GW - 71-0

MONITORING REPORTS





February 2, 2000

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

RECEIVED

FEB 0 3 2000

ENVIRONMENTAL BUREAU OIL CONSERVATION DIVISION

Dear Mr. Olson:

Please find enclosed reports on the following monitoring wells and waste water streams at the El Paso Field Services Co. (EPFS) Chaco Plant. These results are summarized on the attached tables.

Semi-Annual analyses for monitoring wells 1 and 8. Quarterly analyses for monitoring wells 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. Monitoring well 10, adjacent to the old flare pit which was closed in 1995, exceeds several water quality standards for organics.

Monitoring wells 1, 8, and 9 have not exceeded any state limits for organics during 1997, 1998, or 1999. Due to a change in plant operations during 1999, contact wastewater is no longer discharged to on-site ponds. This waste stream is now disposed of off site in a class 1 underground injection well. The water quality of the non-contact wastewater discharge is such that it would not degrade any waters of the state if the wastewater did percolate to groundwater. Therefore, EPFS requests authorization to cease monitoring the non-contact wastewater and monitoring wells 1 through 9. Due to high levels of BTEX, EPFS will continue to samples monitoring well 10 on a quarterly basis.

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

Sincerely yours,

David Bays Principal Environmental Scientist

cc: Denny Foust - NMOCD - Aztec Mike Hansen Don Hensley Chaco Regulatory File

Chaco Plant Groundwater Monitoring Well Results 1999 All Results Expressed as Micrograms/Liter (ppb)

Monitoring Well 1 (semi-annual)	3/17/99	6/15/99	9/21/99	12/8/99
Benzene	< 1		< 0.5	
Toluene	< 1		<0.5	
Ethyl Benzene	< 1		<0.5	
Xylenes	< 3		< 0.5	
Cadmium	< 0.005		ND	
Chromium	< 0.01		ND	
Mercury	< 0.0002		ND	
Total Naphthalenes	ND		ND	
Total Benzopyrenes	ND		ND	
Monitoring Well 8 (semi-annual)				
Benzene	< 1		<0.5	
Toluene	< 1		< 0.5	
Ethyl Benzene	< 1		<0.5	
Xylenes	< 3		< 0.5	
Cadmium	< 0.005		ND	
Chromium	< 0.01		ND	
Mercury	< 0.0002		ND	
Total Naphthalenes	0.92		ND	
Total Benzopyrenes	ND		ND	
Monitoring Well 9 (quarterly)				
Benzene	< 1	<0.5	< 0.5	< 0.5
Toluene	< 1	< 0.5	< 0.5	<0.5
Ethyl Benzene	< 1	< 0.5	<0.5	< 0.5
Xylenes	< 3	< 0.5	<0.5	<0.5
Monitoring Well 10 (quarterly)				
Benzene	63.5	49	20	18
Toluene	13.9	7.1	9.2	<0.5
Ethyl Benzene	30.3	29	41	37
Xylenes	131	185	105	120

NA = Not Analyzed ND = None Detected

Chaco Plant Groundwater Monitoring Well Results 1999

. . .

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 July 9, 1999

E							
lest	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Non-Contact Wastewater
PH	7.2	7.3	6.9	7.2	8.1	7.2	8.0
Alkalinity - CO ₃	0	0	0	0	0	0	0
Alkalinity - HCO ₃	621	383	561	316	438	406	100
Calcium	87	124	467	213	51	219	234
Magnesium	24	28	62	40	6	42	57
Total Hardness	316	425	1491	697	164	720	819
Chloride	546	27	374	65	139	176	47
Sulfate as SO ₄	346	435	2637	987	1176	1171	933
Fluoride	1.91	<0.1	1.6	0.0	2.3	2.0	1.93
Nitrate as NO ₃	9.0>	<0.2	2.9	0.5	0.8	<0.6	0.00
Nitrate as NO ₂	<0.6	<0.2	<1.1	<0.2	<0.6	<0.6	<0.1
Ammonium as NH ₄	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phosphate	9.0>	<0.2	<0.0>	<0.2	<0.6	<0.6	<0.2
Potassium	4	Э	12	Э	3	4	37
Sodium	616	205	1179	363	062	556	165
TDS	1992	1126	5610	2060	2568	2700	1,814
Conductivity	2920	1391	5530	2300	3410	3170	1,807
Cadmium	QN	ND	QN	ΟN	ΟN	QN	QN
Chromium	ND	ND	ND	ND	ND	QN	DN
Mercury	QN	QN	QN	QN	ND	QN	QN

April 8, 1999

Semi-Annual ANALYTICAL REPORT

Chaco Plant

Monitor Well #1, 8 - Semi Annual Monitor Well #9, #10 - Quarterly Lab Sample #'s 990101 to 990105 Sampled 3/17/99 Sampled by Dennis Bird

REMARKS:

These samples represent the first round 1999 semi-annual (MW#1 and #8) and quarterly (MW#9 and #10) results for these four wells. The New Mexico WQCC limit for Benzene was exceeded in MW#10. MW-9 and 10 were installed on July 24, 1997. They are being monitored quarterly for BTEX components. Product removal was initiated on MW#10 on October 15, 1998 using a PetroTrap brand passive skimmer. Since this time, 1,472 milliliters of product have been removed from this well.

Distribution:

Sandra Miller - W/O Attachments Scott Pope - W/Attachments Mike Hansen - W/O Attachments Results File

Attachments

					Φ			hued			A	440	
					CHAIN	OF CUS	STODY	RECORE					
Project No.	Project Na	U g	HAC	0 21.	ANT	Type			He A	quested			
Samplers: (Signature	64	1.1		1 all	Date: 3-17-99	No. Sample	3960J	enbjuya	$\overline{}$		Remark	9	
////// Date	Time (Comp. G	RAB	ß	mple Number	Contain- ers							
WATTER 3-17-59	11/2		X	6	10/01	62	414	×		MANTO	PUECL	1110-1	1
4#77R 217-77	13		×	UN T	20105	25	407	X		A10.011 TO	P WELL ,	1. 10 - 5	1
1.cr) CV 2 / 77	and the		×	197 197	20103	\mathcal{C}	1. 2 pt	X		1201170	PWEU	9429	T
12.11.12 J. 7.7. R.	199		X	5	70104	6-2	413F	X		Vel Wow	o well a	1 W-16	
WHER 211 12	CE I		×	E	20/05	02	4°°F	×		Moli Vall	o worth a	4W-10 1-162012	6
UNTRY JAM			<u> </u>			C-1	Gers F	X		7110 6	GANN		Ţ
/							.*	•					
	1	1						 					1
								·.					T
													T
					/			. 					T
							1						1
													Τ
													T
													Τ
													Γ
Relinquished by: (Sig	Inature)		0 1	ate/Time	Received by: (Signature)		Relinquis	ned by: (Sigu	lature)	Date/	Time Received	d by: (Signature)	Å
4 1 11 80		101	1/2	1/1/200									
iic) :Va pansna py: ()	luarure)			ate/ I ime	Heceived by: (Signature)		Relinquis	hed by: (Sig	ature)	Date/	Time Received	d by: (Signature)	
Relinquished by: (Sig	nature)			ate/Time	Received for Laboratory by: (5	Signature)		te/Time	Remarks	F			
				-	- The Kend			9 . 	<u> </u>	al three the			·····
Carrier Co:						one No.	4	2/2/1	Date Res	ults Reported / by: (Sig	nature)		
Air Bill No.:													



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	990101
MTR CODE SITE NAME:	N/A	Chaco Plant
SAMPLE DATE TIME (Hrs):	3/17/99	1118
PROJECT:	Semi-Annua	I MW Sampling
DATE OF BTEX EXT. ANAL.:	NA	3/22/99
TYPE DESCRIPTION:	MW-1	Water

Field Remarks:

 $e^{i\phi} = i$

RESULTS

PARAMETER	RESULT	UNITS		QUALIF	ERS	
			DF	Q		Ļ
BENZENE	<1	РРВ	L			
TOLUENE	<1	РРВ				
ETHYL BENZENE	<1	PPB		,		
TOTAL XYLENES	<3	РРВ				
TOTAL BTEX	<6	РРВ				

--BTEX is by EPA Method 8020 --The Surrogate Recovery was at _____% for this sample All QA/QC was acceptable. DF = Dilution Factor Used

Narrative:

John Fallh Approved By:

Date: 5/7/49

990101 BTEX Chaco MonitorWell,4/8/99

		ASO D SFRVIC	U,					ء ۲۰۰۰ د ۱۰ ۲۰۰۰ - ۲۰						-	-
•) 			Well De	velopm	ent and	l Purgir	ng Data	_				
	Site Name	CHACO	DUANT	L	I		X	Developmer Purging		Vell Nun Aeter Co	nber	1-11-1 9			
	Developmer	nt Criteria						•							
	othe of Stabi	5 Casing Volumes of W ilization of Indicator Par. r_	/ater Removel ameters		Water Vo Initial Depth of Initial Depth to	Netl (feet)	sculation		· J		Instrum	ents pH Meter			
	Methods of	Development			Height of Wat Diameter (inct	er Column in W	ell (feet)	5 7 7 8	J I ·			Conductivit	y Meter re Meter		
	Cent P	ump Bailer rifugal X Botton	m Vaive		ltem	Water Volu Cubic Feet	me in Well Gallons	Gallor Rem	is to be	- haada galagaada		Other 2	D. CHE	METS KIT	
	Subn	nersible Doub	ole Check Valvi	<u>ں</u>	Well Casing		70	Я.	0		Water E	lisposal			
	L Peris	staltic C Stain	lless-steel Kerr	merer	Gravel Pack					-	KUTG	35	PARA	dell	
					Drilling Fluids										
	Motor Done			_				-							
	Date	te Development	Rate	Depth	Ending Wate	Water	Volume	Product	Volume	emperature	:	Conductivity	Dissolved		
		Pump Bailer	r (gal/min)	(feet)	(feet)	Increment	Cumulative	Increment	Cumulative		Ľ	hmho/cm	Oxygen md/L	Comments	
	3-17-44 10:	2								53	5-91	40081	2		
	3-17-77 103	7				50	50			38	8.48	1239			
	3-17-49 104	2				5:0	100			66	6.69	1834			
	50/2/2	2				5.0	150			10,0	6.81	1PB5			
_	2-17-77 110	<i>k</i>				20	20.02			10.01	6,96	deal/	45		
.															
	Comments	10													
	Developer's Signatı	ure <u>NENTMA</u>	is R	20				Date 3-17	- 99 _{Re}	viewer		Lend a	0	S/1/45	
										Ρ	- Alexandre	Victor			
								•							

EL PASO ELD SERVICES

FIELD SERVICES LABORATORY **ANALYTICAL REPORT**

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	990102
MTR CODE SITE NAME:	N/A	Chaco Plant
SAMPLE DATE TIME (Hrs):	3/17/99	1243
PROJECT:	Semi-Annua	MW Sampling
DATE OF BTEX EXT. ANAL.:	NA	3/22/99
	MW-8	Water

Field Remarks:

RESULTS

<u>.</u>.....

PARAMETER	RESULT	UNITS		QUALIF	ERS	
			DF	Q		
BENZENE	<1	РРВ				
TOLUENE	<1	PPB				
ETHYL BENZENE	<1	PPB				
TOTAL XYLENES	<3	PPB				
TOTAL BTEX	<6	PPB		<u> </u>		

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 119.0 % for this sample All QA/QC was acceptable. DF = Dilution Factor Used

Narrative:

Approved By: ______ Date: _____ Date: ______

990102 BTEX Chaco MonitorWell,4/8/99

Veroinment Criteria Sabilization of Indicator Faameers Mater Volume Calculation Image: Double Character Faameers Double Calculation Mater Volume Calculation Image: Double Character Faameers Double Character Faameers Double Character Faameers Double Character Faameers Image: Double Character Faameers Image: Double Character Faameers Image: Double Character Faameers Image: Double Character Faameers Image: Double Character Faameers Image: Double Character Faameers Image: Double Character Faameers Double Character Faameers Double Character Faameer
3 to 5 Casing Volumes of Water Removel Selucisation of Indicator Farameters Water Volume Calculation intel Opph of Water Volume Calculation of the Demo Mater Volume Calculation intel Opph of Water Column in Well (feet) Instruments Thods of Development Offer Pump Bailer Centrigial Development Bailer Demo Mater Volume Calculation intel Opph of Water Column in Well (feet) Cancel Pack Cancel Pack Moter Mater Opposition Mater Opposition Other Submersitie Double Check valve Item Cation Factor Calculation
Indds of Development Dameter (inclnes). Weil Veil Canwer Pack. Pump Baller Camingal Submersible Double Check value Submersible Submersible Double Check value Submersible Statings Fluids Chel Che
Centrulyal Salone Item Water Yolume in Weal Galions Galions Coher 20.0 Submersible Double Check Valve Weil Casing Cubic Feet Galions Removed Peristalts Stainless-steel Kammer Veil Casing Crave Pack Removed Nater Disposal Cher Double Check Valve Veil Casing Cubic Feet Galions Removed Dilling Fluids Crave Pack Drilling Fluids Prove ZSD Dilling Fluids Total Total Nater Volume Nater Volume Terre Development Removed (gal) Removed (gal) Removed (gal) AP Mater Ois Conductivity Disc Princ AP Mater Oine Conductivity Disc Princ AP Mater Oine Conductivity Disc Princ AP Mater Oine Conductivity Disc Princ AP Proved (gal) Removed (gal) Proved (gal) Proved (gal) AP Mater Oine Conductivity Disc Princ AP Prince SSD AP Prince Disc AP Prince SSD AP Princ Prince
Submersitie Double Check Valve Veil Casing 7,7 73,0 Peristatic Stainless-steel Kammerer Gravel Pack Gravel Pack Gravel Pack Inter Inter Stainless-steel Kammerer Gravel Pack Diffing Fluids Mater Disposal Inter Inter Time Intervention Time Mater Disposal Inter Time Development Removed (gal) Removed (gal) Removed (gal) APP //SP Pump Baller Gat/min (reek) Increment Cumulative Mater Disposal APP //SP Pump Baller Gat/min (reek) Increment Cumulative Mater Disposal APP //SP Pump Baller Gat/min (reek) Increment Cumulative Mater Disposal APP //SP Pump Baller Gat/min (reek) Increment Cumulative Mater Disposal APP //SP Pump SP APP APP APP APP APP //SP Pump SP APP APP APP APP //SP Pump SP APP APP APP //SP Pump SP APP APP APP //SP Pump SP APP APP
Peristalic Stainless-steel Kemmerer Gravel Pack Gravel Pack Gravel Pack Friding Fluids MUZ SZOM Diffing Fluids Diffing Fluids Diffing Fluids Diffing Fluids MUZ SZOM Image Time Development Removal Image Perioduct Volume Product Volume Product Volume Product Volume APP J/S7 APP Development Removal Image C PH Pump Page APP J/S7 APP APP APP APP APP APP APP APP APP J/S7 APP APP APP APP APP APP APP APP J/S7 APP APP APP APP APP APP APP J/S7 APP APP APP APP APP APP APP J/S7 APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP APP
Induction Defining Fluids Defining Fluids Defining Fluids ter Removal Data Time Development Removed (gal) Removed (gal) Removed (gal) Removed (gal) Product Volume Pump Bailer gal/min) (feet) Increment CAPP //57 S/20 S/20 N/2 CAPP //57 S/20 S/20 N/2 CAPP //57 S/20 N/2 N/2 CAPP //2/7 S/2 N/2 N/2 CAPP //2/7 S/2 N/2 N/2
Time Development Removal Intake Ending Water Water Volume Product Volume Temperature Conductivity Disso 3te Time Development Removal Intake Ending Water Water Volume Product Volume Product Volume Own 3te Time Depth Depth Depth Removed (gal) Removed (galons) °C pH Jumloicum Dwn 2.99 //53 Pump Bailer (gal/min) (feet) (feet) Increment Cumulative Increment Conductivity Disso 2.99 //275 S
Time Development Removal Intake Ending Water Vater Volume Product Volume Temperature Conductivity Disso 299 1/53 Bailer (gal/min) (reet) (reet) Increment Cumulative Conductivity Disso OW 299 1/53 Bailer (gal/min) (reet) (reet) Increment Cumulative Conductivity Disso OW 2.99 1/53 Bailer (gal/min) (reet) (reet) Increment Cumulative Conductivity Disso 2.99 1/53 Bailer (gal/min) (reet) Increment Cumulative Conductivity Disso 2.99 1/53 S
CPO Term Common Mailer Galinary (feet) (f
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $
799 1158 1111 742 72.70 299 1205 5.20 5.20 15.00 1111 742 72.70 299 1217 5.00 15.00 1117 7.36 2720 299 1217 5.00 15.20 217 7.36 2720 299 1217 5.00 15.20 217 7.36 2720 299 1217 5.00 25.00 25.00 12.2 7.37 2720 299 1217 5.00 25.00 25.00 12.2 7.37 2720 299 1217 5.00 25.00 25.00 12.2 7.37 2720 299 1215 7.37 7.36 7.49 273 2730
299 1205 299 1210 299 1210 299 1217 299 1217 299 1217 299 1217 299 1217 299 1217 299 1217 299 1217 290 1225 200 1255 200 1255 200 1255 200 12
29 210 150 150 150 150 117 736 2020 150 117 736 2020 127 131 1200 117 132 200 117 132 200 117 100 117
7-99 1217 7-99 1225 7-99 1255 7-99 1
7-99 1225

.



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

_	Field ID	Lab ID
SAMPLE NUMBER:	N/A	990103
MTR CODE SITE NAME:	N/A	Chaco Plant
SAMPLE DATE TIME (Hrs):	3/17/99	1410
PROJECT:	Quarterly M	AW Sampling
DATE OF BTEX EXT. ANAL.:	NA	3/22/99
	MW-9	Water

Field Remarks:

RESULTS

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

-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: John Falch Date: 5/7/55

990103 BTEX Chaco Monitor/Well,4/8/99

	TELD S	ERVICE	S			Well De	velopm	ent and	Purgir	ng Data	_				
Site Na	me	1900 1	- MENC	K	,			Development Purging	2 2	Vell Nur Aeter Co	nber <u>/</u>	7W-9			
	pment Cri 3 to 5 Casing Stabilization (Other	teria 1 Volumes of Wa of Indicator Para	ater Removel meters		Water Vo Initial Depth of Initial Depth to	lume Calo Well (feet)	ulation	·			lnstrum ⊠⊐⊠	ents pH Meter DO Monitor			
Methoc	is of Deve	lopment		E	Height of Wate Diameter (inch	es): Well	Gravel Pa		4				y Meter re Meter	CMETS KIT	
	rump Centrifugal	Bottom	ı Vaive		ltern	Vvater Volu Cubic Feet	me in veli Galions	Remo	s to be		\triangleleft		2		
	Submersible Peristaltic	Stainle	e Check Valv ess-steel Kem	e Imerer	Well Casing Gravel Pack		6,6	~ / %			Water I	Disposal	PARC	12A	
					Drilling Fluids										
	Other				Total										
Water	Removal L)ata													
	Timo	Development	Removal	Intake	Ending Water	Water	Volume	Product /	/olume	Femperature م	2	Conductivity	Dissolved	Common	
		ump Bailer	(gal/min)	(feet)	(feet)	Increment	Cumulative	Increment (Cumulative	2	5		mg/L		
3-17-99	1333									12.8	7.33	1712			
3-179	1338		-			50	50			11.7	6,58	1742			
3-17 91	1344					50	10,0			11.5	6.57	1871			
3-179	1353					50	150			115	6.30	1655			
3-12-9	004/6					<i>N</i> .0	390			116	6,72	1841	1.5		
		-													
Comments								-							
Developer	s Sionature ${\cal O}$	Lenn	10.	Suca				Date 3-17	299 R	eviewer	N/	Lord	0,	Date (1-1/94	
•))								-						
										フ					

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	990104
MTR CODE SITE NAME:	N/A	Chaco Plant
SAMPLE DATE TIME (Hrs):	3/17/99	1530
PROJECT:	Quarterly N	/W Sampling
DATE OF BTEX EXT. ANAL.:	NA	3/22/99
	MW-10	Water

Field Remarks: The well had a strong HC smell. Petro trap removed prior to sampling.

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS				
			DF	Q			
BENZENE	63.5	РРВ					
TOLUENE	13.9	PPB					
ETHYL BENZENE	30.3	РРВ					
TOTAL XYLENES	131	PPB					
TOTAL BTEX	239	РРВ					

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 124.0 % for this sample All QA/QC was acceptable. DF = Dilution Factor Used

Narrative:

John Farth _ Date: _____5/7/69 Approved By:

990104 BTEX Chaco MonitorWell,4/8/99

Well Development and Purging Data	Development Well Number MW -/D Purging Meter Code MM	olume Calculation Instruments of Well (feet) ススピークター DO Monitor Conductivity Meter	Meal Gravel Pack Water Volume in Well Gallons to be Cubic Feet Gallons	7.3 2/.7 Water Disposal KUTE SEPARATOR			er Water Volume Product Volume Temperature Conductivity Dissolved Comments Removed (gal) Removed (gallons) °C pH µmho/cm Oxygen Comments Increment Cumulative Increment Cumulative mg/L	13/ 2230	5.0 5.0 13.1 4180	50 150 130 2760	50 200 13.2 2890	2.0 25.0 12.8 7.4% 2830 1.0		G HYDROCAPBON SMEUL.	3-17.99 N 2 P. M CLIM
FIELD SERVICES	Site Name CHACO DUANT	3 to 5 Casing Volumes of Water Removel Attended Stabilization of Indicator Parameters Initial Dept Initial Dept Height of V	Methods of Development Diameter (Pump Bailer Centrifugal X Bottom Valve Itom		Dritting Flu	Water Removal Data	Development Removal Intake Ending W Date Time Method Rate Depth Depth Pump Pump Bailer (gal/min) (feet) (feet)	3-17-99 1439	3-17-99 1445	3-1299 1503	3-17-99 1512	3-1242 1500		Comments THE WATER HAD A STRON	Mannin Rind

... .



