RESULT PPB 52.0 51.7 51.3 102 51.5 ANALYTICAL RESULT	104 103 103 102 103 %R	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % ACC RANGE	YES X X X X X CEPTAB	NO
CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER CCV LA-52589 50 PPB Benzene	Standard Standard Standard Standard Standard TYPE Standard	RESULT PPB 50.0 50.0 100 50.0 EXPECTED RESULT PPB	RESULT PPB 52.0 51.7 51.3 102 51.5 ANALYTICAL RESULT	104 103 102 103 %R	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % ACC RANGE 75 - 125 %	YES X X X X X CEPTAB	NO
CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER CCV LA-52589 50 PPB Benzene Toluene	Standard Standard Standard Standard TYPE Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0 EXPECTED RESULT PPB 50.0 50.0	RESULT PPB 52.0 51.7 51.3 102 51.5 ANALYTICAL RESULT	104 103 102 103 %R	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % ACC RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X X CEPTAB	NO

Narrative: Acceptable.

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LABORATORY DUPLICATES:

SAMPLE		SAMPLE	DUPLICATE		AC	CEPTAE	LE
ID	ТҮРЕ	RESULT	RESULT	RPD			
·		PPB	PPB			YES	NO
970194					RANGE		
Benzene	Matrix Duplicate	<1	< 1	0.00	+/- 20 %	X	
Toluene	Matrix Duplicate	< 1	< 1	0.00	+/- 20 %	Х	
Ethylbenzene	Matrix Duplicate	< 1	<1	0.00	+/- 20 %	Х	N/A
m & p - Xylene	Matrix Duplicate	<2	<2	0.00	+/- 20 %	Х	N/A
o - Xylene	Matrix Duplicate	< 1	<1	0.00	+/- 20 %	<u> </u>	

Narrative: Acceptable

LABORATORY SPIKES:

SAMPLE ID 2nd Analysis	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT	%R	AC	CEPTAE	NO
970194			PPB		RANGE		
Benzene	50	<1	52.4	105	75 - 125 %	Х	
Toluene	50	<1	53.0	106	75 - 125 %	Х	
Ethylbenzene	50	<1	52.4	105	75 - 125 %	Х	
m & p - Xylene	100	<2	105	105	75 - 125 %	Х	
o - Xylene	50	<1	52.8	106	75 - 125 %	<u> </u>	

Narrative: Acceptable

ADDITIONAL ANALYTICAL BLANKS:

	SOURCE	PPB	STATUS
AUTO BLANK			
Benzene	Boiled Water	<1.0	ACCEPTABLE
Toluene	Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Boiled Water	< 3.0	ACCEPTABLE

Narrative: Acceptable.

SOIL VIAL BLANK	SOURCE Lot MB1461	PPB (One analyzed with this s)	STATUS
Benzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Toluene	Vial + Boiled Water	< 1.0	ACCEPTABLE
Ethylbenzene	Vial + Boiled Water	< 1.0	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	< 3.0	ACCEPTABLE

Narrative: Acceptable.

CONTAMINATION CARRYOVER CHECK	SOURCE	PPB (None analyzed with this set)	STATUS
Benzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Toluene	Vial + Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	< 3.0	ACCEPTABLE

Approved By:

Narrative: Acceptable.

Reported By: Mdu

2 Andalle

Date:



QUALITY CONTROL REPORT

Sample ID: 970194 & 970196 Date Reported: 03/19/97

LABORATORY CONTROL SAMPLE

Analyte	Found Result (mg/L)	Known Value (mg/L)	% Recovery
Cadmium	0.0025	0.0024	103%
Chromium	0.0048	0.0048	99%
Mercury	0.0047	0.0046	102%

DUPLICATE ANALYSIS (mg/L)

Analyte	Original Sample Result	Duplicate Sample Result	% RPD
Cadmium	ND	ND	NA
Chromium	ND	0.001	NA
Mercury	ND	ND	NA

SPIKE ANALYSIS (mg/L)

Analyte	Original Sample Result	Spike Sample Result	Spike Added	Recovery Percent
Cadmium	ND	0.0093	0.010	93%
Chromium	ND	0.0529	0.050	104%
Mercury	ND	0.0019	0.002	96%

METHOD BLANK

Analyte	Found Result (mg/L)	Detection Level (mg/L)
Cadmium	ND	0.0001
Chromium	ND	0.001
Mercury	ND	0.00024

ND: Not Detected at stated detection level.

NA: Not Applicable.

Reported By:

Jolufatth Approved By:

Date:___

Contract Lab Polyaromatic Hydrocarbon Results



CHACO PLANT MW-1 and MW-8

Semi-Annual Part analyses AEN I.D. 703333

March 28, 1997

El Paso Field Service Co. P.O. Box 4990 Farmington, NM 87499

Project Name/Number: CHACO PLT. MW (NONE) SAmple #'S

Attention: John Lambdin

970194 and 970196

On **03/13/97**, American Environmental Network (NM), Inc., (ADHS License No. AZ0015) received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

All analyses were performed by American Environmental Network (FL) Inc., 11 East Olive Road, Pensacola, FL.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Konslill

Kimberly D. McNeill Project Manager

MR:ft

Enclosure

A Mitcheel Kutt

H. Mitchell Rubenstein, Ph.D. General Manager

CLIENT	: EL PASO FIELD SERVICE CO.	DATE RECEIVED	:03/13/97
PROJECT #	: (NONE)		
PROJECT NAME	: CHACO PLT. MW	REPORT DATE	:03/28/97

		AEN ID: 703333		
	AEN ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01 02	703333-01 703333-02	970194 - MW-1 970196 - MW-8	AQUEOUS AQUEOUS	03/11/97 03/11/97



---TOTALS---

<u>MATRIX</u> AQUEOUS <u>#SAMPLES</u> 2

AEN STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Chaco Aunt

mw - l

"FINAL REPORT FORMAT - SINGLE"

Accession: Client: Project Number: Project Name: Project Location: Test: Analysis Method: Extraction Method: Matrix: QC Level:	EL PASO FIELD SE CHACO PLT. MW POLYNUCLEAR ARON 8310/Test Method	ERVICE MATICS BY 8310 is for Evaluat) ing Solid and	l Haz Wa	ste, SW-846, 3 ste, SW-846, 3	rd Ed. rd Ed.
Lab Id: Client Sample Id:	001 703333-01		Sample Date Received Da		11-MAR-97 1503 14-MAR-97	3
Batch: PAW041 Blank: B	Dry Weight %:	N/A	Extraction Analysis Da			
Parameter:		Units:	Results:	Rpt Lm	ts: Q:	
ACENAPHTHENE ACENAPHTHYLENE ANTHRACENE BENZO(a)ANTHRACENE BENZO(a)PYRENE BENZO(b)FLUORANTHE BENZO(g,h,i)PERYLE BENZO(g,h,i)PERYLE BENZO(g,h,i)PERYLE CHRYSENE DIBENZO(a,h)ANTHRA FLUORANTHENE FLUORANTHENE FLUORENE INDENO(1,2,3-cd)PY NAPHTHALENE PHENANTHRENE PYRENE 1-METHYLNAPHTHALEN 2-CHLOROANTHRACENE ANALYST	NE NE NE CENE RENE E	UG/L UG/L UG/L UG/L UG/L UG/L UG/L UG/L	ND ND ND ND ND ND ND ND ND ND ND ND ND N	1 1 1 0.3 1 1 1 1 1 1 1 1 1 1 28-138		

Comments:

Wbec Limits Berto (a) Pyrem = 0.7 PPB PASS Total Naphthalemes = 30 PPB PASS ¥ 4/2/97

Charo Plant

MW - 8

"FINAL REPORT FORMAT - SINGLE"

Accession: Client: Project Number: Project Name: Project Location: Test: Analysis Method: Extraction Method: Matrix: QC Level:	CHACO PLT. MW POLYNUCLEAR ARON 8310/Test Method	ERVICE MATICS BY 8310 is for Evaluat) ing Solid and	l Haz Wa	ste, SV ste, SV	1-846, 3 1-846, 3	Brd Ed. Brd Ed.
Lab Id: Client Sample Id:	002 703333-02		Sample Date Received Da				12
Batch: PAW041 Blank: B	Dry Weight %:	N/A	Extraction Analysis Da				
Parameter:		Units:	Results:	Rpt Lm	its:	Q:	
ACENAPHTHENE ACENAPHTHYLENE ANTHRACENE BENZO(a)ANTHRACENE BENZO(a)PYRENE BENZO(b)FLUORANTHE BENZO(g,h,i)PERYLE BENZO(k)FLUORANTHE CHRYSENE DIBENZO(a,h)ANTHRA FLUORANTHENE FLUORENE INDENO(1,2,3-cd)PY NAPHTHALENE PHENANTHRENE PHENANTHRENE PHENANTHRENE PYRENE 1-METHYLNAPHTHALEN 2-CHLOROANTHRACENE ANALYST	ne ne cene rene ie	UG/L UG/L UG/L UG/L UG/L UG/L UG/L UG/L	ND ND ND 0.34 ND ND ND ND ND ND ND ND ND ND ND ND ND	1 1 1 0.3 1 1 1 1 1 1 1 1 1 1 28-138			

Comments:

War Limits: PASS Benzo (a) Pyrons = 0.7 PPB PASS Benzo (a) Pyrons = 30 PPB Total Naphthalenes = . Si 78. 412/27

Charo Plunt MW-8

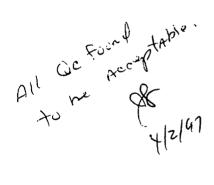
"Method Report Summary"

Accession Number: Client: Project Number: Project Name: Project Location: Test:	AMERICAN ENVIRONMENTAL NETWORK 703333 EL PASO FIELD SERVICE	(NEW MEXICO)	INC.	
Client Sample Id:	Parameter:		Unit:	Result:

Client Sample Id:	Parameter:	Unit:	Result:
703333-02	BENZO (a) PYRENE	UG/L	0.34
	FLUORENE	UG/L	2

Title:	Water Blank	"QC Report"				
Batch: Analysis Method: Extraction Method:	PAW041 8310/Test Method 3510/Test Method	ds for Evalua ds for Evalua	ting Solid a ting Solid a	and Haz Waste, and Haz Waste,	SW-846, SW-846,	3rd Ed. 3rd Ed.
Blank Id: B Date	e Analyzed: 16-M	AR-97 Date	e Extracted:	14-MAR-97		
Parameters:		Units:	Results:	Reporting Li	mits:	
ACENAPHTHENE ACENAPHTHYLENE ANTHRACENE BENZO (a) ANTHRACENE BENZO (b) FLUORANTHEN BENZO (c) FLUORANTHEN BENZO (c) FLUORANTHEN CHRYSENE DIBENZO (c, h) ANTHRAN FLUORANTHENE FLUORENE INDENO (1, 2, 3 - cd) PY NAPHTHALENE PHENANTHRENE PYRENE 1 - METHYLNAPHTHALEN 2 - CHLOROANTHRACENE ANALYST	NE NE CENE RENE E	$\begin{array}{c} UG/L\\ UG/L\\$	ND ND ND ND ND ND ND ND ND ND	1 1 1 1 1 1 1 1 1 1 1 1 1 1		

Comments:



				"QC Repor	ct"						
Title: Batch: Analysis Method: Extraction Method:	Water Reag PAW041 8310/Test 3510/Test	Methods	for	Evaluati	ing Solid						
RS Date	Analyzed: Analyzed:	16-MAR-9)7			RS Da	ate Extra Date Extr	cted:	13	-MAR -	97
Parameters: ACENAPHTHYLENE BENZO(k)FLUORANTHE CHRYSENE PHENANTHRENE PYRENE	NE	Spike Added 10.0 10.0 10.0 10.0 10.0		Sample Conc <1 <1 <1 <1 <1	RS Conc 11.8 9.6 9.4 9.6 9.4 9.4	RS %Rec 118 96 94 96 94	RSD Conc 12.7 10.0 10.1 10.2 10.6	RSD %Rec 127 100 101 102 106	RPD 7 4 7 6 12	RPD Lmts 35 23 24 26 25	Rec Lmts 45-127 68-131 69-131 63-124 61-126
Surrogates: 2-CHLOROANTHRACENE						114		126			28-138

Comments:

Notes:

s: N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT. * = VALUES OUTSIDE OF QUALITY CONTROL LIMITS. SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

8.Z.

			"QC Repor	ct"				
Title: Batch:	Water Matri PAW041		-					
Analysis Method: Extraction Method:	8310/Test M 3510/Test M	lethods for lethods for	Evaluati Evaluati	ing Solid	and H and H	Haz Waste Haz Waste	, SW-846, 3rd , SW-846, 3rd	Ed. Ed.
Dry Weight %: N/A Sample Spiked: 703		MS Date A MSD Date					Extracted: 1 e Extracted: 1	
Parameters: ACENAPHTHYLENE BENZO(k)FLUORANTHE CHRYSENE PHENANTHRENE PYRENE	NE	Added 10.0 10.0 10.0 10.0	Sample Conc 1500 0.9 0.5 12.5 12.8	MS Conc 840 16.5 9.3 16.2 35.5	-6600 156* 88 37	2.8 4.2 6.6	MSD RPD %Rec RPD Lmts -910032 51 19* 157*40 37 82*69 -59* 873*36 -128*717*41	Rec 18-146 26-137 16-156 30-145 39-137
Surrogates: 2-CHLOROANTHRACENE					D*		D*	28-138

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Comments:

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MATRIX SPIKE/MATRIX SPIKE DUPLICATE HAD RECOVERY(S) AND/OR RPD(S) OUTSIDE ACCEPTANCE LIMITS DUE TO MATRIX INTERFERENCE. REFER TO REAGENT SPIKE/REAGENT SPIKE DUPLICATE DATA.

Notes:

S: N/S = NOT SUBMITTED N/A = NCT APPLICABLE D = DILUTED OUT UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT. * = VALUES OUTSIDE OF QUALITY CONTROL LIMITS. SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTEDN/A = NOT APPLICABLED = DILUTED OUTUG = MICROGRAMS UG/L = PARTS PER BILLION. UG/KG = PARTS PER BILLION. MG/M3 = MILLIGRAM PER CUBIC METER. PPMV = PART PER MILLION BY VOLUME. MG/KG = PARTS PER MILLION. MG/L = PARTS PER MILLION. < = LESS THAN DETECTION LIMIT. * = VALUES OUTSIDE OF QUALITY CONTROL LIMITS Y = IMPROPER PRESERVATION, NO PRESERVATIVE PRESENT IN SAMPLE UPON RECEIPT. SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

ND = NOT DETECTED ABOVE REPORTING LIMIT.

RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = **RELATIVE PERCENT DIFFERENCE** (OR **DEVIATION**)

AEN/GC/FID

AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX

AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD

AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTCMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID

AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD

AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020

PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

- SW = STEVE WILHITE
- = PAUL LESCHENSKY PL
- = ROBERT WOLFE RW
- KS = KENDALL SMITH KK = KERRY LEMONT
- = ROB PEREZ RP
- JBT = JENNIFER TORRANCE ĽΡ
- = LAVERNE PETERSON PLD = PAULA DOUGHTY

		11 East Ol	ive Road	P	ensacola	L, Florid	a 32514	(904)474-1001			
		PROJE	CT SA	۹M	PLE	INS	PECT	ION FORM			
CC	ession #:	703/16	- 				Dat	e Received: <u>/4 –</u>	mon-	-9	2_
•	Was there a Cha	ain of Custody?	Yes	No		7.		oles preserved? (Check 1 ₂ 0 except 40ml:vials) ⁺	Yes	No	N/A
	Was Chain of Carelinguished?	ustody properly	Yes	No		8.	Is there s	sufficient volume for requested?	Yes	No	
	Were samples re (Check Temperatu		Yes	No	N/A	9.	Were sar Holding	nples received within Time?	Yes	No	_
	Were all sample labeled and iden		Yes	No		10.	diameter headspac	pace visible > ¼ " in in 40ml vials? " If any ce is evident, comment -control section.		No	
•	Were samples reproper contained requested?	rs for analysis	(Yes)	No		11.	lf sent, v bottles re	vere matrix spike eturned?	Yes	No	N/A
	Were all sample received intact?		Yes	No							
lirb	ill Number:	382 86	9.34	<u> </u>		Sł	nipped B	Y: FEDEX			
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		KIL	Date	. .	x / / / /		agod D	1) / Date	<u>.</u> 21	1/1	$n \sim -$

According to EPA, %" of headspace is allowed in 40ml visis, however, AEN makes it policy to record any headspace as out-of-control (SOP 938, section 2.2.12.

SheCial Centrification Reduined: [] Yes [] NO	nusii sunciange:	DUE DATE: 3/25 (Lead / ere L BLAN		TAT: STANDARD RUSH! LAB NUMBER	OC NEQUIRED: MS MSD BLANK RECEIVED	OC LEVEL: (STD.) IV INTACT?	4 Service	6.555 2	PROJECT INFORMATION				-02 3/11/47/1632	1 503 1 19/1/27 10- 5 5EEOL	SAMPLE ID DATE TIME W	Kim McNeill	CLIENT PROJECT MANAGER:	COMPANY: American Environmental ADDRESS: 2709-D Pan American Freeway, NE Albuquerque, NM 87107	NETWORK PROJECT MANAGER: RIMBERLY D. McNEILL	American Environmental Network Albuquerque, New Mexico
	6192 2 200	ro(A) Purenc		BEA 703/16	RECEIVED GOOD COND /COLD		CHAIN OF CUSTODY SEALS	TOTAL NUMBER OF CONTAINERS	SAMPLE RECEIPT				2	AQ 1	Ме	tais - TA tais - PF tais - RC	² Lis	Network		ĸ
				PHOENIX		PENSACOLA X	BENTON	SAN DIEGO	SAMPLES SENT TO:						RC TO TO	X	als t	by TCLP (1311)		Interlab Chain of Custody
Company:	$\left \right $	Printed Name: Date:	Signature: Time:	RECEIVED BY: 1	Albuquerque	John Caldered / 120	Printed Name; Date:	Signature: 1 III Timery 3/14,	RELINQUISHED BY: 1.					X	BO CO Pes Her Bas	D sticides/l rbicides se/Neutral atile Org	PCE (61) I Acie	3 (608/8080)	ANALYSIS REQUEST	
Company: AFNFL	R. ELSPERMU 3/14/27		Stanalyner Onerna Time: 0834		Company	P C L	Printed Name: 7/03	Signature: Time Time 7	RELINQUISHED BY: 2.						824 827 TO Gro	40 (TCL) 70 (TCL) -14 Doss Alph	P 13 P 13	311) ZHE 311)		3/13 PAGE: 1 OF 1

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Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777

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PLE	ASE	FIL	LT	HIS	FC	RN	N IN		ol	ETE	LY.	SI	HA	DEI	DA	RE	AS	AR OR LAB USE ONLY.	Albu
Aute stade)ğ	NO, CONTAINERS 4	SANPLE RECEIPT	SHIPPED VIA: FOD-X	P.O. NO.:	PROJ. NAME: CHAGO PUT, MW	PROJ. NO.:	PROJECT INFORMATION							970196 3-1	1-E 461066	SAMPLE ID DA	PROJECT MANAGER: VTO HUN COMPANY: EC PASO ADDRESS: EO BOL PHONE: EO BOL FAX: EO SO BILL TO: SO SO COMPANY: SO SO ADDRESS: ADDRESS: SO	American Environmental Network (Albuquerque • Phoenix • Pensacola • Portland • Pleasant +
AEN Inc : American Environmental Nolwork (NW) Inc. 9700 D Bas American Economy NE Albumaneus Neu Maria 07107			YOW LEVED DEN 2017 PY HENE	<u> </u>	METHANOL PRESERVATION ()	CERTIFICATION REQUIRED: NM	(RUSH) { 124hr 148hr 172hr 11 WEEK	PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJ							26.21	3-11-97 1503 WATER -0 1	DATE TIME MATRIX LAB I.D.	СРМВИИ 2 - 21/44 2 - 21/44 2 - 21/44 2 - 21/44 2 - 21/44 1 - 20 1 - 20	tal Network (NM), Inc. Portland • Pleasant Hills • Columbia
Albertonic Marine B7407			1 & Marche & Call & An	2		SDWA OTHER	WEEK (NORMAL) X	UIRED FOR RUSH PROJECTS									(M (M Ga BT BT BT	OD.8015) Diesel/Direct/Inject 8015) Gas/Purge & Trap Isoline/BTEX & MTBE (M8015/8020) XE/MTBE (8020)	CHAIN OF CUST
Company: Americ	Printed Name: Date:	Signature: Time:	IY:	Company: EL PAJO FIELO SERVICE	BIRD	Printed Name: Date: 3-1/697	Signature: Time: 1742	RELINQUISHED BY: 1.							×	×	Vol Vol Pe: He Bas	Index Index <td< td=""><td>OF AEN LABID.</td></td<>	OF AEN LABID.
American Environmental Network (NMA), Inc.	England Name: 1/2 Price 3/13/97	Signature Olling The 1135	RECEIVED BY: (LAB) 2.	Company:		Printed Name: Date:	Signature: Time:	RELINQUISHED BY: 2.							2	2	Prid Tar RC RC Me	eneral Chemistry: ority Pollutant Metals (13) rget Analyte List Metals (23) CRA Metals (8) CRA Metals by TCLP (Method 1311) etals: MBER OF CONTAINERS	

t Inc.: American Environmental Network (NM), Inc. • 2709-D Pan American Freeway, NE • Atbuquerque, New Mey

DISTRIBUTION: White, Canary - AEN Pink - ORIGINATOR

<u>Imencan Environmental Network, In</u>

Bill El Paso Field Service Co. To: P.O. Box 4990 Farmington, NM 87499 CHACO Plant MW-1 + MW-8 ANNUAL PAH'S

Date	Invoice
3/28/97	76191

Proj. Name: Chaco Plt. MW

Client #: 850-020

Original BALANCE DUE: 358.91

DF	ALANCE DUE.	338.91	PO Number	Τe	erms	I	Project
				Ne	et 30	AEN	I ALB-810
Quantity		Description			Rate	Э	Amount
2	EPA Method 8		INR IEU PES	1997 EINED	170		340.00
	NM Gross Rec	eipts Tax			5.5	5625%	18.91
	on #:703333 zed by:John La	mbdin			Т	OTAL:	358.91

A finance charge of 1½% will be charged on balances 30 days past due DISTRIBUTION: White-Customer, Yellow-File, Pink-Accounting

July 21, 1997

ANNUAL TESTING ANALYTICAL REPORT

Chaco Plant Monitor Wells #2, 3, 4, 5, 6, 7 and 20" Discharge Lab Sample #'s 970591 to 970598 Sampled 6/24/97 Sampled by Dennis Bird

REMARKS:

These samples represents the annual required compliance testing for the listed wells and discharge.

Distribution:

David Bays Sandra Miller - W/O Attachments Mike Hansen - W/O Attachments Results Log Book

Attachments

						CHAIN		EI Paso Natural 6as Company OF CUSTODY RECC	mpan. REC(- DRD		•	A 2013	-
Project No.		Project Name		541900		-2/12	Type		ert	\backslash	Requested Analysis			
Samplers	Samplers: (Signature) (}	ĐÌ.	W.L		1.0	Date:	and No. Sample	over -	BCHUIdne BCHUIdne Dieservation	A CONTRACTOR	6		Remarks	
DI FITH X	Date	Time	Comp. GRAB	GRAB		Sample Number	Contain- ers	*						
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General Chemistry Results



Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	970591	•
DATE SAMPLED:	06/24/97	
TIME SAMPLED (Hrs):	1057	
SAMPLED BY:	Dennis Bird	
MATRIX:	Water	
METER CODE:	N/A	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	MW-2	

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	8.2	Units	06/25/97
Alkalinity as C0 ₃	0.0	PPM	06/25/97
Alkalinity as HC0 ₃	365	PPM	06/25/97
Calcium as Ca	135	PPM	06/25/97
Magnesium as Mg	30	PPM	06/25/97
Total Hardness as CaC0 ₃	46 1	PPM	06/25/97
Chloride as Cl	264	PPM	06/26/97
Sulfate as S0 ₄	819	PPM	06/26/97
Fluoride as F	3.3	PPM	06/27/97
Nitrate as N0 ₃ -N	< 0.6	PPM	06/26/97
Nitrite as N0 ₂ -N	< 0.6	PPM	06/26/97
Ammonium as NH ₄ ⁺	<0.2	PPM	06/25/97
Phosphate as PO ₄	< 0.6	PPM	06/26/97
Potassium as K	2.3	PPM	06/25/97
Sodium as Na	510	PPM	06/25/97
Total Dissolved Solids	1,990	РРМ	06/25/97
Conductivity	2,800	umhos/cm	06/25/97
Anion/Cation %	1.3%	%, <5.0 Accepted	07/08/97

Reported By: Inde

Approved By: John Larde

Date: 7-11-97



Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID: DATE SAMPLED: TIME SAMPLED (Hrs): SAMPLED BY: METER CODE: SAMPLE SITE NAME: SAMPLE POINT:

970592 06/24/97 1738 **Dennis Bird** Water MATRIX: N/A **Chaco Plant MW-3**

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	8.2	Units	06/25/97
Alkalinity as C0 ₃	0.0	PPM	06/25/97
Alkalinity as HC0 ₃	519	PPM	06/25/97
Calcium as Ca	78	PPM	06/25/97
Magnesium as Mg	18	PPM	06/25/97
Total Hardness as CaC0 ₃	269	PPM	06/25/97
Chloride as Cl	63	PPM	06/26/97
Sulfate as SO ₄	396	PPM	06/26/97
Fluoride as F	1.0	PPM	06/27/97
Nitrate as N0 ₃ -N	< 0.6	PPM	06/26/97
Nitrite as N0 ₂ -N	<0.6	PPM	06/26/97
Ammonium as NH4 ⁺	< 0.1	PPM	06/25/97
Phosphate as PO ₄	< 0.6	PPM	06/26/97
Potassium as K	2.9	PPM	06/25/97
Sodium as Na	315	PPM	06/25/97
Total Dissolved Solids	1,160	PPM	06/25/97
Conductivity	1,667	umhos/cm	06/25/97
Anion/Cation %	1.5%	%, <5.0 Accepted	07/08/97

Reported By: Mda

Approved By: John Ford

Date: 7-11-97



Analytical Report

SAMPLE IDENTIFICATION

970593

06/24/97

1206

Dennis Bird

Water

N/A

Chaco Plant

MW-4

EPFS LAB ID: DATE SAMPLED: TIME SAMPLED (Hrs): SAMPLED BY: MATRIX: SAMPLE SITE NAME:

METER CODE: SAMPLE POINT:

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

	<u></u>	T T	
PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.9	Units	06/25/97
Alkalinity as CO ₃	0.0	PPM	06/25/97
Alkalinity as HC0 ₃	579	PPM	06/25/97
Calcium as Ca	395	PPM	06/25/97
Magnesium as Mg	62	PPM	06/25/97
Total Hardness as CaC0 ₃	1,242	PPM	06/25/97
Chloride as Cl	272	PPM	06/26/97
Sulfate as S0 ₄	2,470	PPM	06/26/97
Fluoride as F	1.9	PPM	06/27/97
Nitrate as N0 ₃ -N	7.8	PPM	06/26/97
Nitrite as N0 ₂ -N	< 1.1	PPM	06/26/97
Ammonium as NH ₄ ⁺	< 0.3	PPM	06/25/97
Phosphate as PO ₄	< 1.1	PPM	06/26/97
Potassium as K	11.6	PPM	06/25/97
Sodium as Na	1110	PPM	06/25/97
Total Dissolved Solids	4,710	PPM	06/25/97
Conductivity	5,560	umhos/cm	06/25/97
Anion/Cation %	2.9%	%, <5.0 Accepted	07/08/97

Lab Remarks:

Reported By:_mdu

Approved By: John Joch

Date: 7-11-47

FIELD SERVICES

Field Services Laboratory

Analytical Report

SAMPLE IDENTIFICATION

970594

06/24/97

1455

Dennis Bird

Water

N/A

Chaco Plant

MW-5

EPFS LAB ID: DATE SAMPLED: TIME SAMPLED (Hrs): SAMPLED BY: MATRIX: METER CODE: SAMPLE SITE NAME: SAMPLE POINT:

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	8.2	Units	06/25/97
Alkalinity as CO ₃	0.0	PPM	06/25/97
Alkalinity as HC0 ₃	391	PPM	06/25/97
Calcium as Ca	177	PPM	06/25/97
Magnesium as Mg	39	PPM	06/25/97
Total Hardness as CaC0 ₃	603	PPM	06/25/97
Chloride as Cl	47	PPM	06/26/97
Sulfate as S0 ₄	559	PPM	06/26/97
Fluoride as F	0.7	PPM	06/27/97
Nitrate as N0 ₃ -N	<0.2	PPIVI	06/26/97
Nitrite as N0 ₂ -N	<0.2	PPM	06/26/97
Ammonium as NH ₄ ⁺	<0.1	PPM	06/25/97
Phosphate as PO ₄	<0.2	РРМ	06/26/97
Potassium as K	1.8	PPM	06/25/97
Sodium as Na	192	PPM	06/25/97
Total Dissolved Solids	1,260	PPM	06/25/97
Conductivity	1,702	umhos/cm	06/25/97
Anion/Cation %	2.6%	%, < 5.0 Accepted	07/08/97

Reported By: Mda

- Jaularch Approved By: _

Date: 7-11-97



Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	970595	
DATE SAMPLED:	06/24/97	
TIME SAMPLED (Hrs):	1621	
SAMPLED BY:	Dennis Bird	
MATRIX:	Water	
METER CODE:	N/A	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	MW-6	

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	8.5	Units	06/25/97
Alkalinity as C0 ₃	16.4	РРМ	06/25/97
Alkalinity as HC0 ₃	394	PPM	06/25/97
Calcium as Ca	89	PPM	06/25/97
Magnesium as Mg	15	PPM	06/25/97
Total Hardness as CaC0 ₃	286	PPM	06/25/97
Chloride as Cl	277	PPM	06/26/97
Sulfate as S0 ₄	1,520	PPM	06/26/97
Fluoride as F	8.0	PPM	07/01/97
Nitrate as N0 ₃ -N	< 0.6	PPM	06/26/97
Nitrite as N0 ₂ -N	<0.6	PPM	06/26/97
Ammonium as NH ₄ ⁺	< 0.6	PPM	06/25/97
Phosphate as PO ₄	<0.6	PPM	06/26/97
Potassium as K	1.9	PPM	06/25/97
Sodium as Na	1010	PPM	06/25/97
Total Dissolved Solids	3,180	PPM	06/25/97
Conductivity	4,280	umhos/cm	06/25/97
Anion/Cation %	2.9%	%, <5.0 Accepted	07/09/97

Reported By: mda

Approved By: ______

Date: 7-11-97



Analytical Report

EPFS LAB ID:	970596	
DATE SAMPLED:	06/24/97	
TIME SAMPLED (Hrs):	1621	
SAMPLED BY:	Dennis Bird	
MATRIX:	Water	
METER CODE:	N/A	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	MW-6	
FIELD REMARKS:	Field Duplicate	

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	8.5	Units	06/25/97
Alkalinity as C0 ₃	15.2	PPM	06/25/97
Alkalinity as HC0 ₃	400	PPM	06/25/97
Calcium as Ca	88	PPM	06/25/97
Magnesium as Mg	15	PPM	06/25/97
Total Hardness as CaC0 ₃	281	PPM	06/25/97
Chloride as Cl	270	PPM	06/26/97
Sulfate as S0 ₄	1,500	PPM	06/26/97
Fluoride as F	8.2	PPM	07/01/97
Nitrate as N0 ₃ -N	<0.6	РРМ	06/26/97
Nitrite as N0 ₂ -N	<0.6	PPM	06/26/97
Ammonium as NH4 ⁺	<0.6	PPM	06/25/97
Phosphate as PO ₄	<0.6	PPM	06/26/97
Potassium as K	< 0.6	PPM	06/25/97
Sodium as Na	1012	PPM	06/25/97
Total Dissolved Solids	3,190	PPM	06/25/97
Conductivity	4,390	umhos/cm	06/25/97
Anion/Cation %	3.4%	%, <5.0 Accepted	07/09/97

Reported By:_Mda

Approved By: ______

Date: <u>7-10-97</u>



Analytical Report

SAMPLE IDENTIFICATION

970597

06/24/97

1717

Dennis Bird

Water

N/A

Chaco Plant

MW-7

EPFS LAB ID: DATE SAMPLED: TIME SAMPLED (Hrs): SAMPLED BY: MATRIX: METER CODE: SAMPLE SITE NAME: SAMPLE POINT:

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

		<u></u>	<u>n</u>
PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	8.0	Units	06/25/97
Alkalinity as C0 ₃	0.0	PPM	06/25/97
Alkalinity as HC0 ₃	311	PPM	06/25/97
Calcium as Ca	273	PPM	06/25/97
Magnesium as Mg	43	PPM	06/25/97
Total Hardness as CaC0 ₃	858	PPM	06/25/97
Chloride as Cl	152	PPM	06/26/97
Sulfate as SO ₄	1,180	PPM	06/26/97
Fluoride as F	3.4	PPM	07/01/97
Nitrate as N0 ₃ -N	< 0.6	РРМ	06/26/97
Nitrite as N0 ₂ -N	< 0.6	PPM	06/26/97
Ammonium as NH ₄ ⁺	<0.1	PPM	06/25/97
Phosphate as PO ₄	<0.6	PPM	06/26/97
Potassium as K	5.7	PPM	06/25/97
Sodium as Na	386	PPM	06/25/97
Total Dissolved Solids	2,290	PPM	06/25/97
Conductivity	2,880	umhos/cm	06/25/97
Anion/Cation %	0.1%	%, <5.0 Accepted	07/09/97

Reported By: Mda

John Falch Approved By:

Date: 7-10-97



Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID: DATE SAMPLED: TIME SAMPLED (Hrs): SAMPLED BY: MATRIX: METER CODE: SAMPLE SITE NAME: SAMPLE POINT:

 970598

 06/24/97

 1801

 1801

 Water

 N/A

 Chaco Plant

 20" Wastewater Discharge

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	8.8	Units	06/25/97
Alkalinity as CO ₃	44.0	PPM	06/25/97
Alkalinity as HC0 ₃	266	PPM	06/25/97
Calcium as Ca	261	PPM	06/25/97
Magnesium as Mg	47	PPM	06/25/97
Total Hardness as CaC0 ₃	845	PPM	06/25/97
Chloride as Cl	83	PPM	06/26/97
Sulfate as S04	754	PPM	06/26/97
Fluoride as F	2.0	PPM	06/27/97
Nitrate as N0 ₃ -N	1.0	РРМ	06/26/97
Nitrite as N0 ₂ -N	< 0.6	PPM	06/26/97
Ammonium as NH4 ⁺	< 0.1	PPM	06/25/97
Phosphate as PO ₄	< 0.6	РРМ	06/26/97
Potassium as K	37.9	PPM	06/25/97
Sodium as Na	178	PPM	06/25/97
Total Dissolved Solids	1,670	PPM	06/25/97
Conductivity	2,010	umhos/cm	06/25/97
Anion/Cation %	3.1%	%, <5.0 Accepted	07/09/97

Reported By: Mda

Jon Latch Approved By:

Date: 7-10-97

Metals (Cd, Cr, Hg) Results



SAMPLE IDENTIFICATION

EPFS LAB ID:	970591	
DATE SAMPLED:	06/24/97	
TIME SAMPLED (Hrs):	1057	
SAMPLED BY:	D. Bird	
MATRIX:	Water	
METER CODE:	NA	
SAMPLE SITE NAME:	Chaco Plant	
	MW-2	

REMARKS:

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
CADMIUM	<0.0002	0.01
CHROMIUM	<.004	0.050
MERCURY	<.00002	0.002

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

References:

Reported By:

Inda

Approved By: John Forber Date: 7/21/97



SAMPLE IDENTIFICATION

EPFS LAB ID:	970592	
DATE SAMPLED:	06/24/97	
TIME SAMPLED (Hrs):	1738	
SAMPLED BY:	D. Bird	
MATRIX:	Water	
METER CODE:	NA	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	MW-3	

REMARKS:

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
CADMIUM	0.0005	0.01
CHROMIUM	0.0040	0.050
MERCURY	<.00002	0.002

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

References:

Reported By:_____Mda

Approved By: John Faillen

Date: 7/21/97

FIELD SERVICÉS

FIELD SERVICES LABORATORY

ANALYTICAL REPORT

SAMPLE IDENTIFICATION

EPFS LAB ID:	970593	
DATE SAMPLED:	06/24/97	
TIME SAMPLED (Hrs):	1206	
SAMPLED BY:	D. Bird	
	Water	
METER CODE:	NA	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:		

REMARKS:

RESULTS		
PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
CADMIUM	<.0002	0.01
CHROMIUM	<.004	0.050
MERCURY	<.00002	0.002

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

References:

Reported By: _____Mdb

Approved By: Alen Fallen

Date: 7/21/97



SAMPLE IDENTIFICATION

970594	
06/24/97	
1455	
D. Bird	
Water	
NA	
Chaco Plant	
MW-5	
	06/24/97 1455 D. Bird Water NA Chaco Plant

REMARKS:

RESULTS TOTAL N. M. WQCC PARAMETER RESULT LIMIT (mg/L)-(mg/L)CADMIUM <.0002 0.01 CHROMIUM <.004 0.050 MERCURY <.00002 0.002

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

References:

Reported By:____Mdv

Approved By: John Tellh

Date: 7/2/97



SAMPLE IDENTIFICATION

EPFS LAB ID:	970595	
DATE SAMPLED:	06/24/97	
TIME SAMPLED (Hrs):	1621	
SAMPLED BY:	D. Bird	
MATRIX:	Water	
METER CODE:	NA	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	MW-6	

REMARKS:

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
CADMIUM	<.0002	0.01
CHROMIUM	<.004	0.050
MERCURY	<.00002	0.002

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

References:

Reported By: ______

Approved By: John Lall

Date: 7/24/97



SAMPLE IDENTIFICATION

EPFS LAB ID:	970596	
DATE SAMPLED:	06/24/97	
TIME SAMPLED (Hrs):	1621	
SAMPLED BY:	D. Bird	
MATRIX:	Water	
METER CODE:	NA	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:		

REMARKS:

Field Duplicate

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
CADMIUM	<.0002	0.01
CHROMIUM	<.004	0.050
MERCURY	<.00002	0.002

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

References:

Reported By: Mdu

Approved By: ______ den Lalli

Date: 7/21/47____



FIELD SERVICES LABORATORY

ANALYTICAL REPORT

SAMPLE IDENTIFICATION

EPFS LAB ID:	970597	
DATE SAMPLED:	06/24/97	
TIME SAMPLED (Hrs):	1717	
SAMPLED BY:	D. Bird	
MATRIX:	Water	
METER CODE:	NA	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	MW-7	

REMARKS:

RESULTS		
PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
CADMIUM	0.0004	0.01
CHROMIUM	<.004	0.050
MERCURY	<.00002	0.002

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

References:

Reported By: ______

Approved By: Adm Kalle

Date: 7/2/97



SAMPLE IDENTIFICATION

EPFS LAB ID:	970598
DATE SAMPLED:	06/24/97
TIME SAMPLED (Hrs):	1801
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	NA
SAMPLE SITE NAME:	Chaco Plant
SAMPLE POINT:	20" Wastewater Discharge

REMARKS:

RESULTS TOTAL N. M. WQCC LIMIT PARAMETER. RESULT (mg/L)(mg/L)CADMIUM <.0002 0.01 **CHROMIUM** 0.0340 0.050 MERCURY <.00002 0.002

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

References:

Reported By: _____

Approved By:

Date: 7/21/97

Well Development Forms

Date 7-10-97 XTemperature Meter XOther D. O. CHEMETS NT Comments Water Disposal KUTZ SCJOARATOR Conductivity Dissolved µmho/cm Oxygen 0 X pH Meter DO Monitor X Conductivity Meter Чбш 3750 0625 2820 2 7 40 2802 6.68 2650 Instruments 7.28 7.26 7,25 612 Well Number_ 11. Hd Meter Code_ Well Development and Purging Data 16.4 Temperature °C 6.5 Date 62497 Reviewer 16.4 17 4 18.5 16.7 Removed (gallons) Increment Cumulative Gallons to be Product Volume 24.0 Removed | | Development 2.40 Diameter (inches): Well <u>4</u> Gravel Pack 150 20.0 25.0 Removed (gal) Increment Cumulativ 0.01 Water Volume Calculation Initial Depth of Well (feet) 7.20 Initial Depth to Water (feet) 0 V Water Volume in Well Cubic Feet Gallons 25 Height of Water Column In Well (feet) Water Volume 5 20 20 20 у, У Total **Drilling Fluids** Ending Water Well Casing Gravel Pack Depth Item (feet) Developer's Signature JEMM 10 Big Intake Depth (feet) [...] Stainless-steel Kemmerer Double Check Valve
 X
 3 to 5 Casing Volumes of Water Removel

 Stabilization of Indicator Parameters
 Other
 Site Name <u>CHACO</u> PCAN7 Removal (gal/min) Rate Bailer[X] Bottom Valve Bailer Development **Methods of Development EL PASO FIELD SERVICES** Method **Development Criteria** Water Removal Data Pump Submersible Centrifugal Peristaltic 6-24-91 1035 6-2497 1043 Pump 6-2497 1014 6-2497 1020 6-24-97 1029 Other 6-24.97 1007 Time Comments, Date

		ki t				Comments								7-10-27	
		uments X pH Meter D D Monitor X Conductivity Meter X T Temperature Meter X Other <u>2.0. C 化</u> をか <i>E</i> TS <i>K</i> / T	osal SEPARATOR								2.0			Q Date	
	Well Number <u>MW~J</u> Meter Code	Instruments SpH Meter Do Monitor SC Conductivity Meter N Temperature Meter S	Water Disposal ドレアこ 56			Conductivity Dissolved µmho/cm Oxygen mg/L	7.07 1796		7	731 1602			PEO COLOR	Jel Luch	\tilde{D}
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oment and P	Development	2. Lon 2. 62 6. 62 Gravel Pack In Well Gallons to be Removed	23.4			Product Volume Removed (gallons) ativ Increment Cumulative	÷	2			3.0		ATER WA	Date 6-24	
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-		Water Volume C Initial Depth of Well (feet) Initial Depth to Water (feet) Height of Water Column in Diameter (inches): Well Item Cubic Fi	Well Casing Gravel Pack	Total		e Ending Water h Depth) (feet)							4.	Ø	
	RANT	later Removel ameters M Valve	Double Check Valve			Removal Intake Rate Depth r (gal/min) (feet)							S GALLONS	w Bi	
EPP5 BLPASO FIELD SERVICES	Site Name <i>CHACO PU</i>	Development Criteria X 3 to 5 Casing Volumes of Water Removel Stabilization of Indicator Parameters Other Methods of Development Pump Centrifugal Centrifugal Centrifugal Centrifugal Centrifugal	•u		val Data	Development Method Pump Bailer		4	01	5	<u>a</u>		5 LAST 3	IIE WENN	
EL MSO FIEL	Site Name	Development Criteria	Submersi Peristattic	Cther_	Water Removal Data	Date	6-2497 131	\mathbf{i}		6-2447 1324			Comments 7740	Developer's Signature $\underline{\mathcal{K}}$	

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ing Data Well Number <u>MW-Y</u> Meter Code			Temperature °C	1855 16.5	16.3 16.0 15.8	16.1	Reviewer
d Purgir A	Gallons to be Removed		e				Date 5-24 97 Reviewer
ent and Development Purging	m 17		Product Volume Removed (gallons) Increment Cumulati				Date 6
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-	Water Volume C: Initial Depth of Well (feet) Initial Depth to Water (feet) Height of Water Column in Diameter (inches): Well Vater V Item Cublc Fe Well Casing Cavel Pack	Drilling Fluids Total	Ending Water Depth (feet)				
			Intake Depth (feet)				le a
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Mane CHACO	ment Crit 3 to 5 Casing \ Stabilization of Other Dump Centrifugal Submersible	ther	Time Dev		1139 1146 1151	///2\$	nature <u>d</u>
ELPASO FIELD SERVICES Site Name CHACO PUAL	Development Criteria X 3 to 5 Casing Volumes of V X 3 to 5 Casing Volumes of V X Stabilization of Indicator Pa Other Other Methods of Development Baller Pump Baller Centrifugal X Submersible Dout Peristatic Casing Volumes	Uater Removal Data	Date	62497 1	6-24-97 1/39 6-24-97 1/46 6-24-97 1/5/		Comments Developer's Signature

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l Purgir			Date 624-97 Reviewer
ent and	Development Purging		Date 22
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5	ł	Water Volume Calculation Initial Depth of Well (feet) 20,000 Initial Depth of Water Column in Well (feet) 21,500 Height of Water Column in Well (feet) 21,500 Diameter (inches): Well Cravel Pack Well Casing Water Volume in Well Removed (gal) 7,000 Drilling Fluids Nater Volume Drilling Fluids Nater Volume Depth Removed (gal) (feet) 7,00 7,00 5,0 7,00 5,0 7,00 5,0 7,00 5,0 7,00 5,0 7,00 5,0 7,00 5,0 7,00 5,0	
	TW7	e Intake (feet)	240
	PUK	ia umes of Water Removel dicator Parameters Baller Baller C] Double Check Valve C] Double Check Valve Eatiness-steel Kemmerer Aethod Removal Intak ta Poept Aethod (gal/min) (feet	man
VICES	400	teria Volumes of Water Re- Indicator Parameters Bailer Bottom Vatve Bottom Vatve C Double Chec. Stainless-ster Method method Ealler (gal/	Len L
PASO FIELD SERVIC	CH	The second stabilization of Indicator Parameters 3 to 5 Casing Volumes of Water Removel Stabilization of Indicator Parameters Other a of Development Pump Bailer Centrifugat Pump Bailer Centrifugat Pump Bailer Centrifugat Pump Bailer Cother Ittl Development Removal Data Removal Ittl Pump Pump <	lature
ELPED SERVICES	Site Name <u>CHACO</u>	Development Criteria X 3 to 5 casing volumes of volumes of volumes of volumes of betweetent Stabilization of Indicator Paller Baller Methods of Development Baller Chen Pump Baller Submersible Botto Statingal Date Time Date Date Time Development 0 Peristatic Statingal Date Time Development 6:2447) /423 Balle 6:2447) /423 Balle 6:2447) /423 Balle 6:2447) /423 Balle	Comments Developer's Signature

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ing Data	Well Number	Instrum Nater 1 Nater 1 Nat	
Well Development and Purging Data	Development Purging	Pack Pack Pack Callons to be Removed Removed gallons) C r Increment Cumulative C C C C C C C C C C C C C C C C C C C	
Well Developn		Water Volume Calculation Initial Depth of Well (reet) 22.20 Initial Depth of Water Column in Well (reet) 22.20 Diameter (inches): Well Gravel Pack Umber (reet) 22.20 Vetil Casing Mater Volume in Well Uniting Fluids Mater Volume in Well Item Cubic Feet Gallons Vetil Casing Mater Volume in Well Item Cubic Feet Gallons Item Cubic Feet Callons Item Cubic Feet Callons Internet Cubic Feet Callons Item Feet Increment Cubic Feet Increment S: 7.30 S: S: 7.30	
- .		Water Volume C, Initial Depth of Water (feet) Height of Water Column in Diameter (inches): Well Gravel Pack Unilling Fluids Drilling Fluids Cavel Pack Drilling Fluids (feet) Cobit Fent Rent Drilling Fluids Cobit Fent Cobit Fent Fent Cobit Fent Fent Cobit Fent Fent Fent Cobit Fent Fent Fent Fent Fent Fent Fent Fent	
	<u>AN</u>	Cleeptin de la companya de la compan	
	d'i	reters meters check Vah Removal Rate (gal/min)	
EPPS BL PASO FIELD SERVICES	KIACO	Development Criteria Stabilization of Indicator Parameters Indicator Paramete	
MSO FIELD SERVIC	ue me	Development Criteria Stabilization of Indice Stabilization of Indice Stabilization of Indice Coher Methods of Developn Pump Commersible Pump <i>6:24-97 1539</i> <i>6:24-97 1549</i> <i>6:24-97 1549</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i> <i>1540</i>	
ELPAS	Site Name	Developing Methods Met	

EL PASO FIELD SERVICES

Well Development and Purging Data

Development

Well Number

Meter Code

Instruments

Water Volume Calculation

Site Name CHACO PCANI

Development Criteria

 X
 3 to 5 Casing Volumes of Water Removel

 Stabilization of Indicator Parameters

 Other

Methods of Development

[.] Stainless-steel Kemmerer Double Check Valve Bailer X Bottom Valve Submersible Centrifugal Peristattic Pump

Other

Diameter (inches): Well <u>4</u> Gravel Pack. Water Volume in Weti Item Cubic Feet Gallons *S*.9 **Drilling Fluids** Well Casing Gravel Pack

9.5 Removed Total

X pH Meter DO Monitor X Conductivity Meter X Temperature Meter

Gallons to be

989

Initial Depth of Weil (feet) 755 Initial Depth to Water (feet) 6 66 Height of Water Column in Weil (feet)

KUTZ SSOARATOR Water Disposal

Water Removal Data

										I					
		Development		Removal	Intake	Ending Water	Water Volume	olume	Product	Product Volume	Temperature		Conductivity Dissolved	Dissolved	
Date	Time	Method	pd	Rate	Depth	Depth	Removed (gal)	ed (gal)	Removed (gallons)	(gallons)	ပ	Hd	μmho/cm	Oxygen	Comments
		Pump	Bailer	(gal/min)	(feet)	(feet)	Increment	Cumulativ	Increment	Increment Cumulative				mg/L	
624-97 1651	165/										20.3	205	7.06 2750		
6-2497 1654	1654						5.0	50			18.4	7.0P	18.4 7.0P 2590		
6-24-97 1657	1657						5.0	10.0			19.7	6.97	6.97 3050		
6.2497 1700	1700						20	150			17.9	7.00	7.00 3350		
6-2497 1704	1704						2.0	20.0			17.4	70%	7.0/ 3270		
63497 1707	1707						30	23.0			17.3	6.96	6.96 3300 2.5	2.5	
Comments	771 C	rod	502	1200	202	comments THE DOND SOUTH OF THE WELL HAS ORIED UP.	WELL	NAS	ONE	0 14	2,				
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Developer's Signature_OLEND. Co	Signature	ole	2ML	101	200	K			Date 6	Date 6 -24-7/ Reviewer	Reviewer	- Toto	N.	LL	Date 1-10-97
											•	_			

Developer's Signature OLDANIA DUD

Quality Control



QUALITY CONTROL REPORT

Sample ID: 970591 through 970598 Date Reported: 07/16/97

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LABORATORY CONTROL SAMPLE

Analyte	Found Result (mg/L)	Known Value (mg/L)	% Recovery
Cadmium	0.0025	0.0024	106%
Chromium	0.0049	0.0048	103%
Mercury	0.0044	0.0046	95.2%

DUPLICATE ANALYSIS (mg/L)

Analyte	Original Sample Result	Duplicate Sample Result	% RPD
Cadmium	ND	ND	NA
Chromium	0.0040	0.0040	1.0%
Mercury	ND	ND	NA

SPIKE ANALYSIS (mg/L)

Analyte	Original Sample Result	Spike Sample Result	Spike Added	Recovery Percent
Cadmium	ND	0.0117	0.010	117%
Chromium	0.0040	0.0544	0.050	101%
Mercury	ND	0.0017	0.002	85.0%

METHOD BLANK

Analyte	Found Result (mg/L)	Detection Level (mg/L)
Cadmium	ND	0.0002
Chromium	ND	0.004
Mercury	ND	0.0002

ND: Not Detected at stated detection level.