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

_	Field ID	Lab ID
SAMPLE NUMBER:	N/A	990105
MTR CODE SITE NAME:	N/A	Chaco Plant
SAMPLE DATE TIME (Hrs):	3/17/99	1530
PROJECT:	Quarterly MW	Sampling
DATE OF BTEX EXT. ANAL.:	NA	3/22/99
	MW-10 Field Duplicate	Water

Field Remarks: Field Duplicate

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS				
			DF	Q			
BENZENE	43.9	РРВ					
TOLUENE	10.7	PPB					
ETHYL BENZENE	25.1	PPB					
TOTAL XYLENES	103	РРВ					
TOTAL BTEX	183	PPB	[<u> </u>			

-BTEX is by EPA Method 8020 -

The Surrogate Recovery was at 118.0 % for this sample All QA/QC was acceptable. DF = Dilution Factor Used

Narrative:

John Salch Date: 5/7/99 Approved By:

990105 BTEX Chaco MonitorWell,4/8/99

QUALITY CONTROL REPORT

EL PASO FIELD SERVICES

EPA METHOD 8020 - BTEX

Samples: 990101 to 990105

QA/QC for 03/22/99 Sample Set #2

LABORATORY CALIBRATION CHECKS / LABORATORY CONTROL SAMPLES:

SAMPLE	l	EXPECTED	ANALYTICAL		ACCEPTABLE	
NUMBER	TYPE	RESULT	RESULT	%R		
ICV LA-52589		РРВ	РРВ		YES NO	
50 PPB				<u> </u>	RANGE	
Benzene	Standard	50.0	51.2	102.4	75 - 125 % X	
Toluene	Standard	50.0	51.1	102.3	75 - 125 % X	
Ethylbenzene	Standard	50.0	52.1	104.3	75 - 125 % X	
m&p-Xylene	Standard	100	104.5	104.5	75 - 125 X X	
o - Xylene	Standard	: 50.0	51.8	103.6	75 - 125 % X	
SAMPLE		EXPECTED	ANALYTICAL		ACCEPTABLE	
NUMBER	TYPE	RESULT	RESULT	% R	the second second second	and a set
LCS LA-45476		PPB	PPB	-	YES TE 2NO C	
25 PPB			12. 18.8	·	RANGE	
Benzene	Standard	25.0	et trans 24.5	98	39 - 150 X	
Toluene	Standard	25.0	24.5	98	46 - 148 X	
Ethylbenzene	Standard	25.0		. 99	32 - 160 X 1940	3-0-3- ¹
m&p∽Xylene	Standard	50.0	. "s 49. 7	99	Not Given X	· · ·
o - Xylene	Standard	25.0	24.9	100	Not Given X	

Narrative: Acceptable.

LABORATORY DUPLICATES:

		SAMPLE	DUPLICATE		AC	CEPTABL	E
SAMPLE	TYPE	RESULT	RESULT	RPD			
ID		РРВ	PPB			YES	NO
990101	<u> </u>				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 %	х	
m & p - Xylene	Matrix Duplicate	<2	<2	0.00	+/- 20 %	x	ĺ
o - Xylene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	х	

Narrative: Acceptable.

LABORATORY SPIKES:

SAMPLE	SPIKE	SAMPLE	SPIKE		AC	CEPTAB	LE
ID	ADDED	RESULT	SAMPLE	%R			ł
	ррв	РРВ	RESULT		1	YES	NO
990101		L	РРВ		RANGE		
Benzene	25	<1	21.8	87	75 - 125 %	x	
Toluene	25	<1	21.9	88	75 - 125 %	x	ł
Ethylbenzene	25	<1	21.7	87	75 - 125 %	х	1
m & p - Xylene	50	<2	43.7	87	75 - 125 %	х	
o - Xylene	25	<1	22.0	88	75 - 125 %	x	

.

Narrative: Acceptable.

AUTO BLANK	SOURCE	РРВ	STATUS
		(1 analyzed with set)	
ßenzene	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.

i

	SOURCE	PPB	STATUS
SOIL VIAL BLANK	Lot MB1461	(two analyzed with set)	
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	SOURCE	PP8	STATUS
CARRYOVER CHECK	L	(one analyzed with this set)	
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

Narrative: Acceptable.				• • • • • • • • • • • • • • • • • • •
TRIP	SOURCE	PPB BUILDE	STATUS	
BLANK 031799	· · ·	(one analyzed with this set)	· , •	
Benzene	Vial + Boiled Water	n na national and an	ACCEPTABLE	
Toluene	Vial + Boiled Water	The second se	ACCEPTABLE	· · · · · ·
Ethylbenzene	Vial + Boiled Water		ACCEPTABLE	
Total Xylenes	Vial + Boiled Water	<pre>3.0</pre>	ACCEPTABLE	

Narrative: Acceptable.

0222000014/0tor Maunia Cat #2

Sa Alara I.

Reported By: J.L.

Approved By: ______ Blu Fat Ch. _____ Date: 3/23/99



PARAGON ANALYTICS, INC.

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

April 5, 1999

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

RE: Paragon Workorder: 99-03-152 Client Project Name: Chaco Plant Monitor Wells Client Project Number: None Submitted



Dear Mr. Lambdin:

Two water samples were received from El Paso Field Services on March 19, 1999. The samples were scheduled for Total Recoverable Metals (pages 1-11) and PAHs by HPLC (pages 1-8) analyses. The results for these analyses are contained in the enclosed reports.

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

Sincerely,

her for

Paragon Analytics, Inc. Debbie Fazio Project Manager

DF/rm Enclosure: Report

Reviewed & Accepted Reviewed & SINIGG Reviewed & SINIGG

An Employee Owned Small Business

Paragon Analytics, Incorporated

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 9903152 Client Name: El Paso Field Services Client Project Name: Chaco Plant Monitor Wells Client Project Number: Client PO Number:

Client Sample	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
990101	9903152-1	╸	WATER	3/17/99	11:18
990102	9903152-2		WATER	3/17/99	12:43

. 1	~/]	S/#	nineinou -	to Jagwini	m	m		T		T	T	T	1	<u> </u>	~	-	T	<u> </u>	T	·	T	T	٦
								ļ,		+	+	+	+	+	1	+	1	em i	late			ime	ate		
ot .	~	Í			/							1			1	1	1					~		l	
	5		WOIWe	HJ T	101	045	X	X									1								
age	5		1.40	12 Jaw	76	<u>191</u>		\times	 	 	1	<u> </u>		ļ	<u> </u>		0.87								
	7.			<u>.</u>	ture	isioM %		ļ	ļ			<u> </u>			ļ		UISHE				0.87				
No.	20			әрлуа	opjewioj	<u> • 9128</u>	┼—				┼──			┼──			TINO	ä.	int	mpan	CEIVE	: 5	iit	luedw	
Z	V			06	/ 69 min (su)	ו רוכוחות גרומתוני					+			┼	┼──		2 RE	Si	2		2 8	2 5	E E	Co.	1
DAT				87	<u>, (12)</u> 576 7	wnipey			-		+	<u> </u>						ime	late				. 19 . 9		
~	N.			(KBA)	uniner	U letoT				1	1	<u> </u>	1]		m	ļ	
0	8 (D			ш	ninerU a	oiqotosi														0	t	-	24	H	
ST	(LA)	-		wnj	notula a	niqotosl				ļ							D BY:			10		gr	NZ	P A	
B	BER	STED			oəds e	ewweg					<u> </u>		<u> </u>				IISHE				18	140	Rae	()	
E	UNI UNI	QUE			ewweg	ssori							<u> </u>				TINO	'n.	int	uedu	CEIVE	A A	PP:	mpan	
Z	NN	S RE	ו בסעוואמעול	eta n siaiamereta	g / eya/y Ausads)	, ssol						<u> </u>					1 RE	<u>ين</u> مر	Pr Pr	Co	1 RE	 Sij	<u> </u>	Co	
141	SSO SSO	LYSI	(5)109000	ios ui Viiseds)	. s/e19/	, 101al N 101al N				 ,		ļ						ine	and a	Ş,	l	ime	ate		
さ	CES	ANAI		XI·X	0V · X03	1 · X01												1. Al	JE.	22		F			
	*AC			Pesticides	d0 • #15	9/1718												-	18	Q				0	
				səp	Herbicio	· 0518											D BY:	· è	SV	A.			·	19	
				s, VNJ 37	dH · 019	9/0128	X	<u>X</u>									UISHE	97 97 1	EN .	Ś	ED BY:			Ч	ŀ
				AJU 8 00 V/82	0 5,8)d	- 0808		-									ELINO	an a	int (neam	CEIVI	.ug	iit	neqm	
				5.20AS	SW/29	· 0/78		-+								-	2	ं			2	<u> </u>	-	-3	
				S.JOA SW/J	9 · 0978	8540/														N.	.			l	
Ξ				Лju	0 X138 ·	· 0Z08														RETU	R				
30-15			X1.	38/əuiloseð	- 0208/u	<u>9108</u>					·										Ø				
0) 46				ləsəi	<u>a · ,boM</u>	9108	\rightarrow	_													2	`			
or (97 Fax				əuijose	<u>9 · 'po</u> W	9108									-+	-		NILLS			0				
511 i 522 ·		ŀ	7.51	+/1/06/0/04	Haar . Seesin	1817	-+	-+		-			-+		-+	-1	1	SEAL	(COLD)	83	\checkmark				
43-1 90-1	F	┥	I N							15		<u>i</u>					ECEIP	10015	COND	212.00	4				
(00) 4 (70) 4						AB'ID	A	0									PLER	VOF CI	1000	CHEW	N.				
8)			Z Z V				X										SAM	CHAI	NEC'L	RH I	N.				
				6	X NO.	X	ž								_ [T		3	T]	Ø	\geq			
1C. 1524	Ŀ			1 63	FA)	MATH	E C	JJJ										N.			R				S.
, IN 08 00		Ŝ	619			R	2	2	-+	-+	_			-+		_		2			\sum				RFL
ICS Ins, (2	8210	22		TIME	<u> </u>	R.										EI.	DUE	E3	Ř				En A
				NO		L.	87		-+	-+	-+	\dashv		-+	-+	-		101	RUSH	00.04	N.				IANI
VAI e Ft		Ň		\$		DAT	317	2													N				HS I
V AI			S B S	130			1								T	1					\mathbb{X}				F M
GOA nerce	k	2		12 PA			1											2] .	$\tilde{\mathbf{x}}$				VRI
RA(Comr		51		My M	2	9	$\hat{\mathcal{Y}}$	ğ									2	0	ß		Š				TU
PA 225		31	2	à.	ONE	MPLE	0	$\tilde{\Omega}$									WATIC	HA	TANDA		(ma				U NI
r	_ \$	5	نة الأ	ei J	H	30	Na	N								ļ	NFOR!	ME.C	۲.		Z				ũ *
		s	IPAN IRES.	PLE SS				Ĭ									ECT III	ECT NA			NENTS			I	
		22	CON ADL	SAN SAN													PROJ	PRON	TAT: CANDI		COMA				

· · |

Paragon Analytics, Inc. - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT FORM

CLIENT: El Paso Field Series PROJECT MANAGER: D. FAZIO

WORKORDER NO: 9903.52 INITIALS: RIM DATE: 3.19.99

1.	Does this project require any special handling in addition to standard		Yes	No
	PAI procedures?			A
	PRESCREEN REQUIRED (Rad, DOE, etc.)		Yes	(ND)
2.	Are custody seals on the cooler intact? If so, how many	N/A	Yes	No
3.	Are custody seals on sample containers intact? NO Sect-	N/A	Yes •	(No)
4.	Is there a Chain of Custody (COC) or other representative documents,		Yes	No
	letters, or shipping memos?			
5.	Is the COC complete?	N/A	(Yes)	No
	Relinquished: Yes 🖌 No Analyses Requested: Yes 🗶 No		\smile	
6.	Is the COC in agreement with the samples received?		(Yes)	No
	No. of Samples: $Yes \checkmark No$ Sample ID's: $Yes \checkmark No$			
	Matrix: Yes \vee No No. of Containers: Yes \times No			
7.	Are all aqueous samples requiring chemical preservation preserved	N/A	Yes	No
	correctly (excluding volatile organics)?			
	Are all aqueous non-preserved samples at the correct pH?		(Yes ¹)	No
8.	Is there enough sample? If so, are they in the proper containers?		Yes	No
9.	Are all samples within holding times for the requested analyses?		Yes	No
10.	Were the sample(s) shipped on ice?	N/A	Yes	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		(Yes)	No
12.	Are samples requiring no headspace, headspace free?	N/A)	Yes	No
	Size of bubble < green pea > green pea	\smile		
13.	Are airbills present and removable?		(Yes)	No
14.	Shall Paragon dispose of samples?		Ye	No
15.	Were the cooler temperatures $\leq 6^{\circ}$ C ?	N/A	(Yes)	No

_____ Cooler #'s °C Temperature

PM Reviewed/Date:

A NO RESPONSE TO ANY QUESTION (EXCEPT # 1&13) REQUIRES THE COMPLETION OF **PAGE 2 OF THE FORM** Page 1 of ____ FORM 201FC7.frm (12/17/98)

PLEASE FOLD THIS SHIPPING DOCUMENT IN HALF AND PLACE IT IN A WAYBILL POUCH AFFIXED TO YOUR SHIPMENT SO THAT THE BAR-CODE PORTION OF THE LABEL CAN BE READ AND SCANNED. ***WARNING: USE ONLY THE PRINTED ORIGINAL LABEL FOR SHIPPING. USING A PHOTOCOPY OF THIS LABEL FOR SHIPPING PURPOSES IS FRAUDULENT AND COULD RESULT IN ADDITIONAL BILLING CHARGES, ALONG WITH THE CANCELLATION OF YOUR FEDEX ACCOUNT NUMBER.





000001

Paragon Analytics, Inc.

TOTAL RECOVERABLE METALS CASE NARRATIVE

El Paso Field Services

Chaco Plant Monitor Wells Order Number - 9903152

- 1. This report consists of 2 water samples.
- 2. The samples were received cool and intact on 03/19/99.
- 3. The samples had been correctly preserved for the requested analyses.
- 4. The samples were prepared for analysis based on SW-846, 3rd Edition procedures. For analysis by conventional ICP, the samples were digested following method 3005A and PAI SOP 806 Rev. 4.

For analysis by Cold Vapor AA (CVAA), the samples were digested following method 7470A and PAI SOP 812 Rev. 6.

5. The samples were analyzed following SW-846, 3rd Edition procedures.

Analysis by conventional ICP followed method 6010B and PAI SOP 805 Rev. 0.

Analysis by CVAA followed method 7470A and PAI SOP 812 Rev. 6.

- 6. All standards and solutions are NIST traceable and were used within their recommended shelf life.
- 7. The sample was prepared and analyzed within the established hold times.
- 8. Sample results which are below PAI's standard reporting limit are shown as the reporting limit with a "U" flag.
- All in house quality control procedures were followed, as described below.
- 9. General quality control procedures.
 - A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in each digestion batch. There were not more than 20 samples in each digestion batch.

PARAGON ANALYTICS,



- The preparation (method) blank results associated with each batch were below the reporting limits for the requested analytes. This indicates that no contaminants were introduced to the samples during the digestion procedure.
- The laboratory control sample associated with each batch was within acceptance limits. This indicates complete digestion according to the method.
- All initial and continuing calibration blanks associated with each batch were below the reporting limits for the requested analytes. This indicates a valid calibration and stable instrument conditions.
- All initial and continuing calibration verifications associated with each batch were within acceptance criteria for the requested analytes. This indicates a valid calibration and stable instrument conditions.
- The interference check samples, and high standard readbacks associated with Method 6010B analyses were within acceptance criteria.
- 10. PAI sample ID 9903123-7 was used as the QC sample for the ICP batch. PAI sample ID 9903089-1 was used as the QC sample for the mercury batch.
 - A matrix spike and matrix spike duplicate were digested and analyzed with each batch. All acceptance criteria for accuracy were met.
 - A sample duplicate and spike duplicate were digested and analyzed with each batch. All acceptance criteria for precision were met.
 - A serial dilution was analyzed with the ICP batch. All acceptance criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below:

Darryl Patrick Senior Inorganic Chemist

<u>3/31/99</u> Date

SW

Reviewer's Initials

3/31/99

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

PARAGON ANALYTICS, 1894

000002

Paragon Analytics, Incorporated

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 9903152 Client Name: El Paso Field Services Client Project Name: Chaco Plant Monitor Wells Client Project Number: Client PO Number:

Client Sample	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
990101	9903152-1		WATER	3/17/99	11:18
990102	9903152-2		WATER	3/17/99	12:43

Inorganic Data Reporting Qualifiers

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- C (Concentration) qualifier -- If the analyte was analyzed for but not detected a "U" is entered.
- Q qualifier -- Specified entries and their meanings are as follows:
 - E The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 - M Duplicate injection precision was not met.
 - N Spiked sample recovery not within control limits. A post spike is analyzed for all 6010B analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than 4 times the spike added concentration.
 - Duplicate analysis (relative percent difference) not within control limits.

Total Recoverable ICP Metals

Method SW6010 Sample Results

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9903152

Client Name: El Paso Field Services

ClientProject ID: Chaco Plant Monitor Wells

1.0.63 (34'88'S'C''''''''''''''''''''''''''''''''	ter W. M. Sandhara and Tarak Stark and Arabida Parks Harris and Arthradian Star
Eloid ID-	990101
CIGIO ID .	
· · · · · · · · · · · · · · · · · · ·	ander anderen vorsenen en starten der starten in beiter eine beiter beiter beiter beiter beiter beiter beiter b
I SHID	0003162-1
LOUID.	3303132-1
An	MIT THE REAL PROPERTY AND A CONTRACT OF MERCE AND A STREET AND A CONTRACT OF A STREET AND A ST

Sample Matrix: WATER % Moisture: N/A Date Collected: 17-Mar-99 Date Extracted: 25-Mar-99 Date Analyzed: 26-Mar-99 Prep Batch: IP990325-1 QCBatchID: IP990325-1-1 Run ID: IP990326-1A1 Cleanup: NONE Basis: As Received Sample Aliquot: 50 G Final Volume: 50 G Result Units: MG/L

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7440-43-9	CADMIUM	1	0.005	0.005	U	
7440-47-3	CHROMIUM	1	0.01	0.01	U	

Data Package ID: /P9903152-1

Date Printed: Wednesday, March 31, 1999

Paragon Analytics Inc.

000005

Total Recoverable ICP Metals

Method SW6010 Sample Results

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9903152

į

Client Name: El Paso Field Services

ClientProject ID: Chaco Plant Monitor Wells

Field ID: 990102 (A. - 8) Lab ID: 9903152-2 Sample Matrix: WATER % Moisture: N/A Date Collected: 17-Mar-99 Date Extracted: 25-Mar-99 Date Analyzed: 26-Mar-99 Prep Batch: IP990325-1 QCBatchID: IP990325-1-1 Run ID: IP990326-1A1 Cleanup: NONE Basis: As Received Sample Aliquot: 50 G Final Volume: 50 G Result Units: MG/L

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7440-43-9	CADMIUM	1	0.005	0.005	U	
7440-47-3	CHROMIUM	1	0.01	0.01	U	

Data Package ID: /P9903152-1



ICP Metals Method SW6010 Method Blank

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9903152

Client Name: El Paso Field Services

ClientProject ID: Chaco Plant Monitor Wells

Sector Constraint State and State	Sec. 12
Lab ID: FB990325-1MB	÷.
1220 States and the second	

Sample Matrix: WATER % Moisture: N/A Date Collected: N/A Date Extracted: 25-Mar-99 Date Analyzed: 26-Mar-99 Prep Batch: IP990325-1 QCBatchID: IP990325-1-1 Run ID: IP990326-1A1 Cleanup: NONE Basis: N/A Sample Aliquot: 50 G Final Volume: 50 G Result Units: MG/L

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
7440-43-9	CADMIUM	1	0.005	0.005	U	
7440-47-3	CHROMIUM	1	0.01	0.01	υ	

Data Package ID: /P9903152-1

ICP Metals

Method SW6010 Matrix Spike And Matrix Spike Duplicate

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9903152

Client Name: El Paso Field Services

ClientProject ID: Chaco Plant Monitor Wells

**************************************	Second Martin martin	THE MILLION COMPANY
Field ID	SHARED QC	
	39903123-7M	5 👔
the same where to	The rest of the second s	

Sample Matrix: WATER % Moisture: N/A Date Collected: 10-Mar-99 Date Extracted: 25-Mar-99 Date Analyzed: 26-Mar-99 Prep Batch: IP990325-1 QCBatchID: IP990325-1-1 Run ID: IP990326-1A1 Cleanup: NONE Basis: As Received Sample Aliquot: 50 G Final Volume: 50 G Result Units: MG/L

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
7440-43-9	CADMIUM	0.005	U	0.0482		0.005	0.05	96	80 - 120%
7440-47-3	CHROMIUM	0.038		0.23		0.01	0.2	96	80 - 120%

MSD Lab ID: 9903123-7MSD

CASNO	Target Analyte	Spike Added	MSD Result	MSD Quai	Reporting Limit	MSD % Rec.	RPD	RPD Limits
7440-43-9	CADMIUM	0.05	0.0484	•	0.005	97	2 0	20
7440-47-3	CHROMIUM	0.2	0.23		0.01	96	0	20

Data Package ID: /P9903152-1

Mercury

Method SW7470

Sample Results

Lab Name: Paragon Analytics, Inc. Client Name: El Paso Field Services Client Project ID: Chaco Plant Monitor Wells Work Order Number: 9903152 Reporting Basis: As Received

Final Volume: 20 ML Matrix: WATER Result Units: MG/L

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Detection Limit	Flag	Sample Aliquot
990101 (mw-1 Ha)	9903152-1	3/17/99	3/29/99	3/30/99	N/A	1	0.0002	0.0002	U	20 ML
990102 (mw-8 Hg)	9903152-2	3/17/99	3/29/99	3/30/99	N/A	1	0.0002	0.0002	U	20 ML

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: HG9903152-1

Date Printed: Wednesday, March 31, 1999

Paragon Analytics Inc.

Page 1 of 1

000009

Mercury

Method SW7470

Method Blank

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9903152

Client Name: El Paso Field Services

ClientProject ID: Chaco Plant Monitor Wells

د المعامة (D: HG990329-1MB

Sample Matrix: WATER % Moisture: N/A Prep Batch: HG990329-1 QCBatchID: HG990329-1-1 Run ID: HG990330-1A1 Cleanup: NONE Basis: N/A Sample Aliquot: 20 ML Final Volume: 20 ML Result Units: MG/L

Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Detection Limit	Flag
HG990329-1MB	3/30/99	3/29/99	3/30/99	N/A	1	0.0002	0.0002	U

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: HG9903152-1

Date Printed: Wednesday, March 31, 1999

Paragon Analytics Inc.

000010

Mercury

Method SW7470

Matrix Spike And Matrix Spike Duplicate

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9903152

Client Name: El Paso Field Services

ClientProject ID: Chaco Plant Monitor Wells

Fiel	d ID:	SHAF	ED Q	C	
Ľ	ND:	99030)89-1N	٨S	
Carlo Carlo	30-14-39	WIT YIT	CAR ANTING	N	34

Sample Matrix: WATER % Moisture: N/A Date Collected: 09-Mar-99 Date Extracted: 29-Mar-99 Date Analyzed: 30-Mar-99 Prep Batch: HG990329-1 QCBatchID: HG990329-1-1 Run ID: HG990330-1A1 Cleanup: NONE Basis: As Received Sample Aliquot: Final Volume: 20 ML 20 ML

Spike Added	Sample Result	Units	Reporting Limit	MS Result	MS % Rec.	MS Qualifier	Control Limits
0.002	0.0002	MG/L	0.0002	0.00199	100		80 - 120%

MSD Lab ID: 9903089-1MSD

Spike	MSD	MSD	Reporting	MSD %	RPD	RPD
Added	Result	Qual	Limit	Rec.		Limits
0.002	0.00194		0.0002	97	3	20

Data Package ID: HG9903152-1



Paragon Analytics, Inc.

PAHs by HPLC Case Narrative

El Paso Field Services

Chaco Plant Monitor Wells Order Number - 9903152

1. This report consists of 2 water samples received by Paragon on 3/19/99.

- 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. For compounds that only respond to UV, the result is taken from the wavelength that exhibits fewer interferences. These quantitations minimize the chances of reporting elevated results based on interferences.
- 4. All initial and continuing calibration criteria were within acceptance criteria.
- 5. The method blank associated with this project was below the reporting limits for all analytes.
- 6. All laboratory control spike and laboratory control 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. A laboratory control spike and laboratory control spike duplicate were performed instead.

000001 00012

PARAGON ANALYTICS,

- All samples were extracted and analyzed within the established holding times. 8.
- 9. All surrogate recoveries 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.

<u>4/1/99</u> Date

Preston Mathiesen **HPLC** Analyst

Reviewer's Initials

4-1-99 Date



000002 n00013

Paragon Analytics, Inc. Data Qualifier Flags Chromatography and Mass Spectrometry

U or ND: This flag indicates that the compound was analyzed for but not detected.

This flag indicates an estimated value. This flag is used as follows: (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); and (3) when the retention time data indicate the presence of a compound that meets the GC identification criteria, and the result is less then the RL but greater than the MDL.

B: This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.

E: This flag identifies compounds whose concentration exceeds the upper level of the calibration range.

J:
Paragon Analytics, Incorporated

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 9903152 Client Name: El Paso Field Services Client Project Name: Chaco Plant Monitor Wells Client Project Number: Client PO Number:

Client Sample	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
990101	9903152-1	•	WATER	3/17/99	11:18
990102	9903152-2	••••••••••••••••••••••••••••••••••••••	WATER	3/17/99	12:43

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Sample ID

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

Lab Sample ID: WMB1 3/22/99

Sample Matrix: Water Cleanup: N/A **Reagent Blank**

Date Collected: N/A Date Extracted: 3/22/99 Date Analyzed: 3/31/99

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

		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	88	35 - 119

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

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: 9903152-1

Sample Matrix: Water Cleanup: N/A

.

Sample ID

μω·/ 990101

Date Collected: 3/17/99 Date Extracted: 3/22/99 Date Analyzed: 3/31/99

Sample Volume: 1050 mL Final Volume: 1 mL Dilution Factor: 1

		Reporting
Analyte	Conc (ug/L)	Limit (ug/L)
Naphthalene	ND	0.48
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	
2-Methylnaphthalene	ND	- 1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	ND	0.048
Anthracene	ND	0.10
Fluoranthrene	ND	0.10
Pyrene	ND	0.048
Benzo(a)anthracene	ND	0.048
Chrysene	ND	0.048
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.048
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.

000006

fμ

.

anter a succession of a

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: 9903152-2

Sample Matrix: Water Cleanup: N/A

. .

. . . .

بهار این این این در در در معروفه ا این این این این این این معروفه

د. د به ۲۰۰۰ رسویه در ۲

والمريومودي متراب بالردائية متنا متعادية

Sample ID	
MW-8	
990102	

Date Collected: 3/17/99 Date Extracted: 3/22/99 Date Analyzed: 3/31/99

Sample Volume: 1050 mL Final Volume: 1 mL Dilution Factor: 1

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Naphthalene	0.92	0.48
Acenaphthylene	1.0	1.0
1-Methylnaphthalene	n en ND en el 1844 en	1.00 m 4.00 m 4.00 m 4.00 m
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	0.76 ·····	••••••••••••••••••••••••••••••••••••••
Phenanthrene	0.051	0.048
Anthracene	ND	0.10
Fluoranthrene	ND	0.10
Pyrene	0.035 J	0.048
Benzo(a)anthracene	ND	. 0.048
Chrysene	ND	0.048
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.048
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	90	35 - 119

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

J = Estimated value. Below reporting limit.

000007

fΜ

. . . .

.

POLYNUCLEAR AROMATIC HYDROCARBONS LABORATORY CONTROL SPIKE

Method 8310

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

Lab Sample ID: WLCS1, 3/22/99

Sample Matrix: Water Cleanup: N/A Sample ID

Blank Spike

Date Extracted:3/22/99Date Analyzed:3/31/99

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

	Spike	LCS	LCS	QC
	Added	Concentration	Percent	Limits
Analyte	(ug/L)	(ug/L)	Recovery	% Rec
· · · · · · · · · · · · · · · · · · ·				
Acenaphthylene	10.0	.7.28	73	36 - 93
Phenanthrene	1.00	0.874	87	45 - 107
Pyrene	1.00	0.936	94	40 - 104
Benzo(k)fluoranthene	0.250	0.249	99	61 - 126
Dibenzo(a,h)anthracene	1.00	0.870	87	55 - 113

Lab Sample ID: WCLSD1, 3/22/99

	Spike	LCSD	LCSD		QC
	Added	Concentration	Percent		Limits
Analyte	(ug/L)	(ug/L)	Recovery	RPD	RPD
Acenaphthylene	10.0	6.72	67	8	20
Phenanthrene	1.00	0.774	77	12	20
Pyrene	1.00	0.972	97	4	20
Benzo(k)fluoranthene	0.250	0.243	97	2	20
Dibenzo(a,h)anthracene	1.00	0.863	86	1	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery LCS	% Recovery LCSD	% Rec Limits
2-Chloroanthracene	95	90	35 -119

20

June 20, 1999

Quarterly ANALYTICAL REPORT

Chaco Plant Monitor Well #9, #10 - Quarterly Lab Sample #'s 990287 to 990289 Sampled 6/15/99 Sampled by Dennis Bird

REMARKS:

These samples represent the 2^{nd} quarter 1999 (MW#9 and #10) results for these two wells. The New Mexico WQCC limit for Benzene was exceeded in MW#10. MW-9 and 10 were installed on July 24, 1997. They are being monitored quarterly for BTEX components. Product removal was initiated on MW#10 on October 15, 1998 using a PetroTrap brand passive skimmer. Since this time, 1,528 milliliters (56 ml since 3/15/99) of product have been removed from this well.

Distribution:

Scott Pope - W/Attachments Results File

Attachments



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

_	Field ID	Lab ID
SAMPLE NUMBER:	<u>NA</u>	990287
MTR CODE SITE NAME:	NA	Chaco Plant
SAMPLE DATE TIME (Hrs):	6/15/99	1213
PROJECT:	Quarterly	Monitoring
)ATE OF BTEX EXT. ANAL.:	NA	6/22/99
TYPE DESCRIPTION:	MW-9	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS		QUALIF	IERS	
			DF	Q		
BENZENE	<0.5	РРВ	1			
TOLUENE	<0.5	PPB	1			
ETHYL BENZENE	<0.5	PPB	1			
TOTAL XYLENES	<0.5	PPB	1			
TOTAL BTEX	<2.0	PPB				

--BTEX is by EPA Method 8021 Modified --

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

Narrative:

This sample was analyzed by Pinnacle Laboratories, Albuquerque, NM.

John Tauloda _____ Date: _____ 6/24/99 Approved By: ____

990287 ChacoBTEXMonitorWell,6/24/99



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

· · ·	Field ID	Lab ID
SAMPLE NUMBER:	NA	990288
MTR CODE SITE NAME:	NA	Chaco Plant
SAMPLE DATE TIME (Hrs):	6/15/99	1350
PROJECT:	Quarterly	Monitoring
)ATE OF BTEX EXT. ANAL.:	NA	6/21/99
	MW-10	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS		QUALIFI	ERS
			DF	Q	
BENZENE	49	РРВ	5	D	
TOLUENE	7.1	РРВ	5	D	
ETHYL BENZENE	29	РРВ	5	D	
TOTAL XYLENES	100	PPB	5	D	
TOTAL BTEX	185	PPB			

--BTEX is by EPA Method 8021 Modified --

The Surrogate Recovery was at ______% 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:

This sample was analyzed by Pinnacle Laboratories, Albuquerque, NM.

Approved By: ______ Date: _____ Date: _____ (e/24/49

990288 ChacoBTEXMonitorWell,6/24/99



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	NA	990289
MTR CODE SITE NAME:	NA	Chaco Plant
SAMPLE DATE TIME (Hrs):	6/15/99	1350
PROJECT:	Quarterly	Monitoring
DATE OF BTEX EXT. ANAL.:	NA	6/21/99
	MW-10	Water

Field Remarks: Field Duplicate

RESULTS

PARAMETER	RESULT	UNITS		QUALIFI	ERS	
			DF	Q		
BENZENE	62	РРВ	5	D		
TOLUENE	8.7	PPB	5	D		
ETHYL BENZENE	30	PPB	5	D		
TOTAL XYLENES	110	РРВ	5	D		
TOTAL BTEX	211	РРВ				

--BTEX is by EPA Method 8021 Modified --

The Surrogate Recovery was at _____% 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:

This sample was analyzed by Pinnacle Laboratories, Albuquerque, NM.

John Faut de _ Date: ______ (0/24/49 Approved By: _

990289 ChacoBTEXMonitorWell,6/24/99

FIELD Site Name Site Name Development Development Stabilizat ato 5 ca Stabilizat cher_ cher_ cher cher	Servelopme Pump Pump Pump Pump Pump Pump Pump Pump	PLOES	Removel ters ters steel Kern steel Kern gal/min)	merer Intake Depth (feet)	Vater Vo Initial Depth of Initial Depth of Height of Wate Diameter (inch tem Vell Casing Gravel Pack Drilling Fluids Total Total Total Total	Well Dev Vater (feet) 2 Water (feet) 2 Water (feet) 2 Water Volu Vvater Volu Vvater Volu	velopme velopme Gravel Pa Gallons Gallons Cumulative	ent and Development Purging Remove Removed (Increment 0	Purgir Purgir a to be a dolume olume cumulative	Ig Data Vell Num Aeter Coo	de <u>M</u> Aater Di Mater Di	W-9 W-9 M Meter No Monitor Conductivity Conductivity Other 22 Sposal Sposal	Meter Meter Oxygen mg/L	ETS KIT Comments	
6-15-99 1136						5.0	50			166	6.80	144			
6-15-99 1/30						1				8:11	6.65 1	1/2			
6-15-71 1100						200	2001			1/2/	627	10.2			
6-15-11 11-20 1150						201	150			181	6.97 /	662			
615-99 1203						25	700 750			16.0	1201	715	20		
												2			Π
											-+		-+		

•

Comments

ι Almother Aus Date &-15-99 Reviewer 40 Developer's Signature <u>*ULPNM*</u> Ø

Ì

Date 6/24/99

rging Data	Well Number <u>MW -/D</u> Meter Code <u>M/</u>	Instruments PH Meter PH Meter PH Meter Do Monitor Do Monitor Conductivity Meter Do Monitor Partice Conductivity Meter Vater Disposal PH PH PARA	te Temperature Conductivity Lissoved Comments (13) °C pH Limbolcm Oxygen Comments (12) (2)
Well Development and Pu	Development	Water Volume Calculation nitial Depth of Well (feet) Aeight of Well (feet) Aeight of Water Column in Well (feet) Diameter (inches): Well Vater Volume in Well Removed Well Casing Mell Casing	Ending Water Water Volume Product volum Depth Removed (gal) Removed (galo (feet) Increment Cumulative Increment Cumu 5.2 5.2 79.0 5.2 79.0 5.5 75.0
FIELD SERVICES	Site Name CHHCD DUANT	Development Criteria Image: Stabilization of Indicator Parameters Image: Parameter Image: Parameter </td <td>Date Time Development Removal Imake Date Time Method Rate Depth 6-15-79 /320 Baller (gal/min) (feet) 6-15-79 /320 /320 (feet) 6-15-79 /320 /37/5 /10 6-15-79 /37/5 /13/3 /16 6-15-79 /37/5 /13/3 /16 6-15-79 /37/5 /13/3 /18 6-15-79 /37/5 /13/3 /18 6-15-79 /37/5 /13/3 /18 6-15-79 /37/5 /13/3 /18 6-15-79 /37/5 /17 /18 6-15-79 /37/5 /17 /18 6-15-79 /37/5 /17 /18 6-15-79 /37/5 /17 /18 6-15-79 /37/5 /17 /18 6-15-79 /37/5 /17 /18 6-15-79 /37/5 /18 /18 6-15-79 /37/5 /18 /18 6-15-79 /37/5 /18 /18 6-15-70 /37/5 /18 /18 6-15 /18 /18 /18</td>	Date Time Development Removal Imake Date Time Method Rate Depth 6-15-79 /320 Baller (gal/min) (feet) 6-15-79 /320 /320 (feet) 6-15-79 /320 /37/5 /10 6-15-79 /37/5 /13/3 /16 6-15-79 /37/5 /13/3 /16 6-15-79 /37/5 /13/3 /18 6-15-79 /37/5 /13/3 /18 6-15-79 /37/5 /13/3 /18 6-15-79 /37/5 /13/3 /18 6-15-79 /37/5 /17 /18 6-15-79 /37/5 /17 /18 6-15-79 /37/5 /17 /18 6-15-79 /37/5 /17 /18 6-15-79 /37/5 /17 /18 6-15-79 /37/5 /17 /18 6-15-79 /37/5 /18 /18 6-15-79 /37/5 /18 /18 6-15-79 /37/5 /18 /18 6-15-70 /37/5 /18 /18 6-15 /18 /18 /18





2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413

Pinnacle Lab ID number June 22, 1999

906068

EL PASO FIELD SERVICES 770 WEST NAVAJO FARMINGTON, NM 87401

Project Name CHACO MW-9, MW-10 **Project Number** (none)

Attention: JOHN LAMBDIN

On 6/18/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), 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.

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

Enclosure

AMitchell /

H. Mitchell Rubenstein, Ph. D.

Reviewed + Accepted feviewed + Accepted J. Jack. 6/24/69





CLIENT	: EL PASO FIELD SERVICES	PINNACLE ID	: 906068
PROJECT #	: (none)	DATE RECEIVED	: 6/18/99
PROJECT NAME	: CHACO MW-9, MW-10	REPORT DATE	: 6/22/99
PIN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	990287 Charo MW-9	AQUEOUS	6/15/99
02	990288 Chaco Mw-10	AQUEOUS	6/15/99
03	990289 Chaco mw-10 FD	AQUEOUS	6/15/99



2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST CLIENT PROJECT # PROJECT N	ŧ JAME	: EPA 8021 MOE : EL PASO FIEL : (none) : CHACO MW-9.	DIFIED D SERVICES MW-10			PINNACLE I.D	.: 906068
SAMPLE				DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	990287		AQUEOUS	6/15/99	NA	6/22/99	1
02	990288		AQUEOUS	6/15/99	NA	6/21/99	5
03	990289		AQUEOUS	6/15/99	NA	6/21/99	5
PARAMETE	R	DET. LIMIT		UNITS	990287	990288	990289
BENZENE		0.5		UG/L	< 0.5	49	62
TOLUENE		0.5		UG/L	< 0.5	7.1	8.7
ETHYLBEN	ZENE	0.5		UG/L	< 0.5	29	30
TOTAL XYL	ENES	0.5		UG/L	< 0.5	100	110
SURROGAT	E:						
BROMOFLL	IOROBENZENE	E(%)			92	88	90
SURROGAT	E LIMITS	(80~120)					

CHEMIST NOTES: N/A





Ŷ

GAS CHROMATOGRAPHY RESULTS REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 906068
BLANK I. D.	: 062199	DATE EXTRACTED	: N/A
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 6/21/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: CHACO MW-9, MW-10		
PARAMETER	UNITS		
BENZENE	UG/L	<0.5	
TOLUENE	UG/L	<0.5	
ETHYLBENZENE	UG/L	<0.5	
TOTAL XYLENES	UG/L	<0.5	
SURROGATE:		03	
SURROGATE LIMITS: CHEMIST NOTES: N/A	(80 - 120)		

2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413



5

GAS CHROMATOGRAPHY RESULTS REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 906068
BLANK I. D.	: 062299	DATE EXTRACTED	: N/A
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 6/22/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: CHACO MW-9, MW-10		
PARAMETER	UNITS		<u></u>
BENZENE	UG/L	<0.5	
TOLUENE	UG/L	<0.5	
ETHYLBENZENE	UG/L	<0.5	
TOTAL XYLENES	UG/L	<0.5	
SURROGATE: BROMOFLUOROBENZENE (%) SURROGATE LIMITS: CHEMIST NOTES: N/A	(80 - 120)	90	



•

2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413

GAS CHROMATOGRAPHY QUALITY CONTROL MSMSD

TEST MSMSD # CLIENT PROJECT # PROJECT NAME	: EPA 8021 M(: 062199 : EL PASO FIE : (none) : CHACO MW-	DDIFIED ELD SERVIO 9, MW-10	CES		PINNACLE DATE EXTR DATE ANAL SAMPLE MA	I.D. RACTED YZED ATRIX	:	906068 N/A 6/21/99 AQUEOUS	
	SAMPLE RESULT	CONC	SPIKED SAMPLE	% 850		DUP % REC	: RPD	REC	RPD
BENZENE	<0.5	20.0	22.1	111	22.0	110	0	(80 - 120)	20
TOLUENE	<0.5	20.0	19.8	99	20.1	101	2	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	21.4	107	20.5	103	4	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	61.2	102	59.1	99	3	(80 - 120)	20

CHEMIST NOTES:

N/A

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

% Recovery =

Spike Concentration

(Sample Result - Duplicate Result)

----- X 100

RPD (Relative Percent Difference) =

Average Result

]*]	PLEASE FILL THIS FORM IN COMPLETELY.						SHADED AREAS ARE FOR LAB USE ONLY.				EAS ARE FOR LAB USE ONLY.			
1/5/98 AEN Inc.: American Environmental Networ	SHIPPED VIA: F-50	P.O. NO. ANY	PROJ. NO.: PROJ. NAME: TEXT N. MINUS MILLO	PROJECT INFORMATION							1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1			PROJECT MANAGER: 1771 COMPANY: 1775 F/1 ADDRESS: 1775 1775 F/1 PHONE: 1775 1775 1775 F/1 PHONE: 1775 1775 F/1 PHONE: 1775 1775 F/1 PHONE: 1775 1775 F/1 PHONE: 1775 1775 1775 1775 1775 1775 1775 177
k (NM), Inc. • 2709-D Pan American Freewa	COMMENTS: FIXED FEE	METHANOL PRESERVATION []	(RUSH) []24hr []48hr []72hr [CERTIFICATION REQUIRED: [] NM	PRIOR AUTHORIZATION IS RE	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.		28.00 P. 10				50 July 03	1 2 m/m C 1	WONVIN A NIT	Vetwork (NM), Inc.
ay, NE • Albuquerque, New Mexico 87107 • (505				EQUIRED FOR RUSH PROJECTS?							~	×		Petroleum Hydrocarbons (418.1) TRPH (MOD.8015) Diesel/Direct Inject (M8015) Gas/Purge & Trap 8021 (BTEX)/8015 (Gasoline) 8021 (BTEX) MTBE TMB PCE 8021 (TCL) 8021 (EDX) 8021 (HALO) 8021 (CUST)
) 344-3777 • Fax (505) 344-4413 DISTRI	Company CUHTCATULOSCIPUICE Ineceived and Signature Printed Name: Company Compa	Printed Name: Date & 16 47 Print	Sugarure: Time /647 Sign											8260 (TCL) Volatile Organics 8260 (Full) Volatile Organics 8260 (CUST) Volatile Organics 8260 (Landfill) Volatile Organics 8260 (Landfill) Volatile Organics Pesticides /PCB (608/8081) Herbicides (615/8151) Base/Neutral/Acid Compounds GC/MS (625/8270) Polynuclear Aromatics (610/8310) General Chemistry:
	Tonny (LAB) 2 CEIVED BY: (LAB) 2 Hanne Date 1026 Lad Name Date 1026 Lod Name Date 1026 Lod Name Date 1000 1026 Lod Name Low 100 102	Ned Name: Date.	alure: Time											Priority Pollutant Metals (13) Target Analyte List Metals (23) RCRA Metals (8) RCRA Metals by TCLP (Method 1311) Metals: NUMBER OF CONTAINERS

2 ican Freeway, NE • Albuquerque, New Mexico 87107 • (505) 344-3777 • Fax (505) 344-4413 ,

DISTRIBUTION: White - AEN. Canary - Originator

August 8, 1999

ANNUAL TESTING ANALYTICAL REPORT

Chaco Plant Monitor Wells #2, 3, 4, 5, 6, 7 and 20" Discharge Lab Sample #'s 990306 to 990313 Sampled 7/13/99 Sampled by Dennis Bird

REMARKS:

1

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

Distribution:

Scott Pope Mike Hansen - W/O Attachments Results Files MW Analytical History

Attachments

	ą
<u> </u>	
	Ō
U	
$ \oplus \rangle$	

CHAIN OF CUSTODY RECORD

5

Page .