NA: Not Applicable.

Reported By:

Approved By: John Failder Date: 7



nordemandet Seu (das 1970) -Imario Seuluri

August 22, 1997

Project 18227

X"

Mr. David Bays El Paso Field Services Company P.O. Box 4990 Farmington, New Mexico 87499

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RE: Boring Logs, Monitoring Well Installation Diagrams and Well Developement Data Sheets for Monitoring Wells MW-9 and MW-10 Installed at the Chaco Plant

Dear Mr. Bays:

Philip Services Corporation (Philip) hereby submits the boring logs. monitoring well installation diagrams and well development data sheets for monitoring wells MW-9 and MW-10 installed on July 24, 1997 at the Chaco Plant.

If you have any questions concerning or require additional information, please contact Scott Pope or Martin Nee in the Farmington office.

Respectfully submitted.

PHILIP SERVICES CORPORATION

Scott T. Pope Project Manager

Enclosures -As stated

cc: John Lambdin

17227 8-97logs.doc.

ECORD	OF SI	JBSUF	RFACE	EXPLORATION			_		Boreh Well á	
ilip Eaviro		I Service	es Corp.						Page	of
10 Monroe f nington, Nev		87401			Project N	iame EPF	S CH	to p	1W's	
51 326-2262			2388		Project N			27		ase <u>6001</u>
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L Depth			<i>, ,</i>	T POND	Contract	ors On-Site				
iged By		5. P		· · · · · · · · · · · · · · · · · · ·	Client Pe	rsonnel On-	Site			
led By e/Time S	Started		ADILLA 200	7/24/97	Drilling N	lethod	11-	A 6	14 15	`
e/Time C				<u>////////</u>	-	toring Metho	 od	PIE	\sim	
			Semple		41000	Depth				
Depth (F oc t)	Semple Number	Sample Interval	Type & Recovery	Sample Description Classification System: USCS	USCS Symbol	Lithology Change	1	ir Monito Units: N(-	Dritting Conditions & Blow Counts
			(inches)		·	(feet)	вz	вн	s	
_ °				BROWN SANDY Clay, Fine Grained SAND, Mod Stifl, DRY - Trace Moistin	1					
.				DANN, MOU STITE, UNJ - I Tace Moistin	1		l			
			:		CL				l	
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_ 5		5		Republic Tall Starp will Site -		5.0				
·	1	7	24	Brown-TANISAND WISilt, Fine Goained, LOOSE, Dig. Trace Moisiure	SP		0	0	0	
					51	_				
						9.0				
— ¹⁰		10		GRAT SANDY CLAY Fire - And rained some Black die Diovetion, Aus Stiff POUS	CL	11.0				Headspace = 3,0ppm
•	2	12	24	GRAY-BLACK SAND WISOME CLAY		Π. Ο	0	0	0	Note: dicolor-r
	·			Fire mud GroiNED, Med douse	5ω		~			JOILS @11 Slight
1.5				Saturated & 11.0						Sever odor
_ 15]		WATER Level Rosa
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Comments:

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Geologist Signature

MONITORING WELL INSTALLATION RECORD

N. SIDE OF CONTACT WATER HOND

1315 7/24/97

Philip Environmental Services Corp. 4000 Morroe Road Fermington, New Mexico 87401 (6061 326-2262 FAX (6061 326-2388

Installed By K. PADILLA

Date/Time Completed 1500 7/24/97

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Elevation

Well Location GWL Depth

Date/Time Started

Borehole # Well # <i>MW-09</i> Page of	-
Project Name <u>Chaco MW's</u>	
Project Number 18227 Phase 600 Project Location Chaco Plant	- 2 -
On-Site Geologist <u>5 Pope</u> Personnel On-Site <u>D. Chaeuc</u> Contractors On-Site	-
Client Personnel On-Site	

Depths in Reference to Ground S	Surface			Top of Protective Casing Top of Riser	+3.1 +3.0
ltem	Material	Depth		Ground Surface	0.0
Top of Protective Casing	Square 6" Steel	31			
Bottom of Protective Casing		2.9			
Top of Permanent Borehole Casing					
Bottom of Permanent Borehole Casing					
Top of Concrete		t.3			
Bottom of Concrete		0.0			
Top of Grout		-			
Bottom of Grout					
Top of Well Riser	SCH40, 4INCH	+3,0			
Bottom of Well Riser	PVC	4.6			
Top of Well Screen	SCH40, 4," PVC	4.6		Top of Seal	0.0
Bottom of Well Screen	.010 SLOT	20.0	xxx xxx xxx xxx xxx xxx		
Top of Peltonite Seal	3/8" BENTONITE	0.0		Top of Gravel Pack	2,6
Bottom of Peltonite Seal	HOLE PLUC	2.6		Top of Screen	4.6
Top of Gravel Pack	10-20 SILICA SAND	2.6		top of octeen	
Bottom of Gravel Pack		20.0			
Top of Natural Cave-In		Z0.0			
Bottom of Natural Cave-In		21.0			
Top of Groundwater		9.7		Bottom of Screen Bottom of Borehole	20.0
Total Depth of Borehole		21		Dottom of Dotenoie	

Comments: 15 BAG SAND, 2.5 BAGS Hole Plug, WL = 8.45 BGS After INSTALLATION

Geologist Signature

ion ٠ 70

PHILIP Well De	Well Development and	t an		Purging Data	Data		E Development D Purging	Well Number MW.09	Mu		
Project Ilame <u>CMACC いきょい</u>	ELL3		Pro	Project Manager	ſ,	Jeon T		Pro	Project No.	Page _ 1 of _	
Client Company EPFS								Pha	Phase.Task No.	0. 6001.77	
Site Name <u>CHACO</u>				Site Address	6						
Development Criteria		Ň	ater Volu	Water Volume Calculation			11	Instruments		Serial No. III applicable)	
Contraction of Indicator Parameters	Water Removal trameters	Initial		Depth of Well (feet) _	21.	57		PH Meter	L	Ouster	
		Initial	ial Depth	Depth to Water (feet)		38	C	B D Monitor	tor		
Mathods of Davalonment		Hei Hei	ght of Wa	Height of Water Column in Well (feet)	n Well (fe	1) <u>///</u>		R Conductivity Mater	vitv Mater	Dere	
Pump Bailer				Water (inclus): Well	. II 👻			Temperature Meter	ture Mater		
Centrifugal Dentom Valve	alve Hark Valva		ltem	Cubic Feet	Gallons	Removed	ed ed				
Peristaltic	Catalogs-steel Kemmerer	Ň	Well Casing			1. 65	1				
		ō	Gravel Pack		 		л Г	Water Disposal		(
		ā	Drilling Fluids				T	IN CON	L'	WATER FOND	
Water Removal Data			Total				23.3				
Cevelopment Method Ac	Removel Rate Intake Depth W	Ending Water Depth	Water Volu (ga	Water Volume Removed (gallons)	Product Volume Removed Idellons	Temperature	•	Conductivity	Dissolved Oxygen		
Date Time Pump Baller	(feet)	(feut)	Increment	umutative	Increment Cum		Hd	(umhos/cm)	(mg/L)	Comments	
X 26.57 12.22 X			515	5		23.S	49.9	1310		Brown	
			10/5	Q		19.2	695	1320		Brown	·
12:53 X			15/5	45		19.7		-		Brown	
1305 X			20/5	20		215	6.9			Brown	
1 331 1			25/5	25		9.61	6.98			LIGHT Brown)
V 1346 X			30/5	30		19.6	[7		. 1	
7/25/97 1403 K	:		355	35		205	01.1	1330		9	
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Circle the date and time that the development criteria are met.	oment criteria ere met.									Ş	
Comments		6								•	
	/ //		\backslash							· · · · · · · · · · · · · · · · · · ·	1
Developer's Signature(s)	el : 1 - rout		. / K.	elly Par	201464	Date Z	1251	'92Re	Reviewer 572	TP Date Slight	_
				0							
Form A0101 Hav. UJ121134											

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RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp. 4000 Monroe Road Farmington, New Mexico 87401 (505) 326-2262 FAX (505) 326-2388

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Elevation	
Borehole Location	MW-10
GWL Depth	9,2
Logged By S	PODE
Drilled By	PADILLA
Date/Time Started	7/24/97 0900
Date/Time Completed	-1/24/97 HOOD.

Borehole # MW-10 nw-p of

Project Name	Chaco WELL JU 8227 Phase	STALLATION
Project Number //	SZZ Phase	_6001
Project Location		
Well Logged By Personnel On-Site	5. Pope D. Charlie	
Contractors On-Site		
Client Personnel On-Site		
Drilling Method	15A 6/4 ID	

Well #

Page

Air Monitoring Method PID

all

1/21/95/DRILLOG XIS

MONITORING WELL INSTALLATION RECORD

9.2 BGS

Philip Environmental Services Corp. 4000 Monroe Road Fermington, New Mexico 87401 (506) 326-2262 FAX (506) 326-2388

Date/Time Started <u>1000 7/24/97</u> Date/Time Completed <u>1130 7/24/97</u>

, "

Elevation

Well Location GWL Depth

Installed By K. PADILLA

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Borehole
Well #
Рада

	Borehole # $MW - 10$ Well # $MW - 10$ Page of
Project Name <u>Ch</u>	200 PLANT MIN'S
	227 Phase 6001,77
On-Site Geologist Personnel On-Site Contractors On-Site	S. POPE D. Charlie
Client Personnel On-Sit	e <u> </u>

Depths in Reference to Ground S			F		Top of Protective Casing Top of Riser	<u> </u>
tem	Material	Depth			Ground Surface	0
op of Protective Casing	Square 6" Steel					
Bottom of Protective Casing		2.9				
Casing	NA	-				
Bottom of Permanent Borehole Casing		-				
Top of Concrete		+.3				
Bottom of Concrete		0				
Top of Grout	NIA	-				
Bottom of Grout	NIA	-				
Top of Well Riser	SLH 40, 4INCH	+30				
Bottom of Well Riser	PVC	4.0				
Top of Well Screen	SCH 40, 4 INCH	4.0			Top of Seal	0
Bottom of Well Screen	PVC, OID SLOT	19.4		x0X XXX		
Top of Peltonite Seal	3/8 BENTONITE	0	000 000	000 000		
Bottom of Peltonite Seal	HOLE PILL	2.0	xxx		Top of Gravel Pack	2.0
Top of Gravel Pack	10-20 Silica	2.0			Top of Screen	4.0
Bottom of Gravel Pack		19.4				
Top of Natural Cave-In		19.4				
Bottom of Natural Cave-In		20.0				
Top of Groundwater		9,2			Bottom of Screen	19.4
Total Depth of Borehole		20.0	<u>L'XX</u>]	Bottom of Borehole	_20.6

Geologist Signature

7.

Froject Name Stain No. 2006. Project Name Clinar Compary Project Name Clinar Compary Project Name Clinar Compary Clinar Compary EPE 22 Development Nater Volume Calculation Development Project Name Clinar Compary EPE 22 Development Project Name Clinar Compary EPE 22 Development Project Name Clinar Count Nater Volume Calculation Development Project Name Clinar Prove Provident Prove Clinar Prove Provident Prove Clinar Prove Prove Internet Clinar Prove Internet <	PHILIP		Well Development and P	int a	nd Pı	urging	urging Data	Development Druging	t Well Number		111-10
Site Address Recent Field MM Site Address Recond Field MM Mater Volume Calculation Instruments Initial Depth to Water fleet) Z.2.31 Initial Depth to Water Calumn in Well (freet) L/.5 Initial Depth to Water Column in Well (freet) D.5.1 Initial Depth to Water Column in Well (freet) D.5.1 Initial Depth to Water Column in Well (freet) D.5.1 Initial Depth to Water Column in Well (freet) D.5.1 Initial Depth to Water Column in Well (freet) D.5.1 Initial Depth to Water Column in Well (freet) D.5.2 Initial Depth to Water Column in Well (freet) D.5.7 Initial Depth to Water Column in Well Removed Initial Depth to Water Pack	Project Name	Serial No.	v, v,	1	ď	oiect Manac	+) V	L Q		Project No	Page
If also 72 A MJT Site Address Bioan Field MM Criteria Criteria Mater Volume Calculation Instruments Indicator Parameters Initial Depth to Well (feet) Z.S.31 Do Monitor Initial Depth to Well Initial Depth to Well (feet) Z.S.31 Do Monitor Initial Depth to Well Initial Depth to Well Mater Column in Well (feet) Do Monitor Initial Depth to Well Mater Column in Well (feet) Z.S.31 Do Monitor Bailons Double Check Valve Mater Column in Well (feet) Do Monitor Bailons Double Check Valve Mater Column in Well (feet) Do Monitor Bailons Stahlass-steel Kammerer Mater Column in Well (feet) Do Monitor Mater Column in Well Mater Column in Well (feet) Do Monitor Diameter (finches): Well Casing Prime Do Monitor Diameter (finches): Mater Column in Well (feet) Do Monitor Do Monitor Diameter (finches): Mater Column in Well (feet) Mater Dispected Do Monitor Diameter (finches): Mater Column in Well (feet) Mater Dispected Do Monitor Diameter (finches): Mater Column in Well (feet) Mater Dispected Do Monitor Diameter (finchon (feet) Welo	Client Compar	EPFS			:			-+ z		Phase.Task I	Vo. 6001.77
The sol functor frame term of the free to the solution of	Site Name _	-HAW 72AN	77			Site Addre		mField N	100		
Height of Water Column in Well (feet) 0.51 Valve Diameter finches): Well Cravel Pack Diameter finches): Well Cravel Pack Check Valve Water Volume in Well Check Valve Well Casing Ss-steel Kemmerer Coheck Valve Well Casing Z-S Ss-steel Kemmerer Coheck Valve Mater Instant Meterin Mater Instant Me	Developme D 3 to 5 (D Stabilize Other	nt Criteria Sasing Volumes of ation of Indicator Pa	Water Removal arameters		Vater Vol nitial Depth nitial Depth	ume Calcu of Well (fee to Water (f	5	E lo	Instrume D PH M	nts eter	Serial No. (If applicable)
otion Valve Temperature Meter otion Valve Item Water Volume in Weil Galions to ba auble Check Valve Weil Casing Cubic Feet Galions aubles-steel Kemmerer Weil Casing Cubic Feet Galions Carvel Pack Cubic Feet Galions Rimoved Drilling Fluids Total Cubic Feet Galions Carvel Pack Total Cubic Feet Cubic Feet Carvel Pack Total Cubic Feet Galions Manoul Intel Inter Dupli Interviewicitights Interviewicitights Intenti Intenti Removed Removed Manoul Intel Inter Dupli Intenti Removed Removed Intenti Intenti Removed Removed Removed Manoul Intel Inter Dupli Intenti Removed Removed Intenti Intenti Removed Removed Removed Intenti Intenti Removed Removed Removed Intenti Intenti Removed	Methods of	Development			leight of W Diameter (ir	/ater Columr iches): Well	n in Well (feet)	<i>10,51</i> Pack		ionicol uctivity Mete	
OUDIE CRECK VAIVE fainlass-steel Kemmerer Wall Casing ZS ZS SS Grvvil Pack Grvvil Pack Grvvil Pack Grvvil Pack Mater Disposal Drilling Fluids Total Total ZS ZS Mater Disposal Amovi Rist Initio Definition Initio Definition Mater Disposal Mater Disposal Amovi Rist Initio Definition Initio Definition Inition Inition Inition Inition Item Inition Item Inition Item Item Inition Item Item Item Item Item Item	Pump	ш	/alve	L=	ltem	Water V Cubic Fee	olume in Ga	Gallons to be Removed	Temp	erature Mete	st
Drilling Fluids Drilling Fluids Z.Y. Courteur Torining Fluids Torining Fluids Torining Fluids Torining Fluids Torining Fluids Torining Fluids Torining Fluids Torining Fluids Torining Fluids Torining Fluids Waruban Markovat Torining Fluids Waruban Provent Torining Fluids Waruban Provent Torining Fluids Waruban Provent Torining Fluids Torining Fluids Torining Fluids Torining Fluids Torining Fluids	Deristal	e	uneck valve s-steel Kemmerer	1 - 1 -	Well Casing Gravel Pack		$ \cdot $	7.5	Water Di	snosal	a se presenta da la constante d
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International International Contraction of the International Internationa International International International Internationa		relopment Viethod	Removal Rate Intake Depth	1		lume Removed pellons)	Product Volume Removed (gallons)	Temperature		 	
Leo De Free Dince in Balbriand mensure 18 21 01/2	Date	Pump Baller			Increment	Cumulative	Increment Cumuletly	5	I I		Comments
her Di Free Dince in Balbrian and measure 18 w/ oil/c	7/25/97	1225			-	90 N		<u>v</u>	18	0	Si'LY REDWA
Miner Diff. Ever 2) March 18		1930				60					Merey Clear
Miner Dif Free Director and West Life											
March D9 Free D and West 18											
Moren D9 Free Drace in Balbrian and weasure 18										-	
Moren 199 Free Diversities 18											
Mones []9 Free Dirace in Bulbr and were ince 18											
Moner 1)9 Free Dires in Balton and weashirds 18											
	Circle the date	and time that the develo	ppment criterie ere me 11. 40 1111) brev	09°E	No.c.	~ Balba			//jo///	LIATE Probe
	Developer's	Signature(s)	dunt.T.	20		•		Date22.	5/37	Reviewer .	1
the T- Paris		1 Rov. 03/21/94)								
aturels) <u>Juse T. Prin</u> Beviewer 57P	Form A010	Form A0101 Rev. 03/21/94									

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August 29, 1997

<u>NEW Monitor Well Installation</u> <u>ANALYTICAL REPORT</u>

Chaco Plant Monitor Wells #9 and #10 Lab Sample #'s 970716 and 970717 Sampled 7/25/97 Sampled by Dennis Bird

REMARKS:

These samples represents the NMOCD required analytical testing for the two new monitor wells installed at Chaco Plant on July 24th and 25th, 1997. WQCC limits for Benzene, Toluene, Ethyl Benzene and Total Naphthalenes were exceeded in monitor well #10. General water quality in MW-10 is approximately 2x poorer than that in MW-9. More data will be required in order to determine if the ground water quality in the area is being influenced by the adjacent ponds.

Distribution:

David Bays Scott Pope - Philip Services Company Sandra Miller - W/O Attachments Mike Hansen - W/O Attachments Results Log Book

Attachments

Philip Environmental FIELD DATA



Environmental Services Group Southern Region



Project 18227

August 22, 1997

Mr. David Bays El Paso Field Services Company P.O. Box 4990 Farmington, New Mexico 87499

RE: Boring Logs, Monitoring Well Installation Diagrams and Well Developement Data Sheets for Monitoring Wells MW-9 and MW-10 Installed at the Chaco Plant

Dear Mr. Bays:

Philip Services Corporation (Philip) hereby submits the boring logs, monitoring well installation diagrams and well development data sheets for monitoring wells MW-9 and MW-10 installed on July 24, 1997 at the Chaco Plant.

If you have any questions concerning or require additional information, please contact Scott Pope or Martin Nee in the Farmington office.

Respectfully submitted,

PHILIP SERVICES CORPORATION

Scott T. Pope Project Manager

Enclosures -As stated

cc: John Lambdin

17227/8-97logs.doc.

RECORD OF SUBSURFA	E EXPLORATION)	Boreho Well #	
Philip Environmental Services (4000 Monroe Road Fermington, New Mexico 87401 (505) 326-2262 FAX (506) 326-238	p.	Project N Project N Project L		182		Paga 1 <u>11/5</u> Pha	of ase <u>6001</u>
Elevation Borehole Location GWL Depth Logged By Drilled By K. Pape Date/Time Completed	TALT POND 1.A 7/24/97	Well Log Personne Contract Client Pe Drilling M	god By I On-Site ors On-Site rsonnel On-:	Site	S D.	Popo Chau 	
Depth Sample Sample T (Feet) Number Interval Re	ple & Sample Description rery Classification System: USCS es)	USCS Symbol	Depth Lithology Change (feet)		r Monito Inits: NC BH	-	Drilling Conditions & Blow Counts
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	BROWN SANDY CLOY, Fine Grained SAND, Mod Stifl, DRY-Trace Moistin Brown-TANISAND WISilt, Fine. Grained, LOCSE, Dry-Trace Maisruke Black die Doortion, mussifle Maisr Black die Doortion, mussifle Maisr GRAY-BLACK SAND WISOME & LAY Fire Mus Groined, Med Couse Saturated & 11.0 TOB Z1.0	CL	5.0 9.0 11.0	0	00	0	Headspace = 3,0ppm Note & dicolor- Joils @11 Slight Sever Odor WATE & Level Rose TO 9.7 BGS Will Drill TO 20. Gual Set Well.

Comments:

Geologist Signature

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n

MONITORING WELL INS	TALLATION RECO	RD				Borehole Well #	
Philip Environmental Services Cor 4000 Morroe Road	p.					Page	09
Fermington, New Mexico 87401				Pro	ject Name	hACO MU	15
(505) 326-2262 FAX (506) 326-2388				Pro	ject Number /	8227	Phase 6001
				Pro	ject Location	hALD Pla	
Elevation	Ś				Site Geologist	_S Po	
GWL Depth	- CONTACT WATER PON	D			sonnel On-Site ntractors On-Site	D. Chi	RUK.
Installed By K. PADILLA				Clie	ant Personnel On-S	Site	
Date/Time Started 1.5.15	7/24/97						
Date/Time Completed 1500	7/24/97						
							
Depths in Reference to Ground S	Surface		F		Top of Protective Top of Riser	e Casing	+ <u>3</u> 1 + <u>3</u> 0
Item	Material	Depth			Ground Surface		0.0
Top of Protective Casing	Square 6" Steel	31					
Bottom of Protective Casing	C	Z.9					
Top of Permanent Borehole Casing		-					
Bottom of Permanent Borehole							
Casing							
Top of Concrete		<i>t</i> ,3					
Bottom of Concrete		6.0					
Top of Grout							
Bottom of Grout							
Top of Well Riser	SCH40, 4INCH	+3,0					
Bottom of Well Riser	PVC	4.6					
Top of Well Screen	SCH40, 4," PVC	4.6			Top of Seal		0.0
Bottom of Well Screen	,010 SLOT	20.0					
Top of Peltonite Seal	3/8" BENTONITE	0.0	XX XX XX	000 000 000	Top of Gravel P	a a k	7 /.
Bottom of Peltonite Seal	HOLE PLUC	2.6			-	ack	2.6
Top of Gravel Pack	10-20 Silica SAN	2.6			Top of Screen		4.6
Bottom of Gravel Pack		20.0					
Top of Natural Cave-In		20.0					
Bottom of Natural Cave-In		21.0					
Top of Groundwater		9.7			Bottom of Scree		<u> </u>
Total Depth of Borehole		21			Bottorn of Boret	nole	<u>Z1.0</u>

Comments: 15 BAG SAND, 2.5 BAGS Hole Plug, WL = 8.45 BGS After INSTALLATION

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Geologist Signature

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RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp. 4000 Monroe Road Fermington, New Mexico 87401 (606) 326-2262 FAX (606) 326-2388

Elevation	
Borehole Location	MW-10
GWL Depth	9,2
Logged By	PODE
Drilled By	PADILLA
Date/Time Started	7/24/97 0900
Date/Time Completed	-1/24/97 1000.

Project Name
Project Number
Project Location

Charo WELL TRISTALLATION 18227 Phase 6001

MW-10

of

nw-10

5. Pope

Borehole #

Well #

Page

Personnel On-Site Contractors On-Site **Client Personnel On-Site**

Well Logged By

D. Charlie

HSA 61/4 ID Drilling Method Air Monitoring Method PID

Depth (Feet)	Sample Number	Semple Interval	Semple Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)		r Monito Inits: NE BH		Drilling Conditions & Blow Counts
0 - 5 - 10 - 15 - 20 - 25 - 30 - 35 - 35 - 40	1	57	24	BROWN SILTY SAND Trace CLAY FINE SAND LOOSE Moist Grading to a (ETMG") SANDY CLAY Med. Stiff. BROWN TO GRAY SAND TRACE SUT AND CLAY, Grading From FINE Gauss Svained SAND, LOOSE, SATURATED No additional SAMPLE collected Bolow WATER. TOB 20	CL ML SW	5.0	00	0	0	WL = Ø 9.2 WILL DRILL TO 20 Feet and SET Well.

Will Thur TO 20. and Set WELL @ 19.5. Comments:

Geologist Signature

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ANT ACIDDING OF VIC

MONITORING WELL INS	TALLATION RECO	RD			Borehole #	NW-10_
Philip Environmental Services Cor	p.				Well #	MW-10
4000 Morroe Road	•					<u> </u>
Fermington, New Maxico 87401 (605) 326-2262 FAX (606) 326-2388			f	Project Name	haco PLAN	T MW'S
(000) 320-2262 FAX (006) 326-2388			F	Project Number 7	8227	Phase 6001,7
					CHALD PLAN	
Elevation			c	Dn-Site Geologist	S. POPE	_
Well Location EAST SUDE	OF WATEP POND		F	Personnel On-Site	D. Chavl	
GWL Depth 9.2 BGS Installed By K. PADILLA	······································			Contractors On-Site		
Instanto by K. PADILLA			· · · · ·			
Date/Time Started 1000						
Date/Time Completed30	7/24/97					
1	·····				·····	
Depths in Reference to Ground S	Surface		<u> </u>	Top of Protection	ve Casing _	3.1
	-1	<u>γ</u>		Top of Riser	-	3.0
Item	Material	Depth		Ground Surfac	e -	0
Top of Protective Casing	Square 6" Steel	21		Γ		
	- Same	2.9				
Bottom of Protective Casing Top of Permanent Borehole		2.				
Casing	NA	-				
Bottom of Permanent Borehole		-				
Casing						
Top of Concrete		+,3				
Bottom of Concrete		0				
		-				
Top of Grout	NIA					
Bottom of Grout	NA	-				
Top of Well Riser	SCH 40, 4INCH	220				
		I				
Bottom of Well Riser	PVC	4.0				1
Top of Well Screen	SCH 40, 4 INCH	4.0		Top of Seal		0
Bottom of Well Screen	1	19.4		X	_	
	PVC, OID SLOT		joxod jox	x		
Top of Peltonite Seal	3/8 BENTONITE	0) t <i>i</i>	
Bottom of Peltonite Seal	HOLE PILL	2.0	n n n		ACK	2.0
Top of Gravel Pack	10-20 SILICA	2.0		Top of Screen	-	40
Bottom of Gravel Pack		19.4				
Top of Natural Cave-In		19.4				
				4		1
Bottom of Natural Cave-In	<u> </u>	<u>20.0</u>				
Top of Groundwater		9,2		Bottom of Scre Bottom of Bore		19.4
Total Depth of Borehole		ZD?	<u></u>			<u> </u>

Comments: 133765 SAND, 1.5 BAG HOLD PLUG, WATER LEVEL 8.4 BG5 After TNSTALLATION.

Geologist Signature

N to -7.

PHILIP		II D)evel	Well Development and	ent	and	Pul	Purging Data	Da	ta	D-Development		Well Number _	7	1112-10	
Seriel No.	Seria.	Serial No. WDPD.	WDPD.				Proie	Project Manager	•	$\left(\begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$			C.A.	Project No.	Page of .	
Client Company	EPF	L N N							1		2		: f	Phase.Task No.	0	77
Site Name CHALD 72 ANT	HALD	724	NT				S I	Site Address		Bleen	Blocm Fiz 10	Nac				
Development Criteria Date Stabilization of Indicator Parameters Other	: Criteri sing Vol on of Ind	la umes c dicator	of Water F Paramete	Removal ers	ł	Water Initial Do Initial Do	Volun epth of epth to	Water Volume Calculation Initial Depth of Well (feet)	lation	1.5.31		Ē	Instruments DH Meter D Monitor	itor itor	Serial No. III applicable)	dicable)
Methods of Development	Jevelor 201	ment				Diamete	or wate sr (inche	Height of Water Column in Well (feet) Diameter (inchos): Well 2017 Gravel		101	ack -	1	Conduct	Conductivity Meter		
Pump Centrifugal Submarsible	11	Saller Bottom Valve	N Valve Check V	alva		Item	_	Water Volume in Well Cubic Feet Gellons	emul		Gallons to be Removed		C Temperature Meter	ature Mete		1
Peristaltic		Stainles	□ Stainless-steel Kemmerer	cemmerer.		Well Casing	sing		Ń	S	7.5	, 1				
						Gravel P	Pack					3	Water Disposal	osal	ſ	
Water Removal Date	Al Dat					Drilling Fluids Total	Fluids Total				7.5 (4)37.5	r 	J-N C	CONTRET	WATE E TEA	4
		Development	t Aemoval Bata		Ending		Water Volume Removed	Removed	Product Volume				Conducativity	Dissolved		
Date	Time Time	Pump Baller	(gel/min)	(1001)		Increment	<u></u>	umulative.	Increment Cumular	Cumulative	(J.	Нд	(mhos/cm)		Comments	
7/25/97 /	1225							80			25,2	7.16	0282		Sitt Benny	141
2/25/97 1	1930							60							Merer Cie.	e de
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Circle the date and time that the development criteria are met.	time that t	the deve	slopment criteria are	iteria are me		09 €	ſ		ؠ بر	بر م			9	1.41	1 5.1% . 1. 0 Darks	
In which Auchty	9	1741		1 1) 1) U.C.	Ê	Kie V	V)norse	14 A	corb	1	1 3	יצרי				
Developer's Signature(s)	gnature(s									((Date _Z	2/25/27	Å	Reviewer 572	72 Date 8/19/97	19/97
Form A0101 Rev. 03/21/94	tev, 03/21/9	শু														

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EPFS Chain of Custody

					Φ		El Paso Natural Gas Company	huedi			۷	2038	ω	
					CHAIN	OF CU	STODY	CHAIN OF CUSTODY RECORD						
Project No.		KC O	P	Project Name ChACO Plant MUNITAR Wells	2 halls	Type and			H H	Requested Analysis				
Samplers: (Signature) Charles (Signature)	29	2m	<i>į</i> , <i>j</i>	Bied	ate: 7-28-97	No. Sample	searc	and the second	A Street			Remarks		
Date	Time	Comp. GRAB	GRAB		Sample Number	Contain- ers		Sold and a second	J J J J					
1 12/2011	FST		9	970	970716	2002	A H	X	×	Monitar	L Well	b#	(mm-g)	
Presh 1924	SSP		S	T17079		N M	1 OC	ХX	\times		- Well	¢1	(mu -lo)	
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Lennis	Ch.	A	<u> </u>	0/10 42-52-2										
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Relinquished by: (Signature)	ature)		-	Date/Time Re	Received for Laboratory by: Si	by: (Signature)		Date/Time	Remarks:					
Corrier Co.				× -	Carrier Phone No.	S No.	Less I.	2	Date Res	Date Besults Reported / bv: (Signature)	ionature)			T
													san juan repro Form 71-55 A	7≲

BTEX By EPA Method 8020



FIELD SERVICES LABORATORY ANALYTICAL REPORT PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970716
MTR CODE SITE NAME:	N/A	Chaco Plant MW #9
SAMPLE DATE TIME (Hrs):	7/25/97	1457
PROJECT:	Chaco Plant	t Monitor Wells
DATE OF BTEX EXT. ANAL.:	7/29/97	7/29/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS		QUALIF	IERS	
			DF	٥		
BENZENE	<1	РРВ				
TOLUENE	<1	РРВ		:		
ETHYL BENZENE	<1	РРВ				
TOTAL XYLENES	< 3	РРВ				
TOTAL BTEX	< 6	PPB				

83.2

The Surrogate Recovery was at DF = Dilution Factor Used --BTEX is by EPA Method 8020 --

for this sample All QA/QC was acceptable.

Narrative:

John Further Approved By: _

Date: 8/7/97

970716.XLS,8/6/97



FIELD SERVICES LABORATORY ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970717
MTR CODE SITE NAME:	N/A	Chaco Plant MW #10
SAMPLE DATE TIME (Hrs):	7/25/97	1559
PROJECT:	Chaco Plan	t Monitor Wells
DATE OF BTEX EXT. ANAL.:	7/30/97	7/30/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS		ERS
			DF	٥	
BENZENE	785	РРВ	10	D	
TOLUENE	1600	РРВ	10	D	
ETHYL BENZENE	60.7	РРВ	10	D	
TOTAL XYLENES	428	PPB	10	D	
TOTAL BTEX	2870	PPB			

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 77.8

for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

The "D" qualifier indiciates that the analyte calculated is based on a secondary dilution factor.

Narrative:

Approved By: Aller Farta.

Date: 8/7/97

970717.XLS,8/6/97



QUALITY CONTROL REPORT EPA METHOD 8020 - BTEX

Samples: 970716 & 970726

970717

QA/QC for 7/29/97 Sample Set

LABORATORY CALIBRATION CHECKS / LABORATORY CONTROL SAMPLES:

SAMPLE		EXPECTED	ANALYTICAL		ACC	EPTAB	LE
NUMBER	TYPE	RESULT	RESULT	%R			
ICV LA-52589		PPB	PPB			YES	NO
50 PPB					RANGE		
Benzene	Standard	50.0	46.2	92.4	75 - 125 %	Х	
Toluene	Standard	50.0	50.3	101	75 - 125 %	Х	
Ethylbenzene	Standard	50.0	50.6	101	75 - 125 %	Х	
m & p - Xylene	Standard	100	99.9	99.9	75 - 125 %	Х	
o - Xylene	Standard	50.0	51.0	102	75 - 125 %	Х	
SAMPLE		EXPECTED	ANALYTICAL		AC	CEPTAE	BLE
NUMBER	TYPE	RESULT	RESULT	%R			
LCS LA-45476		PPB	PPB			YES	NO
25 PPB					RANGE		
Benzene	Standard	25.0	24.8	99.2	3 9 - 150	Х	
Toluene	Standard	25.0	25.9	104	46 - 148	Х	
Ethylbenzene	Standard	25.0	26.0	104	32 - 160	Х	
m & p - Xylene	Standard	50.0	51.3	103	Not Given	Х	
o - Xylene	Standard	25.0	26.3	105	Not Given	X	
		EVALATER	ANALYTICAL		0.00		
SAMPLE		EXPECTED	ANALITICAL			СЕРТАВ	LE
NUMBER	Түре	RESULT	RESULT	%R	ACC	JEP I AB	LE
	ТҮРЕ			%R	ACC	YES	NO
NUMBER	ТҮРЕ	RESULT	RESULT	%R	RANGE		
NUMBER CCV LA-52589	TYPE Standard	RESULT	RESULT	% R 81.6			
NUMBER CCV LA-52589 50 PPB		RESULT PPB	RESULT PPB		RANGE	YES	
NUMBER CCV LA-52589 50 PPB Benzene	Standard	RESULT PPB 50.0	RESULT PPB 40.8	81.6	RANGE 75 - 125 %	YES	
NUMBER CCV LA-52589 50 PPB Benzene Toluene	Standard Standard	RESULT PPB 50.0 50.0	RESULT PPB 40.8 49.8	81.6 99.6	RANGE 75 - 125 % 75 - 125 %	YES X X	
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene	Standard Standard Standard	RESULT PPB 50.0 50.0 50.0	RESULT PPB 40.8 49.8 49.8	81.6 99.6 99.6	RANGE 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X	
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene	Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100	RESULT PPB 40.8 49.8 49.8 97.5	81.6 99.6 99.6 97.5	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene	Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0	RESULT PPB 40.8 49.8 49.8 97.5 50.2	81.6 99.6 99.6 97.5	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X X X	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE	Standard Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0 EXPECTED	RESULT PPB 40.8 49.8 49.8 97.5 50.2 ANALYTICAL	81.6 99.6 99.6 97.5 100	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X X X	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER	Standard Standard Standard Standard Standard TYPE	RESULT PPB 50.0 50.0 50.0 100 50.0 EXPECTED RESULT	RESULT PPB 40.8 49.8 49.8 97.5 50.2 ANALYTICAL RESULT	81.6 99.6 99.6 97.5 100	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X ZEPTAE	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER CCV LA-52589	Standard Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0 EXPECTED RESULT PPB 50.0	RESULT PPB 40.8 49.8 49.8 97.5 50.2 ANALYTICAL RESULT	81.6 99.6 99.6 97.5 100	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % ACC	YES X X X X ZEPTAE	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER CCV LA-52589 50 PPB	Standard Standard Standard Standard Standard TYPE Standard Standard	RESULT PPB 50.0 50.0 50.0 50.0 50.0 100 50.0 8 EXPECTED RESULT PPB 50.0 50.0	RESULT PPB 40.8 49.8 49.8 97.5 50.2 ANALYTICAL RESULT	81.6 99.6 97.5 100 %R	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % ACC RANGE	YES X X X X ZEPTAE	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER CCV LA-52589 50 PPB Benzene	Standard Standard Standard Standard Standard TYPE Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0 50.0 EXPECTED RESULT PPB 50.0 50.0 50.0	RESULT PPB 40.8 49.8 49.8 97.5 50.2 ANALYTICAL RESULT	81.6 99.6 97.5 100 %R	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % RANGE 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X ZEPTAE	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER CCV LA-52589 50 PPB Benzene Toluene	Standard Standard Standard Standard Standard TYPE Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0 EXPECTED RESULT PPB 50.0 50.0	RESULT PPB 40.8 49.8 49.8 97.5 50.2 ANALYTICAL RESULT	81.6 99.6 97.5 100 %R 0.0 0.0 0.0 0.0	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % ACC RANGE 75 - 125 % 75 - 125 %	YES X X X X ZEPTAE	NO

Narrative: Acceptable.

EL PASO FIELD SERVICES LAB QUALITY CONTROL REPORT EPA METHOD 8020 - BTEX Samples: 970716 & 970726

LABORATORY DUPLICATES:

SAMPLE	TYPE	SAMPLE	DUPLICATE	RPD	AC	CEPTABL	E
B	ITPE	RESULT PPB	PPB	nfu	DENOT	YES	NO
970716					HANGE		
Benzene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	Х	
Toluene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	Х	
Ethylbenzene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	Х	
m & p - Xylene	Matrix Duplicate	<2	<2	0.00	+/- 20 %	Х	
o - Xylene	Matrix Duplicate	<1	<1	0.00	+/-20 %	X	

Narrative: Acceptable.

LABORATORY SPIKES:

SAMPLE ID 2nd Analysis 970716	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT PPB	%R	ACCEPTABLE YES NO RANGE
Benzene	50	< 1	44.3	88.6	75 - 125 % X
Toluene	50	< 1	50.6	101	75 - 125 % X
Ethylbenzene	50	<1	50.7	101	75 - 125 % X
m & p - Xylene	100	< 2	99.6	99.6	75 - 125 % X
o - Xylene	50	< 1	51.1	102	<u>75 - 125 % X</u>

Narrative: Acceptable

ADDITIONAL ANALYTICAL BLANKS:

AUTO BLANK	SOURCE	PPB	STATUS
Benzene	Boiled Water	<1.0	ACCEPTABLE
Toluene	Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Boiled Water	< 3.0	ACCEPTABLE

Narrative: Acceptable.

SOIL VIAL BLANK	SOURCE Lot IMB1461	PPB (None analyzed with this set)	STATUS
Benzene	Vial - Boiled Water	<1.0	ACCEPTABLE
Toluene	Vial - Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Vial - Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Vial - Boiled Water	<3.0	ACCEPTABLE

Narrative: Acceptable.

CONTAMINATION CARRYOVER CHECK	SOURCE	PPB (None analyzed with this set)	STATUS
Benzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Toluene	Vial + Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	< 3.0	ACCEPTABLE

Approved By:

Narrative: Acceptable.

Reported By: mach

Jandarth

Date: woz2

General Chemistry by Standard Methods



Field Services Laboratory

Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID: DATE SAMPLED: TIME SAMPLED (Hrs): SAMPLED BY: MATRIX: METER CODE: SAMPLE SITE NAME: SAMPLE POINT:

07/25/97 1457 N/A Water N/A Chaco Plant Monitor Wells MW-9

970716

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	8.3	Units	07/28/97
Alkalinity as C0 ₃	5.6	РРМ	07/28/97
Alkalinity as HC0 ₃	495	РРМ	07/28/97
Calcium as Ca	66	PPM	07/28/97
Magnesium as Mg	19	РРМ	07/28/97
Total Hardness as CaC0 ₃	242	PPM	07/28/97
Chloride as Cl	75	РРМ	07/28/97
Sulfate as S0 ₄	341	РРМ	07/28/97
Fluoride as F	1.7	PPM	07/28/97
Nitrate as N0 ₃ -N	<0.1	PPM	07/28/97
Nitrite as N0 ₂ -N	< 0.1	РРМ	07/28/97
Ammonium as NH ₄ ⁺	<0.1	PPM	07/28/97
Phosphate as PO ₄	< 0.1	PPM	07/28/97
Potassium as K	4.0	РРМ	07/28/97
Sodium as Na	274	PPM	07/28/97
Total Dissolved Solids	1,060	РРМ	07/28/97
Conductivity	1,610	umhos/cm	07/28/97
Anion/Cation %	2.2%	%, <5.0 Accepted	08/06/97

Lab Remarks:

Nitrate and Nitrite were analyzed out of holding times.

Reported By: Succe

Approved By: ______

_____ Date: <u>8/</u>

DEL PASO FIELD SERVICES

Field Services Laboratory

Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	L
DATE SAMPLED:	
TIME SAMPLED (Hrs):	
SAMPLED BY:	L
MATRIX:	L
METER CODE:	
SAMPLE SITE NAME:	
SAMPLE POINT:	

N/A Water N/A **Chaco Plant Monitor Wells MW-10**

970717 07/25/97 1559

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.3	Units	07/28/97
Alkalinity as C0 ₃	0.0	PPM	07/28/97
Alkalinity as HC0 ₃	1250	PPM	07/28/97
Calcium as Ca	78	РРМ	07/28/97
Magnesium as Mg	28	РРМ	07/28/97
Total Hardness as CaC0 ₃	310	РРМ	07/28/97
Chloride as Cl	426	РРМ	07/28/97
Sulfate as S0 ₄	206	РРМ	07/28/97
Fluoride as F	1.4	РРМ	07/28/97
Nitrate as N0 ₃ -N	< 0.1	РРМ	07/28/97
Nitrite as N0 ₂ -N	< 0.1	РРМ	07/28/97
Ammonium as NH4 ⁺	< 0.1	РРМ	07/28/97
Phosphate as PO ₄	1.3	PPM	07/28/97
Potassium as K	7.4	PPM	07/28/97
Sodium as Na	708	PPM	07/28/97
Total Dissolved Solids	2,150	PPM	07/28/97
Conductivity	3,340	umhos/cm	07/28/97
Anion/Cation %	0.4%	%, <5.0 Accepted	08/06/97

Lab Remarks:

Nitrate and Nitrite were analyzed out of holding times.

Reported By: Mdu

Approved By: John Jardin Date: 8/7/97

RCRA Metals



FIELD SERVICES LABORATORY

ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	970716
SAMPLE DATE:	07/25/97
AMPLE TIME (Hrs):	1457
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	NA
AMPLE SITE NAME:	Chaco Plant Monitor Wells
SAMPLE POINT:	Monitor Well #9

REMARKS:

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
ARSENIC	0.036	0.100
BARIUM	0.14	1.00
CADMIUM	0.0003	0.010
CHROMIUM	< 0.004	0.050
LEAD	0.004	0.050
MERCURY	< 0.0002	0.002
SELENIUM	< 0.011	0.050
SILVER	<0.0004	0.050

References:

Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts, Test Methods for Evaluating Solid Waste, SW-846, Sept., 1994. Method 7061A, Arsenic (Atomic Absorption, Gaseous Hydride), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992. Method 7081, Barium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992. Method 7131, Cadmium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 7191, Chromium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986.

Method 7421, Lead (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986.

Method 245.5, Mercury (Automated Cold Vapor Technique), Methods for the Determination of Metals in Environmental Samples, EPA 600/4-91/010, USEPA, June, 1991.

Method 7741A, Selenium (Atomic Absorption, Gaseous Hydride), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1994. Method 7761, Silver (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992.

Reported By: MN

Approved By: John Tartan.

Date: 8/29/97



FIELD SERVICES LABORATORY

ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	970717
SAMPLE DATE:	07/25/97
SAMPLE TIME (Hrs):	1559
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	NA
SAMPLE SITE NAME:	Chaco Plant Monitor Wells
SAMPLE POINT:	Monitor Well #10

REMARKS:

	RESULTS						
	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)					
ARSENIC	0.023	0.100					
BARIUM	0.19	1.00					
CADMIUM	<0.0002	0.010					
CHROMIUM	< 0.004	0.050					
LEAD	< 0.003	0.050					
MERCURY	< 0.0002	0.002					
SELENIUM	< 0.011	0.050					
SILVER	< 0.0004	0.050					

References:

Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts, Test Methods for Evaluating Solid Waste, SW-846, Sept., 1994. Method 7061A, Arsenic (Atomic Absorption, Gaseous Hydride), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992. Method 7081, Barium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992. Method 7131, Cadmium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 7191, Chromium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 7421, Lead (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 245.5, Mercury (Automated Cold Vapor Technique), Methods for the Determination of Metals in Environmental Samples, EPA 600/4-91/010,

USEPA, June, 1991.

Method 7741A, Selenium (Atomic Absorption, Gaseous Hydride), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1994. Method 7761, Silver (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992.

Reported By: m

Approved By: John Faither

Date: 8/29/97



QUALITY CONTROL REPORT

Sample ID: 970716, 970717 Date Reported: 08/28/97

STANDARD REFERENCE MATERIAL

Analyte	Found Result (mg/L)	Known Value (mg/L)	% Recovery
Arsenic	0.031	0.032	94.4%
Barium	0.061	0.065	94.6%
Cadmium	0.0012	0.0012	103%
Chromium	0.008	0.007	103%
Lead	0.044	0.042	105%
Mercury	0.0041	0.0046	89.3%
Selenium	0.040	0.041	98.8%
Silver	0.0066	0.0068	97.6%

DUPLICATE ANALYSIS (mg/L)

Analyte	Original Sample Result	Duplicate Sample Result	% RPD
Arsenic	0.0078	0.0077	1.3%
Barium	0.222	0.216	2.7%
Cadmium	ND	ND	NA
Chromium	0.014	0.014	2.6%
Lead	ND	ND	NA
Mercury	ND	ND	NA
Selenium	ND	ND	NA
Silver	0.0004	0.0002	NA

SPIKE ANALYSIS (mg/L)

Analyte	Original Sample Result	Spike Sample Result	Spike Added	Recovery Percent
Arsenic	0.0078	0.118	0.100	110%
Barium	0.222	1.247	1.00	94.2%
Cadmium	ND	0.0101	0.010	101%
Chromium	0.014	0.064	0.050	101%
Lead	ND	0.053	0.050	102%
Mercury	ND	0.0018	0.0020	89.0%
Selenium	ND	0.060	0.050	117%
Silver	ND	0.0550	0.050	110%

METHOD BLANK

Analyte	Found Result (mg/L)	Detection Level (mg/L)
Arsenic	ND	0.004
Barium	ND	0.019
Cadmium	ND	0.0002
Chromium	ND	0.004
Lead	ND	0.003
Mercury	ND	0.0002
Selenium	ND	0.011
Silver	ND	0.0004

Approved By: John Farbon

ND: Not Detected at stated detection level.

NA: Not Applicable.

Date: 8/29/97

Reported By: Mh

Contract Lab VOC's and PAH's

AEN I.D.

707381

119 94 201 1 11/14

August 15, 1997

Project Name Project Number

EL PASO FIELD SERVICES P.O. BOX 4990 FARMINGTON, NM 87499



CHACO PLANT MW'S ^出 9 く [±]10 (none)

(New installation)

Attention: JOHN LAMBDIN

On 7/29/97 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

The trip blank (707381-03) was run immediately after sample 707381-02. We believe that the analytes found in the trip blank are carry-over. This was confirmed by analyzing a refrigerator blank labeled 707381-04) prepared with the trip blank, but stored at AEN(NM). The refrigerator blank was clean and the contaminants are the result of carryover.

EPA method 504.1 and 8240 was performed by American Environmental Network (NM) Inc., Albuquerque, NM.