TO TWH WP STER ATEN DISCIPLIE 040 のこと Received for Laboratory by: (Signature) ۱٬۲٬ 5 1111 111/2 イニシーシ 1 112 2112 3 Received by: (Signature) FAX: 505-599-2261 Remarks 77 しいでん いい UVEL MONTOR WELL AIDN/TON WEL North Region Laboratory El Paso Natural Gas Company P. O. Box 4990 Farmington, New Mexico 87499 Contract Laboratory P.O. Number 0157112018 101 101 /1V.04 11 R 7/21/49 1425 Date/Time Date/Time 1001 1010 Plic Results & Invoices to: 505-599-2144 Pinner Call 300 Relinquished by: (Signature) Relinquished by: (Signature) Requested Analysis sit. (+) (4) 4 .¥ ナ \prec ナ \mathbf{a} NSI:12717 X imesよにの *ر*ک \bigcirc N (\mathcal{I}) (\mathcal{A}) \bigcirc \bigcirc Composite or Grab \circlearrowright Sample Receipt Remarks Received by: (Signature) Received by: (Signature) Total No. of Containers 66-41-2 Charge Code 7080304 \mathcal{O} ٢ 5 8080399 995030 99030 Sample Number 5 20103 000 6000 Date: 1 2-14-05/1032 Date/Time Date/Time 1000 V)V/+-67.2.20 NATPO 1 WHY SI' Nel Sal WHITER WA TOP 121 Matrix M.T. Project Name P.1.12101 0200 🗌 Rush ÷. 1.423 120 1202 1454 1927 7-13-09 1-23 19 Time Requested Turnaround Time: 19.54 Relinquished by: (Signature) Relinquished by: (Signature) 0 Samplers: (Signature) 13:24 01-5/2 25-00 1.1.1 13-51 7-12-99 8 5-1-2 Date Project Number Routine Carrier Co. Bill No.: Lab 10

FM-08-0565 (9-91)

Pink-Field Sampler

Yellow-EPNG Lab

White-Testing Laboratory

EL PASO FIELD SERVICES

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:

 AB ID:
 990306

 MPLED:
 07/09/99

 ED (Hrs):
 1405

 LED BY:
 Dennis Bird

 MATRIX:
 Water

 R CODE:
 N/A

 E NAME:
 Chaco Plant

 E POINT:
 20" Wastewater Discharge

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	8.0	Units	07/14/99
Alkalinity as C0 ₃	0	PPM	07/14/99
Alkalinity as HC0 ₃	100	PPM	07/14/99
Calcium as Ca	234	PPM	07/15/99
Magnesium as Mg	57	PPM	07/15/99
Total Hardness as CaC0 ₃	819	PPM	07/15/99
Chloride as Cl	47	PPM	07/14/99
Sulfate as S0 ₄	933	PPM	07/14/99
Fluoride as F	1.93	PPM	07/16/99
Nitrate as N0 ₃ -N	0.90	PPM	07/14/99
Nitrite as N0 ₂ -N	<0.1	PPM	07/14/99
Ammonium as NH4 ⁺	<0.2	PPM	07/15/99
Phosphate as PO ₄	<0.2	PPM	07/14/99
Potassium as K	37	PPM	07/15/99
Sodium as Na	165	PPM	07/15/99
Total Dissolved Solids	1,814	PPM	07/16/99
Conductivity	1,807	umhos/cm	07/14/99
Anion/Cation %	4.1%	%, <5.0 Accepted	08/02/99



Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	990307
DATE SAMPLED:	07/13/99
TIME SAMPLED (Hrs):	1030
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	7.2	Units	07/14/99
Alkalinity as C0 ₃	0	PPM	07/14/99
Alkalinity as HC0 ₃	621	PPM	07/14/99
Calcium as Ca	87	PPM	07/15/99
Magnesium as Mg	24	PPM	07/15/99
Total Hardness as CaC0 ₃	316	PPM	07/15/99
Chloride as Cl	546	PPM	07/14/99
Sulfate as SO ₄	346	PPM	07/14/99
Fluoride as F	1.91	PPM	07/16/99
Nitrate as N0 ₃ -N	<0.6	PPM	07/14/99
Nitrite as N0 ₂ -N	<0.6	PPM	07/14/99
Ammonium as NH4 ⁺	<0.2	PPM	07/15/99
Phosphate as PO ₄	<0.6	PPM	07/14/99
Potassium as K	4	PPM	07/15/99
Sodium as Na	616	PPM	07/15/99
Total Dissolved Solids	1,992	PPM	07/16/99
Conductivity	2,920	umhos/cm	07/14/99
Anion/Cation %	0.5%	%, <5.0 Accepted	08/06/99

Approved By: ______ Adu Fartan Date: ______ Date: _______

EL PASO FIELD SERVICES

Field Services Laboratory

Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	990308	
DATE SAMPLED:	07/13/99	
TIME SAMPLED (Hrs):	1157	
SAMPLED BY:	Dennis Bird	
MATRIX:	Water	
METER CODE:	N/A	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	MW-3	

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.3	Units	07/14/99
Alkalinity as C0 ₃	0	PPM	07/14/99
Alkalinity as HC0 ₃	383	PPM	07/14/99
Calcium as Ca	124	PPM	07/15/99
Magnesium as Mg	28	PPM	07/15/99
Total Hardness as CaC0 ₃	425	PPM	07/15/99
Chloride as Cl	27	PPM	07/14/99
Sulfate as S04	435	PPM	07/14/99
Fluoride as F	<0.1	PPM	07/16/99
Nitrate as N0 ₃ -N	<0.2	РРМ	07/14/99
Nitrite as N0 ₂ -N	<0.2	PPM	07/14/99
Ammonium as NH ₄ ⁺	<0.2	PPM	07/15/99
Phosphate as PO ₄	<0.2	PPM	07/14/99
Potassium as K	3	PPM	07/15/99
Sodium as Na	205	РРМ	07/15/99
Total Dissolved Solids	1,126	РРМ	07/16/99
Conductivity	1,391	umhos/cm	07/14/99
Anion/Cation %	4.1%	%, <5.0 Accepted	08/02/99

Approved By: Jan Jak Date: 8/2/99



Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	990309
DATE SAMPLED:	07/13/99
TIME SAMPLED (Hrs):	1255
SAMPLED BY:	Dennis Bird
MATRIX:	Water
METER CODE:	N/A
SAMPLE SITE NAME:	Chaco Plant
SAMPLE POINT:	MW-4

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	6.9	Units	07/14/99
Alkalinity as C0 ₃	0	PPM	07/14/99
Alkalinity as HC0 ₃	561	PPM	07/14/99
Calcium as Ca	467	PPM	07/15/99
Magnesium as Mg	79	PPM	07/15/99
Total Hardness as CaC0 ₃	1491	PPM	07/15/99
Chloride as Cl	374	PPM	07/14/99
Sulfate as S0 ₄	2637	РРМ	07/14/99
Fluoride as F	1.6	PPM	07/16/99
Nitrate as N0 ₃ -N	2.9	PPM	07/14/99
Nitrite as N0 ₂ -N	<1.1	PPM	07/14/99
Ammonium as NH4 ⁺	<0.2	PPM	07/15/99
Phosphate as PO ₄	<0.6	PPM	07/14/99
Potassium as K	12	PPM	07/15/99
Sodium as Na	1179	PPM	07/15/99
Total Dissolved Solids	5,610	PPM	07/16/99
Conductivity	5,530	umhos/cm	07/14/99
Anion/Cation %	4.1%	%, <5.0 Accepted	08/02/99

Approved By: ______ Olen Fatch. ____ Date: _____ Date: _____ B/2/99____



Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	990310	
DATE SAMPLED:	07/13/99	
TIME SAMPLED (Hrs):	1423	
SAMPLED BY:	Dennis Bird	
MATRIX:	Water	
METER CODE:	N/A	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	MW-5	

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.2	Units	07/14/99
Alkalinity as C0 ₃	0	PPM	07/14/99
Alkalinity as HC0 ₃	316	PPM	07/14/99
Calcium as Ca	213	PPM	07/15/99
Magnesium as Mg	40	PPM	07/15/99
Total Hardness as CaC0 ₃	697	PPM	07/15/99
Chloride as Cl	65	РРМ	07/14/99
Sulfate as S0 ₄	987	PPM	07/14/99
Fluoride as F	0.9	PPM	07/16/99
Nitrate as N0 ₃ -N	0.5	PPM	07/14/99
Nitrite as N0 ₂ -N	<0.2	PPM	07/14/99
Ammonium as NH4 ⁺	<0.2	PPM	07/15/99
Phosphate as PO ₄	<0.2	PPM	07/14/99
Potassium as K	3	PPM	07/15/99
Sodium as Na	363	PPM	07/15/99
Total Dissolved Solids	2,060	PPM	07/16/99
Conductivity	2,300	umhos/cm	07/14/99
Anion/Cation %	3.7%	%, <5.0 Accepted	08/02/99

Approved By: John Farth Date: 8/2/99



Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	990311	
DATE SAMPLED:	07/13/99	
TIME SAMPLED (Hrs):	1423	
SAMPLED BY:	Dennis Bird	
MATRIX:	Water	
METER CODE:	N/A	
SAMPLE SITE NAME:	Chaco Plant	
SAMPLE POINT:	MW-5 Field Duplicate	

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.2	Units	07/14/99
Alkalinity as C0 ₃	0	PPM	07/14/99
Alkalinity as HC0 ₃	319	PPM	07/14/99
Calcium as Ca	205	PPM	07/15/99
Magnesium as Mg	38	PPM	07/15/99
Total Hardness as CaC0 ₃	668	PPM	07/15/99
Chloride as Cl	64	PPM	07/14/99
Sulfate as S0 ₄	955	PPM	07/14/99
Fluoride as F	0.9	PPM	07/16/99
Nitrate as N0 ₃ -N	0.5	PPM	07/14/99
Nitrite as N0 ₂ -N	<0.2	PPM	07/14/99
Ammonium as NH4 ⁺	<0.2	PPM	07/15/99
Phosphate as PO ₄	<0.2	PPM	07/14/99
Potassium as K	3	РРМ	07/15/99
Sodium as Na	361	PPM	07/15/99
Total Dissolved Solids	1,996	PPM	07/16/99
Conductivity	2,240	umhos/cm	07/14/99
Anion/Cation %	3.8%	%, <5.0 Accepted	08/02/99

Approved By: John Futder Date: 8/2/49



Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	990312	
DATE SAMPLED:	07/13/99	
TIME SAMPLED (Hrs):	1546	
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	8.1	Units	07/14/99
Alkalinity as C0 ₃	0	PPM	07/14/99
Alkalinity as HC0 ₃	438	PPM	07/14/99
Calcium as Ca	51	PPM	07/15/99
Magnesium as Mg	9	PPM	07/15/99
Total Hardness as CaC0 ₃	164	PPM	07/15/99
Chloride as Cl	139	PPM	07/14/99
- Sulfate as SO ₄	1176	PPM	07/14/99
Fluoride as F	2.3	PPM	07/16/99
Nitrate as N0 ₃ -N	0.8	PPM	07/14/99
Nitrite as N0 ₂ -N	<0.6	PPM	07/14/99
Ammonium as NH4 ⁺	<0.2	PPM	07/15/99
Phosphate as PO ₄	<0.6	PPM	07/14/99
Potassium as K	3	PPM	07/15/99
Sodium as Na	790	PPM	07/15/99
Total Dissolved Solids	2,568	PPM	07/16/99
Conductivity	3,410	umhos/cm	07/14/99
Anion/Cation %	2.6%	%, <5.0 Accepted	08/02/99

Approved By: John Farkching Date: 8/2/99



Analytical Report

SAMPLE IDENTIFICATION

990313	
07/13/99	
1702	
Dennis Bird	
Water	
N/A	
Chaco Plant	
MW-7	
	990313 07/13/99 1702 Dennis Bird Water N/A Chaco Plant MW-7

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.2	Units	07/14/99
Alkalinity as C0 ₃	0	PPM	07/14/99
Alkalinity as HC0 ₃	406	PPM	07/14/99
Calcium as Ca	219	PPM	07/15/99
Magnesium as Mg	42	PPM	07/15/99
Total Hardness as CaC0 ₃	720	PPM	07/15/99
Chloride as Cl	176	РРМ	07/14/99
Sulfate as S04	1171	PPM	07/14/99
Fluoride as F	2.0	PPM	07/16/99
Nitrate as N0 ₃ -N	<0.6	PPM	07/14/99
Nitrite as N0 ₂ -N	<0.6	PPM	07/14/99
Ammonium as NH4 ⁺	<0.2	РРМ	07/15/99
Phosphate as PO ₄	<0.6	PPM	07/14/99
Potassium as K	4	PPM	07/15/99
Sodium as Na	556	PPM	07/15/99
Total Dissolved Solids	2,700	PPM	07/16/99
Conductivity	3,170	umhos/cm	07/14/99
Anion/Cation %	3.4%	%, <5.0 Accepted	08/02/99

Approved By: John Furth Date: 8/2/44

EL PASO	Well D	evelopme	nt and Purg	ing Data				•
Site Name CHACO PUANT	1		Jevelopment Jurging	Well Nun Meter Co	nber MW de WM	~		
Development Criteria 3 to 5 Casing Volumes of Water Removel Stabilization of Indicator Parameters Other	Water Volume C Initial Depth of Well (feet)_ Initial Depth to Water (feet) Heicht of Water Column in	alculation			Instruments PH Mete Do Mor Conduc	ar litor tivity Meter		
Methods of Development	Diameter (inches): Well Water V	C Gravel Paci	k Gallons to be		Temper Other	ature Meter D. D. C.H.E.M	yers kit	
Centrifugal X Bottom Valve Submersible Double Check Valve	Vell Casing	eet Gailons	Removed		Water Dispos	al		
Peristatific C Stainless-steel Kemmerer	Gravel Pack				K072 5	EPHRA	26	
(Drilling Fluids							
Other	Total	-						
Water Removal Data								
Date Time Method Rate Depth	Ending Water Wa Depth Re	ter Volume moved (gal)	Product Volume Removed (gallons)	Temperature °C	DH Lumho/o	vity Dissolved m Oxygen	Comments	
Fump Bailer (gal/min) (feet)	(feet) Increme	nt Cumulative 1	Increment Cumulative	6 6 7	1 61/ 00/	mg/L		
7-13-44 0448				18.1	164 4819			
1-13-11 0134	2.0	200		17.7	7.05 3571			
7-13-99 1009	50	15.0		175	712 340			ĺ
7-13-49 1017	25	20,0		17.7	7.19 34/1	3 1.5		
Comments								
Romen Broom	\.		7-12-99		J.	0	12	
Developer's Signature W C//U/W X// VCM			ate / / / / / /	Reviewer	Jun Vewa	ă	ate <u>//23/47</u>	

B Name C/file Rein C/file Mein Colle Rein Colle Mein Colle Salaradio of Indiador Framenea ontal contraction Frames of Varter Romon of Toman of Indiador Frames of Toman of Indiador Frames of Toman of Toman of Toman of Indiador Frames of Toman	B Name C MLCL Mater Dual B Name C MLCL Mater Mater Mater Colomant Crittia Mater Mater Mater Mater Colomant Crittia Mater Mater Mater Mater S 05 Camp Vulners 4 Vulner Mater Mater Mater Mater S 05 Camp Vulners 4 Vulner Mater Mater Mater Mater S 05 Camp Vulners 4 Vulner Mater Mater Mater Mater S 05 Camp Vulners 4 Vulner Mater Mater Mater Mater S 05 Camp Vulners 4 Vulner Mater Mater Mater Mater S 05 Camp Vulners 4 Vulner Mater Mater Mater Mater C 0000 Mater Mater Mater Mater Mater Mater Mater Mater Mater Mater Mater Mater Mater Mater Mater Mater Mater Mater <th< th=""><th>B Mano Child Metr Cole Metr Cole Per Cole <</th><th></th><th>SERVICE</th><th>Ŋ</th><th></th><th>3</th><th>ell Dev</th><th>elopme</th><th>ent anc</th><th>l Purgi</th><th>ng Data Well Nu</th><th>a mber</th><th>- (N/W</th><th>ŝ</th><th></th><th></th></th<>	B Mano Child Metr Cole Metr Cole Per Cole <		SERVICE	Ŋ		3	ell Dev	elopme	ent anc	l Purgi	ng Data Well Nu	a mber	- (N/W	ŝ		
All Standard Frances Matter Vision Matter Vision Instruments 30 5 Gainy Vision of Indicator Frances Solution of Indicator Frances Matter Vision Matter Vision 30 5 Gainy Vision of Indicator Frances Solution of Indicator Frances Matter Vision Matter Vision Matter Vision 0 me Solution of Indicator Frances Solution of Indicator Frances Matter Vision Matter Vision Solution of Indicator Frances 1 metrial Solution Vision Solution Vision Solution of Indicator Frances Solution Vision Solution Vision 1 metrialition Solution Vision Solution Vision Solution Vision Solution Vision Solution Vision Solution Vision 1 metrialition Solution Vision Solution Vision Solution Vision Solution Vision Solution Vision 1 metrialition Solution Vision Solution Vision Solution Vision Solution Vision 1 metrialition Solution Vision Solution Vision Solution Vision Solution Vision 1 metrialition Solution Vision Solution Vision Solution Vision Solution Vision Solution Vision 1 metrialition Solution Vision <td< td=""><td>And Contraction Matter Volume Calculation Matter Volume Calculation Instruments 0 model 3 us 6 can your mean Water Volume Calculation Matter Volume Calculation 0 model 0 model 1 model Parter Volume Calculation Parter Volume Calculation 1 model 0 model 0 model 1 model Parter Volume Calculation Parter Volume Calculation 1 model 0 model 0 model 1 model Parter Volume Calculation Parter Volume Calculation 1 model 0 model 0 model 1 model 1 model Parter Volume Calculation Parter Volume Calculation 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model</td><td>National Vidence / Name National Vidence / Name<td>e Name <u>C</u></td><td>HACO</td><td>DLANI</td><td></td><td></td><td>···<u>·</u></td><td>8</td><td>Purging</td><td></td><td>Meter Co</td><td>ode 🖉</td><td>ŀH</td><td></td><td></td><td></td></td></td<>	And Contraction Matter Volume Calculation Matter Volume Calculation Instruments 0 model 3 us 6 can your mean Water Volume Calculation Matter Volume Calculation 0 model 0 model 1 model Parter Volume Calculation Parter Volume Calculation 1 model 0 model 0 model 1 model Parter Volume Calculation Parter Volume Calculation 1 model 0 model 0 model 1 model Parter Volume Calculation Parter Volume Calculation 1 model 0 model 0 model 1 model 1 model Parter Volume Calculation Parter Volume Calculation 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model 1 model	National Vidence / Name National Vidence / Name <td>e Name <u>C</u></td> <td>HACO</td> <td>DLANI</td> <td></td> <td></td> <td>···<u>·</u></td> <td>8</td> <td>Purging</td> <td></td> <td>Meter Co</td> <td>ode 🖉</td> <td>ŀH</td> <td></td> <td></td> <td></td>	e Name <u>C</u>	HACO	DLANI			··· <u>·</u>	8	Purging		Meter Co	ode 🖉	ŀH			
Submersite Double Check Value Velicitaria Zaumersite Mater Disposat Perisation Stainless-steel Kimmerer Gravel Fack Perisation Mater Disposat One Stainless-steel Kimmerer Bravel Fack Provident Provident Diffig <fluids< td=""> Diffig<fluids< td=""> Provident Provident Provident Time Development Removed (gal) Removed (gal) Provident 2.59 1/07 Period Provident Provident 2.69 1/07 Period Provident Period 2.69 1/07 Period Provident Period 2.69 1/07 Period Period Period 2.69 1/07 Pe</fluids<></fluids<>	Submensite Double Check Value Veil Casing 75 726 Mater Disposal Perifatitio Stainless-steet Kernmeter Grave Facts Grave Fa	Submensile Double Chreek Volue Well Casing Well Casing Water Disposal Periodic Stainleas-elent Kimmer Rene Fack All End Print All End Print Ontra Stainleas-elent Kimmer Rene Fack All End Print All End Print Ontra Stainleas-elent Kimmer Print All End Print All End Print Ontra Liter All End Print Print All Print Stainleas-elent Kimmer Print Print Print Print Ontra Print Print Print Print Print Stain Print Print Print Print Print Print Print	velopment Stabilization Stabilization other Pump Centrifug	Criteria tsing Volumes of Wa tion of Indicator Para evelopment Bailer pal	ter Removel meters Valve	Vatc Initial D Height - Diamete	epth of Wellun epth to Wellon of Water Co ar (inches):	The Calct I (feet) J er (feet) J blumn in Well Water Volum Cubic Feet	Lation 2 40 2 78 (feet) Gravel Pac Gallons	K Gallor Remo	s to be			nents PH Meter DO Monito Conductiv Temperat	r ity Meter Den CH	ismers Ki	K
Idea Idea Idea Inter Ending Water Volume Protect Itemoral Contractivity Dissolved Contractivity Dissolved ate Time Development Ratio Ratio Ratio Ratio Contractivity Dissolved Contractivity Dissolved<	Idea Idea Iter Removal Data ter removal Data Time Conductivity Dissolved Time Conductivity Dissolved Product Time Conductivity Dissolved Conductivity Dissolved Product Conductivity Dissolved Conductivity Conductivity Dissolved Conductivity Conductivity Dissolved Conductivity Conductivity Conductivity Conductivity Conductivity Conductivity Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspa="2"Colspan="2"Colspan="2"Colspa="2"Colspan="2"Colspan="2"	Idea Inter Removal Saturation Intersection <th colspan="2</td> <td>Peristati</td> <td>sible Double c Stainle</td> <td>: Check Valve ss-steel Kemm</td> <td>Vell Ca Gravel I Drilling</td> <td>sing ack Fluids</td> <td></td> <td>52</td> <td>22</td> <td>0</td> <td></td> <td>Water I</td> <td>Disposa</td> <td>- 1091 RH</td> <td>fer</td> <td></td>	Peristati	sible Double c Stainle	: Check Valve ss-steel Kemm	Vell Ca Gravel I Drilling	sing ack Fluids		52	22	0		Water I	Disposa	- 1091 RH	fer	
Time Time Development Removal Ending Water Water Volume Product Volume Conductivity Dissolved 2-99 ///00 Baile Depth Depth Removed (gal) Removed (gal) Removed (gal) Organ Oxgan Organ 2-99 ///00 Fump Baile Depth Removed (gal) Removed (gal) Removed (gal) Organ Oxgan Oxgan Organ 2-99 //00 Fump Faile Increment Cumulative Imboint Oxgan Conductivity Dissolved Conductivity Disolved <td>Time Development Removal Method Franced (gallons) Temperature (res) Formorial (res) Franced (gallons) Conductivity (res) Dissolved munor Conductivity munor Dissolved munor Conductity munor Conductivity munor Condu</td> <td>Development Removal India Ending Water Value Product Volume Funderature Conductivity Dissolved 3-79 I/00 Baile galima (ee) Nater Value Product Volume Funderature Conductivity Dissolved 3-79 I/01 Baile galima (ee) Nater Value Removed (gal) Removed (gal) Nater Nater 3-79 I/04 P P P P P P P P 3-79 I/04 P P P P P P P P 3-79 I/04 P P P P P P P P 2-79 I/13 P P P P P P P P 2-79 I/14 P P P P P P P P 2-79 I/14 P P P P P P P P 2-79 I/14 P P P P P P P 2-79 I/14 P P P P P P P</td> <td>ater Remova</td> <td>al Data</td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Time Development Removal Method Franced (gallons) Temperature (res) Formorial (res) Franced (gallons) Conductivity (res) Dissolved munor Conductivity munor Dissolved munor Conductity munor Conductivity munor Condu	Development Removal India Ending Water Value Product Volume Funderature Conductivity Dissolved 3-79 I/00 Baile galima (ee) Nater Value Product Volume Funderature Conductivity Dissolved 3-79 I/01 Baile galima (ee) Nater Value Removed (gal) Removed (gal) Nater Nater 3-79 I/04 P P P P P P P P 3-79 I/04 P P P P P P P P 3-79 I/04 P P P P P P P P 2-79 I/13 P P P P P P P P 2-79 I/14 P P P P P P P P 2-79 I/14 P P P P P P P P 2-79 I/14 P P P P P P P 2-79 I/14 P P P P P P P	ater Remova	al Data				1									
2-79 1100 2-99 1104 2-99 1102 2-99 1102 2-99 1138 2-99 1138 2-99 1138 2-99 1138 2-99 1138 2-99 1138 2-99 1148 2-9 1148 2	2-19 1100 2-19 1104 2-19 1108 2-19 1108 2-19 1108 2-19 1138 2-19 1138 2-10 1138	3-79 1100 3-79 1104 3-79 1104 3-79 1108 3-79 1138 2-79 1138	Date Time	Development Method Pump Bailer	Removal I Rate [(gal/min)	ntake Ending Depth De _l (feet) (fe	Water oth et) II	Water Vo Removed	lume 1 (gal) Cumulative	Product V Removed	Volume (gallons) Cumulative	Temperature °C	Hd	Conductivity µmho/cm	/ Dissolved Oxygen mo/l	Commen	Ø
399 1108 2.99 1138 2.99 1138 2.99 1148 2.99 1148 2	2.99 1108 108 20 50 50 105 6.96 1469 145 2.99 1138 50 140 50 110 120.3 216 136 136 136 136 136 136 136 136 136 1	359/108 108 108 108 108 6.16 1489 145 299/138 148 152 148 123 216 136 136 299/138 199 152 148 129 15 18 199 45 299/138 199/145 145 145 145 145 145 145 145 145 145	2-99 1100					2	2			2015	6.84	1441			
20-27 1/34 29 1/48 29 1/48 29 1/48 29 1/48 29 1/48 29 1/48 29 1/48 29 1/48 20 2/6 1/2 29 1/48 20 2/6 1/2 20 2/6 1/36 20 2/6 1/6 1/36 20 2/6 1/6 1/6 1/6 1/6 1/6 1/6 1/6 1/6 1/6 1	-77 1136 299 1148 299 1148 299 1148 200 110 110 110 110 110 110 110 110 110	-77/136 299/198 299/198 299/198 299/198 299/198 2010/2010/2010/2010/2010/2010/2010/2010	3-99 1108					0	2.0			136/	6.96	1421		}	
	Nents THE WATER HAD A RUSTY RED COLOR, THE WELL BAILED DRY P 11. D GALLONS	noter's Signature Lemma Stad Date 7-13-79 Reviewer All Date 7-13-79 Reviewer Date 713-79 Reviewer Date 713-79 Reviewer	200 11/48					00	100			19:3	711	1365	45		
	Ments THE WATER HAD A RUSTY RED COLOR, THE WELL BAILED DRY @ 11. D GALLONS	nents THE WATER HAD A RUSTY RED COLOR. THE WELL BAILED DRY C 11. 0 GALLONS Date 213-59 Reviewer Date 7/3-99 Reviewer DLa Edden Date 7/3-197															
	nents THE WATER HAD A RUSTY RED COLOR. THE WELL BAILED DRY O 11. 0 GALLONS	nents THE WATER HAD A RUSTY RED COLOR, THE WELL BAILED DRY C 11. D GAULONS Oper's Signature LEMM to Stad Date 713-99 Reviewer AL EULLU Date 7/3/59				++	-										