EPA method 8310 was performed by American Environmental Network (FL) Inc., 11 East Olive Road, Pensacola, FL.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

Kimberly D. McNeill Project Manager

MR: mt

H. Mitchell Rubenstein, Ph. D. General Manager

Enclosure

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: EL PASO FIELD SERVICES	AEN I.D.	: 707381
: (none)	DATE RECEIVED	: 7/29/97
: CHACO PLANT MW'S	REPORT DATE	: 8/15/97
		DATE
CLIENT DESCRIPTION	MATRIX	COLLECTED
970716	AQ	7/25/97
970717	AQ	7/25/97
TRIP BLANK	AQ	7/24/97
	: (none) : CHACO PLANT MW'S CLIENT DESCRIPTION 970716 970717	(none)DATE RECEIVEDCHACO PLANT MW'SREPORT DATECLIENT DESCRIPTIONMATRIX970716AQ970717AQ

$$970716 = mW^{\pm}9$$
 (allected 7/25/97 @ 1457
 $970717 = mW^{\pm}10$ collected 7/25/97 @ 1559

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GAS CHROMOTOGRAPHY RESULTS

TEST CLIENT PROJECT # PROJECT NAN	ΛE	: ETHYLENE DI : EL PASO FIEL : (none) : CHACO PLAN	D SERVICES	•	94.1)	AEN I.D.	: 707381
SAMPLE				DATE	DATE	DATE	DIL.
ID.# (CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01 9	970716 - mw #9		AQUEOUS	7/25/97	7/30/97	7/30/97	1
02 9	970717 - mw = 10		AQUEOUS	7/25/97	7/30/97	7/30/97	1
PARAMETER		DET. LIMIT		UNITS	01	02	
ETHYLENE DIE	BROMIDE	0.01		UG/L	< 0.01	< 0.01	
1,2-DIBROMO-	3-CHLOROPROPANE	0.01		UG/L	< 0.01	< 0.01	
SURROGATE: 1,4-DICHLORO SURROGATE L		(75 - 141)			91	87	

CHEMIST NOTES: N/A

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GAS CHROMOTOGRAPHY RESULTS REAGENT BLANK

TEST BLANK I.D. CLIENT PROJECT # PROJECT NAME	: ETHYLENE DIBROMIDE-DB0 : 073097 : EL PASO FIELD SERVICES : (none) : CHACO PLANT MW'S	CP (EPA 50	4.1) AEN I.D. MATRIX DATE EXTRACTED DATE ANALYZED	707381 AQUEOUS 7/30/97 7/30/97
PARAMETER	DET. LIMIT	UNITS		· · · · · · · · · · · · · · · · · · ·
ETHYLENE DIBROMIDE	0.01	UG/L	<0.01	
1,2-DIBROMO-3-CHLOROPROPANE	0.01	UG/L	<0.01	
SURROGATE: 1,4-DICHLOROBENZENE SURROGATE LIMITS	(78 - 140)		101	

CHEMIST NOTES: N/A

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	GAS CH	ROMOTOGR	APHY RESUL	TS			
		QUALITY CO	ONTROL				
		MSMS	D				
TEST	: ETHYLENE DIE	ROMIDE-D	BCP (EPA 504	.1)			
MSMSD #	: 073097 AEN I.D. : 707381						
CLIENT	: EL PASO FIELD SERVICES DATE EXTRACTED				7/30/97		
PROJECT #	: (none) DATE ANALYZED				LYZED	7/30/97	
PROJECT NAME	: CHACO PLANT	' MW'S		MATRIX		AQUEOUS	
				UNITS		UG/L	
	SAMPLE	CONC.	SPIKED	%	DUP	DUP	%
PARAMETER	RESULT	SPIKE	SAMPLE	REC	SPIKE	% REC	RPD
ETHYLENE DIBROMIDE	< 0.01	0.25	0.23	92%	0.23	92%	0%
1,2-DIBROMO-3-CHLOROPROPANE	<0.01	0.25	0.24	96%	0.24	96%	0%

CHEMIST NOTES: N/A

(Spike Sample Result - Sample Result) ------ X 100

% Recovery =

Spike Concentration

(Sample Result - Duplicate Result)

RPD (Relative Percent Difference) =

Average Result

----- X 100

Moniton Well # 9

TEST CLIENT PROJECT # PROJECT NAME	: VOLATILE ORG/ : EL PASO FIELD : (none) : CHACO PLANT I	SERVICES	OD 8260 EXTI	ENDED AEN I.D DATE RECEIVED		707381 7/29/97
SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
707381-01	970716	AQUEOUS	7/25/97	N/A	07/31/97	1
PARAMETER	DET. LIMIT		UNITS	······		
Dichlorodifluoromethane	1.0	< 1.0	ug/L			
Chloromethane	1.0	< 1.0	ug/L			
Vinyl Chloride	1.0	< 1.0	ug/L			
Bromomethane	1.0	< 1.0	ug/L			
Chloroethane	1.0	< 1.0	ug/L			
Trichlorofluoromethane	1.0	< 1.0	ug/L			
Acetone	10	< 10	ug/L			
Acrolein	5.0	< 5.0	ug/L			
1,1-Dichloroethene	1.0	< 1.0	ug/L			
lodomethane	1.0	< 1.0	ug/L			
Methylene Chloride	1.0	< 1.0	ug/L			
Acrylonitrile	5.0	< 5.0	ug/L			
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L			
Methyl-t-butyl Ether	1.0	< 1.0	ug/L			
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L			
1,1-Dichloroethane	1.0	< 1.0	ug/L			
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L			
2-Butanone	10	< 10	ug/L			
Carbon Disulfide	1.0	< 1.0	ug/L			
Bromochloromethane	1.0	< 1.0	ug/L			
Chloroform	1.0	< 1.0	ug/L			
2,2-Dichloropropane	1.0	< 1.0	ug/L			
1,2-Dichloroethane	1.0	< 1.0	ug/L			
Vinyl Acetate	1.0	< 1.0	ug/L			
1,1,1-Trichloroethane	1.0	< 1.0	ug/L			
1,1-Dichloropropene	1.0	< 1.0	ug/L			
Carbon Tetrachloride	1.0	< 1.0	ug/L			
Benzene	1.0	< 1.0	ug/L			
1,2-Dichloropropane	1.0	< 1.0	ug/L			
Trichloroethene	1.0	< 1.0	ug/L			
Bromodichloromethane	1.0	< 1.0	ug/L			
2-Chloroethyl Vinyl Ether	10	< 10	ug/L			
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L			
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L			
1,1,2-Trichloroethane	1.0	< 1.0	ug/L			
1,3-Dichloropropane	1.0	< 1.0	ug/L			
Dibromomethane	1.0	< 1.0	ug/L			
Toluene	1.0	< 1.0	ug/L			
1,2-Dibromoethane	1.0	< 1.0	ug/L			
4-Methyl-2-Pentanone	10	< 10	ug/L			
2-Hexanone	10	< 10	ug/L			
Dibromochloromethane	1.0	< 1.0	ug/L			
Tetrachloroethene	1.0	< 1.0	ug/L			

Monitor well #9

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CLIENT	: EL PASO FIELD	ANICS EPA METH SERVICES	OD 8200 EAT	AEN I.D	707381	
PROJECT #	: (none)			DATE RECEIVED	7/29/97	
PROJECT NAME	: CHACO PLANT	MA/'S		DATEREOLIVE	(129191	
SAMPLE			DATE	DATE	DATE	DIL.
ID #	CLIENT ID	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
707381-01	970716	AQUEOUS	7/25/97	N/A	07/31/97	1
PARAMETER	DET. LIMIT		UNITS			
Chlorobenzene	1.0	< 1.0	ug/L			
Ethylbenzene	1.0	< 1.0	ug/L			
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L			
o-Xylene	1.0	< 1.0	ug/L			
m&p Xylenes	1.0	< 1.0	ug/L			
Styrene	1.0	< 1.0	ug/L			
Bromoform	1.0	< 1.0	ug/L			
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L			
1,2,3-Trichloropropane	1.0	< 1.0	ug/L			
Isopropyl Benzene	1.0	< 1.0	ug/L			
Bromobenzene	1.0	< 1.0	ug/L			
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L			
n-Propylbenzene	1.0	< 1.0	ug/L			
2-Chlorotoluene	1.0	< 1.0	ug/L			
4-Chiorotoluene	1.0	< 1.0	ug/L			
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L			
tert-Butylbenzene	1.0	< 1.0	ug/L			
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L			
sec-Butylbenzene	1.0	< 1.0	ug/L			
1,3-Dichlorobenzene	1.0	< 1.0	ug/L			
1,4-Dichlorobenzene	1.0	< 1.0	ug/L			
p-isopropyitoluene	1.0	< 1.0	ug/L			
1,2-Dichlorobenzene	1.0	< 1.0	ug/L			
n-Butylbenzene	1.0	< 1.0	ug/L			
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L			
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L			
Napthalene	1.0	< 1.0	ug/L			
Hexachlorobutadiene	1.0	< 1.0	ug/L			
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L			
SURROGATE % RECOVERY						
1,2-Dichloroethane-d4		81				

	(80-120)
Toluene-d8	93
	(88 - 110)
Bromofluorobenzene	99
	(86 - 115)

NO Hit. 8/29/97

Monitor Well #10

GC/MS RESULTS

TEST CLIENT	: VOLATILE ORG/ : EL PASO FIELD		OD 8260 EXT	ENDED AEN I.D	ı -	707381
PROJECT #	OLIVIOLO	DATE RECEIVED :			7/29/97	
PROJECT WAME	: (none) : CHACO PLANT I			DATE RECEIVED :		
SAMPLE	. CHACO FLANT		DATE	DATE	DATE	DIL.
ID #	CLIENT ID	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
707381-02	970717	AQUEOUS	7/25/97	N/A	07/31/97	1
PARAMETER	DET. LIMIT		UNITS		<u></u>	
Dichlorodifluoromethane	1.0	< 1.0	ug/L			
Chloromethane	1.0	< 1.0	ug/L			
Vinyl Chloride	1.0	< 1.0	ug/L			
Bromomethane	1.0	< 1.0	ug/L			
Chloroethane	1.0	< 1.0	ug/L			
Trichlorofluoromethane	1.0	< 1.0	ug/L			
Acetone	10	< 10	ug/L			
Acrolein	5.0	< 5.0	ug/L			
1,1-Dichloroethene	1.0	< 1.0	ug/L			
lodomethane	1.0	< 1.0	ug/L			
Methylene Chloride	1.0	< 1.0	ug/L			
Acrylonitrile	5.0	< 5.0	ug/L			
cis-1,2-Dichloroethene	1.0	< 1.0				
•			ug/L			
Methyl-t-butyl Ether	1.0	< 1.0	ug/L			
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L			
1,1-Dichloroethane	1.0	< 1.0	ug/L			
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L			
2-Butanone	10	< 10	ug/L			
Carbon Disulfide	1.0	< 1.0	ug/L			
Bromochloromethane	1.0	< 1.0	ug/L			
Chloroform	1.0	< 1.0	ug/L			
2,2-Dichloropropane	1.0	< 1.0	ug/L			
1,2-Dichloroethane	1.0	< 1.0	ug/L			
Vinyl Acetate	1.0	< 1.0	ug/L			
1,1,1-Trichloroethane	1.0	< 1.0	ug/L			
1,1-Dichloropropene	1.0	< 1.0	ug/L			
Carbon Tetrachloride	1.0	< 1.0	ug/L			
Benzene	1.0	530 (D50)	ug/L	wace limi-	t = 10 m /2	- OVER
1,2-Dichloropropane	1.0	< 1.0	ug/L		0.1-	
Trichloroethene	1.0	< 1.0	ug/L			
Bromodichloromethane	1.0	< 1.0	ug/L			
2-Chloroethyl Vinyl Ether	10	< 10	ug/L			
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L			
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L			
1,1,2-Trichloroethane	1.0	< 1.0	ug/L			
1,3-Dichloropropane	1.0	< 1.0	ug/L			
Dibromomethane	1.0	< 1.0	ug/L			ave a
Toluene	1.0	790 (D50)	ug/L	wace Limit	= 750mg/L	- UVER
1,2-Dibromoethane	1.0	< 1.0	ug/L		U U	
4-Methyl-2-Pentanone	10	< 10	ug/L			
2-Hexanone	10	14	ug/L	No ware Lin	nit	
Dibromochloromethane	1.0	< 1.0	ug/L			
Tetrachloroethene	1.0	< 1.0	ug/L			

8/29/97

Monitor Well #10

IMP

GC/MS RESULTS

TEST CLIENT PROJECT # PROJECT NAME	: VOLATILE ORGA : EL PASO FIELD : (none) : CHACO PLANT I	SERVICES	OD 8260 EXT	ENDED AEN I.D. DATE RECEIVED		707381 7/29/97
SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE	DATE ANALYZED	DIL. FACTOR
707381-02	970717	AQUEOUS	7/25/97	N/A	07/31/97	1
PARAMETER	DET. LIMIT		UNITS		· · · · · · · · · · · ·	
Chlorobenzene	1.0	< 1.0	ug/L			
Ethylbenzene	1.0	42	ug/L	WALL LIMIT :	- 750 uch	- UNDER
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L		- / والر ⁻	
o-Xylene	1.0	57	ug/L 🦴	Whee I have a	Taba V lands	- 1.20 / - IWDER
m&p Xylenes	1.0	230	ug/L		IOTAL AVIANCE	s = 620 mg/L - UNDER
Styrene	1.0	< 1.0	ug/L			
Bromoform	1.0	< 1.0	ug/L			
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L			
1,2,3-Trichloropropane	1.0	< 1.0	ug/L			
Isopropyl Benzene	1.0	2.8	ug/L 사	vo waee Limi	+	
Bromobenzene	1.0	< 1.0	ug/L			
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L		• 1	
n-Propylbenzene	1.0	2.7	ug/L A	to ware him	hΤ	
2-Chlorotoluene	1.0	< 1.0	ug/L			
4-Chlorotoluene	1.0	< 1.0	ug/L	1	:+	
1,3,5-Trimethylbenzene	1.0	9.7	ug/L N		• 1	
tert-Butylbenzene	1.0	< 1.0	ug/L	o ware Lim	· L	
1,2,4-Trimethylbenzene	1.0	24	ug/L 🗸	o ware him	• 1-	
sec-Butylbenzene	1.0	< 1.0	ug/L			
1,3-Dichlorobenzene	1.0	< 1.0	ug/L			
1,4-Dichlorobenzene	1.0	< 1.0	ug/L			
p-isopropyitoluene	1.0	< 1.0	ug/L			
1,2-Dichlorobenzene	1.0	< 1.0	ug/L	to ware Li.	nit	
n-Butylbenzene	1.0	1.5	ug/L 💊			
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L			
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L			a) = 0
Napthalene	1.0	77	ug/L ա	Vacc Limit =	30 ug/L -	OVER
Hexachlorobutadiene	1.0	< 1.0	ug/L		10	
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L			

(D50) = 50X DILUTION, ANALYZED ON 8/1/97

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	107
	(80 - 120)
Toluene-d8	91
	(88 - 110)
Bromofluorobenzene	99
	(86 - 115)

H 8|28/97

TEST CLIENT	: VOLATILE ORGA : EL PASO FIELD :		OD 8260 EXTI	ENDED AEN I.D		707381	
		SERVICES					
PROJECT #	: (none)	A) A # C	DATE RECEIVED :			7/29/97	
	: CHACO PLANT M	VIVV S	DATE	DATE			
SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR	
707381-03	TRIP BLANK	AQUEOUS	7/25/97	N/A	07/31/97	1	
PARAMETER	DET. LIMIT	· · · · · ·	UNITS				
Dichlorodifluoromethane	1.0	< 1.0	ug/L				
Chloromethane	1.0	< 1.0	ug/L				
Vinyl Chloride	1.0	< 1.0	ug/L				
Bromomethane	1.0	< 1.0	ug/L				
Chloroethane	1.0	< 1.0	ug/L				
Trichlorofluoromethane	1.0	< 1.0	ug/L				
Acetone	10	< 10	ug/L				
Acrolein	5.0	< 5.0	ug/L				
1,1-Dichloroethene	1.0	< 1.0	ug/L				
lodomethane	1.0	< 1.0	ug/L				
Methylene Chloride	1.0	< 1.0	ug/L				
Acrylonitrile	5.0	< 5.0	ug/L				
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L				
Methyl-t-butyl Ether	1.0	< 1.0	ug/L				
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L				
1,1-Dichloroethane	1.0	< 1.0	ug/L				
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L				
2-Butanone	10	< 10	ug/L				
Carbon Disulfide	1.0	< 1.0	ug/L				
Bromochloromethane	1.0	< 1.0	ug/L				
Chloroform	1.0	< 1.0	ug/L				
2,2-Dichloropropane	1.0	< 1.0	ug/L				
1,2-Dichloroethane	1.0	< 1.0	ug/L				
Vinyl Acetate	1.0	< 1.0	ug/L				
1,1,1-Trichloroethane	1.0	< 1.0	ug/L				
1,1-Dichloropropene	1.0	< 1.0	ug/L				
Carbon Tetrachloride	1.0	< 1.0	ug/L				
Benzene	1.0	2.3	ug/L				
1,2-Dichloropropane	1.0	< 1.0	ug/L				
Trichloroethene	1.0	< 1.0	ug/L				
Bromodichloromethane	1.0	< 1.0	ug/L				
2-Chloroethyl Vinyl Ether	10	< 10	ug/L				
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L				
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L				
1,1,2-Trichloroethane	1.0	< 1.0	ug/L				
1,3-Dichloropropane	1.0	< 1.0	ug/L				
Dibromomethane	1.0	< 1.0	ug/L				
Toluene	1.0	6.2	ug/L				
1,2-Dibromoethane	1.0	< 1.0	ug/L				
4-Methyl-2-Pentanone	10	< 10	ug/L		\sim		
2-Hexanone	10	< 1.0	ug/L		, KEV.		
Dibromochloromethane	1.0	< 1.0	ug/L		201-		
Tetrachloroethene	1.0	< 1.0	ug/L		NOTED.		



TEST CLIENT PROJECT # PROJECT NAME	: VOLATILE ORGA : EL PASO FIELD : (none) : CHACO PLANT N	SERVICES	OD 8260 EXTI	707381 7/29/9 7		
SAMPLE	. CHAGO I DAITT		DATE	DATE	DATE	DIL.
ID#	CLIENT ID	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
707381-03	TRIP BLANK	AQUEOUS	7/25/97	N/A	07/31/97	1
PARAMETER	DET. LIMIT		UNITS			
Chlorobenzene	1.0	< 1.0	ug/L			
Ethylbenzene	1.0	< 1,0	ug/L			
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L			
o-Xylene	1.0	< 1.0	ug/L			
m&p Xylenes	1.0	< 1.0	ug/L			
Styrene	1.0	< 1.0	ug/L			
Bromoform	1.0	< 1.0	ug/L			
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L			
1,2,3-Trichloropropane	1.0	< 1.0	ug/L			
Isopropyl Benzene	1.0	< 1.0	ug/L			
Bromobenzene	1.0	< 1.0	ug/L			
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L			
n-Propylbenzene	1.0	< 1.0	ug/L			
2-Chlorotoluene	1.0	< 1.0	ug/L			
4-Chiorotoluene	1.0	< 1.0	ug/L			
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L			
tert-Butylbenzene	1.0	< 1.0	ug/L			
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L			
sec-Butylbenzene	1.0	< 1.0	ug/L			
1,3-Dichlorobenzene	1.0	< 1.0	ug/L			
1,4-Dichlorobenzene	1.0	< 1.0	ug/L			
p-isopropyltoluene	1.0	< 1.0	ug/L			
1,2-Dichlorobenzene	1.0	< 1.0	ug/L			
n-Butylbenzene	1.0	< 1.0	ug/L			
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L			
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L			
Napthalene	1.0	< 1.0	ug/L			
Hexachlorobutadiene	1.0	< 1.0	ug/L			
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L			
SURROGATE % RECOVERY						
1,2-Dichloroethane-d4		87				
		(80 - 120)				
Toluene-d8		91				
		(88 - 110)				
Bromofluorobenzene		107				
		(86 - 115)				

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TEST CLIENT PROJECT #	: VOLATILE ORGA : EL PASO FIELD : : (none)	SERVICES	OD 8260 EXTI	ENDED AEN I.D DATE RECEIVED		707381 7/29/97
PROJECT NAME	: CHACO PLANT N	NVV S	DATE			
SAMPLE ID #	CLIENT ID	MATRIX	SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
707381-04	REF. BLANK	AQUEOUS	7/25/97	N/A	08/01/97	1
PARAMETER	DET. LIMIT		UNITS		<u></u>	
Dichlorodifluoromethane	1.0	< 1.0	ug/L			
Chloromethane	1.0	< 1.0	ug/L			
Vinyl Chloride	1.0	< 1.0	ug/L			
Bromomethane	1.0	< 1.0	ug/L			
Chloroethane	1.0	< 1.0	ug/L			
Trichlorofluoromethane	1.0	< 1.0	ug/L			
Acetone	10	< 10	ug/L			
Acrolein	5.0	< 5.0	ug/L			
1,1-Dichloroethene	1.0	< 1.0	ug/L			
lodomethane	1.0	< 1.0	ug/L			
Methylene Chloride	1.0	< 1.0	ug/L			
Acrylonitrile	5.0	< 5.0	ug/L			
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L			
	1.0	< 1.0	ug/L			
Methyl-t-butyl Ether	1.0	< 1.0 < 1.0	•			
1,1,2,1,2,2-Trichlorotrifluoroethane		< 1.0 < 1.0	ug/L			
1,1-Dichloroethane	1.0		ug/L			
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L			
2-Butanone	10	< 10	ug/L			
Carbon Disulfide	1.0	< 1.0	ug/L			
Bromochloromethane	1.0	< 1.0	ug/L			
Chloroform	1.0	< 1.0	ug/L			
2,2-Dichloropropane	1.0	< 1.0	ug/L			
1,2-Dichloroethane	1.0	< 1.0	ug/L			
Vinyl Acetate	1.0	< 1.0	ug/L			
1,1,1-Trichloroethane	1.0	< 1.0	ug/L			
1,1-Dichloropropene	1.0	< 1.0	ug/L			
Carbon Tetrachloride	1.0	< 1.0	ug/L			
Benzene	1.0	< 1.0	ug/L			
1,2-Dichloropropane	1.0	< 1.0	ug/L			
Trichloroethene	1.0	< 1.0	ug/L			
Bromodichloromethane	1.0	< 1.0	ug/L			
2-Chloroethyl Vinyl Ether	10	< 10	ug/L			
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L			
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L			
1,1,2-Trichloroethane	1.0	< 1.0	ug/L			
1,3-Dichloropropane	1.0	< 1.0	ug/L			
Dibromomethane	1.0	< 1.0	ug/L			
Toluene	1.0	< 1.0	ug/L			
1,2-Dibromoethane	1.0	< 1.0	ug/L			
4-Methyl-2-Pentanone	10	< 10	ug/L			
2-Hexanone	10	< 1.0	ug/L			
Dibromochloromethane	1.0	< 1.0	ug/L			
Tetrachloroethene	1.0	< 1.0	ug/L			

TEST CLIENT PROJECT #	:EL PASO FIELD: :(none)	SERVICES	IOD 8260 EXTENDED AEN I.D. : DATE RECEIVED :			707381 7/29/97	
PROJECT NAME	CHACO PLANT	MW'S					
SAMPLE			DATE	DATE	DATE	DIL.	
ID #	C_IENT ID	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR	
707381-04	REF. BLANK	AQUEOUS	7/25/97	N/A	08/01/97	1	
PARAMETER	DET. LIMIT		UNITS				
Chlorobenzene	1.0	< 1.0	ug/L				
Elhylbenzene	1.0	< 1.0	ug/L				
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L				
o-Xylene	1.0	< 1.0	ug/L				
m&p Xylenes	1.0	< 1.0	ug/L				
Styrene	1.0	< 1.0	ug/L				
Bromoform	1.0	< 1.0	ug/L				
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L				
1,2,3-Trichloropropane	1.0	< 1.0	ug/L				
Isopropyi Benzene	1.0	< 1.0	ug/L				
Bromobenzene	1.0	< 1.0	ug/L				
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L				
n-Propylbenzene	1.0	< 1.0	ug/L				
2-Chlorotoluene	1.0	< 1.0	ug/L				
4-Chlorotoluene	1.0	< 1.0	ug/L				
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L				
tert-Butylbenzene	1.0	< 1.0	ug/L				
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L				
sec-Butylbenzene	1.0	< 1.0	ug/L				
1,3-Dichlorobenzene	1.0	< 1.0	ug/L				
1,4-Dichlorobenzene	1.0	< 1.0	ug/L				
p-isopropyitoluene	1.0	< 1.0	ug/L				
1,2-Dichlorobenzene	1.0	< 1.0	ug/L				
n-Butylbenzene	1.0	< 1.0	ug/L				
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L				
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L				
Napthalene	1.0	< 1.0	ug/L				
Hexachlorobutadiene	1.0	< 1.0	ug/L				
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L				
SURROGATE % RECOVERY							
1,2-Dichloroethane-d4		90					
		(80 - 120)					
Toluene-d8		88					
		(88 - 110)					
Bromofluorobenzene		106					
		(86 - 115)					

TEST CLIENT PROJECT #	:EL PASO FIELD :(none)	SERVICE	A METHOD 8260 EXT S	ENDED AEN I.D	. :	707381
PROJECT NAME	: CHACO PLANT I	MW'S				
SAMPLE ID #	BATCH		MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	073197		AQUEOUS	N/A	07/31/97	1
PARAMETER	DET. LIMIT		UNITS			
	1.0	< 1.0				
Dichlorodifluoromethane	1.0	< 1.0 < 1.0	ug/L			
Chloromethane	1.0	< 1.0	ug/L			
Vinyl Chloride Bromomethane	1.0	< 1.0 < 1.0	ug/L			
Chloroethane	1.0	< 1.0 < 1.0	ug/L			
	1.0	< 1.0 < 1.0	ug/L			
Trichlorofluoromethane			ug/L			
Acetone	10	< 10	ug/L			
Acrolein	5.0 1.0	< 5.0 < 1.0	ug/L			
1,1-Dichloroethene			ug/L			
lodomethane	1.0 1.0	< 1.0 < 1.0	ug/L			
Methylene Chloride			ug/L			
	5.0	< 5.0	ug/L			
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L			
Methyl-t-butyl Ether	1.0	< 1.0	ug/L			
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L			
1,1-Dichloroethane	1.0 1.0	< 1.0	ug/L			
trans-1,2-Dichloroethene		< 1.0	ug/L			
2-Butanone	10	< 10 < 1.0	ug/L			
Carbon Disulfide	1.0		ug/L			
Bromochloromethane	1.0	< 1.0	ug/L			
Chloroform	1.0	< 1.0	ug/L			
2,2-Dichloropropane	1.0	< 1.0	ug/L			
1,2-Dichloroethane	1.0	< 1.0	ug/L			
Vinyl Acetate	1.0	< 1.0	ug/L			
1,1,1-Trichloroethane	1.0	< 1.0	ug/L			
1,1-Dichloropropene	1.0	< 1.0	ug/L			
Carbon Tetrachloride	1.0	< 1.0	ug/L			
Benzene	1.0	< 1.0	ug/L			
1,2-Dichloropropane	1.0	< 1.0	ug/L			
Trichloroethene	1.0	< 1.0	ug/L			
Bromodichloromethane	1.0	< 1.0	ug/L			
2-Chloroethyl Vinyl Ether	10	< 10	ug/L			
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L			
trans-1,3-Dichloropropene	1.0	< 10	ug/L			
1,1,2-Trichloroethane	1.0 1.0	< 1.0 < 1.0	ug/L			
1,3-Dichloropropane			ug/L			
Dibromomethane	1.0	< 1.0	ug/L			
	1.0 1.0	< 1.0 < 1.0	ug/L			
1,2-Dibromoethane	10	< 1.0 < 10	ug/L			
4-Methyl-2-Pentanone	10	< 10	ug/L			
2-Hexanone Dibromochloromethane	1.0	< 1.0	ug/L			
Tetrachloroethene	1.0	< 1.0 < 1.0	ug/L ug/L			