Site Name Chillon Multure Weil Number Multure Site Name Will Number Weil Number Weil Number Weil Number Site Name Standy under Parentes Meter Code Meter Code Site Name Standy under Parentes Meter Code Meter Code Site Name Standy under Parentes Meter Code Meter Code Site Name Standy under Parentes Meter Code Meter Code Site Name Standy under Parentes Meter Code Meter Code Site Name Standy under Parentes Meter Code Meter Code Site Name Standy under Standy Standy under Standy Standy under Standy Site Name Standy under Standy Standy under Standy Standy under Standy Site Name Standy under Standy Standy under Standy Standy under Standy Site Name Standy under Standy Standy under Standy Standy under Standy Site Name Standy under Standy Standy under Standy Standy under Standy Site Name Standy under Standy Standy under Standy Standy under Standy Site Name Standy under Standy Standy under Standy Standy under Standy Site Name Standy under Standy Standy under Standy	Site Name C/IIC MAIL Well Number Well Number Site Name Close Mater Code Mater Code Site Name Site Site Name Mater Code Mater Code Site Name Site Name Mater Code Mater Code Site Name Site Name Mater Code Mater Code Site Name Site Name Mater Name Mater Name Site Name Site Name Mate	Site Name Molton Woll Number Woll Number Site Name Molton Molton Molton Molton Component State Code Molton Molton Molton Component Molton Molton Molton Molton Molton Molton Molton Molton Molton Molton							•		7						
Development Criteria Mater Volume Criteria a 5 deservolume of Vinten Remote one a 5 deservolume of Vinten Remote one a 5 deservolume of Vinten Remote one a 6 deservolume of Vinten Remote one a 6 deservolume of Vinten Remote one a 6 deservolume of Vinten Remote one a 8 deservolume of Vinten Remote one a deservolume of Remote one	Development Criteria Image: Statistic of Industri Families Image: Statistic of Industri Families Statistic of Industri Families Statistic of Industri Families Image: Statistic of Industri Families Statistic of Industri Families Statistic of Industri Families Image: Statistic of Industri Families Statistic of Industri Families Statistic of Industri Families Image: Statistic of Industri Families Statistic of Industri Families Statistic of Industri Families Image: Statistic of Industri Families Image: Statistic of Industri Families Statistic of Industri Families Image: Statistic of Industri Families Image: Statistic of Industri Families Statistic of Industri Families Image: Statistic of Industri Families Image: Statistic of Industri Families Statistic of Industri Families Image: Statistic of Industri Families Image: Statistic of Industri Families Statistic of Industri Families Image: Statistic of Industri Families Image: Statistic of Industri Families Statistic of Industri Families Image: Statistic of Industri Families Image: Statistic of Industri Families Image: Statistic of Industri Families Image: Statistic of Industri Families Image: Statistic of Industri Families Image: Statistic of Industri Families Image: Statistic of Industri Families Image: Statistic of Industri Families Image: Statis Image: Statistic of Industri Families	Development Circuit Mater Volume Calculation Se scanned volume formation Se scanned volume formation	Site Name_	CHACO F	NHN]					Development Purging	3 2	ell Num eter Cod	ber <u>M</u> le <u>M</u>	1 W-4			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Date Time Multion Rate Depth Centre II Contraction Notice II Control on Span Control on Span PL3-PP 10/1 Punn Test (red) (red) (red) (red) Punnoi Organ Control on Span PL3-PP 10/1 Punn (red) (red) (red) (red) Punnoi Organ Control on Span PL3-PP 10/1 Punnoi 5/2	Developme Methods o State Vater Rem	ent Criteria 5 5 Casing Volumes of Wa bilization of Indicator Para ner f Development Pump Pump Pump Pump Pump Pump Pump Pump	ter Removel meters Vaive check Valve ss-steel Kemn Removal		Vater Vo tital Depth to eight of Wate ameter (inchu- litern ell Casing ravel Pack filling Fluids tal	Ultime Calc Water (feet) Mater Volui Vater Volui Cubic Feet	Colume	Control Contro			Istrume Vater Di Vater Di	ints PH Meter DO Monitor Conductivity Temperatur Other Du	Meter e Meter D. C.H.C.	ners kir	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	1.2.79 [2]/ 2.13-79 [2]/ 7.13-79 [2]7 7.13-79 [2]7 7.13-79 [2]7 7.13-79 [2]7 7.13-79 [2]7 7.13-79 [2]7 7.13-79 [2]7 7.13-79 [2]7 7.13-79 [2]7 7.13-70 [7]7 7.13-70 [7]7 7.1	1/3.79 $12/1$ $1/3.76$ $5/2$	Date	ime Method Pump Bailer	Rate (gal/min)	Depth (feet)	Depth (feet)	Remov	ed (gal) Cumulative	Removed (g	allons) umulative	°C	Ha	umho/cm	Dissolved Oxygen ma ^{/l}	Comments	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	7.13-79 1218 7.13-79 1224 7.13-79 1238 7.13-79 1238 7.13-79 1236 7.13-79 1236 7.13-79 1236 7.13-79 1236 7.13-79 1236 7.13-79 1236 7.13-79 1236 7.13-79 1236 7.13-679 5.79 7.13-679 7.5 7.13-679 7.5 7	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	7-13-99 12									999	5 26	A A	1		
7-13-79 1204 7-13-79 1234 7-13-79 1238 7-13-79 1238 7-	7-13-77 1204 7-13-79 1237 7-13-79 1237 7-13-79 1237 2.3-79 1237 2.3-79 1237 2.3-79 1237 2.3-79 1237 2.3-79 1237 5.2 250 7.2 250 7.2 250 7.2 250 7.2 250 7.5 6.79 5780 7.5 6.79 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5	7/3-79 1204 5.2 122 123 5.3 5.4 6.30 5 7-13-79 123 5.2 742 163 6.34 579 5 7-13-79 123 5.2 742 163 6.34 579 5 7-13-79 124 5.2 742 175 175 5 5 5 5 5 7.3-79 124 5.7 7 7 5 7 5 5 5 5 5 7.3-79 124 5 7 7 5 7 5 7 5 7.3-79 124 5 7 7 7 7 7 2.3-70 124 5 7 7 7 7 2.3-70 124 5 7 7 7 2.3-124 124 1 1 1 1 2.3-124 124 1 1 1 1 2.3-124 124 1 1 1 1	7-13-99 12	8/2				50	50			756	800	Crace			
1-13-79 (235) 7-13-79 (237) 7-13-79 (237) 7-13-7	13-7 (23) 7-13-79 (23) 7-13-79 (23) 7-13-79 (23) 7-13-79 (23) 7-13-6 (23) 7-1	Pr3-7 1235 1 52 52 52 52 53 530 53 7:3-75 1246 1 5.2 22 1 18.3 5.37 5.35 5.57 2.3-75 1246 1 5.2 22 1 18.5 6.87 570 7.5 2.3-75 1246 1 1 1.86 6.87 573 573 2.5 2.3-75 1 1 1 1 1 1 1 2.3-75 2 2 2 2 2 1 1 2.3-75 2 2 2 2 2 2 2 2.3-75 2 2 2 2 2 2 2 2.3-75 2 2 2 2 2 2 2 2.3-75 2 2 2 2 2 2 2.3-47 2 2 2 2 2 2 2.3-47 2 2 2 2 2 2 2.3-47 3 3 3 3 3 2.3-47 3 3 3 3 3 2.3-47 <td>7-13-79 12</td> <td>24</td> <td></td> <td></td> <td></td> <td>5.0</td> <td>66</td> <td></td> <td></td> <td>18:3 6</td> <td>246</td> <td>are</td> <td></td> <td></td> <td></td>	7-13-79 12	24				5.0	66			18:3 6	246	are			
713-70 (251 713-70 (251 713-70 710-70 710-70 710-70 710-70 710-70 710-70 710-70 710	7-13-79 1258 2-3-79 1246 2-3-79 1246 2-3-79 1246 2-3-79 2-50 2-5 2-50 2-5 2-3-70 1-7 1 10 10 10 10 10 10 10 10 10 10 10 10 10 1	7:3-10 12:10 5:20 3:20 3:20 16:30 5:70 5:70 2.3-10 5:70 5:70 5:70 5:70 5:70 5:70 2.3-10 5:70 5:70 5:70 5:70 5:70 5:70 2.3-10 5:70 5:70 5:70 5:70 5:70 5:70 2.3-10 5:70 5:70 5:70 5:70 5:70 2.3-10 5:70 5:70 5:70 5:70 2.3-10 5:70 5:70 5:70 Comments 5:60 5:73 7:33	7-13-79 12	33				5.0	15.0			123 6	5 84 5	262			
13-22 13-25 2:3 2:3 2:5 13-25 12-25 13-25 12-25	7.8-77 1245 1245 124 252 25 25 25 257 255 255 255 255 255 25	7.8-77 10% 5.7 7.5 7.5 7.5 7.5 7.5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7-13-29 12					20	740		<u>`</u>	8:3 6	83 5	06			
	Comments	Comments Date 7/3.99 Reviewer Date 7/3.49	216-82					5.0	25.0			8.8 6	5 83 3	and a	25		
	Comments	Comments Developer's Signature Marker Date 7/3-99 Reviewer Date 7/3-99 Reviewer Date 7/3-99				+											
	comments	comments Developer's Signature LEMM Date 7/3-99 Reviewer Pur Lewell Date 7/3-99									-						
	Comments Non in Bind 7-12, 90 1. P. A	comments Developer's Signature LENN is Big 212 Parter M. End Date 7/3499 Developer's Signature LENN is 7/3499											$\left \right $				

; }

Site Name CHACL Multicle Well Number Site Name CHACL Multicle Well Number Site Name Chacle Meter Code Meter Code Site Name Site Name Well Number Meter Code Site Name Mater Volue Meter Code Meter Code Site Name Development Meter Code Meter Code Site Name Development Meter Code Meter Code Site Name Development Meter Code Meter Code Mater Code Mater Code Meter Code Meter Code Out Code Development Meter Code	Site Name Amount Number Mumber Mumber Site Name Amount Mark Mark Mark Mark Coolon State Name Mark Mark Mark Mark Site Name State Name State Name Mark Mark Mark Site Name State Name State Name Mark Mark Mark Site Name State Name State Name Mark Mark Mark Site Name State Name State Name Mark Mark Mark Mark Site Name State Name State Name Mark Mark Mark Mark Site Name State Name State Name Mark Mark Mark Mark Site Name State Name State Name Mark <								וטווט שמו	5			
Development Criteria Mater Volume Calculation Instruments Subissuon of inductiv Fammed Subissuon of inductiv Fammed	Development Criteria Image: Second	Site Name	CHACO	DUANT	I	-		Development Purging	Well Nu Meter C	mber <u>M</u>	1-2	1 1	
Wethods of Development and and submersion is submersion is submersis submersion is submersion is submersion is submersion is	Wethods of Development and entrome Wethods of Developmenta and entrome Wetho	Developme Developme Developme Developme	ent Criteria 5 5 Casing Volumes of Wat Ibilization of Indicator Parameter	ter Removel meters	Water Vo Initial Depth of Initial Depth to	lume Calc ^{Well (feet)} _것	ulation 060				its I Meter Monitor		
Punpo Bellin Undar Yolami Valari Yolami Yol	Punda Define to be some to be obtained of the top some top of the top Define top some top Come top Define top some top some top	Methods o	f Development		Height of Wate Diameter (inch	r Column in Wel	ll (feet) Gravel Pac	A 0 ×		38 म	onductivity Met	er	-
Submestle Double Check Value Valet Disposal Perstatic Stantessteel Kommer Greel Pack Rave Frank Greel Pack Greel Pack Oht Stantess steel Kommer Greel Pack Date Tota Franket Tota Tota Franket Date Tota Franket Pack Date Pack Pack Date Pack Pack Date Pack Pack Pack Pack Pack </td <td>Image: Submetale Double Check Value Value Signes steal Kammet Resistic Isalinees steal Kammet Gael Pack Image: Signes Signes Signes Steal Kammet Gael Pack</td> <td>- 8 </td> <td>Pump Bailer ntrifugal 🕅 Bottom ^v</td> <td>Valve</td> <td>ltem</td> <td>Water Volun Cubic Feet</td> <td>ne in Well Galions</td> <td>Gallons to be Removed</td> <td></td> <td></td> <td>ther 2.0</td> <td>CHEMETS</td> <td>KIT</td>	Image: Submetale Double Check Value Value Signes steal Kammet Resistic Isalinees steal Kammet Gael Pack Image: Signes Signes Signes Steal Kammet Gael Pack	- 8 	Pump Bailer ntrifugal 🕅 Bottom ^v	Valve	ltem	Water Volun Cubic Feet	ne in Well Galions	Gallons to be Removed			ther 2.0	CHEMETS	KIT
Periatic Bainese-steel Kernner Greek AUTC STAMPATON One	Petitatic Statites-stel Karmerer Carel Poix MUC STAMPATON One One Carel Poix Printes-stel Karmere Carel Poix Printes-stel Karmere One One Carel Poix Printes-stel Karmere Printes-stel Karmere Printes-stel Karmere One The Printes-stel Karmere Printes-stel Karmere Printes-stel Karmere Printes-stel Karmere One The Point Printes-stel Karmere Printes-stel Karmere Printes-stel Karmere One The Point Point Printes-stel Karmere Printes-stel Karmere Data The Point Point Printes-stel Karmere Printes-stel Karmere Data The Point Point Point Printes-stel Karmere Printes-Print Printes-Printes-Printes Printes-Printes-Printes Printes-Printes-Printes Printes-Printes-Printes Printes-Printes-Printes Printes-Printes Printes-Printes Printes-Printes Printes-Printes Printes-Printes Printes-Printes Printes-Printes Printes Printes Printes Printes Printes-Printes Printes Printes Printes Printes Printes-Printes Printes Printes	ر ور ا []	bmersible Double	Check Valve	Well Casing		33	1:01		Water Dis	posal		
Inter Drifting Fluids Drifting Fluids Drifting Fluids Inter Total Total Total Atter Removal Table Fluids Fluids Fluids Date Time Deeth Fluids Fluids Fluids Date Time Deeth Fluids Fluids Fluids Destids 7:3-79 3/5 7/2 7/2 7/2 7/2 7/2 7:3-79 3/5 7/2 7/2 7/2 7/2 7/2 7:3-79 3/5 7/2 7/2 7/2 7/2 7/2 7:3-79 3/2 7/2 7/2 7/2 7/2 7/2 7:3-79 3/2 7/2 7/2 7/2 7/2 7/2 7:3-79 1/3 7/2 7/2 7/2 7/2 7/2 7:3-79 1/2 7/2 7/2 7/2 7/2 7/2 7:3-79 1/2 7/2 7/2 7/2 7/2 7/2 7:3-79 1/2 7/2 7/2 7/2 7/2 7/2 7:3-79 1/2 7/2 7/2 7/2 7/2 7/2 7:3-79 1/2 7/2	Othen		ristaltic C Stainles	ss-steel Kemmerer	Gravel Pack					KUTZ	SEP	ARATOR	
Other Total Total <th< td=""><td>Other Total Total Total Total Mater Removal Data Image Fining Water Volume Fining Water Volume Fining Water Volume Data Time Deenlopment Removal (galito) Periodici (Volume) Periodici (Volume) 7:73 27:93 24:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 2</td><td>1</td><td></td><td></td><td>Drilling Fluids</td><td></td><td></td><td></td><td>[]</td><td></td><td></td><td></td><td>[</td></th<>	Other Total Total Total Total Mater Removal Data Image Fining Water Volume Fining Water Volume Fining Water Volume Data Time Deenlopment Removal (galito) Periodici (Volume) Periodici (Volume) 7:73 27:93 24:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 27:05 7:73 27:05 27:05 27:05 27:05 27:05 2	1			Drilling Fluids				[]				[
Water Removal Data Vater Removal Data Image: Time Development, Removal Institute Ending Water Volume Temperature Froductivity Dissolved Date Time Development, Removal (gal) Removal (gal) Removal (gal) Conductivity Dissolved 7:3-79 03/6 Development, Removal (gal) Removal (gal) Removal (gal) Conductivity Dissolved 7:3-79 03/6 Development, Removal (gal) Removal (gal) Removal (gal) Conductivity Dissolved 7:3-79 03/6 Development, Removal (gal) Removal (gal) Removal (gal) Conductivity Dissolved 7:3-79 03/6 Development, Removal (gal) Removal (gal) Removal (gal) Conductivity Dissolved 7:3-79 03/6 Development, Removal (gal) Removal (gal) Removal (gal) Conductivity Dissolved 7:3-79 03/6 Development, Removal (gal) Removal (gal) Removal (gal) Conductivity Dissolved 7:3-79 03/6 Development, Removal (gal) Removal (gal) Removal (gal) Conductivity Dissolved 7:3-79 03/6 03/7 03/7 Removal (gal) Conductivity Dissolved 7:3-79 03/6 03/7 03/7 Removal (gal) Conductivity Dissolved 7:3-79<	Water Removal Data Data Time Training Water Volume Tender Volume Te	Ē	her		Total]				
Date Time Development Method Rational Rate Fording Water Vider Volume Forduct Volume Temperature Conductivity Dissolved Conductivity Dissolved 7:3-79 7:45 Balt (e) (e) (e) (e) (e) 0xgen 0xgen 0xgen 7:3-79 7:45 Balt (f) (f) (f) 1 (f) 0xgen 0xgen 0xgen 7:3-79 7:55 1 1 1 1 1 1 1 1 7:3-79 7:55 1 1 1 1 1 1 1 7:3-79 1 2 2 1 1 1 1 1 7:3-79 1 2 1 1 1 1 1 7:3-79 1 1 1 1 1 1 1 7:3-79 1 1 1 1 1 1 1 7:3-79 1 1 1 1 1 1 1 7:3-79 1 1 1 1 1 1 1 7:3-79 1 1 1 1 1 1 1	Date Time Development Ramonal Initiate Conductivity Disolved 7:3-79 3:40 Beth Removal (galitons) Conductivity Disolved Oxygen Contractivity 7:3-79 3:40 Depth Removal (galitons) (ret) (ret) Note Disolved 7:3-79 3:40 Depth Removal (galitons) Conductivity Disolved Disolved 7:3-79 3:50 3:0 3:0 3:0 3:0 3:0 3:0 3:0 7:3-79 3:50 3:0 3:0 3:0 3:0 3:0 3:0 3:0 7:3-79 1:40 1:70 1:70 1:70 1:70 1:70 1:70 7:3-79 1:70 1:70 1:70 1:70 1:70 2:70 1:70 7:3-79 1:70 1:70 1:70 1:70 1:70 2:70 2:70 7:3-79 1:70 1:70 1:70 1:70 1:70 2:70 2:70 7:3-79 1:70 1:70 1:70 1:70 1:70 2:70 2:70 7:3-79 1:70 1:70 1:70 1:70 2:70 2:70 7:3-79	Water Rem	ioval Data										
Total Funning Total Capital Capital Comments Comm	Total Pump Total Control Contro Control Contro	Date	Development Method	Removal Intake Rate Douth	Ending Water	Water V	olume	Product Volume	Temperature	Con	ductivity Diss	olved	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	7/3-79 (345 7-13-79 (355 7-13-76 (55) (57) (57) (57) 7-13-76 (55) (57) (57) (57) 7-13-76 (57) (57) (57) (57) 7-13-77 (70) (72) (72) (72) (72) 7-13-77 (72) (72) (72) (72) (72) (72) 7-13-77 (72) (72) (72) (72) (72) (72) (72) (7		Pump Bailer	(gal/min) (feet)	(feet)	Increment	Cumulative	Increment Cumula	itive C	ця. н.	mo/cm	gen Con v/L	nments
7-1379 1350 1 20 3.0 3.0 3.0 19.0 1.59 1673 1 3.40 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	7-13-79/130 1 20 3.0 3.0 3.0 170 159 1691 7.3-79/140 1 20 3.0 3.0 170 172 7340 7.3-79/140 20 173 172 7340 7.3-79/140 20 173 172 7970 5 7.3-79/140 29 173 172 7970 5 7.3-79/140 29 173 172 7970 5 7.3-79/140 29 173 172 797 5 7.3-79/140 20 172 174 174 20 14 174 20 14 174 20 14 174 20 14 174 20 14 174 20 14 174 20 14 174 20 14 174 20 16 174 174 20 14 174 20 14 174 20 14 174 20 16 174 174 20 14 174 20 14 174 20 14 174 20 16 174 174 20 14 174 20 14 174 20 14 174 20 14 174 20 14 174 20 14 174 20 14 174 20 14 174 20 14 174 20 15 175 175 175 175 175 175 175 175 175	7-13-99 13	R						215	7.39 2	220		
7.3-79 (353 132 52 52 182 734 7.3-79 (405 32 82 82 183 115 2940 7.3-79 (405 32 73.0 72 82 115 2940 7.3-79 (415 32 73.0 73.0 193 691 779 7.3-79 (416 32 73.0 19.3 691 779 65 7.3-79 (416 193 691 773 691 779 65 7.3-70 193 193 193 67 193 67 Controlts 10 193 193 193 691 75	7.379 13.79 13.7 13.7 13.7 13.8 13.8 7.37 140 32 52 13.0 17.3 17.5 17.6 17.6 7.37 141 17.3 17.3 17.8 17.8 17.8 17.8 17.8 7.37 17.9 17.3 17.3 17.3 17.3 17.7 17.7 7.37 17.3 17.3 17.3 17.3 17.3 17.7 7.37 17.3 17.3 17.3 17.3 17.3 1.3.3 17.3 17.3 17.3 17.3 17.3 1.3.4 1.3.5 17.3 17.3 17.3 17.3 1.3.5 1.3.4 1.3.7 Reviewer 17.3 17.3	7-13-99/3	20			3.0	3.0		19.0	7.59 /	593		
7.3-79 / 400 30 32 32 32 72 75 715 770 790 75 7.3-79 / 405 32 13.0 19.3 591 792 79 75 7.3-79 / 405 32 13.0 19.3 591 799 55 7.3-79 / 405 32 13.0 19.3 591 799 55 7.3-79 / 405 32 13.0 19.3 591 799 55 7.0-70 32 19.0 19.3 591 799 55 0 19.3 591 799 56 799 55 0 19.3 591 799 57 799 55 0 19.3 591 799 57 799 0 19.3 591 799 591 799 0 19.3 591 799 591 799 0 10 19.3 591 793 79	7.3-79 / 400 30 30 30 30 10 10 10 290 10 7.3-79 / 405 1 30 19.0 19.0 19.3 6.91 77.0 79.0 5 7.3-79 / 410 1 3.0 19.0 19.3 6.91 77.0 79.0 5 7.3-79 / 410 1 3.0 19.0 19.3 6.91 77.0 79.0 5 7.3-79 / 410 1 1 19.3 6.91 79.0 5 7 79.0 5 1.3-101 1 1 1 1 1 1 1 1 1 1.3-101 1 1 1 1 1 1 1 1 1 1.3-101 1 1 1 1 1 1 1 1 1 1.3-101 1 1 1 1 1 1 1 1 1.3-101 1 1 1 1 1 1 1 1	7-13-99 13	2			2.2	20		038/	7.39 23	and and a		
R13-19 1465 20 13.0 19.0 19.3 5.9 7.99 7.5 R13-79 19.3 19.3 5.9 7.97 7.5 7.97 5.5 7.97 7.5 R13-79 19.3 19.3 5.9 7.97 7.97 5.5 7.97 7.5 R13-70 19.4 19.5 19.5 19.5 19.5 5.9 7.97 7.5 Comments Comments Date 7/3-79 Reviewer M.4. M.4. M.4. M.4.	7.37 145 20 20 130 193 292 27 7.37 193 291 272 193 291 272 271 7.37 193 291 272 193 291 272 271 7.37 193 193 271 272 271 272 271 comments Date 273-77 Date 7/3-79	713-99 14	09			30	2:2		183	725 79	000		
P-3-9/4/2 3-0 3-0 3-0 3-0 1-9-3 5-9/4/2 5-9/4/2 5-9/4/2 Comments Comments Date 7-13-99 Reviewer MAL Houldh 1 Date 7-13-99 Reviewer MAL Houldh 1 Date 7-13-96	P-3-97/412 3-2 12.0 12.3 5.91 378 5.5 P-13 P P P P P P Image: standing standard Date 7/3-57 Reviewer Puture Date	713-99/4	So			2.0	10:01		020/	710 20	Se la		
Comments	Comments Developer's Signature Developer's Signature S	7-13-99/4	12			30	13.0		193	69/2	<u>8</u>	20	
Comments Developer's Signature Levener Mar Fauldy, Date 7/3-99 Reviewer Mar Fauldy, Date 7/3-99	Comments Developer's Signature <i>Parture</i> Date 7/3-79 Reviewer Parture Date 7/3-79	~								•			
Comments Developer's Signature Perveyor Base 7-73-99 Reviewer Mar Reviewer Mar Reviewer Mar Reviewer	Comments Developer's Signature Developer's Signature Signatu												
comments Developer's Signature Jennin, Brid Date 7-13-79 Reviewer Man Revended, Date 7-13-79 Reviewer	comments Developer's Signature Demonstration Date 7-13-79 Reviewer Dur Hundu Date 7/3-99												
Developer's Signature JENNIA (Jud Date 7-13-99 Reviewer Man Hennell), not 7/2-195	Developer's Signature Jennie Juge 7-13-79 Reviewer Jun Fundus Date 7/3-99	Comments											
	11 test allen with and and a test	Developer's Sign	ature JEMM	to Pra			ă	ate 7-13-99	X Reviewer	No.	Kuld.	-92 t	105

				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							
Site Name	CHACO PUANT	I	· <u>-</u>		Development Purging	Well Nun Meter Co	nber <u>M</u>	14~6 A			
Developmer	nt Criteria										
3 to 5 Stabi	5 Casing Volumes of Water Removel lization of Indicator Parameters r	Water Vo Initial Depth of Initial Depth to	Vell (feet)	ulation			Instrume	pH Meter DO Monitor			
Methods of	Development	Height of Wate Diameter (inch	r Column in Well	l (feet)	<u></u> *		XX	Conductivity Temperature	Meter		
	ump Bailer rifugai 🏹 Bottom Vaive	ltern	Water Volurr Cubic Feet	ie in Well Galions	Gallons to be Removed		Ø	Other 2	a chom	ETS NIT	
Subn	mersible Double Check Valve	Well Casing		6.6	26,37	1	Water D	isposal			
Peris	staltic	Gravel Pack					KUTG	55	alland	JP V	
		Drilling Fluids				T					
Othe		Total									
Water Remo	oval Data										
Date	Development Removal Intake Method Rate Depth	Ending Water Depth	Water V Remove	olume d (gal)	Product Volume Removed (gallons)	Temperature	Ha	conductivity umho/cm	Dissolved Oxvgen	Comments	[
	Pump Bailer (gal/min) (feet)	(feet)	Increment	Cumulative	Increment Cumulative				mg/L		
7-13-99 150	00					226	7.86	3280			
7-13-99 152	Se		5.0	50		201	7.98	3110			
7-13-99 151	0		50	10.0		19:0	1.90	3690			
7-13-99 151			50	15:0		18:0	7.79 .	app			
7-13-99 15	24		5.0	20.02		17.7	787	aps-s			
7-13-99 15.	<u> </u>		50	250		124	. 66%	AR	5.5		
-						-	\$				
									_		
Comments X	45 WELL BAILED .	00000	3.0 G	RUDA	1/S .						
Daveloner's Sinna	Mar Connes Sile			Ļ	nate 7-13-99	Reviewer	1 A	Frida	A Date	21/2 /94	
										1. bat	
						J	١				

.

Developer's Signature Comments

_Date 7/53/99 Date 7-13-99 Reviewer



2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413



PL I.D. 907045

July 23, 1999

El Paso Field Services 770 W. Navajo Farmington, NM 87401

Project Name/Number: CHACO PLANT MW NA

Attention: John Lambdin

On 07/15/99, Pinnacle Laboratories Inc., (ADHS License No. AZ0592), 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 Environmental Services Laboratory, Durham, OR.

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

Kimberly D. McNeill Project Manager

MR:jt

Enclosure

of Mutchell fit

H. Mitchell Rubenstein, Ph.D. General Manager

Reviewed & Amproved Reviewed & Amproved J. Jave Dr



2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413

CLIENT	: EL PASO FIELD SERVICES	DATE RECEIVED	:07/15/99
PROJECT #	:NA		
PROJECT NAME	:CHACO PLANT MW	REPORT DATE	:07/23/99

PL ID: 907045				
*** <u>**********************************</u>	PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	907045-01	990306	AQUEOUS	07/09/99
02	907045-02	990307	AQUEOUS	07/13/99
03	907045-03	990308	AQUEOUS	07/13/99
04	907045-04	990309	AQUEOUS	07/13/99
05	907045-05	990310	AQUEOUS	07/13/99
06	907045-06	990311	AQUEOUS	07/13/99
07	907045-07	990312	AQUEOUS	07/13/99
08	907045-08	990313	AQUEOUS	07/13/99

---TOTALS----

MATRIX AQUEOUS

#SAMPLES 8
Environmental Services Laboratory, Inc. Es

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 670-8520

July 22, 1999

Kim McNeill Pinnacle Laboratories 2709-D Pan American Fwy NE

Albuquerque, NM 87107

TEL: 505-344-3777

FAX (505) 344-4413

RE: 907045/EPFS/Chaco Plant NW

Order No.: 9907090

Dear Kim McNeill,

Environmental Services Laboratory received 8 samples on 7/16/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests:

ICP Metals (ICPMET) MERCURY (Mercury)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety, without the written approval from the Laboratory.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Kinburg 11-

Kimberly Hill Project Manager

Keith Huntin

Technical Review

ANALYTICAL SERVICES FOR THE ENVIRONMENT

Date: 22-Jul-99

CLIENT:	Pinnacle Laboratories
Lab Order:	9907090
Project:	907045/EPFS/Chaco Plant NW
Lab ID:	9907090-01A

۰.

Client Sample ID: 907045-01 25" WASter Tag Number: Water Collection Date: 7/9/99 Matrix: AQUEOUS

Analyses	Result	Limit Q	ual Units	DF	Date Analyzed
MERCURY	SW 7470 / EPA 245.				Analyst: btn
Mercury	ND	0.0002	mg/L	1	7/21/99
ICP METALS	SW 6010 / EPA 200.				Analyst: btn
Cadmium	ND	0.002	mg/L	1	7/20/99
Chromium	ND	0.005	mg/L	1	7/20/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

- * Value exceeds Maximum Contaminant Level
- S Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

:

CLIENT:	Pinnacle Laboratories	Client Sample ID:	907045-02	2 Mw-c
Lab Order:	9907090	Tag Number:		
Project:	907045/EPFS/Chaco Plant NW	Collection Date:	7/9/99	
Lab ID:	9907090-02A	Matrix:	AQUEOU	S
Analysas	Result	Limit Qual Units	DF 1	Date Analyzed

Analyses	Result	Linit Q	ual Units	Dr	Date Analyzeu
MERCURY		SW 7470 / EP/	A 245.		Analyst: btn
Mercury	ND	0.0002	mg/L	1	7/21/99
ICP METALS		SW 6010 / EPA	A 200.		Analyst: btn
Cadmium	NĎ	0.002	mg/L	1	7/20/99
Chromium	ND	0.005	mg/L	1	7/20/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

2 of 8

Date: 22-Jul-99

CLIENT:	Pinnacle Laboratories	Client Sample ID: 907045-03 Mu. 7
Lab Order:	9907090	Tag Number:
Project:	907045/EPFS/Chaco Plant NW	Collection Date: 7/9/99
Lab ID:	9907090-03A	Matrix: AQUEOUS

Analyses	Result	Limit Q	ual Units	DF	Date Analyzed
MERCURY	S	W 7470 / EP/		Analyst: btn	
Mercury	ND	0.0002	mg/L	1	7/21/99
ICP METALS	S	W 6010 / EPA		Analyst: btn	
Cadmium	ND	0.002	mg/L	1	7/20/99
Chromium	ND	0.005	mg/L	1	7/20/99

Qualifiers:

ND - Not Detected at the Reporting Limit

۰,

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

- S Spike Recovery outside accepted recovery limits
- R RPD outside accepted recovery limits
- E Value above quantitation range

Date: 22-Jul-99

CLIENT:Pinnacle LaboratoriesLab Order:9907090Project:907045/EPFS/Chaco Plant NWLab ID:9907090-04A

Date: 22-Jul-99

Client Sample ID: 907045-04 Mw-Y Tag Number: Collection Date: 7/9/99 Matrix: AQUEOUS

Analyses	Result	Limit Q	ual Units	DF	Date Analyzed
MERCURY	S	W 7470 / EPA	245.		Analyst: btn
Mercury	ND	0.0002	mg/L	1	7/21/99
ICP METALS	SW 6010 / EPA 200.				Analyst: btn
Cadmium	ND	0.002	mg/L	1	7/20/99
Chromium	ND	0.005	mg/L	1	7/20/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Date: 22-Jul-99

CLIENT:	Pinnacle Laboratories
Lab Order:	9907090
Project:	907045/EPFS/Chaco Plant NW
Lab ID:	9907090-05A

:

Client Sample ID: 907045-05 Tag Number: Collection Date: 7/9/99 Matrix: AQUEOUS

Analyses	Result	Limit O	ual Units	DF	Date Analyzed
MERCURY	S	W 7470 / EPA	245.		Analyst: btn
Mercury	ND	0.0002	mg/L	1	7/21/99
ICP METALS	S	Analyst: btn			
Cadmium	ND	0.002	mg/L	1	7/20/99
Chromium	ND	0.005	mg/L	1	7/20/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

- S Spike Recovery outside accepted recovery limits
- R RPD outside accepted recovery limits
- E Value above quantitation range

Date: 22-Jul-99

CLIENT:	Pinnacle Laboratories
Lab Order:	9907090
Project:	907045/EPFS/Chaco Plant NW
Lab ID:	9907090-06A

Client Sample ID: 907045-06 Tag Number: Collection Date: 7/9/99 Matrix: AQUEOUS

Analyses	Result	Limit Q	ual Units	DF	Date Analyzed
MERCURY	S	W 7470 / EPA		Analyst: btn	
Mercury	ND	0.0002	mg/L	1	7/21/99
ICP METALS	S	Analyst: btn			
Cadmium	ND	0.002	mg/L	1	7/20/99
Chromium	ND	0.005	mg/L	1	7/20/99

Qualifiers:

ND - Not Detected at the Reporting Limit

- J Analyte detected below quantitation limits
- B Analyte detected in the associated Method Blank
- * Value exceeds Maximum Contaminant Level
- S Spike Recovery outside accepted recovery limits
- R RPD outside accepted recovery limits
- E Value above quantitation range

Date: 22-Jul-99

CLIENT:	Pinnacle Laboratories
Lab Order:	9907090
Project:	907045/EPFS/Chaco Plant NW
Lab ID:	9907090-07A

Client Sample ID: 907045-07 Tag Number: Collection Date: 7/9/99 Matrix: AQUEOUS

Analyses	Result	Limit Q	ual Units	DF	Date Analyzed
MERCURY	S	W 7470 / EPA	245.	<u></u>	Analyst: btn
Mercury	ND	0.0002	mg/L	1	7/21/99
ICP METALS	S	W 6010 / EPA	200.		Analyst: btn
Cadmium	ND	0.002	mg/L	1	7/20/99
Chromium	ND	0.005	mg/L	1	7/20/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

- * Value exceeds Maximum Contaminant Level
- S Spike Recovery outside accepted recovery limits
- R RPD outside accepted recovery limits
- E Value above quantitation range

Date: 22-Jul-99

CLIENT:	Pinnacle Laboratories
Lab Order:	9907090
Project:	907045/EPFS/Chaco Plant NW
Lab ID:	9907090-08A

Client Sample ID: 907045-08 Tag Number: Collection Date: 7/9/99 Matrix: AQUEOUS

Analyses	Result	Limit Q	ual Units	DF	Date Analyzed
MERCURY	S	W 7470 / EPA	245.		Analyst: btn
Mercury	NĎ	0.0002	mg/L	1	7/21/99
ICP METALS	S	W 6010 / EPA	200.		Analyst: btn
Cadmium	ND	0.002	mg/L	1	7/20/99
Chromium	ND	0.005	mg/L	1	7/20/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

- * Value exceeds Maximum Contaminant Level
- S Spike Recovery outside accepted recovery limits
- R RPD outside accepted recovery limits
- E Value above quantitation range

1 of 1				its	d recovery limi	D outside accepte	R - RI	imits	Analyte detected below quantitation l	J
lank	ciated Method B	ted in the asso	B - Analyte detec	covery limits	ide accepted rec	ike Recovery outsi		¥	- Not Detected at the Reporting Lim	Qualifiers: ND
								0.0002	ON	Mercury
Qual	RPDLimit	%RPD	HighLimit RPD Ref Val	LowLimit	%REC	SPK Ref Val	SPK value	PQL	Result	Analyte
			18188	SeqNo:		1A	MERC_99072	Run ID:	9907090	Client ID:
	ate: 7/20/99	Prep D	Date 7/21/99	Analysis I		Units: mg/L	: Mercury	Test Code	Batch ID: 648	Sample ID: MBlank
								0.005	DN	Zinc, 200.7
								0.2	ON	Sodium
								0.005	ND	Silver
								0.005	ND	Selenium
								0.2	ND	Potassium
								0.005	ND	Nickel, 200.7
								0.005	ND	Molybdenum, 200.7
								0.005	ND	Manganese
								0.05	ND	Magnesium
								0.005	DN	Lead, 200.7
								0.01	ND	Iron
								0.005	ND	Copper, 200.7
								0.005	DN	Cobalt, 200.7
								0.005	dN	Chromium, 200.7
								0.05	ND	Calcium
								0.002	DN	Cadmium
								0.1	ND	Boron
								0.005	DN	Arsenic
								0.05	ND	Aluminum
Qual	RPDLimit	%RPD	HighLimit RPD Ref Val	LowLimit H	%REC	SPK Ref Val	SPK value	PQL	Result	Analyte
			18089	SeqNo:			ICP_990720A	Run 1D;	9907090	Client ID:
	ite: 7/19/99	Prep Da	Date 7/20/99	Analysis D		Units: mg/L	ICPMET	Test Code:	Batch ID: 643	Sample ID: MB-643
ank	Method Bl								7045/EPFS/Chaco Plant NW	Project: 90
RT	Y REPO	MMAR	QC SUI						inacle Laboratories 07090	Work Order: 99
,	te: 22-Jul-95	Da							Services Laboratory	Environmental

Environment	tal Service	es Laboratory								Da	te: 22-Jul-9	õ
CLIENT: Work Order:	Pinnacle Lat 9907090	boratories							QC SUI	MMAR	Y REPO	IRT
Project:	907045/EPF	S/Chaco Plant NW								Sar	nple Dupl	icate
Sample ID: 990709	1-05A DUP E	Satch ID: 643	Test Code:	ICPMET	Units: mg/L		Analysis	Date 7/20/9	٥		10. 7/4 0/00	
Client ID:		9907090	Run ID:	ICP_990720A	I		SeqNo:	18082	4		16. 11 Julos	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		.2325	0.05	0	0	0.0%	0	5	0 2364	1 6%	30	
Arsenic		.02542	0.005	0	0	0.0%	0	0	0.0263	3.4%	20 20	
Boron		.2135	0.1	0	0	0.0%	0	0	0.215	0.7%	20	
Cadmium		ND	0.002	0	0	0.0%	0	0	0	0.0%	20	
Chromium 200 7		34.98	0.05	0	0	0.0%	0	0	35.53	1.6%	20	
Cobalt, 200.7		.01146 CVD	0.005	, o	0 0	0.0%	. 0	0	0.0115	0.4%	20	
Copper, 200.7		,01169	0.005	0 0	5 0	0.0%	2 0		0	0.0%	20	
Iron		2.299	0.01	0	0	0.0%	0 0	0 0	2335	1.5%	3 6	
Lead, 200.7		ND	0.005	0	0	0.0%	0	0	0	0.0%	20	
Magnesium		10.26	0.05	0	0	0.0%	0	0	10.44	1.8%	20	
Manganese		.03247	0.005	0	0	0.0%	0	0	0.03316	2.1%	20	
Nickel 200.7		.01595	0.005	0	0	0.0%	0	0	0.01665	4.3%	20	
Dotooolium		.02785	0.005	0	0	0.0%	0	0	0.02851	2.3%	20	
Colonium		10.95	0.2	0	0	0.0%	0	0	10.72	2.1%	20	
Silver		ND	0.005	. 0	0	0.0%	0	0	0	0.0%	20	
Sodium		ŪN	0.005	0	Ō	0.0%	Ō	0	0	0.0%	20	
Socium		52.74	0.2	0	0	0.0%	0	0	52.24	1.0%	20	m
21nc, 200.7		.0602	0.005	0	0	0.0%	0	0	0.06282	4.3%	20	
Sample (D: 990709)	-01A DUP E	3atch ID: 648	Test Code:	Mercury	Units: mg/L		Analysis	Date 7/21/9	9	Prep Da	te: 7/20/99	
Client ID: 907045-	01	9907090	Run ID:	MERC_99072	1A		SeqNo:	18200				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.0002	0	0	0.0%	0	0	0	0.0%	20	
Qualifiers:	ND - Not Detect	ed at the Reporting Limit		S - Spi	ke Recovery outsi	de accepted rec	overy limits	m	- Analyte detected	d in the associ	ated Method B	lank
	J - Analyte detec	cted below quantitation lin	vits	R - RP	D outside accepte	d recovery limit	S					

| | |

1 of 1

R - RPD outside accepted recovery limits

• .