GC/MS RESULTS

TEST CLIENT PROJECT #	: VOLATILE ORG : EL PASO FIELD : (none)		A METHOD 8260 EXT S	ENDED AEN I.D	.:	707381
PROJECT NAME	: CHACO PLANT	MW'S				
SAMPLE				DATE	DATE	DIL.
ID #	BATCH		MATRIX	EXTRACTED	ANALYZED	FACTOR
REAGENT BLANK	073197		AQUEOUS	N/A	07/31/97	1
PARAMETER	DET. LIMIT		UNITS			
Chlorobenzene	1.0	< 1.0	ug/L			
Ethylbenzene	1.0	< 1.0	ug/L			
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L			
o-Xylene	1.0	< 1.0	ug/L			
m&p Xylenes	1.0	< 1.0	ug/L			
Styrene	1.0	< 1.0	ug/L			
Bromoform	1.0	< 1.0	ug/L			
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L			
1,2,3-Trichloropropane	1.0	< 1.0	ug/L			
Isopropyl Benzene	1.0	< 1.0	ug/L			
Bromobenzene	1.0	< 1.0	ug/L			
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L			
n-Propylbenzene	1.0	< 1.0	ug/L			
2-Chlorotoluene	1.0	< 1.0	ug/L			
4-Chlorotoluene	1.0	< 1.0	ug/L			
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L			
tert-Butylbenzene	1.0	< 1.0	ug/L			
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L			
sec-Butylbenzene	1.0	< 1.0	ug/L			
1,3-Dichlorobenzene	1.0	< 1.0	ug/L			
1 4-Dichlorobenzene	1.0	< 1.0	ug/L			
p-isopropyltoluene	1.0	< 1.0	ug/L			
1 2-Dichlorobenzene	1.0	< 1.0	ug/L			
n-Butylbenzene	1.0	< 1.0	ug/L			
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L			
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L			
Napthalene	1.0	< 1.0	ug/L			
Hexachlorobutadiene	1.0	< 1.0	ug/L			
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L			
SURROGATE % RECOVERY						
1,2-Dichloroethane-d4			82			
-		(80) - 120)			
Toluene-d8		•	92			
		(88	3 - 110)			
Bromofluorobenzene			104			
			5 - 115)			

GC/MS RESULTS

TEST CLIENT PROJECT # PROJECT NAME	: VOLATILE ORG/ : EL PASO FIELD : (none) : CHACO PLANT I	SERVICE	A METHOD 8260 EXT S	ENDED AEN I.D	.:	707381	
SAMPLE ID #	BATCH		MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR	
REAGENT BLANK	080197	· · · · ·	AQUEOUS	N/A	08/01/97	1	
PARAMETER	DET. LIMIT		UNITS	· · · · · · · · · · · · · · · · · · ·			
Dichlorodifluoromethane	1.0	< 1.0	ug/L				
Chloromethane	1.0	< 1.0	ug/L				
Vinyl Chloride	1.0	< 1.0	ug/L				
Bromomethane	1.0	< 1.0	ug/L				
Chloroethane	1.0	< 1.0	ug/L				
Trichlorofluoromethane	1.0	< 1.0	ug/L				
Acetone	10	< 10	ug/L				
Acrolein	5.0	< 5.0	ug/L				
1,1-Dichloroethene	1.0	< 1.0	ug/L				
lodomethane	1.0	< 1.0	ug/L				
Methylene Chloride	1.0	< 1.0	ug/L				
Acrylonitrile	5.0	< 5.0	ug/L				
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L				
Methyl-t-butyl Ether	1.0	< 1.0	ug/L				
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L				
1.1-Dichloroethane	1.0	< 1.0	ug/L				
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L				
2-Butanone	10	< 10	ug/L				
Carbon Disulfide	1.0	< 1.0	ug/L				
Bromochloromethane	1.0	< 1.0	ug/L				
Chloroform	1.0	< 1.0	ug/L				
2,2-Dichloropropane	1.0	< 1.0	ug/L				
1,2-Dichloroethane	1.0	< 1.0	ug/L				
Vinyl Acetate	1.0	< 1.0	ug/L				
1,1,1-Trichloroethane	1.0	< 1.0	ug/L				
1,1-Dichloropropene	1.0	< 1.0	ug/L				
Carbon Tetrachloride	1.0	< 1.0	ug/L				
Benzene	1.0	< 1.0	ug/L				
1,2-Dichloropropane	1.0	< 1.0	ug/L				
Trichloroethene	1.0	< 1.0	ug/L				
Bromodichloromethane	1.0	< 1.0	ug/L				
2-Chloroethyl Vinyl Ether	10	< 10	ug/L				
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L				
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L				
1,1,2-Trichloroethane	1.0	< 1.0	ug/L				
1,3-Dichloropropane	1.0	< 1.0	ug/L				
Dibromomethane	1.0	< 1.0	ug/L				
Toluene	1.0	< 1.0	ug/L				
1,2-Dibromoethane	1.0	< 1.0	ug/L				
4-Methyl-2-Pentanone	10	< 10	ug/L				
2-Hexanone	10	< 10	ug/L				
Dibromochloromethane	1.0	< 1.0	ug/L				
Tetrachioroethene	1.0	< 1.0	ug/L				

GC/MS RESULTS

TEST CLIENT PROJECT #	:EL PASO FIELD :(none)	SERVICE	A METHOD 8260 EXT S	ENDED AEN I.D). :	707381
PROJECT NAME	: CHACO PLANT	MW'S				
SAMPLE				DATE	DATE	DIL.
ID #	BATCH		MATRIX	EXTRACTED	ANALYZED	FACTOR
REAGENT BLANK	080197		AQUEOUS	N/A	08/01/97	1
PARAMETER	DET. LIMIT		UNITS			
Chlorobenzene	1.0	< 1.0	ug/L			
Ethylbenzene	1.0	< 1.0	ug/L			
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L			
o-Xylene	1.0	< 1.0	ug/L			
m&p Xylenes	1.0	< 1.0	ug/L			
Styrene	1.0	< 1.0	ug/L			
Bromoform	1.0	< 1.0	ug/L			
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L			
1,2,3-Trichloropropane	. 1.0	< 1.0	ug/L			
Isopropyl Benzene	1.0	< 1.0	ug/L			
Bromobenzene	1.0	< 1.0	ug/L			
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L			
n-Propylbenzene	1.0	< 1.0	ug/L			
2-Chlorotoluene	1.0	< 1.0	ug/L			
4-Chlorotoluene	1.0	< 1.0	ug/L			
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L			
tert-Butylbenzene	1.0	< 1.0	ug/L			
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L			
sec-Butylbenzene	1.0	< 1.0	ug/L			
1,3-Dichlorobenzene	1.0	< 1.0	ug/L			
1.4-Dichlorobenzene	1.0	< 1.0	ug/L			
p-Isopropyltoluene	1.0	< 1.0	ug/L			
1,2-Dichlorobenzene	1.0	< 1.0	ug/L			
n-Butylbenzene	1.0	< 1.0	ug/L			
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L			
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L			
Napthalene	1.0	< 1.0	ug/L			
Hexachlorobutadiene	1.0	< 1.0	ug/L			
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L			
1,2,0-110000000012016	1.0	- 1.0	ug/L			
SURROGATE % RECOVERY						
1,2-Dichloroethane-d4			114			
		(80	- 120)			
Toluene-d8			89			
		(88	i - 110)			
Bromofluorobenzene			104			
		(86	i - 115)			

American Environmental Network, Inc.

Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\8260E4.M (RTE Integrator) Title : AEN New Mexico GC/MS Last Update : Tue Jul 29 13:32:38 1997 Response via : Initial Calibration

Non-Spiked Sample: 073197B3.D

	Spike Sample	Spike Duplicate Sample
Sample :	BS	073197S2.D BS 31 Jul 97 7:01 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC RPD	Limits % Rec
1,1-Dichloroethene	0.0	50	65	65	130	130	1	14	61-145
Benzene	0.0	50	42	41	83	81	3	11	76-127
Trichloroethene	0.0	50	51	52	102	103	2	14	71-120
Toluene	0.0	50	47	47	93	95	2	13	76-125
Chlorobenzene	0.0	50	48	49	97	98	2	13	75-130

- Fails Limit Check

8260E4.M

Fri Aug 01 08:35:16 1997

American Environmental Network , Inc.

Monitor Well #9

"FINAL REPORT FORMAT - SINGLE"

Accession: Client: Project Number: Project Name: Project Location: Test: Analysis Method: Extraction Method: Matrix: QC Level:	CHASE PLANT MW'S POLYNUCLEAR ARON 8310/Test Method	ERVICES CO. S MATICS BY 8310 is for Evaluat) ting Solid and	d Haz Wa	ste, SW-846, 3rd Ed. ste, SW-846, 3rd Ed.
Lab Id: Client Sample Id:	001 707381-01		Sample Date Received Da		25-JUL-97 1457 30-JUL-97
Batch: PAW149 Blank: B	Dry Weight %:	N/A	Extraction Analysis Da		30-JUL-97 04-AUG-97
Parameter:		Units:	Results:	Rpt Lm	ts: Q:
ACENAPHTHENE ACENAPHTHYLENE ANTHRACENE BENZO(a)ANTHRACENE BENZO(b)FLUORANTHE BENZO(g, h, i)PERYLE BENZO(g, h, i)PERYLE FLUORANTHENE FLUORANTHENE FLUORENE INDENO(1, 2, 3-cd)PY NAPHTHALENE PHENANTHRENE PYRENE 1-METHYLNAPHTHALENE PYRENE 1-METHYLNAPHTHALENE 2-CHLOROANTHRACENE ANALYST	NE NE NE RENE RENE	UG/L UG/L UG/L UG/L UG/L UG/L UG/L UG/L	ND ND 2 ND ND ND ND ND 4 10 ND ND 5 2 15 ND 72 JO	1 1 1 1 1 1 1 1 1 1 1 1 1 1	

Comments:

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American Environmental Network, Inc. Monitor Well #10

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"FINAL REPORT FORMAT - SINGLE"

Project Name: Project Location: Test: Analysis Method:	CHASE PLANT MW'S POLYNUCLEAR AROM 8310/Test Method	ERVICES CO. MATICS BY 8310 Is for Evaluat) ing Solid and	l Haz Was	ste, SW-846, 3rd Ed. ste, SW-846, 3rd Ed.
Lab Id: Client Sample Id:	002 707381-02		Sample Date Received Da		25-JUL-97 1559 30-JUL-97
Batch: PAW149 Blank: B	Dry Weight %:	N/A	Extraction Analysis Da		30-JUL-97 04-AUG-97
Parameter:		Units:	Results:	Rpt Lmt	s: Q:
ACENAPHTHENE ACENAPHTHYLENE ANTHRACENE BENZO (a) ANTHRACENE BENZO (b) FLUORANTHE BENZO (c) FLUORANTHE BENZO (c) FLUORANTHE CHRYSENE DIBENZO (c, h) ANTHRA FLUORANTHENE FLUORANTHENE FLUORENE INDENO (1, 2, 3 - cd) PY NAPHTHALENE PHENANTHRENE PYRENE 1 - METHYLNAPHTHALEN 2 - CHLOROANTHRACENE ANALYST	NE NE CENE RENE E	UG/L UG/L UG/L UG/L UG/L UG/L UG/L UG/L	ND ND ND ND ND ND ND ND ND ND 3 ND 45 7 ND 350 140 60 JO	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	E E

Comments: E = EXCEEDS THE RANGE OF THE CALIBRATION CURVE, THEREFORE, IT IS AN ESTIMATED VALUE.

'American Environmental Network , Inc.

SummAry

"Method Report Summary"

Project Number: 70738 Project Name: EL PA Project Location: CHASE	CAN ENVIRONMENTAL NETWORK (NEW ME 1 SO FIELD SERVICES CO.	XICO) INC.	
Client Sample Id:	Parameter:	Unit:	Result:
707381-01 - Monitor W	FLUORANTHENE	UG/L UG/L	2 4
# 9	FLUORENE PHENANTHRENE PYRENE	UG/L UG/L UG/L	2 4 10 5 2 15 3
707381-02 - Moniton We		UG/L UG/L UG/L	45
#10	PHENANTHRENE 1-METHYLNAPHTHALENE 2-METHYLNAPHTHALENE	UG/L UG/L UG/L	7 350 140

TotAL Nophthalenes ware = 30 mg/L - OVER

NOTE: The MDL was > Regulatory limit for Benzo(a) Ryrene

Title:	Water Blank	"QC Repo	ort"			
Batch: Analysis Method: Extraction Method:	PAW149 8310/Test Met 3510/Test Met	hods for Ev hods for Ev	aluating Solid aluating Solid	and Haz Waste, and Haz Waste,	SW-846, SW-846,	3rd Ed. 3rd Ed.
Blank Id: B Dat	e Analyzed: 02	2-AUG-97	Date Extracted	: 30-JUL-97		
Parameters:		Units:	Results:	Reporting Li	mits:	
ACENAPHTHENE ACENAPHTHYLENE ANTHRACENE BENZO (a) ANTHRACENE BENZO (b) FLUORANTHE BENZO (c) PYRENE BENZO (c) FLUORANTHE BENZO (c) FLUORANTHE CHRYSENE DIBENZO (c) A) ANTHRA FLUORANTHENE FLUORENE INDENO (1, 2, 3 - cd) PY NAPHTHALENE PHENANTHRENE PYRENE 1 -METHYLNAPHTHALEN 2 - CHLOROANTHRACENE ANALYST	NE NE CENE RENE E	$\begin{array}{c} UG/L\\ NITIAL \end{array}$	ND ND ND ND ND ND ND ND ND ND ND ND ND N	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

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Comments:

American Environmental Network , Inc.

-/ -			"QC R	eport"						
Title: Batch: Analysis Method: Extraction Method:	Water Read PAW149 8310/Test 3510/Test	Methods	for Evalution	lating Solid Lating Solid	and	Haz Wast Haz Wast	e, SW- e, SW-	846, 846,	3rd 3rd	Ed. Ed.
	Analyzed: Analyzed:					ate Extr Date Ext:			-JUL-	
Parameters: ACENAPHTHYLENE BENZO(k)FLUORANTHE CHRYSENE PHENANTHRENE PYRENE	NE	Spike Added 10.0 10.0 10.0 10.0 10.0	Sample Conc <1 <1 <1 <1 <1 <1 <1	e RS Conc 8.5 10.6 10.8 9.1 8.4	RS %Rec 85 106 108 91 84	RSD Conc 9.1 10.7 10.5 9.0 9.5	RSD %Rec 91 107 105 90 95	RPD 7 1 3 1 12	+	Rec Lmts 45-127 68-131 69-131 63-124 61-126
Surrogates: 2-CHLOROANTHRACENE					98		127			28-138

Comments:

Notes:

S: N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT. * = VALUES OUTSIDE OF QUALITY CONTROL LIMITS. SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

m: - 1 -			"QC Repo	rt"					
Title: Batch: Analysis Method: Extraction Method:	Water Math PAW149 8310/Test 3510/Test	Methods fo Methods fo	r Evaluat r Evaluat	ing Solid ing Solid	l and l l and l	Haz Waste Haz Waste	e, SW-84 e, SW-84	6, 3rd 6, 3rd	Ed. Ed.
Dry Weight %: N/A Sample Spiked: 707	451-1		Analyzed: Analyzed				e Extrac ce Extra		29-JUL-97 29-JUL-97
Parameters: ACENAPHTHYLENE BENZO(k)FLUORANTHE CHRYSENE PHENANTHRENE PYRENE	NE	Spike Added 10.0 10.0 10.0 10.0 10.0	Sample Conc 140 <1 3 1.8 <1	MS Conc 70 9.0 9.7 10.0 7.3	MS %Rec -700 90 67 82 73	MSD Conc *80 8.6 9.2 10.0 7.0	MSD %Rec R -600*1 86 5 62 8 82 0 70 4		Rec 18-146 26-137 16-156 30-145 39-137
Surrogates: 2-CHLOROANTHRACENE					108		102		28-138
Comments:		··· · · · · · · · · · · · · · · · · ·				(2)			

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MATRIX SPIKE/MATRIX SPIKE DUPLICATE HAD RECOVERY(S) AND/OR RPD(S) OUTSIDE ACCEPTANCE LIMITS DUE TO MATRIX INTERFERENCE. REFER TO REAGENT SPIKE/REAGENT SPIKE DUPLICATE DATA.

Notes:

s: N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT. * = VALUES OUTSIDE OF QUALITY CONTROL LIMITS. SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD. American Environmental Network , Inc.



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Common notation for Organic reporting

N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT UG = MICROGRAMS UG/L = PARTS PER BILLION. UG/KG = PARTS PER BILLION. MG/M3 = MILLIGRAM PER CUBIC METER. PPMV = PART PER MILLION BY VOLUME. MG/KG = PARTS PER MILLION BY VOLUME. MG/L = PARTS PER MILLION. < = LESS THAN. * = VALUES OUTSIDE OF QUALITY CONTROL LIMITS Y = IMPROPER PRESERVATION, NO PRESERVATIVE PRESENT IN SAMPLE UPON RECEIPT.

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

ND = NOT DETECTED ABOVE REPORTING LIMIT.

RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

AEN/GC/FID

AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX

AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD

AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID

AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD

AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020

PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

- SW = STEVE WILHITE
- RW = ROBERT WOLFE
- KS = KENDALL SMITH KL = KERRY LEMONT
- JO = JENNIFER O'NEAL
- LP = LEVERNE PETERSON
- PLD = PAULA DOUGHTY

		ILL NO. CONTINUERS	SAMP	SHIPPED V	P.O. NO.:	PROJ. NAME: Chaco Rent	PHOJ. NO.:	C PROJECT INFORMATION	SHA	DE TRIP Blank	9	RE 970710	AS SAMPLE ID	PROJECT MANAGER COMPANY: E ADDRESS: I PHONE: E FAX: I BILL TO: COMPANY: ADDRESS: I
	NINA Please use	1	* See attachid	MENTS:	METHANOL PRESERVATION []	MW'S CERTIFICATION REQUIRED:	(RUSH) 24hr 48hr	PRIOR AUTHORIZATION IS REQUIRED		7/24/17 1720 AQ	1539	7/25/17 1457 Wate	DATE TIME MATRIX	
	oppropriate method,	Ξ.	Iisi			I NM I ISDWA I IOTHER	1 172hr 1 11 WEEK (NORMAL)	ON IS REQUIRED FOR RUSH PROJECTS				-01	(MC (M8 Gas BT) BTE BTE	roleum Hydrocarbons (418.1) TRPH DD.8015) Diesel/Direct/Inject 3015) Gas/Purge & Trap soline/BTEX & MTBE (M8015/8020) XE/MTBE (8020) EX & Chlorinatéd Aromatics (602/8020) EX/MTBE/EDC & EDB (8020/8010/Short) forinated Hydrocarbons (601/8010)
Company.	Printed Name: Date	Signature: Time	R R	ECADO FLEZA SAVICE	BINO		Signature. Imp. 0707	RELINQUISHED BY: 1.		X			Voli Voli Pes Her Basi	ynuclear Aromatics (610/8310) atile Organics (624/8240) GC/MS atile Organics (8260) GC/MS sticides/PCB (608/8080) roicides (615/8150) e:Neutral Acid Compounds GC MS (625.8270)
Angeliaen Einformentei Verboot, 2000, 10	Printed Human And And And And And And And And And An	Signature: 12:0 <	RECEIVED BY: (LAB) 2.			Printed Name Date	Signature Fime	RELINQUISHED BY: 2.					Pric Tari RC RC Me	eneral Chemistry: ority Pollutant Metals (13) get Analyte List Metals (23) RA Metals (8) RA Metals by TCLP (Method 1311) itals: MBER OF CONTABLES

1

SPECIAL CENTIFICATION REQUIRED: 11 YES 11 NO	CLIENT DISCOUNT:			TAT (STANDARD) RUSH!	OC REQUIRED MS MSD BLANK		PROJECT HAME: Charo Plant MW'S	PROJECT HUMBER: 707381	PROJECT INFORMATION	Albuquerque, NM 87107 CLIENT PROJECT MANAGER: LIENT PROJECT MANAGER: Kim McNeill SAMPLE ID DATE 707381-01 7-45 1-02 7-25 7-25		American Environmental Networ Albuquerque, New Mexico
5-1400 • Seattle (206) 228-8335 • Pe				LAB NUMBER	RECEIVED GOOD COND./COLD	INTACT?	CHAIN OF CUSTODY SEALS	TOTAL NUMBER OF CONTAINERS	SAMPLE RECEIPT	TIME MATRIX LABID	nental Network way,NE	~
ansacola (904) 474-1001 • Portland (503) 684-				PHOENIX	PORTLAND	PENSACOLA	Paragon		T SAMPLES SENT TO:	Metals - TAL Metals - PP List Metals - RCRA RCRA Metals by TCLP (1311) TOX TOC Gen Chemistry		Interlab Chain of C
0447 • Albuque (505) 344-3777	J LANIL	- Minled Name: Dale: 7/30/97	809 H. Y. Y. Thinking	IVED BY:	Viprodue $\mathcal{N}\mathcal{M}$	- Brlanfrie 7-29-92	a l	- Signature: Time:	RELINQUISHED BY: 1.	Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system		Custody DATE:
Сотралу		Printed Name: Date:	Signature: Lime:	ED BY: (LA	Company	+	Printed Name Date	Signature Time	RELINQUISHED BY: 2.	8240 (TCLP 1311) ZHE 8270 (TCLP 1311) 8270 (TCLP 1311) 70-14 <td></td> <td>7-29-97 MGE OF 1</td>		7-29-97 MGE OF 1

Lab Accession #:707513	Date Received: <u>30-Jul-97</u>
1. Was there a Chain of Custody? Yes No ⁺	8. Were samples checked for preservative? (Check pH of all HrO requiring preservative except VOA viels that
2. Was Chain of Custody properly Yes No ⁺	9. Is there sufficient volume for Yes No ⁺
filled out and relinquished? 3. Were samples received cold? (Criteria: 1° - 4°C: AEN-SOP 1055)	analysis requested? 10. Were samples received within Holding Time? (REFER TO AEN-SOF 1040) Yes No ⁴
 1055) 4. Were all samples properly [Yes] No* labeled and identified? 5. Did samples require splitting? Yes* No 	11. Is Headspace visible > ¼ " in Yes* No N/A diameter in VOA vials?* If any headspace is evident, comment
 Req By: PM Client Other* 6. Were samples received in proper containers for analysis 	in out-of-control section. 12. If sent, were matrix spike Yes No ⁺ N/A bottles returned?
requested? 7. Were all sample containers received intact?	13. Was Project Manager notified Yes No* (N/A) of problems? (initials:)
Airbill Number(s): 279 1606 614	Shipped By:
Cooler Number(s): <u>N</u> 5	Shipping Charges: N/A
Cooler Weight(s):	Cooler Temp(s) (°C):
Out of Control Events and Inspection Comments SAmples received @ Oc, but r	Afrozen h. Kizo
Inspected By: Ames Hicks Date: 30-Jul-9	(Use BACK OF PSIFFOR ADDITIONAL NOTES AND COMMENTS)

headspace as out-of-conius (AEN-SOP 938, section 2.2.12).

Dryonic Analyte List

range and the maximum allowable concentration in ground water for the contaminants specified unless the existing condition exceeds the standard or unless otherwise provided in Subsection 3-109.D. or Section 3-110. Regardless of whether there is one contaminant or more than one contaminant present in ground water, when an existing pH or concentration of any water contaminant exceeds the standard specified in Subsection A, B, or C, the existing pH or concentration shall be the allowable limit, provided that the discharge at such concentrations will not result in concentrations at any place of withdrawal for present or reasonably foreseeable future use in excess of the standards of this section.

These standards shall apply to the dissolved portion of the contaminants specified with a definition of dissolved being that given in the publication "Methods for Chemical Analysis of Water and Waste of the U.S. Environmental Protection Agency," with the exception that standards for mercury and the organic compounds shall apply to the total unfiltered concentrations of the contaminants.

A. Human Health Standards-Ground water shall meet the standards of Section A and B unless otherwise provided. If more than one water contaminant affecting human health is present, the toxic pollutant criteria of Section 1-101.UU. for the combination of contaminants, or the Human Health Standard of Section 3-103.A. for each contaminant shall apoly, whichever is more stringent

EPA Mithod 8240 ? /8260?

ethylbenzene total xylenes methylene chloride chloroform 1,1-dichloroethane ethylene dibromide (EDB) 1,1,1-trichloroethane 1,1,2-trichloroethane 1,1,2,2-tetrachloroethane vinyl chloride PAHs: total naphthalene plus monomethylnaphthalenes benzo-a-pyrene

0.75 mg/l 0.62 mg/l 0.1 mg/l0.1 mā/l 0.025 mg/l 0.0001 mg/l << 504.1 0.06 ma/l 0.01 mg/i 0.01 mg/l 0.001 mg/l

0.03 mg/l 0.0007 mg/l

mg/l

EPA Mothod 8240? / 8260?

EPA Method

8310

Benzene	0.01 mg/l
Toluene	0.75 mg/l
Carbon Tetrachloride	0.01 mg/l
1,2-dichloroethane (EDC)	0.01 mg/l
1,1-dichloroethylene (1, 1-DCE)	0.005 mg/l
1,1,2, 2-tetrachloroethylene (PCE)	0.02 mg/l
1,1,2-trichloroethylene (TCE)	0.1 mg/l

WQCC 82-1 Amendment No. 4

-21-

Farmington, NM 87499 Client #: 850-020 $MW \neq 9 \neq$	L # (()			Date /15/97 Chaco	Invoice 76686 Plant MW'S
Trifial BALANCE DUE: 751.27	WGCC PO Number	1	rms		oject
Quantity Description		Ne	t 30 Rate		ALB-810 Amount
2 EPA Method 8310 2 EPA Method 504 (EDB) 2 EPA Method 8240 APPRCVED FOR FAYMENT ATE $\frac{g-20-97}{3}$ HARGE $\frac{206100-1800-2721}{3}$ SiGNATURE $\frac{1000-2721}{3}$ Signature $\frac{1000-2721}{3}$	ENVIRONMENTA	AL (CA	150 55 150	.00 .00 .00 .00	300.00 110.00 300.00
NM Gross Receipts Tax			5.	8125%	41.27
Accession #: 707381 Authorized by: John Lambdin			T	OTAL:	751.27

A finance charge of 11%% will be charged on balances 30 days past due DISTRIBUTION: White-Customer, Yellow-File, Pink-Accounting

Correspondence



NEW MEXICO ENERGY, MINERALS & NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION 2048 South Pacheco Street Santa Fe, New Mexico 87505 (505) 827-7131

7/24/67 10:18 AVM Juliate 6

June 13, 1997

CERTIFIED MAIL RETURN RECEIPT NO. P - 326-936-610

Mr. David Bays El Paso Field Services (EPFS) P.O. Box 4990 Farmington, NM 87499

RE: Wastewater Ponds - May 15, 1997 GW-71, Chaco Plant San Juan County, NM

Dear Mr. Bays:

The New Mexico Oil Conservation Division (OCD) received on May 21, 1997 a letter from EPFS dated May 15, 1997 regarding the "Wastewater" ponds at Chaco Plant. The OCD approves of the proposed plan of action from EPFS at the Chaco Plant (GW-071) with the following conditions:

1. Mr. Denny Foust with the Aztec OCD office will be notified at least 72 hours in advance of any field activity involving this approved project. (505-334-6178)

2. The new wells upon construction need to be sampled for the WQCC parameters listed in 20 NMAC 6.2. Subpart III, 3103 constituents in order to establish base line water quality for the new monitor wells. Upon completion of this sampling EPFS may use the existing parameters used at the other monitor wells.