3

Its: mg/L Analysis Date 7121/99 Prep Date: 7120/99 SeqNo: 18201 0 99.0% 75 125 0 91000 190000 19000 1900000 1900000	C - Chike Recover		alifiers: ND - Not Detected at the Renorting
Sample Matrix Spike Sample Matrix Spike Its: mg/L Analysis Date 7/21/99 SeqNo: Prep Date: 7/20/99 SeqNo: Prep Date: 7/20/99 0 99.0% 75 125 0 its: mg/L Analysis Date 7/21/99 Prep Date: 7/20/99 Qual 0 99.0% 75 125 0 Kef Val %REC LowLimit HighLimit RPD Ref Val Prep Date: 7/20/99 Kef Val %REC LowLimit HighLimit RPD Ref Val 20 0 98.0% 75 125 0.00198 1.0% 20			
Its: mg/L Analysis Date 7/21/99 Prep Date: 7/20/99 Ref Val %REC LowLimit 0 99.0% 75 125 its: mg/L Analysis Date 7/21/99 Prep Date: 7/20/99 Ref Val %REC LowLimit HighLimit 0 99.0% 75 125 0 its: mg/L Analysis Date 7/21/99 Prep Date: 7/20/99 Its: 7/20/99 SeqNo: 18202 Prep Date: 7/20/99 SeqNo: Kef Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit	0.002	1 6 0.000	.001s
Its: mg/L Analysis Date 7/21/99 Prep Date: 7/20/99 SeqNo: 18201 (Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual 0 99.0% 75 125 0 Its: mg/L Analysis Date 7/21/99 Prep Date: 7/20/99 SeqNo: 18202	AL SPK value SPK Ref V	i≹ PQ	yte Resu
Its: mg/L Analysis Date 7/21/99 Prep Date: 7/20/99 SeqNo: 18201 (Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual 0 99.0% 75 125 0 Prep Date: 7/20/99 Prep Date: 7/20/99	MERC_990721A	Run ID:	t ID: 907045-01 9907090
its: mg/L Analysis Date 7/21/99 Prep Date: 7/20/99 SeqNo: 18201 (Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual 0 99.0% 75 125 0	de: Mercury Units: m	Test Cou	ple ID: 9907090-01A MSD Batch ID: 648
its: mg/L Analysis Date 7/21/99 Prep Date: 7/20/99 SeqNo: 18201 (Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual	0.002	8 0.000	ury .0019
its: mg/L Analysis Date 7/21/99 Prep Date: 7/20/99 SeqNo: 18201	IL SPK value SPK Ref V	it PQ	rte Resu
ts: mg/L Analysis Date 7/21/99 Prep Date: 7/20/99	MERC_990721A	Run ID:	t ID: 907045-01 9907090
Sample Matrix Spike	de: Mercury Units: m	Test Cor	ole ID: 9907090-01A MS Batch ID: 648
		W	ect: 907045/EPFS/Chaco Plant N
OC STIMMARY REPORT			ENT: Pinnacle Laboratories
Date: 22-Jul-99		.у	vironmental Services Laboraton

Environmental	
Services	
Laboratory	

Date: 22-Jul-99

Method Blank	d in the associated	B - Analyte detecte		covery limits	de accepted re	ike Recovery outsi	S - Sp	F	ND - Not Detected at the Reporting Limi	Qualifiers:
		o	120	80	85.0%	0	0.001	0.0002	.00085	Mercury
DLimit Qual	%RPD RF	RPD Ref Val	HighLimit	LowLimit	%REC	SPK Ref Val	SPK value	PQL	Result	Analyte
		-	18189	SeqNo:		1A	MERC_99072	Run ID:	9907090	Client ID:
7/20/99	Prep Date:	66	Date 7/21/	Analysis		Units: mg/L	Mercury	Test Code:	Batch ID: 648	Sample ID: LCS
		0	115	85	92.5%	0	0.5	0.005	.4625	Zinc, 200.7
		0	120	80	101.2%	0	υ.	0.2	5.06	Sodium
		0	120	80	98.7%	0	0.5	0.005	.4935	Silver
		0	120	80	88.8%	0	0.5	0.005	.4438	Selenium
		0	120	80	101.2%	0	5	0.2	5.061	Potassium
		0	115	85	90.7%	0	0.5	0.005	.4535	Nickel, 200.7
		0	115	85	97.7%	0	0.5	0.005	.4887	Molybdenum, 200.7
		0	120	80	98.8%	0	0.5	0.005	.4942	Manganese
		0	120	80	96.9%	0	თ	0.05	4.845	Magnesium
		0	115	85	91.8%	0	0.5	0.005	.4592	Lead, 200.7
		0	120	80	103.6%	0	5	0.01	5.179	Iron
		0	115	85	89.8%	0	0.5	0.005	.449	Copper, 200.7
		0	115	85	89.5%	0	0.5	0.005	.4477	Cobalt, 200.7
		0	115	85	93.2%	0	0.5	0.005	.4659	Chromium, 200.7
		0	120	80	101.0%	0	5	0.05	5.052	Calcium
		0	120	80	91.7%	0	0.5	0.002	.4587	Cadmium
		0	120	80	84.3%	0	0.5	0.1	.4215	Boron
		0	120	80	100.0%	0	0.5	0.005	.5	Arsenic
		0	120	80	97.1%	0	J.	0.05	4.854	Aluminum
DLimit Qual	%RPD RP	RPD Ref Val	HighLimit	LowLimit	%REC	SPK Ref Val	SPK value	PQL	Result	Analyte
			18088	SeqNo:			ICP_990720A	Run ID:	9907090	Client ID:
/19/99	Prep Date: 7	9	Date 7/20/9	Anatysis		Units: mg/L	ICPMET	Test Code:	3 Batch ID: 643	Sample ID: LCS-643
ce - generic	Control Spił	Laboratory							907045/EPFS/Chaco Plant NW	Project:
EFORT	AMARY F	QCSUN							9907090	Work Order:
									Pinnacle Laboratories	CLIENT:

1 of 1

•

ī

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

Method Blank <i>I of I</i>	ed in the associated N	B - Analyte detect		covery limits its	ide accepted re d recovery lim	ke Recovery outs D outside accepte	S - Spi R - RP	vit limits	ND - Not Detected at the Reporting Lin J - Analyte detected below quantitation (Qualifiers:
		o	110	8	103.0%		0.002	0.0002	.00206	Mercury
ILimit Qual	%RPD RPD	RPD Ref Val	HighLimit	LowLimit	%REC	SPK Ref Vai	SPK value	PQL	Result	Analyte
			18203	SeqNo:		₽	MERC_990721	Run ID:	9907090	Client ID:
20/99	Prep Date: 7/2	9	Date 7/21/9	Analysis I		Units: mg/L	Mercury	Test Code:	Batch ID: 648	Sample ID: ICV
EPORT 1 Standard	MMARY R n Verification	QC SUI ng Calibratic	Continui						Pinnacle Laboratories 9907090 907045/EPFS/Chaco Plant NW	CLIENT: Work Order: Project:
2-Jul-99	Date: 22								ıtal Services Laboratory	Environmen

Environmen	tal Services Laboratory								Dat	te: 22-Jul-9	99
CLIENT: Work Order:	Pinnacle Laboratories 9907090							QC SUN	MMAR	Y REPC)RT
Project:	907045/EPFS/Chaco Plant NW								Minera	ls ICV fo	r ICP
Sample ID: ICVHI	Batch ID: 643	Test Code:	ICPMET	Units: mg/L		Analysis	Date 7/20/9	9	Prep Da	ite:	
Client ID:	9907090	Run ID:	ICP_990720A			SeqNo:	18086				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	24.52	0.05	25	0	98.1%	06	110	0			
Calcium	25.16	0.05	25	0	100.6%	90	110	0			
Magnesium	24.28	0.05	25	0	97.1%	06	110	0			
Sodium	5.015	0.2	л,	0	100.3%	90	110	0			
Sample ID: ICVLO	W Batch ID: 643	Test Code:	ICPMET	Units: mg/L		Analysis	Date 7/20/	99	Prep Da	ite:	
Client ID:	9907090	Run ID:	ICP_990720A			SeqNo:	18087				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	.5158	0.005	0.5	0	103.2%	06	110	0			
Boron	.4855	0.1	0.5	0	97.1%	90	110	0			
Cadmium	.5059	0.002	0.5	0	101.2%	90	110	0	Ĺ		
Chromium, 200.7	.5112	0.005	0.5	0	102.2%	95	105	0			
Cobalt, 200.7	.4892	0.005	0.5	0	97.8%	95	105	0			
Copper, 200.7	.512	0.005	0.5	0	102.4%	95	105	0			
Iron	.523	0.01	0.5	0	104.6%	06	110	0			
Lead, 200.7	.5148	0.005	0.5	0	103.0%	95	105	0			
Manganese	.4987	0.005	0.5	0	99.7%	06	110	0			
Molybdenum, 200.	.5061	0.005	0.5	0	101.2%	95	105	0			
Nickel, 200.7	.4987	0.005	0.5	0	99.7%	95	105	0			
Potassium	5.037	0.2	5	0	100.7%	90	110	0			
Selenium	.5051	0.005	0.5	0	101.0%	90	110	0			
Silver	.5039	0.005	0.5	0	100.8%	06	110	0			
Zinc, 200.7	.5063	0,005	0,5	0	101,3%	95	105	0			
Qualifiers:	ND - Not Detected at the Reporting Limi		s - Sp	ike Recovery outs	ide accepted re-	covery limits		B - Analyte detecte	ed in the assoc	iated Method	Blank

J - Analyte detected below quantitation limits

. .

Ì,

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

1 of 1

KENDIKED: LES(NO)	SPECIAL CERTIFICATION	CLIENT DISCOUNT:	DUE DATE: 7/29		TAT: STANDARD RUSH!!	OC REQUIRED. MS MSD	OC LEVEL STD.) IV	PROJ. NAME: CPLS	PROJECT #: 401045	PROJECT INFORMATION				-07	-06-	-05	-04-	-03	-02	901045-01	SAMPLE ID	-	Pinnacle Laboratories, I 2709-D Pan American F Albuquerque, New Mexi (505) 344-3777 Fax (505) 344-4413	Network Floject Ma	Pinnacle Laborati
			COMMENTS:			BLANK							4						113	19	DATE		nc, reewa co 871	nager:	ories, lr
					LAB NUN	Received	Received	Chain of	Total Nur				1707	ISAG	1423	1423	1255	1157	1030	405	TIME		07 07	NIMD	1C.
					MBER:	Good Conc	Intact?	Custody Sea	nber of Con	SAMPLE RE			4							Æ	MATRIX			eriy D. Mci	
						l./Cold		als	tainers	CEIPT											LAB ID			Veill	nterla
																				[Meta	ils (8) RCRA			b CI
		- <u>-</u>	100	L	-	6			<u> </u>				-							<u> </u>	RCR	A TCLP METALS	; 	4	nair
			EQU	BARF	V. CR	Ĩ	ĮË.	ORT	PENS	SAMF		 _	-							<u> </u>	Meta	Is-13 PP List	·	4	0
			IO(A	ING	EP.	NEW	9	Ā	ACO	JLES						>/					Meta	Is-TAL		4	C.
				뭉		JER		0.E	۶	SEN		 _	시	N	X	X	Х	X	X	ĮΧ	<u>Ca</u>	, Cr. Hy	<u> </u>	-	JSto
						SEY		SL-0	STL-I	TTO		 \perp	\dashv								1100			$\frac{1}{2}$	bdy
\vdash		-	–	[<u> </u>	R	-		` -	 +									100	Chamistra .		{	
0		-	<u>s</u>			5	20	Ň	<u>s</u>	77	╞	 +	-								Gen		<u> </u>		
ompan	inted I	þ	pyatur	ECE	innac	ra	pted		gnatur	ELI	ŀ	 +	-												
	Varne;	R.	e:	IVE	le La	hcl	Vame:	na	.e.	Í S C		 	4										18 (8260)	ANA	
		De.		AB C	borat	Re	•	R	,	ISHE	╞	 +-								<u> </u>	Volau		15 (0200)	SAT	Dat
		Ø			ories	6	ł	Ž.	\geq	D B	┝	 +-	+		-						600		···	IS R	, ,
	7	F			Inc.	ИИ	, D	M			$\left \right $	 	\rightarrow								DEST		8/8080)	EO	-+-
	é	(E	· ·		1 0		<i>v</i>	ne:	÷	┢	 									8270	BY CC/MS		IES 1	5
	à	3	;			115		011			╞	 +	-	-							DNA	(8310)			Pa
	<u>مر</u>	+	ŝ	R	o O	-2	Pri	0	S	7	┢	 ╢	\rightarrow	\rightarrow							8240		<u></u>		je j
mpany	nted 7		pnature	ECE	ompan		nted N		pnaturi		-	 ╋	+								Herbi	cides (615/8150)	-		
	lame;		e:	IVE	~		lame:			ğ	┝	 ┢	\rightarrow								Base/N	Veutral Acid Compour	nds GC/MS		of
				А С						SHE	╞	 ╉	+								(625/8)	<u>270)</u> JII INA			1
										밀	┢	 +	+		-				-+		RADI	UM 226+228			9
	Da		<u>_</u>					:	ਵ ∥		\vdash	 +	+	+				-+			Gross	Alpha/Beta			90
	le:		ñ.			:	n,	1	ē		┢	 +	+					-+			TO-14				7 (
				N						N	F	 +-	+		-+						NUMBE	R OF CONTAINERS) 5 C

.-

•

·

-

	PLE	AS	ΕF	ILL	. TI	HIS	FC	RN	/ 11	1 C	0	ИP	LEI	ΓEL	.Y.		S	HA	DE	D	AR	EAS	S ARE FOR LAB USE ONLY.	Ann
1/5/98 AEN Inc.: American Enviro		RECEIVED INTACT	CUSTODY SEALS	NO. CONTAINERS	SAMPLE RECEI	SHIPPED VIA: FRUX -X	PO. NO .: NA	PROJ. NAME: CHACO PU	PROJ NO .: NA	PROJECT INFORM/		Luhill 32 - 1	AR COLO	20000	CI 2000	960311	990310	940 309	940 308	99030T	905044	SAMPLE ID	PROJECT MANAGER: COMPANY: EL ADDRESS: 7 PHONE: 6 FAX: 6 BILL TO: 6 COMPANY: 6 ADDRESS: 6 COMPANY: 6 COMPA	erican Environn
onmental Network (I	1621	YOS	(Y) N/NA	8	T	0	3	nt mu c	(P	ATION			t citt	11/2 A	1010	5/12	7/13/	7/13/0	7/13/	2/1/15	5/15/L	DATE	Archn La Pase Fi 20 W 205) SP	iental Ne
NM), Inc. • 2709-D P	to Ice	- \				OMMENTS: FIX	ETHANOL PRESERV	ERTIFICATION REQ	1USH) []24hr []	PRIOR AUTHO			N -70/1 L			4 1172	49 J423	19 12.55	19 1157	19 /030	19 1905 W	TIME MA	nbdin eld Serli NAVAJI 6702/ A 1-2261 1-2261 1-2261	twork (N
an American Freewa						(ED FEE ()	VATION (UIRED: { INM	48hr }72hr [RIZATION IS RI			MAR UD	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>			66	04	1 03	1 02	10 m	NTRIX LAB I.D.	in smo	M), Inc.
av. NF • Alhuquerqu								I ISDWA []	11 WEEK	EQUIRED FOR										·		Pet (M (M 802	troleum Hydrocarbons (418.1) TRPH OD.8015) Diesel/Direct Inject 8015) Gas/Purge & Trap 21 (BTEX)/8015 (Gasoline)	CHAI
e New Mexico 87								OTHER	(NORI)	RUSH PROJ												802 802 802	21 (BTEX)	NOFC
107 • 15051 344-37	Compa	- 111100	Printed	Signatu	REC	Compa	CI.	Printed A	AL) IN Signatu	ECTS REL						-+						802 504	21 (CUST) 4.1 EDB / DBCP / Organics	USTOD
77 . Eav /5051 24		Multic.	A MARK	Jre: Ti	EIVED BY	Dern Fish	hh Lambd	mychild		JNQUISHED BY												826 826 826	30 (TCL) Volatile Organics NAT 30 (Full) Volatile Organics SO (CUST) Volatile Organics 30 (Landfill) Volatile Organics SO (Landfill) Volatile Organics	Y AEN
C+77-1		ā		ne:		l Solling	in 7/14/99	L. 1030														Pes Her Base Poly	ticides /PCB (608/8081) bicides (615/8151) e/Neutral/Acid Compounds GC/MS (625/8270) ynuclear Aromatics (610/8310)	(NM) Accessi
	American Envir	MUMCIAL	Alluncuru	Signature:	BECEIVED	Company	Printed Name:		Signature:	RELINQUISHI												Gen	eral Chemistry:	ion #: ///
	omental Network ()	Immu 7 1	1 mm/20	1: (LMD)		• • •	Dale.		Time.	ED BY:			×	×	×		~ >		× :	×		Targ RCR RCR Meta	A Metals (8) A Metals by TCLP (Method 1311) Als: CA CC Ha	10 A.Z
	VM), Inc.	Ë		Ň	,									-					-		-	NUMI	BER OF CONTAINERS	

עוס ו אושט ו ועוע: White - AEN, Canary - Originator

October 13, 1999

Semi-Annual ANALYTICAL REPORT

Chaco Plant

Monitor Well #1, 8 - Semi Annual Monitor Well #9, #10 - Quarterly Lab Sample #'s 990388 to 990392 Sampled 9/21/99 Sampled by Dennis Bird

REMARKS:

These samples represent the second round 1999 semi-annual (MW#1 and #8) and quarterly (MW#9 and #10) results for these four wells. The New Mexico WQCC limit for Benzene (10 PPB) was exceeded in MW#10. MW-9 and 10 were installed on July 24, 1997. They are being monitored quarterly for BTEX components. Product removal was initiated on MW#10 on October 15, 1998 using a PetroTrap brand passive skimmer. Since this time, 1,500 milliliters of product have been removed from this well.

Responsibility for sampling these monitor wells in the future will be contracted. All analytical work will be contracted and the Plant will be responsible for the invoices. Scott Pope is coordinating the effort to contract the sampling. I will continue to coordinate the analytical outsourcing.

Distribution:

Sandra Miller - W/O Attachments Scott Pope - W/Attachments Mike Hansen/Don Helsley - W/Attachments Results File

Attachments

	so Services			Well Dev	elopme	ent and Pu	ırging Dat	a				
Site Name_C	HACO PUT	ANT		-		Development Purging	Well Nu Meter C	umber	1-M4			
Development 2 to 5 Ci 2 to 5 Ci Stabiliza Other Pump Pum	Criteria ssing Volumes of Water R tion of Indicator Paramete evelopment al Bailer Double Ch sible Double Ch stainless-s tic Stainless-s	Removel srs eck Valve steel Kemmerer	Water Vo Initial Depth of Initial Depth to Height of Wate Diameter (inch Item Well Casing Gravel Pack Drilling Fluids Total	Iume Calc Well (feet) 25 Water (feet) 25 Noten 10 Wel Water Volum Cubic Feet	ulation 7.75 (feet) 6.1 Gallons Gallons Gallons	SC Gallons to t Removed	g	Nater I Nater I	PH Meter PD Montion Conductivit Temperatu Other D	y Meter 2. CHEM	ners kit	
Date Time 9-21-99 1101 9-21-99 1124	Pump Bailer (g	Rate Depth Jal/min) (feet)	Depth (feet)	Remove Increment	ed (gal) Cumulative 5.0	Removed (gallo Increment Cumu	1900 CC ative /5.0 147/ 140/	рн 7.04 7.15	µтнокт 1826 1875	Oxygen mg/L	Comments	
9.21-99 //38				2.0	12.0		143	24/	1875	2.0		
Comments Developer's Signature	denna	v Bied				ate 9-2/-9	79 Reviewer	- A	1	le Da	ate (0/13/94	