2. A "Field Report" to include the construction diagrams, geologic logs, a map showing the location of the monitor wells, and the sample results outlined in (2) above will be submitted to the OCD Santa Fe Division and Aztec District Offices 60 days after completion of the activity in point (2) above..

Note, that OCD approval does not relieve EPFS of liability should EPFS operation's result in contamination of surface water, ground water, or the environment. OCD approval does not relieve EPFS from compliance with other federal, state, and local regulations/rules that may apply.

Sincerely.

Patricio W. Sanchez, Petroleum Engineering Specialist Environmental Bureau

c: Mr. Denny Foust - Aztec District Office, OCD.



May 15, 1997

Mr. Bill Olson New Mexico Oil Conservation Division 2040 S. Pacheco Santa Fe. NM 87505

RE: El Paso Field Services Co. Chaco Plant Discharge Plan GW-071 Wastewater Ponds

Dear Bill:

As you are aware from conversations and correspondence over the past several months, the primary liners of the contact wastewater ponds at El Paso Field Services Co. (EPFS) Chaco Plant were tested during November of 1995. The liners in both the north and south ponds were found to be leaking. A temporary lined pond was installed to contain the contact wastewater while repairs were made, and once the ponds were drained and cleaned thoroughly, the liners were repaired during August 1996.

Once the repairs to liners, the water circulation pumps, and enhanced evaporation sprayers were made, the liners were again tested using a red colored fluorescent dye. The results thus far are as follows.

South Contact Pond

As of May 14, 1997 no dye has been found in the leak detection wells of the south pond. It appears that the liner repairs to the south pond were successful. EPFS will continue to monitor the south pond leak detection system on our normal monthly schedule.

North Contact Pond

Both leak detection wells on the north pond contain water. One of the wells also contains red dye, clearly indicating that the primary liner is still leaking. Both wells are now equipped with automatic pumps to keep the liquids pumped out. Since the repairs last summer were the second attempt to repair the liner since it was installed in 1993, EPFS believes that a more effective alternative would be to take the following actions.

Mr. Bill Olson May 15, 1997 Page 2

- 1. Install two additional groundwater monitoring wells, numbered 9 and 10, near the north contact pond. The attached plot plan shows the relative locations of the ponds, along with the existing and proposed monitoring wells. Due to the high volumes of water discharged into the two unlined, non-contact wastewater ponds EPFS believes that the two proposed wells should be down gradient from the north contact water pond.
- 2. Through waste minimization reduce, and ultimately eliminate discharge to the north contact water pond. The pond will be left in place in case of emergencies.
- 3. Collect samples from the new monitoring wells quarterly for one year. The samples will be tested for pH, total dissolved solids, benzene, ethyl benzene, xylenes, toluene, and total petroleum hydrocarbons. If no groundwater impact has been found, then collect additional samples annually for two more years, or until the north pond is empty. If the annual samples still show no impact on the groundwater, then discontinue sampling of wells number 9 and 10. If any groundwater contamination is identified, then a new action plan will be developed for remediation and long term monitoring.

Temporary Lined Pond

The temporary lined pond is now dry, and the solids which had accumulated along the east end have been removed. After the required waste characterization was completed, these solids were transported to the Envirotech landfill for disposal. EPFS proposes to close the temporary pond by folding the liner down away from the berm, and then leveling the pond area.

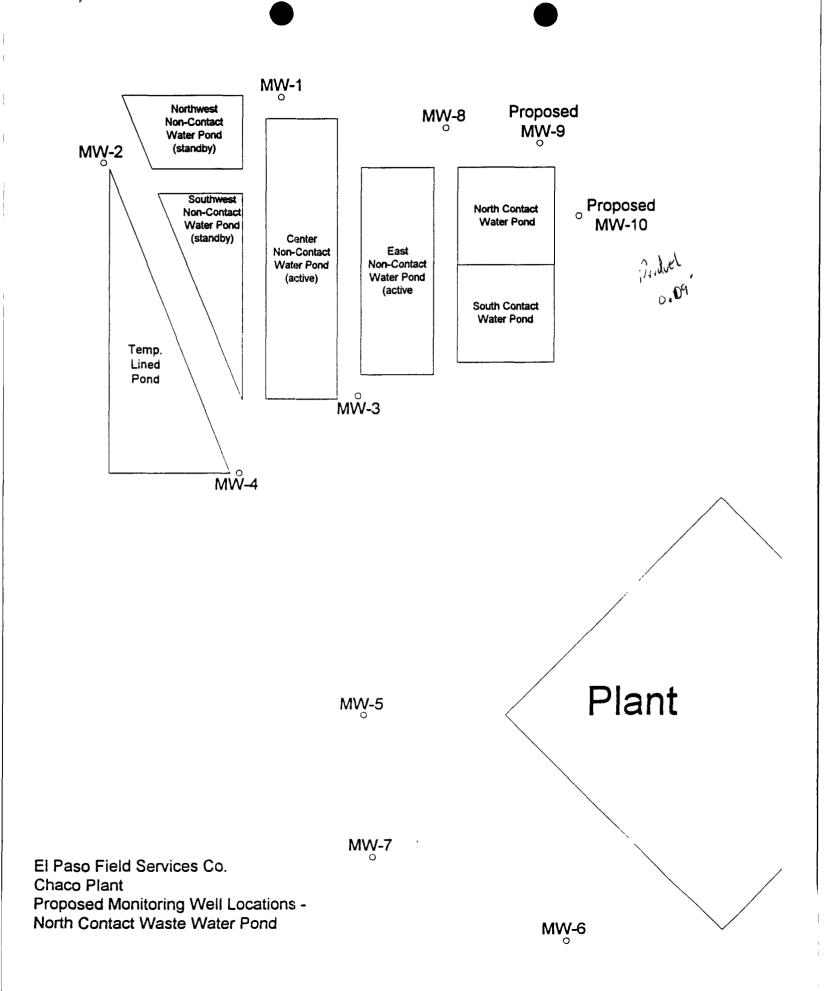
If you need any additional information, or have any questions about this proposed work plan, please call me at (505) 599-2256.

Sincerely yours,

anid Bay

David Bays Sr. Environmental Scientist

cc: Mr. Denny Foust - NMOCD - Aztec, NM Mr. Pat Sanchez - NMOCD - Santa Fe, NM



bc: J. P. Barnett

R. Fagen

W. D. Hall

M. D. Hansen

G. Hoover

J. A. Lambdin

S. D. Miller/R. D. Cosby/J. S. Sterrett/Chaco Regulatory file

October 23, 1997

Semi-Annual ANALYTICAL REPORT

Chaco Plant Monitor Well #1, 8, 9 and #10 Lab Sample #'s 971080 to 971084 Sampled 9/30/97 Sampled by Dennis Bird

REMARKS:

These samples represents the second round 1997 semi-annual testing requirements for these four monitor wells. Monitor wells #9 and #10 were installed on July 24, 1997 and the enclosed results for these wells represent the first routine samples taken from these new wells. The New Mexico WQCC limits for Benzene and Polyaromatic Hydrocarbons were exceeded for MW-10.

Distribution:

Sandra Miller - W/O Attachments David Bays - W/Attachments Mike Hansen - W/O Attachments Results Log Book

Attachments

A 2099	Requested Analysis Remarks		MON/TOK WELL MW-1	170RUSCL MW	1221/738 WELL MW-10	Martal WEll MWYO (Dupliche)	TRUG KUAMIT							Date/Time Received by: (Signature)		Date/Time Received by: (Signature)	Hemarks:	Date Results Reported / by: (Signature)	
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	ACO PLANT Rind Date: 9-35-717	Sample Number	971280	1032	1053	971054								ime Received by: (Signature)	175.1	ime Received by: (Signature)			
	iject Name CH ZNNNN	Time Comp. GRAB	× 7561	1524		1552	 × 	/	/					 gnature) Date/Time	Mind Prover	gnature) Date/Time	gnature) Uate/ Ime		
	Project No.	MKTNU Date	1 7 8 9 30 91	1527 1-20-11 - 601	MTRR F. 30.97	147789-30-71	1-2-8 P-3-11							Heilnquished by: (Signature)	d mar	Nelfinquished by: (Signature)	Helioquished by: (Signature)	Darrier Co:	· CN

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NEW MEXICO ENERCE, MINERALS & NATURAL RESOURCES DEPARTMENT



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OIL CONSERVATION DIVISION 204**8 South Postoco** Street Santa Fo, New Mexico 47805 (\$05) 827-7131

June 13, 1997

CERTIFIED MAIL RETURN RECEIPT NO. P - 326-936-610

Mr. David Bays El Paso Field Services (EPFS) P.O. Box 4990 Farmington, NM 87499

RE: Wastewater Ponds - May 15, 1997 GW-71, Chaco Plant San Juan County, NM

Dear Mr. Bays:

The New Mexico Oil Conservation Division (OCD) received on May 21, 1997 a letter from EPFS dated May 15, 1997 regarding the "Wastewater" ponds at Chaco Plant. The OCD approves of the proposed plan of action from EPFS at the Chaco Plant (GW-071) with the following conditions:

1. Mr. Denny Foust with the Aztec OCD office will be notified at least 72 hours in advance of any field activity involving this approved project. (505-334-6178)

2. The new weils upon construction need to be sampled for the WQCC parameters listed in 20 NMAC 6.2. Subpart III, 3103 constituents in order to establish base line water quality for the new monitor weils. Upon completion of this sampling EPFS may use the existing parameters used at the other monitor weils.

2. A "Field Report" to include the construction diagrams, geologic logs, a map showing the location of the monitor wells, and the sample results outlined in (2) above will be submitted to the OCD Santa Fe Division and Aztec District Offices 60 days after completion of the activity in point (2) above..

Note, that OCD approval does not relieve EPFS of liability should EPFS operation's result in contamination of surface water, ground water, or the environment. OCD approval does not relieve EPFS from compliance with other federal, state, and local regulations/rules that may apply.

Sincerely.

Patricio W. Sanchez, Petroleum Engineering Specialist Environmental Bureau

c: Mr. Denny Foust - Aztec District Office, OCD.

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY

ANALYTICAL REPORT

CHACO PLANT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	971080
MTR CODE SITE NAME:	N/A	Chaco Plant
SAMPLE DATE TIME (Hrs):	9/30/97	1158
PROJECT:	Monit	or Well
DATE OF BTEX EXT. ANAL.:	10/6/97	10/6/97
TYPE DESCRIPTION:	MW-1	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS					
ي. مرجع - المحمد			DF	۵				
BENZENE	<1	РРВ			_			
TOLUENE	<1	РРВ						
ETHYL BENZENE	<1	РРВ		<u></u>				
TOTAL XYLENES	< 3	РРВ						
TOTAL BTEX	<6	РРВ						

95.2

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at DF = Dilution Factor Used

% for this sample All QA/QC was acceptable.

Narrative:

John Farkle. Date: 10-8-97 Approved By: 971080BTEXCP,10/8/97 a han da mala a suna sul a suna su in terra da suna da suna da suna da suna da suna da sul da sul da suna da su Anna da suna da Anna da suna da ال معلم الله المراجع بالما المراجع المعني العلم المراجع معنية المعالية المحمد المحمد المحمد المحمد المراجع الم المراجع المراجع المراجع الما المحمد العلم المحمد


FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

EPFS LAB ID:	971080			
DATE SAMPLED:	09/30/97			
TIME SAMPLED (Hrs):	1158			
SAMPLED BY:	D. Bird			
MATRIX:	Water			
METER CODE:	NA			
SAMPLE SITE NAME:	Chaco Plant			
SAMPLE POINT:	Monitor Well MW-1			

REMARKS:

RESULTS N. M. WQCC TOTAL PARAMETER RESULT LIMIT (mg/L) (mg/L): **CADMIUM** < 0.0002 0.010 **CHROMIUM** < 0.004 0.050 **MERCURY** < 0.0002 0.002

References:

Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts, Test Methods for Evaluating Solid Waste, SW-846, Sept., 1994. Method 7131, Cadmium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 7191, Chromium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 245.5, Mercury (Automated Cold Vapor Technique), Methods for the Determination of Metals in Environmental Samples, EPA 600/4-91/010, USEPA, June, 1991.

Reported By

John Jush Approved By:

Date

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POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Paragon Analytics, Inc. Client Name: El Paso Field Services Client Project ID: Chaco Plant Monitor Wells

Lab Sample ID: 9710009-1

Sample Matrix: Water Cleanup: N/A

Chaco mw-1 Sample ID

Date Collected: 9/30/97 Date Extracted: 10/03/97 Date Analyzed: 10/09/97

971080

Sample Volume: 1000 mL Final Volume: 1 mL Dilution Factor: 1

PM

		Reporting
Analyte	Conc (ug/L)	Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	ND	0.050
Anthracene	ND	0.10
Fluoranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.10
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
	,	
2-Chloroanthracene	82	35 - 119

ND = Not Detected at or above client requested reporting limit.

g Data	Well Number <u>Mu~/</u> Meter Code <u>NH</u>	Instruments PH Meter DO Monitor Conductivity Conductivity Noter Disposal Ko72 55	Temperature PH conductivity Dissolved Oxygen Connents 7.5 $6.5/$ 1.20 $0xygen$ $0xygen Mg/L7.5$ $7.5/$ 1.578 $1.$
Well Development and Purging Data	C Development S Purging	Ker Volume Calculation Depth of Well (feet) 25.15 Depth of Well (feet) 25.15 Depth to Water (feet) 25.15 Depth to Water Column in Well (feet) 26.17 At of Water Column in Well (feet) 26.17 At of Water Column in Well (feet) 26.17 At of Water Volume in Well Gallons to be Removed At of Depth tem Cubic Feet Gallons to be Removed Casing 5.7 17.3 B Pack 5.7 17.3 G Fluids 6 Fluids 17.3	Ing Water Water Volume Product Volume Depth Removed (gal) Removed (gal) (feet) Increment Cumulative Increment Cumulative S:O 5:O 7:O 7:O 7:O 7:O 7:O 7:O 7:O 7:O 7:O 7
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EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY ANALYTICAL REPORT

CHACO PLANT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	971081
MTR CODE SITE NAME:	N/A	Chaco Plant
SAMPLE DATE TIME (Hrs):	9/30/97	1224
PROJECT:	Monit	or Well
DATE OF BTEX EXT. ANAL.:	10/6/97	10/6/97
TYPE DESCRIPTION:	MW-8	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	<u>0</u>		
BENZENE	<1	PPB				
TOLUENE	<1	РРВ				
ETHYL BENZENE	< 1	PPB				
TOTAL XYLENES	< 3	РРВ				
TOTAL BTEX	< 6	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at DF = Dilution Factor Used

at ______% for this sample All QA/QC was acceptable.

Narrative:		
Approved By:	Date:	10-8-97
	971081BTEXCP,10/8/97	



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

EPFS LAB ID:	971081	
DATE SAMPLED:	09/30/97	
TIME SAMPLED (Hrs):	1224	
SAMPLED BY:	D. Bird	
MATRIX:	Water	
METER CODE:	NA	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	Monitor Well MW-8	

REMARKS:

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	
CADMIUM	<0.0002	0.010
CHROMIUM	< 0.004	0.050
MERCURY	<0.0002	0.002

References:

Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts, Test Methods for Evaluating Solid Waste, SW-846, Sept., 1994. Method 7131, Cadmium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 7191, Chromium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 245.5, Mercury (Automated Cold Vapor Technique), Methods for the Determination of Metals in Environmental Samples, EPA 600/4-91/010, USEPA, June, 1991.

Reported By:

du Jarda Approved By:

Date:

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Paragon Analytics, Inc. Client Name: El Paso Field Services Client Project ID: Chaco Plant Monitor Wells

Lab Sample ID: 9710009-2

Sample Matrix: Water Cleanup: N/A

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Sample ID

971081

Chaco mw-8

Date Collected: 9/30/97 Date Extracted: 10/03/97 Date Analyzed: 10/09/97

Sample Volume: 1000 mL Final Volume: 1 mL Dilution Factor: 1

PM

Analyte	. Conc (ug/L)	Reporting Limit (ug/L)
Naphthalene	2.8 K	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	1.7	0.10
Phenanthrene	0.15 K	0.050
Anthracene	0.16	0.10
Fluoranthrene	0.17	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.10
Dibenzo(a,h)anthracene	. ND	0.10
Benzo(g,h,i)pervlene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

SURROGATE RECOVERY

% Recovery	% Rec Limits
76	35 - 119
	% Recovery 76

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ND = Not Detected at or above client requested reporting limit. K = Concentration confirmation does not agree within 50%.

		Hite PH Meter Do Monitor Conductivity Meter Temperature Meter Tem	Date 10-8-97
	MW-8 MA		
) Data	Well Number <u>MW - 8</u> Meter Code <u>W</u> A	Temperature PH M Temperature N Temperature N Temperature N Temperature N Conduc N Temperature N Temperature N Conduc N Temperature N Conduc N Cond N <	
Development and Purging Data	Development W6 Purging Me	Froduct Volume Removed (gallons) Removed (gallons) Crement Cumulative	e 9-36- 87 Reviewer
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EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY ANALYTICAL REPORT

CHACO PLANT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	971082
MTR CODE SITE NAME:	N/A	Chaco Plant
SAMPLE DATE TIME (Hrs):	9/30/97	1524
PROJECT:	Monit	or Well
DATE OF BTEX EXT. ANAL.:	10/6/97	10/6/97
TYPE DESCRIPTION:	MW-9	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS		
			DF	٥	
BENZENE	<1	РРВ			
TOLUENE	<1	PPB			
ETHYL BENZENE	<1	PPB			
TOTAL XYLENES	<3	РРВ			
TOTAL BTEX	< 6	PPB			

94.7

and a second
--BTEX is by EPA Method 8020 --% for this sample All QA/QC was acceptable.

The Surrogate Recovery was at DF = Dilution Factor Used

 Narrative:

 Approved By:
 John Jalli

 971082BTEXCP, 10/8/97

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FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

EPFS LAB ID:	971082	
DATE SAMPLED:	09/30/97	
TIME SAMPLED (Hrs):	1524	
SAMPLED BY:	D. Bird	
MATRIX:	Water	
METER CODE:	NA	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	Monitor Well MW-9	

REMARKS:

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
CADMIUM	<0.0002	0.010
CHROMIUM	<0.004	0.050
MERCURY	< 0.0002	0.002

References:

Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts, Test Methods for Evaluating Solid Waste, SW-846, Sept., 1994. Method 7131, Cadmium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 7191, Chromium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 245.5, Mercury (Automated Cold Vapor Technique), Methods for the Determination of Metals in Environmental Samples, EPA 600/4-91/010, USEPA, June, 1991.

Reported By:

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John Tarbeli Approved By:

Date: 10 - 20-97

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POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Paragon Analytics, Inc. Client Name: El Paso Field Services Client Project ID: Chaco Plant Monitor Wells

Lab Sample ID: 9710009-3

Sample Matrix: Water Cleanup: N/A <u>Sample ID</u> 971082 Сьяго иш-9

Date Collected:9/30/97Date Extracted:10/03/97Date Analyzed:10/09/97

Sample Volume: 1000 mL Final Volume: 1 mL Dilution Factor: 10

		Reporting
Analyte	Conc (ug/L)	Limit (ug/L)
Naphthalene	ND	5.0
Acenaphthylene	ND	10
1-Methylnaphthalene	ND	10
2-Methylnaphthalene	ND	10
Acenaphthene	ND	10
Fluorene	6.0	1.0
Phenanthrene	0.73 K	0.50
Anthracene	0.89 J	1.0
Fluoranthrene	ND	1.0
Pyrene	ND	0.50
Benzo(a)anthracene	ND	0.50
Chrysene	ND	0.50
Benzo(b)fluoranthrene	ND	1.0
Benzo(k)fluoranthrene	ND	0.50
Benzo(a)pyrene	ND	1.0
Dibenzo(a,h)anthracene	ND	1.0
Benzo(g,h,i)perylene	ND	1.0
Indeno(1,2,3-c,d)pyrene	ND	1.0

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	69	35 - 119

ND = Not Detected at or above client requested reporting limit.

K = Concentration confirmation does not agree within 50%.

J = Estimated value. Below reporting limits.



Field Services Laboratory

Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	971082	
DATE SAMPLED:	09/30/97	
TIME SAMPLED (Hrs):	1524	
SAMPLED BY:	DB	
MATRIX:	Water	
METER CODE:	N/A	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	MW-9	

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.8	Units	10/06/97
Alkalinity as C0 ₃	0	PPM	10/06/97
Alkalinity as HC0 ₃	508	PPM	10/06/97
Calcium as Ca	60.4	PPM	10/06/97
Magnesium as Mg	17.2	PPM	10/06/97
Total Hardness as CaC0 ₃	222	PPM	10/06/97
Chloride as Cl	60.0	PPM	10/01/97
Sulfate as SO ₄	325	PPM	10/01/97
Fluoride as F	2.02	PPM	10/06/97
Nitrate as N0 ₃ -N	< 0.1	PPM	10/01/97
Nitrite as N0 ₂ -N	< 0.1	PPM	10/01/97
Ammonium as NH ₄ ⁺	<0.1	PPM	10/06/97
Phosphate as PO ₄	<0.1	PPM	10/01/97
Potassium as K	1.46	PPM	10/06/97
Sodium as Na	277	PPM	10/06/97
Total Dissolved Solids	1,010	PPM	10/06/97
Conductivity	1,450	umhos/cm	10/06/97
Anion/Cation %	1.2%	%, <5.0 Accepted	10/08/97

Lab Remarks:

Reported By: CK

John To

Date: <u>10-8-97</u>

		AT KIT	6
	MW-9 WA	ents PH Meter Do Montior Conductivity Meter Temperature Meter Tem	524 555 567 D.5 567 D.5 509 D.5 Date
e	1 F		7.75 152 7.75 155 7.75 155 7.75 155 7.75 155 7.75 155 7.75 155 7.75 155
ing Dat	Well Number_ Meter Code	Temperature °C 200	195 195 20,0 20,0
Development and Purging Data	Development Purging	28 Gallons to be Removed 20.4 Product Volume Removed (gallons) crement Cumulative	190 190 190 190 190 190 190 190 190 190
/elopme			1200 1200 1200 1200 1200 1200 1200 1200
Well Dev	-		
		Water Volume Ca Initial Depth of Well (feet) Initial Depth to Water (feet) Height of Water Column in V Diameter (inches): Well Ø Oravel Pack Drilling Fluids Drilling Vater Total Depth (feet)	
	k	e Infake Depth (feet)	110 TIC TIC
Q	NHN	of Water Removel or Parameters ariter Bottom Valve Double Check Valve Stainless-steel Kemmerer Stainless-steel Kemmerer Stainless-steel Kemmerer Ment Removal Intak d Rate Dept	K. K. H.
RVICE	CHACO 1		Le MM
PAS		ment Cri 3 to 5 Casing Stabilization Other Pump Centrifugal Submersible Peristaltic Other Time Time	
dË JU	Site Name	Development Criteria Exabilization of Indice Stabilization of Indice Stabilization of Indice Other Other Pump Pump Pump Persitival Submersible Other Other Date Date Time Date Pump Pump Perstatic Date Time Pump	7-70-11 1.344 9-30-97 1.357

FIELD SERVICES

FIELD SERVICES LABORATORY

ANALYTICAL REPORT

CHACO PLANT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	971083
MTR CODE SITE NAME:	N/A	Chaco Plant
SAMPLE DATE TIME (Hrs):	9/30/97	1552
PROJECT:	Monit	or Well
DATE OF BTEX EXT. ANAL.:	10/6/97	10/6/97
TYPE DESCRIPTION:	MW-10	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS		
		DF 20		<u>0</u>	
BENZENE	702	PPB	5	D	
TOLUENE	493	PPB	5	D	
ETHYL BENZENE	34.6	PPB	5	D	
TOTAL XYLENES	241	PPB	5	D	
TOTAL BTEX	1470	PPB			

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 96.0 % for this sample All QA/QC was acceptable. DF = Dilution Factor Used

The "D" qualifier indiciates that the analyte calculated is based on a secondary dilution factor.

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Narrative:

John Larda. Approved By:

Date: 10-8-97

971083BTEXCP,10/8/97

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Paragon Analytics, Inc. Client Name: El Paso Field Services Client Project ID: Chaco Plant Monitor Wells

Lab Sample ID: 9710009-4

Sample Matrix: Water Cleanup: N/A

Ch400 MW-10 971083 Date Collected: 9/30/97 Date Extracted: 10/03/97

Sample ID

Sample Volume: 1000 mL Final Volume: 1 mL Dilution Factor: 100

Ir

Date Analyzed: 10/09/97

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Naphthalene	· 100	50
Acenaphthylene	ND	100
1-Methylnaphthalene	370 K	100
2-Methylnaphthalene	540	100
Acenaphthene	ND	100
Fluorene	ND	10
Phenanthrene	34	5.0
Anthracene	ND	10
Fluoranthrene	ND	10
Pyrene	ND	5.0
Benzo(a)anthracene	ND	5.0
Chrysene	ND	5.0
Benzo(b)fluoranthrene	ND	10
Benzo(k)fluoranthrene	ND	5.0
Benzo(a)pyrene	ND	10
Dibenzo(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10
Indeno(1,2,3-c,d)pyrene	ND	10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
	-	
2-Chloroanthracene	<u> </u>	35 - 119

ND = Not Detected at or above client requested reporting limit.

K = Concentration confirmation does not agree within 50%.

I = Surrogate recovery not reported due to high level of sample dilution.

EL PASO FIELD SERVICES

Field Services Laboratory

Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	971083	
DATE SAMPLED:	09/30/97	<u> </u>
TIME SAMPLED (Hrs):	1552	
SAMPLED BY:	DB	
MATRIX:	Water	
METER CODE:	N/A	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	MW-10	

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.25	Units	10/06/97
Alkalinity as C0 ₃	0	PPM	10/06/97
Alkalinity as HC0 ₃	1105	PPM	10/06/97
Calcium as Ca	78.3	PPM	10/06/97
Magnesium as Mg	31.4	PPM	10/06/97
Total Hardness as CaC0 ₃	325	PPM	10/06/97
Chloride as Cl	561	PPM	10/06/97
Sulfate as SO ₄	168	PPM	10/01/97
Fluoride as F	1.61	PPM	10/06/97
Nitrate as N0 ₃ -N	< 0.6	PPM	10/01/97
Nitrite as N02-N	< 0.6	PPM	10/01/97
Ammonium as NH4 ⁺	< 0.3	PPM	10/06/97
Phosphate as PO ₄	< 0.6	PPM	10/01/97
Potassium as K	1.68	PPM	10/06/97
Sodium as Na	678	PPM	10/06/97
Total Dissolved Solids	2,150	PPM	10/06/97
Conductivity	3,190	umhos/cm	10/06/97
Anion/Cation %	2.1%	%, <5.0 Accepted	10/08/97

Lab Remarks:

Reported By: <u>Cv</u> Approved By: <u>Jolu Fauldu</u> Date: <u>10-8-97</u>



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

971083
09/30/97
1552
D. Bird
Water
NA
Chaco Plant
Monitor Well MW-10

REMARKS:

RESULTS

PARAMETER		TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
CADMIUM		< 0.0002	0.010
CHROMIUM		<0.004	0.050
MERCURY	_	< 0.0002	0.002

References:

Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts, Test Methods for Evaluating Solid Waste, SW-846, Sept., 1994. Method 7131, Cadmium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 7191, Chromium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 245.5, Mercury (Automated Cold Vapor Technique), Methods for the Determination of Metals in Environmental Samples, EPA 600/4-91/010, USEPA, June, 1991.

Reported By:

Approved By: John Fauton

Date:

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Well Numt Meter Cod	⊆	°C 8/19 6 21/0 6	222	Reviewer
Development Purging	x 2/ ck Gallons to be Removed 2/, 6	Removed (galons) Increment Cumulativ		HV OROCARBON. Date 9-30-97 Reviewer
⊠ ⊠ -	6 %	t Cumulative	150 200 250	ATTAG
	ter Volu Depth of We Depth of We to Water O eter (inches): Item Casing Item Item Item Item Item	S S S		E FREE FLO
9WT	a unit of the second se	(feet)		10 0.95' 0F is Bird
4400 PU		Bailer		WELL HAR
Name Cr	elopment Ci Stabilization Stabilization Stabilization Stabilization Cother Pump	Time Time		Comments 7745
	Site Name CHMC PUANT Site Name CHMC PUANT A Purging Meter Code WA	MMM Development Well Number MW-/O Refer Code M es of Vatar Removel Well Number MU-/O es of Vatar Removel Meter Code M for Parameters Initial Depth of Well (refe) Z for Parameters Initial Depth of Well (refee) Z for Parameters Initial Fluids Initial Fluids for Parameters Initing Fluids Initial Fluids for Parameters Initing Fluids Initial Fluids for Parameters Initing Fluids Initial Fluids	MMM Development Vell Number Puging Puging Meter Code Botom Water Removel Water Removel Meter Code Attend Depth of Water Column in Volet Meter Code Meter Code Botom Nitial Depth of Water Column in Volet After Column in Volet After Volume in Volet Botom Valve Nitial Depth of Water Column in Volet After Volume in Volet After Dianos Botom Valve Neil After Volume in Volet After Dianos Meter Dianos Botom Valve Velid Casing After Volume in Vol	CHAC Multiple Development Well Number CHAC Multiple Name Name Name CHAC Multiple Name Name Name Anticiple S Casing volumes of Vater Removel Matter Volume Name Name S Casing volumes of Vater Removel Water Volume Name Name Name S Casing volumes of Vater Removel Matter Volume Name Name Name Distribution of Indicator Parameters Matter Volume Name Name Name Distribution of Indicator Parameters Matter Volume Name Name Name Distribution of Indicator Parameters Matter Volume Name Name Name Distribution Stating Name Casing Name Name Outscling Name Stating Casing Name Name Outscling Name Stating Casing Name Name Outscling Name Casing Name Casing Name Outscling Name Casing Name Casing Name Outscling Name Casing Name Casing Name Mater Danter <t< td=""></t<>

EL PASO FIELD SERVICES

Field Services Laboratory

Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	971084	
DATE SAMPLED:	09/30/97	
TIME SAMPLED (Hrs):	1552	
SAMPLED BY:	DB	
MATRIX:	Water	
METER CODE:	N/A	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	MW-10	

FIELD REMARKS: Field Duplicate

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

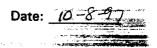
PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.30	Units	10/06/97
Alkalinity as C0 ₃	0	PPM	10/06/97
Alkalinity as HC0 ₃	1094	PPM	10/06/97
Calcium as Ca	76.6	PPM	10/06/97
Magnesium as Mg	30.6	РРМ	10/06/97
Total Hardness as CaC0 ₃	317	PPM	10/06/97
Chloride as Cl	536	PPM	10/06/97
Sulfate as S04	192	PPM	10/01/97
Fluoride as F	1.61	PPM	10/06/97
Nitrate as N0 ₃ -N	< 0.1	PPM	10/01/97
Nitrite as N0 ₂ -N	< 0.1	PPM	10/01/97
Ammonium as NH_4^+	< 0.3	PPM	10/06/97
Phosphate as PO ₄	0.99	PPM	10/01/97
Potassium as K	1.65	PPM	10/06/97
Sodium as Na	674	PPM	10/06/97
Total Dissolved Solids	2,170	PPM	10/06/97
Conductivity	3,180	umhos/cm	10/06/97
Anion/Cation %	2.0%	%, <5.0 Accepted	10/08/97

Lab Remarks:

Reported By: CV

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Approved By: John Fandin State of the second second



EL PASO FIELD SERVICES

> FIELD SERVICES LABORATORY ANALYTICAL REPORT

CHACO PLANT

SAMPLE IDENTIFICATION

	Field (D	Lab iD
SAMPLE NUMBER:	N/A	971084
MTR CODE SITE NAME:	N/A	Chaco Plant
SAMPLE DATE TIME (Hrs):	9/30/97	1552
PROJECT:	Monit	or Well
DATE OF BTEX EXT. ANAL.:	10/6/97	10/6/97
TYPE DESCRIPTION:	MW-10	Water

Field Remarks: Field Duplicate

John Faller

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RESULTS

PARAMETER	RESULT	UNITS		QUALIFII	ERS
			DF	0	
BENZENE	882	РРВ	5	D	
TOLUENE	598	РРВ	5	D	
ETHYL BENZENE	36.4	РРВ	5	Ð	
TOTAL XYLENES	252	РРВ	5	D	
TOTAL BTEX	1768	РРВ			

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 96.2 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

The "D" qualifier indiciates that the analyte calculated is based on a secondary dilution factor.

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Narrative:

Approved By:

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Date: 10-8-97

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971084BTEXCP,10/8/97

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FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

EPFS LAB ID:	971084		
DATE SAMPLED:	09/30/97		
TIME SAMPLED (Hrs):	1552		
SAMPLED BY:	D. Bird		
MATRIX:	Water		
METER CODE:	NA		
SAMPLE SITE NAME:	Chaco Plant		
SAMPLE POINT:			
REMARKS:	Field Duplicate		
	RESULTS	ter and the second s	
PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)	
CADMIUM	<0.0002	0.010	
CHROMIUM	< 0.004	0.050	
MERCURY	<0.0002	0.002	

References:

Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts, Test Methods for Evaluating Solid Waste, SW-846, Sept., 1994. Method 7131, Cadmium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 7191, Chromium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986. Method 245.5, Mercury (Automated Cold Vapor Technique), Methods for the Determination of Metals in Environmental Samples, EPA 600/4-91/010, USEPA, June, 1991.

Reported By:

John Farden Approved By:_

Date:



QUALITY CONTROL REPORT EPA METHOD 8020 - BTEX

Samples: 971080 to 971087

QA/QC for 10/6/97 Sample Set

LABORATORY CALIBRATION CHECKS / LABORATORY CONTROL SAMPLES:

SAMPLE		EXPECTED	ANALYTICAL		ACC	CEPTAB	LE
NUMBER	TYPE	RESULT	RESULT	%R			
ICV LA-52589		PPB	PPB			YES	NO
50 PPB					RANGE		
Benzene	Standard	50.0	49.3	98.7	75 - 125 %	Х	
Toluene	Standard	50.0	48.7	97	75 - 125 %	Х	
Ethylbenzene	Standard	50.0	49.3	9 9	75 - 125 %	Х	
m & p - Xylene	Standard	100	98.5	98.5	75 - 125 %	Х	
o - Xylene	Standard	50.0	49.2	98	75 - 125 %	<u> </u>	
SAMPLE		EXPECTED	ANALYTICAL		AC	CEPTAE	BLE
NUMBER	TYPE	RESULT	RESULT	%R			
LCS LA-45476		РРВ	PPB			YES	NO
25 PPB					RANGE		
Benzene	Standard	25.0	25.3	101.2	39 - 150	Х	
Toluene	Standard	25.0	24.4	97	46 - 148	Х	
Ethylbenzene	Standard	25.0	24.8	99	32 - 160	Х	
m & p - Xylene	Standard	50.0	49.8	100	Not Given	х	
o - Xylene	Standard	25.0	24.9	100	Not Given	<u></u>	
SAMPLE		EXPECTED	ANALYTICAL		ACC	CEPTAB	LE
SAMPLE NUMBER	ТҮРЕ	EXPECTED RESULT	ANALYTICAL RESULT	%R	ACC	СЕРТАВ	LE
	TYPE			%R	ACC	YES	NO
NUMBER	TYPE	RESULT	RESULT	%R	ACC RANGE		
NUMBER CCV LA-52589	TYPE Standard	RESULT	RESULT	%R 98.5			
NUMBER CCV LA-52589 50 PPB		RESULT PPB	RESULT PPB		RANGE	YES	
NUMBER CCV LA-52589 50 PPB Benzene	Standard	RESULT PPB 50.0	RESULT PPB 49.2	98.5	RANGE 75 - 125 %	YES X	
NUMBER CCV LA-52589 50 PPB Benzene Toluene	Standard Standard	RESULT PPB 50.0 50.0	RESULT PPB 49.2 48.1	98.5 96.2	RANGE 75 - 125 % 75 - 125 %	YES X X	
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene	Standard Standard Standard	RESULT PPB 50.0 50.0 50.0	RESULT PPB 49.2 48.1 48.9	98.5 96.2 97.8 97.7	RANGE 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X	
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene	Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100	RESULT PPB 49.2 48.1 48.9 97.7	98.5 96.2 97.8 97.7	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene	Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0	RESULT PPB 49.2 48.1 48.9 97.7 49.0	98.5 96.2 97.8 97.7	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X X X	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE	Standard Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 100 50.0 EXPECTED	RESULT PPB 49.2 48.1 48.9 97.7 49.0 ANALYTICAL	98.5 96.2 97.8 97.7 98	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X X X	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER	Standard Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0 EXPECTED RESULT	RESULT PPB 49.2 48.1 48.9 97.7 49.0 ANALYTICAL RESULT	98.5 96.2 97.8 97.7 98	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 %	YES X X X X Z CEPTAB	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER CCV LA-52589	Standard Standard Standard Standard Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0 EXPECTED RESULT	RESULT PPB 49.2 48.1 48.9 97.7 49.0 ANALYTICAL RESULT	98.5 96.2 97.8 97.7 98	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % ACC	YES X X X X Z CEPTAB	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER CCV LA-52589 50 PPB	Standard Standard Standard Standard Standard TYPE	RESULT PPB 50.0 50.0 50.0 100 50.0 EXPECTED RESULT PPB	RESULT PPB 49.2 48.1 48.9 97.7 49.0 ANALYTICAL RESULT PPB	98.5 96.2 97.8 97.7 98 %R	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % ACC RANGE	YES X X X X CEPTAB YES	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER CCV LA-52589 50 PPB Benzene	Standard Standard Standard Standard Standard TYPE Standard	RESULT PPB 50.0 50.0 100 50.0 EXPECTED RESULT PPB 50.0	RESULT PPB 49.2 48.1 48.9 97.7 49.0 ANALYTICAL RESULT PPB 49.9	98.5 96.2 97.8 97.7 98 %R 99.7	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % ACC RANGE 75 - 125 %	YES X X X X CEPTAB YES X	NO
NUMBER CCV LA-52589 50 PPB Benzene Toluene Ethylenzene m & p - Xylene o - Xylene SAMPLE NUMBER CCV LA-52589 50 PPB Benzene Toluene	Standard Standard Standard Standard TYPE Standard Standard	RESULT PPB 50.0 50.0 50.0 100 50.0 EXPECTED RESULT PPB 50.0 50.0	RESULT PPB 49.2 48.1 48.9 97.7 49.0 ANALYTICAL RESULT PPB 49.9 48.0	98.5 96.2 97.8 97.7 98 %R 99.7 96.0	RANGE 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % 75 - 125 % ACC RANGE 75 - 125 % 75 - 125 %	YES X X X X X CEPTAB YES X X	NO

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Narrative: Acceptable.

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		SAMPLE	DUPLICATE		AC	CEPTAE	
SAMPLE	TYPE	RESULT	RESULT	F			
D		PPB	PPB			YES	NO
971086					RANGE		
Benzene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X	
Toluene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	x	
Ethylbenzene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	x	
m & p - Xylene	Matrix Duplicate	<2	<2	0.00	+/- 20 %	X	
o - Xylene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X	
Narrative: Acceptable.				<u></u>	<u> </u>		
LABORATORY SPIKES:							
SAMPLE	SPIKE	SAMPLE	SPIKE		AC	CEPTA	BLE
ID.	ADDED	RESULT	SAMPLE	%R			
2nd Analysis	PPB	PPB	RESULT			YES	NO
971086			PPB:		RANGE		
Benzene	50	<1	53.7	107.5	75 - 125 %	X	
Toluene	50	<1	48.6	97	75 - 125 %	X	
Ethylbenzene	50	<1	49.1	98	75 - 125 %	X	
m & p - Xylene	100	<2	98.2	98.2	75 - 125 %	X	
o - Xylene	50	<1	49.3	99	75 - 125 %	Х	
Narrative: Acceptable							
AUTO BLANK	SOURCE	<u></u>	PPB			ST	ATUS
			(3 analyzed w	ith set)			
Benzene	Boiled Water		<1.0			ACCI	PTABLE
Toluene	Boiled Water		<1.0			ACC	PTABLE
Ethylbenzene	Boiled Water		<1.0				PTABLE
Total Xylenes	Boiled Water		< 3.0			ACC	PTABLE
Narrative: Acceptable.							
	SOURCE		PPB			ST	ATUS
SOIL VIAL BLANK	Lot MB1461		(none analyzed	with set)			
Benzene	Vial + Boiled Water		< 1.0			ACCI	PTABLE
Toluene	Vial + Boiled Water		< 1.0			ACC	PTABLE
Ethylbenzene	Vial + Boiled Water		< 1.0			ACCI	EPTABLE
Total Xylenes	Vial - Boiled Water		< 3.0			ACCI	PTABLE
Narrative: Acceptable.							
CONTAMINATION	SOURCE		PPB			ST	ATUS
CARRYOVER CHECK		(n	<u>one analyzed w</u>	ith this set	:)		
Benzene	Vial + Boiled Water		< 1.0			ACCI	PTABLE
Toluene	Vial - Boiled Water		<1.0			ACCI	EPTABLE
Ethylbenzene	Vial + Boiled Water		<1.0				EPTABLE
Total Xylenes	Vial + Boiled Water		< 3.0			ACC	PTABLE
Narrative: Acceptable.					·····		
9/30/97 TRIP	SOURCE		PPB			ST	ATUS
BLANK							
Benzene	Vial + Boiled Water		< 1.0				PTABLE
	Vial + Boiled Water		<1.0			ACCI	EPTABLE
Toluene							
Toluene Ethylbenzene Total Xylenes	Vial + Boiled Water Vial + Boiled Water		<1.0 <3.0				EPTABLE EPTABLE

Reported By: CV

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Approved By: L. - Falde 2 na ana ana ana ara. Na anglera ara ar

Date: 10-8-97

الحال المراجع وي المورفة المالية المحمو

OCWater Template

مسافد کاران چینیونی میرون از از در مارکنین چینیون از مسیری از از در ایرون



QUALITY CONTROL REPORT

Sample ID: 971080 thru 971084 Date Reported: 10/15/97

LABORATORY CONTROL SAMPLE

Analyte	Found Result (mg/L)	Known Value (mg/L)	% Recovery
Cadmium	0.0012	0.0012	103%
Chromium	0.0070	0.0074	93.5%
Mercury	0.0046	0.0046	99.1%

DUPLICATE ANALYSIS (mg/L)

Analyte	Original Sample Result	Duplicate Sample Result	% RPD
Cadmium	ND	ND	NA
Chromium	ND	ND	NA
Mercury	ND	ND	NA

SPIKE ANALYSIS (mg/L)

Analyte	Original Sample Result	Spike Sample Result	Spike Added	Recovery Percent
Cadmium	ND	0.0094	0.010	93.2%
Chromium	ND	0.0533	0.050	101%
Mercury	ND	0.0019	0.002	94.0%

METHOD BLANK

Analyte	Found Result (mg/L)	Detection Level (mg/L)
Cadmium	ND	0.0002
Chromium	ND	0.004
Mercury	ND	0.00019

Approved By:

ND: Not Detected at stated detection level.

NA: Not Applicable.

Reported By

John Fart de

Date: 10



PARAGON ANALYTICS, INC.

225 Commerce Drive + Fort Collins, CO 80524 + (800) 443-1511+ (970) 490-1511 + FAX (970) 490-1522

October 16, 1997

Mr. John Lambdin El Paso Field Services 770 West Navajo Farmington, NM 87401



RE: Paragon Workorder: 97-10-009 Client Project Name: Chaco Plant Monitor Wells Client Project Number: Not Submitted

Dear Mr. Lambdin:

Four water samples were received from El Paso Field Services on October 2, 1997. The samples were scheduled for PAHs by HPLC analysis. The results for this analysis are contained in the enclosed report pages 1-9.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

Paragon Analytics, Inc. Victoria Bayly Project Manager

VB/jjc Enclosure: report

Briand QA/UC ANDYSUÓ 10-23-9

An Employee Owned Small Business

Paragon Analytics, Inc.

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PAHs by HPLC Case Narrative

El Paso Field Services

Chaco Plant Monitor Wells Order Number - 9710009



- 1. This report consists of 4 water samples received by Paragon on 10/2/97.
- 2. These samples were extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, the water samples were extracted using continuous liquid-liquid extractors, based on Method 3520.
- 3. The extracts were then analyzed using HPLC with UV and fluorescence detectors with a reverse phase C18 column according to protocols based on Method 8310. All compounds are analyzed using UV at 254 nm. Confirmation is performed for positive results using the fluorescence detector or confirmed by UV at 280 nm for those compounds that do not respond to the fluorescence detector. The quantitation of each analyte is usually taken from the detector that exhibits the fewest interferences. These quantitations minimize the chances of reporting elevated results based on interferences. If compounds do not confirm quantitatively (if the higher amount is greater than twice the lower amount the 2 amounts are considered <u>not</u> to confirm each other quantitatively), then the value is flagged with a "K" and noted on the report page.
- 4. All samples were extracted and analyzed within the established holding times.
- 5. The method blank associated with this project was below the reporting limits for all analytes.
- 6. All Blank Spike and Blank Spike Duplicate recoveries and RPDs were within the acceptance criteria.
- 7. Matrix Spikes and Matrix Spike Duplicates could not be performed because of insufficient sample volume. A Blank Spike and Blank Spike Duplicate were performed instead. See Item 6 for details on recoveries.
- 8. All surrogate recoveries were within acceptable limits with the following exception;

PARAGON ANALYTICS, INC.

<u>Sample</u> 4

Surrogate 2-Chloroanthracene



The surrogate could not be quantitated due to the high amount of dilution needed to bring the concentration of the target anlytes within range of the calibration curve, so no futher action is needed.

- 9. Due to matrix interferences and high levels of target analytes, samples 3 & 4 were analyzed at a higher dilution. The detection limits have been adjusted accordingly.
- 10. All initial and continuing calibration criteria were within acceptance criteria.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

ton matter Preston Mathiesen

Preston Mathiesen HPLC Analyst

AB Reviewer's Initials

1<u>0/15/9</u>7 Date

<u> 10-1637</u> Date

PARAGON ANALYTICS, INC.



SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: El Paso Field Services

Client Project ID: Chaco Plant Monitor Wells

			DATE
PAI-ID	Client ID	MATRIX	SAMPLED
9710009-1	971080 - mw - 1	Water	09/30/97
9710009-2	971081 - MW-8	Water	09/30/97
9710009-3	971082-mw-9	Water	09/30/97
9710009-4	971083. MW-10	Water	09/30/97





POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Paragon Analytics, Inc. Client Name: El Paso Field Services Client Project ID: Chaco Plant Monitor Wells

Lab Sample ID: WRB1 10/3/97

Sample Matrix: Water Cleanup: N/A Sample ID

Reagent Blank

Date Collected: N/A Date Extracted: 10/03/97 Date Analyzed: 10/09/97

Sample Volume: 1000 mL Final Volume: 1 mL Dilution Factor: 1

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		Reporting
Analyte	Conc (ug/L)	Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	ND	0.050
Anthracene	ND	0.10
Fluoranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	· ND	0.050
Benzo(a)pyrene	ND	0.10
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	70	35 - 119

ND = Not Detected at or above client requested reporting limit.

POLYNUCLEAR AROMATIC HYDROCARBONS BLANK SPIKE

Method 8310

Lab Name: Paragon Analytics, Inc. Client Name: El Paso Field Services Client Project ID: Chaco Plant Monitor Wells

Lab Sample ID: WBS1 & 2, 10/3/97

Sample Matrix: Water Cleanup: N/A Sample ID

Blank Spike

Date Extracted:10/03/97Date Analyzed:10/09/97

Sample Volume: 1,000 mL Final Volume: 1 mL

Analyte	Spike Added (ug/L)	BS Concentration (ug/L)	BS Percent Recovery	QC Limits % Rec
A	10.0	6.51	65	36 - 93
Acenaphthylene	10.0	6.51		
Phenanthrene	1.00	0.746	75	45 - 107
Pyrene	1.00	0.838	84	40 - 104
Benzo(k)fluoranthene	0.250	0.236	94	61 - 126
Dibenzo(a,h)anthracene	1.00	0.848	85	55 - 113

	Spike	BSD	BSD		QC
	Added	Concentration	Percent		Limits
Analyte	(ug/L)	(ug/L)	Recovery	RPD	RPD
Acenaphthylene	10.0	5.86	59	10	20
Phenanthrene	1.00	0.610	61	20	20
Pyrene	1.00	0.743	74	12	20
Benzo(k)fluoranthene	0.250	0.230	92	2	20 .
Dibenzo(a,h)anthracene	1.00	0.916	92	8	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
2-Chloroanthracene	84	72	35 -119

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Paragon Analytics, Inc. - Fort Collins, Colorado

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CONDITION OF SAMPLE UPON RECEIPT

CLIENT: <u>El Pass Field Services</u> SHIPPING CONTAINER	.#:(rooler	
WORKORDER NO. 97.10.039 INITIALS:	DAT	TE: 10/2	199 -
1. Does this project require special handling according to NEESA, Level 3,		Yes	No
or CLP protocols?			
If yes, complete a. and b.			
a. Cooler Temperature			
b. Lot No's.			
c. Airbill Number	_		
2. Are custody seals on the cooler intact? If so, how many	KILA?	Yes	No
3. Are custody seals on sample containers intact?	N/A	Yes	No
4. Is there a Chain of Custody (COC) or other representative documents,	<u> </u>	(Yes	No
letters or shipping memos?			
5. Is the COC complete?	N/A	Yes	No
Relinquished: Yes – No Requested Analysis: Yes No			
6. Is the COC in agreement with the samples received?	······	Yes	No
No. of Samples: Yes No Sample ID's: Yes No		\mathcal{O}	
Matrix: Yes No No. of Containers: Yes No			
7. Are the samples requiring chemical preservation preserved correctly?	NA	Yes	No
8. Is there enough sample? If so, are they in the proper containers?		(Des	No
9. Are all samples within holding times for the requested analyses?		Xes	No
10. Were the sample(s) shipped on ice?	N/A	Pes	No
11. Were all sample containers received intact? (not broken or leaking, etc.)		Des	No
12. Are samples requiring no headspace, headspace free?	107A	Yes	No
13. Do the samples require quarantine?		Yes	
14. Do samples require Paragon disposal?		Yes	No
15. Did the client return any unused bottles?		Yes	
		105	
Describe "NO" items (except No's 1, 13, &14):			
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Was the client contacted? Yes No			-
If yes, Date: Name of person contacted:			
Describe actions taken or client instructions:			
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Group Leader's Signature: Date:			
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