Ite Name Conde Metre Code Metre Code Ite Name Sas 5 cany vuene at Vater Ferrora Netter Code Metre Code Ite Name Sas 5 cany vuene at Vater Ferrora Netter Code Metre Code Ite Name Sas 5 cany vuene at Vater Ferrora Netter Code Metre Code Ite Sam Sas 5 cany vuene at Vater Ferrora Netter Code Metre Code Ite Sam Sas 5 cany vuene at Vater Ferrora Netter Volume Calculation Instruments Ite Sam Sas 5 cany vuene at Vater Ferrora Netter Volume Calculation Instruments Ite Sam Sam Sam Netter Volume Vater Ferrora Netter Volume Vater Volume Ite Sam Ite Name Sam Sam Netter Volume Vater Volume Netter Volume Vater Volume Ite Name Ite Name Sam Sam Netter Volume Vater Volume Netter Volume Vater Volume Ite Name Ite Name Netter Volume Netter Volume Netter Volume Netter Volume Ite Name Ite Name Netter Volume Netter Volume Netter Volume Netter Volume Ite Name Ite Name Netter Volume Netter Volume Netter Volume Netter Volume Ite Name Ite Name Neter Volume Netter Volume Netter	Site Name CHACO Mumber Well Number Wumber Wu	Site Name CHACO Molt Number Wolt Number Site Name CHACO Molt Molt Number Molt Number Development Criteria State Volume Calculation Matter Code Matter Code Site State Volume Armena State Volume Calculation Instruments Matter Code Matter Code Site State Volume Armena State Volume Calculation Instruments Instruments Site State Volume Armena State Volume Calculation Instruments Instruments Site State Volume Armena State Volume Calculation Instruments Instruments Site State Volume Armena State Volume Calculation Instruments Instruments Site State Volume Armena State Volume Calculation Instruments Instruments Matter State Dout Origina State Volume Armena Instruments Site State Dout Origina Instruments Instruments Dout Origina Instruments Instruments Instruments Dout Origina Instruments Instruments Instruments<		D SERVICE	Ŋ		Well Dev	elopm	ent and	l Purgir	ig Data	đ				
evelopment Criteria State Volume Calculation Mater Volume Calculation Mater Volume Calculation	Borelopment Criteria Image: second	Borcelopment Criteria Instruments Borcelopment Criteria Sale Scape Volume d'Value et Value Remonel Sale Scape Volume d'Value et Value Remonel Data Matr Volume Caluation Sale Scape Volume d'Value et Value Remonel Data Sale Scape Volume d'Value et Value Sale Scape Volume d'Value Remonel Data Matr Volume Caluation Sale Scape Volume d'Value et Value Data Data Natur Volume Caluation Natur Volume Caluation Caluation Data Data Sale Scape Volume Caluation Natur Volume Caluation Caluation Data Data Sale Scape Volume Caluation Natur Volume Caluation Caluation Data Data Sale Scape Volume Caluation Natur Caluation Caluation Data Data Natur Calue Remonel Caluation Natur Calue Remonel Caluation Natur Calue Remonel Caluation Natur Calue Remonel Caluation Caluation Data Data Data Data Nature Calue Remonel Calue Remonel Calue Remonel Caluation Nature Calue Remonel Calue Remonel Calue Remonel Caluation Nature Calue Remonel Calue Remonel Calue Remonel Caluation Nature Calue Remonel Calue R	Site Name	sHACO ,	DUANT		-		Developmeni Purging	2 6	Vell Nur Aeter Co	nber	MW-			
Summersion Fersialit: Statiless-steet Kemmer Statiless-steet Kemmer <t< td=""><td>Summeria Summeria Summeria Mater Disposal Image Fuels Samese sete formmere Read Read Read Image Fuels Samese sete formmere Grand Rade Read Image Fuels Samese sete formmere Grand Rade Read Image Fuels Samese sete formmere Grand Rade Read Image Fuels One Trae Mater Disposal Mater Disposal Addres Denting Fuels Removed (galins) Removed (galins) Sch Rade Addres Denting (each) Removed (galins) Sch Rade Denting (galins) Sch Rade Addres Denting (each) Removed (galins) Sch Rade Denting (galins) Sch Rade Denting (galins) Sch Rade Addres Denting (each) Removed (galins) Sch Rade Denting (galins) Sch Rade Denting (galins) Sch Rade Addres Denting Sch Rade Denting (galins) Sch Rade Denting (galins) Sch Rade Denting (galins) Sch Rade Addres Denting Read Sch Rade Denting (galins) Sch Rade Denting (galins) Sch Rade Denting (galins) Sch Rade Addres Dentin <td< td=""><td>Image: Submetrie Submetrie Duble Chock Value Vel Casicy ZZ Z/L Value Value Image: Persistic Samese-steel Kommerc Samises-steel Kommerc Samises-steel Kommerc Vel Casicy ZZ Z/L Vel Casicy Vel Casicy<!--</td--><td>Jevelopment Stabiliz Stabiliz Other Aethods of D Centrific</td><td>Criteria Casing Volumes of Wa ation of Indicator Parar ation of Indicator Parar ation of Indicator Parar ation of Indicator Parar baller ugal</td><td>ter Removel meters Valve</td><td>Water Vo Initial Depth of Initial Depth to Height of Water Diameter (Inche</td><td>Nell (feet) 2 Mater (feet) 2 Mater (feet) 2 Noter Volum UMater Volum</td><td>ulation 287 (feet) ZO Gravel Pa Gallons</td><td>ck Banton Banton</td><td></td><td></td><td>Instrum ⊠⊠⊠⊠⊠</td><td>IENTS PH Meter DO Monitor Conductivi Temperatu Other</td><td>ty Meter re Meter</td><td>EMETS KIT</td></td></td<></td></t<>	Summeria Summeria Summeria Mater Disposal Image Fuels Samese sete formmere Read Read Read Image Fuels Samese sete formmere Grand Rade Read Image Fuels Samese sete formmere Grand Rade Read Image Fuels Samese sete formmere Grand Rade Read Image Fuels One Trae Mater Disposal Mater Disposal Addres Denting Fuels Removed (galins) Removed (galins) Sch Rade Addres Denting (each) Removed (galins) Sch Rade Denting (galins) Sch Rade Addres Denting (each) Removed (galins) Sch Rade Denting (galins) Sch Rade Denting (galins) Sch Rade Addres Denting (each) Removed (galins) Sch Rade Denting (galins) Sch Rade Denting (galins) Sch Rade Addres Denting Sch Rade Denting (galins) Sch Rade Denting (galins) Sch Rade Denting (galins) Sch Rade Addres Denting Read Sch Rade Denting (galins) Sch Rade Denting (galins) Sch Rade Denting (galins) Sch Rade Addres Dentin <td< td=""><td>Image: Submetrie Submetrie Duble Chock Value Vel Casicy ZZ Z/L Value Value Image: Persistic Samese-steel Kommerc Samises-steel Kommerc Samises-steel Kommerc Vel Casicy ZZ Z/L Vel Casicy Vel Casicy<!--</td--><td>Jevelopment Stabiliz Stabiliz Other Aethods of D Centrific</td><td>Criteria Casing Volumes of Wa ation of Indicator Parar ation of Indicator Parar ation of Indicator Parar ation of Indicator Parar baller ugal</td><td>ter Removel meters Valve</td><td>Water Vo Initial Depth of Initial Depth to Height of Water Diameter (Inche</td><td>Nell (feet) 2 Mater (feet) 2 Mater (feet) 2 Noter Volum UMater Volum</td><td>ulation 287 (feet) ZO Gravel Pa Gallons</td><td>ck Banton Banton</td><td></td><td></td><td>Instrum ⊠⊠⊠⊠⊠</td><td>IENTS PH Meter DO Monitor Conductivi Temperatu Other</td><td>ty Meter re Meter</td><td>EMETS KIT</td></td></td<>	Image: Submetrie Submetrie Duble Chock Value Vel Casicy ZZ Z/L Value Value Image: Persistic Samese-steel Kommerc Samises-steel Kommerc Samises-steel Kommerc Vel Casicy ZZ Z/L Vel Casicy Vel Casicy </td <td>Jevelopment Stabiliz Stabiliz Other Aethods of D Centrific</td> <td>Criteria Casing Volumes of Wa ation of Indicator Parar ation of Indicator Parar ation of Indicator Parar ation of Indicator Parar baller ugal</td> <td>ter Removel meters Valve</td> <td>Water Vo Initial Depth of Initial Depth to Height of Water Diameter (Inche</td> <td>Nell (feet) 2 Mater (feet) 2 Mater (feet) 2 Noter Volum UMater Volum</td> <td>ulation 287 (feet) ZO Gravel Pa Gallons</td> <td>ck Banton Banton</td> <td></td> <td></td> <td>Instrum ⊠⊠⊠⊠⊠</td> <td>IENTS PH Meter DO Monitor Conductivi Temperatu Other</td> <td>ty Meter re Meter</td> <td>EMETS KIT</td>	Jevelopment Stabiliz Stabiliz Other Aethods of D Centrific	Criteria Casing Volumes of Wa ation of Indicator Parar ation of Indicator Parar ation of Indicator Parar ation of Indicator Parar baller ugal	ter Removel meters Valve	Water Vo Initial Depth of Initial Depth to Height of Water Diameter (Inche	Nell (feet) 2 Mater (feet) 2 Mater (feet) 2 Noter Volum UMater Volum	ulation 287 (feet) ZO Gravel Pa Gallons	ck Banton Banton			Instrum ⊠⊠⊠⊠⊠	IENTS PH Meter DO Monitor Conductivi Temperatu Other	ty Meter re Meter	EMETS KIT	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Subme	rsible Double	: Check Valve ss-steel Kemmerer	Well Casing Gravel Pack		7.2	31.	7		Water I	Disposal	APA7	de	
dater Removal DataDateTimeDevelopmentRemovalInstreEnding WaterWater VolumeFronduct VolumeTemperatureConductivityDissolvelDateTimeDevelopmentRemoved (gallons)CPNPNPNPN $2/2$ P/15/DevelopmentRemoved (gallons)CPNPNPN $2/2$ P/15/DevelopmentRemoved (gallons)CPNPNPN $2/2$ P/15/DevelopmentPNPNPNPNPN $2/2$ P/15/DevelopmentPNPNPNPNPN $2/2$ P/15/DPNPNPNPNPN $2/2$ P/15/PPNPNPNPNPN $2/2$ P/15/PPNPNPNPNPN $2/2$ P/15/PPNPNPNPNPN $2/2$ P/15/PPNPNPNPNPN $2/2$ P/12/PPPPNPNPN $2/2$ P/12/PPPPPP $2/2$ P/12/PPPPPP $2/2$ PPPPPPP $2/2$ PPPPPPP $2/2$ PPPPPPP $2/2$ PPPPPPP<	date: Time Time Forduct Volume Forduct Volume <th col<="" td=""><td>date Temoval Data Date The Development Removal make Ending Water Volume Development Removal make Ending Water Volume Development Removal make Ending Water Volume Development Removal (gal) Date The Development Removal make Ending Water Volume Development Removal (gal) The Method Removal Make Temoval (gal) Forductively Removal (gal) Conductively Dissolved $2J-PP$ //5P <math>Development Removal (gal) Removal (gal) Removal (gal) <math>Conductively (gal) <math>Conductively (gal) <math>Conductively (gal) <math>Conductively (gal) <math>Conductively (gal) $Conductiv$</math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></td><td>Other</td><td></td><td></td><td>Drilling Fluids Total</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th>	<td>date Temoval Data Date The Development Removal make Ending Water Volume Development Removal make Ending Water Volume Development Removal make Ending Water Volume Development Removal (gal) Date The Development Removal make Ending Water Volume Development Removal (gal) The Method Removal Make Temoval (gal) Forductively Removal (gal) Conductively Dissolved $2J-PP$ //5P <math>Development Removal (gal) Removal (gal) Removal (gal) <math>Conductively (gal) <math>Conductively (gal) <math>Conductively (gal) <math>Conductively (gal) <math>Conductively (gal) $Conductiv$</math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></math></td> <td>Other</td> <td></td> <td></td> <td>Drilling Fluids Total</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	date Temoval Data Date The Development Removal make Ending Water Volume Development Removal make Ending Water Volume Development Removal make Ending Water Volume Development Removal (gal) Date The Development Removal make Ending Water Volume Development Removal (gal) The Method Removal Make Temoval (gal) Forductively Removal (gal) Conductively Dissolved $2J-PP$ //5P $Development Removal (gal) Removal (gal) Removal (gal) Conductively (gal) Conductively (gal) Conductively (gal) Conductively (gal) Conductively (gal) Conductiv$	Other			Drilling Fluids Total									
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Date Time Development Removal Indiate Fould Vater Volume Fonduct Volume Fonduct Volume Fonductivity Dissolved Conductivity	Date Time Development Removal Water Volume Product Volume Temperature Conductivity Dissolved 24-59 V15/ Pump Balter Depth Central from 0xgen Conductivity Dissolved 24-59 V15/ Pump Balter Depth Removal (gal) Removal (gallons) 0xgen Conductivity Dissolved 24-59 V15/ Pump Balter Cumulative ////////////////////////////////////	Vater Remov	ral Data]						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	21-99 /151 1 1 2 2 2 2 1 2 2 2 2 1 2 2 2 2 1 2	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Date Time	Development Method Pump [Bailer	Removal Intake Rate Depth (gal/min) (feet)	Ending Water Depth (feet)	Water Vo Remove	olume d (gal) Cumutative	Product V Removed ((olume 7 gallons)	emperature °C	Æ	Conductivity µmho/cm	Dissolved Oxygen	Comments	
21-19 158 5.0 50 50 124 208 21-19 1214 5.0 100 128 233 2070 21-19 1214 5.0 150 128 237 2070 21-19 1214 5.0 150 128 237 2070 21-19 1229 5.0 150 128 237 2070 21-19 1229 127 137 2170 35	21-99 / 158 122 20 50 128 123 209 128 123 209 128 123 2090 128 123 2090 128 123 2090 128 123 2090 128 123 2090 128 123 2090 128 123 2090 128 129 1229 1229 1229 1229 1229 1229 1	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	-21-99 /15/								18.4	739	2010			
-21-79 (205 -21-79 (214 -21-79 (214 -21-79 (229 -21-79 (229 -21-79 -2	-21-79 1205 -21-79 1214 -21-79 1221 -21-79 1229 -21-79 1229 -21-79 1229 -21-79 1229 -21-79 1229 -21-79 1229 -21-79 1229 -21-79 227 -27-2 27/2 257 -27-2 27/2 257 -27-2 27/2 355 -27-2 27/2 355 -27-2 27/2 357 -27-2 27/2 257 -27-2 27/2 27/2 257 -27-2 27/2 27/2 27/2 257 -27-2 27/2 27/2 27/2 27/2 27/2 27/2 27/2	21-19 120 1 128 133 2010 128 133 2010 128 139 129 120 129 120 120 120 120 120 120 120 120 120 120	-2/-99 1158				50	5.0			18:1	7.24	2060			
-17.1 (21) -21-19 (22) -21-19 (22) -21-19 (22) -21-19 (22) -21-19 (22) -21-19 (22) -21-19 (22) -22 (25) -27	21-99 122/ 21-99 122/ 21-99 1229 50 350 350 357 2170 355 21.99 120 355 21.99 2170 355 21.99 21.70 355 21.99 21.70 355 21.90 21.90 21.70 21	$\frac{21-79}{21-79} \frac{1221}{1229} + \frac{50}{50} \frac{50}{50} \frac{350}{50} + \frac{12}{50} \frac{1237}{2170} \frac{2170}{355} + \frac{12}{50} \frac{2170}{355} + \frac{12}{50} \frac{2170}{355} + \frac{12}{50} \frac{2170}{555} + \frac{12}{50} + \frac{12}$	-21-79 1205		_		50	10.0			128	7.33	2090			
-1/1 / (ee/ -2/-9/1229 - 2/2 -	21-19 (22) -21-19 (22) -21-19 (22) -21-19 (22) -21 (23) 21/10 35 -25 (5) (23) 21/10 35 -25 (5) (23) 21/10 35 -25 (5) (23) 21/10 35 -25 (23) 21/10 35 -27 (23	$\frac{21-7}{21}\frac{ 60 }{229}$ $\frac{21-79}{212}\frac{ 22 }{212}\frac{ 21 }{212}\frac{ 21 }{212}\frac{ 21 }{212}\frac{ 21 }{212}\frac{ 21 }{212}\frac{ 22 }{212}\frac{ 21 }{212}\frac{ 22 }{212}\frac$	4/21 4-10-16				2.0	15.0			17.8	7.38	2030			
1 1 <td>Three And And<!--</td--><td>Veloper's Signature Demonstration of the Standing of the Stand</td><td>-21-99 1229</td><td></td><td></td><td></td><td>2.2</td><td>20,0</td><td></td><td></td><td>121</td><td>7.8.2</td><td>2170</td><td>1</td><td></td></td>	Three And And </td <td>Veloper's Signature Demonstration of the Standing of the Stand</td> <td>-21-99 1229</td> <td></td> <td></td> <td></td> <td>2.2</td> <td>20,0</td> <td></td> <td></td> <td>121</td> <td>7.8.2</td> <td>2170</td> <td>1</td> <td></td>	Veloper's Signature Demonstration of the Standing of the Stand	-21-99 1229				2.2	20,0			121	7.8.2	2170	1		
		ments					2	2.0			101	C47	2110	3,0		
	I Privilia Rind	ments														
omments	IPhrain Rind an	ments														
	Phan in Rind as an an a star	eveloper's Signature LEMM is Right Ling (10/2 b)	omments													

Site Name CHACO DMM Well Number Well Number Site Name CHACO MM Meter Code Meter Code Site Name Site Name Well Number Meter Code Meter Code Site Name Site Name Well Number Meter Code Meter Code Site Name Site Name Well Number Meter Code Meter Code Site Name Site Name Meter Code Meter Code Meter Code Site Name Devolopment Meter Code Meter Code Meter Code Site Name Devolopment Meter Code Meter Code Meter Code Site Name Devolopment Meter Code Meter Code Meter Code Site Name Devolopment Meter Code Meter Code Meter Code Site Name Devolopment Meter Code Meter Code Meter Code Site Name Devolopment Meter Code Meter Code Meter Code Site Name Devolopment Meter Code Meter Code Meter Code Site Name Devolopment Meter Code Meter Code Meter Code Site Name Devolopment Meter Code Meter Code Meter Code Dote Devolopment		so Service	S		Well Dev	elopme	ent and	Purgin	g Data			,	
Development Citteria Development Citteria Statistication of industry Farmentia Substantian of industry Farmenia Substantian of industry Farmenia Substantiantian of industry Farmenia Substantiantiantiantiantiantiantiantiantiant	Site Name_C	HACO Du	GMT		-		Development Purging	3 2	ell Numb eter Codé	er MM	6-1		
Date Time Development Removal Intake Fording Water Vider Vider Development Removal Galia Development Removal Galia Product Volume Product Product <td>Development</td> <td>Criteria Ssing Volumes of Wate tion of Indicator Param evelopment gal X Bottom sible Double ic Stainles</td> <td>er Removel heters Valve Check Valve ss-steel Kemmerer</td> <td>Water Vo Initial Depth of Initial Depth to Height of Wate Diameter (inch Item Welt Casing Gravel Pack Drilling Fluids Total</td> <td>Lume Calc Well (feet) A Water (feet) A Water Volum Cubic Feet</td> <td>Ulation (feet) (feet) (feet) Gallons Gallons</td> <td>Remov</td> <td></td> <td><u> </u></td> <td></td> <td>eter uctivity Meter perature Meter sal</td> <td>HENETS KI</td> <td>L</td>	Development	Criteria Ssing Volumes of Wate tion of Indicator Param evelopment gal X Bottom sible Double ic Stainles	er Removel heters Valve Check Valve ss-steel Kemmerer	Water Vo Initial Depth of Initial Depth to Height of Wate Diameter (inch Item Welt Casing Gravel Pack Drilling Fluids Total	Lume Calc Well (feet) A Water (feet) A Water Volum Cubic Feet	Ulation (feet) (feet) (feet) Gallons Gallons	Remov		<u> </u>		eter uctivity Meter perature Meter sal	HENETS KI	L
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Date	Development Method Pump Bailer	Removal Intake Rate Depth (gal/min) (feet)	e Ending Water h Depth) (feet)	Water V Remove Increment	olume d (gal) Cumulative	Product V Removed (olume Te gallons) umulative	emperature °C	рН Condu Hmh	ctivity Dissolv v/cm Oxyge mg/L	ed Comments	
7.21-99 1/472 1 1/27 1/27 1/52 1/27 9.21-99 1/430 5.2 1/20 1/27 1/52 1/29 9.21-99 1/430 5.2 2/20 1/27 1/52 1/29 9.21-99 1/430 1/27 1/52 1/29 1/29 1/29 9.21-99 1/430 1/27 1/29 1/29 1/29 1/29 9.21-99 1/27 1/27 1/29 1/29 1/29 1/29 9.21-90 1/27 1/27 1/29 1/29 1/2 9.21-90 1/21 1/21 1/20 1/2	9-21-99 1415				50	50			22	32 153			
9-21-19 1430 9-21-19 1437 9-21-19 1437 9-21-19 1437 152 12 9-21-99 1437 152 12 187 152 12 187 152 12 187 152 12 187 152 12 187 152 12 187 152 12 191 15 191 15 19	9-21-99 1422				5.0	10:01			(P.)	4/ 150	250		
7-01-77 197 7-01-77 197 1-01	9-21-99 1430				25	15.0			18.2	3/ 15	22		
Comments Developer's Signature Lennie Bie P. Den Gurdhi Date 10/13/99	10414-17-1				9.6	0.0				det 160	2		
comments Developer's Signature LEMMAN Die 921-99 Reviewer John July Date 10/13/99													
	Comments Developer's Signature	lenn	is Pres	2			ate 9-21	-99 Rev	iewer	plan (Kertha	. Date 10/13	69

	SERVICE	ទ			Well De	velopm	ent and	Purgin	ig Data	_				
Site Name_C	CHACO PU	ANT]			Development Purging	> 2	Vell Nun Neter Co	de <u>A</u>	H-NU-K			
Development	Criteria asing Volumes of Wat ation of Indicator Paran evelopment gal Bailer rsible Double tic Catainle:	er Removel neters Valve Check Valve ss-steel Kemn		Vater Vo itital Depth of eight of Wate isimeter (inche lameter (inche vell Casing vell Casing ravel Pack rilling Fluids otal	Uume Cal Wall (feet) A Water Volu Vater Volu	Culation Cave Pa Gallons Callons	AJ7 Gallons Remor	a to be			ents PH Meter Do Monitor Conductivit Temperatu Other 20 Disposal	y Meter re Meter OCH	EMETS KIT	
Date Time	Development Method Pump Bailer	Removal Rate (gal/min)	Intake Depth (feet)	inding Water Depth (feet)	Water Remov Increment	Volume /ed (gal) Cumulative	Product V Removed (Increment 0	olume 1 gallons) Sumulative	emperature °C	Ha	Conductivity µmho/cm	Dissolved Oxygen ma/L	Comments	
9-21-99 152	-	×	, ,	7 7	5.0	50			183	7.28	23350	3		$\overline{11}$
9-21-99 1522					5.0	10:01			17.6	7.36	3520			
9-21-99 154	10.00				25	0.020			17.2	747	3550	05		
Comments Developer's Signatur	Atro Trap a Conn	to C	leal 2	d sha	ier to	Sand	14 - 3 0 16 9-20	coul f	hadvet	recour	A Dest	- Polen	.Date 10/13/99	





Pinnacle Lab ID number October 11, 1999 909067



EL PASO FIELD SERVICES 770 WEST NAVAJO FARMINGTON, NM 87401

> CHACO MONITOR WELLS (none)

Attention: JOHN LAMBDIN

Project Name Project Number

On 9/23/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), 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.

EPA method 8021 was performed by Pinnacle Laboratories, Inc., Albuquerque, NM.

All other parameters were performed by Severn Trent (FL) Inc., Pensacola, FL.

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

H. Mitchell Rubenstein, Ph. D. General Manager

MR: jt

Enclosure





٤.

CLIENT	: EL PASO FIELD SERVICES	PINNACLE ID	: 909067
PROJECT #	: (none)	DATE RECEIVED	: 9/23/99
PROJECT NAME	: CHACO MONITOR WELLS	REPORT DATE	: 10/11/99
PIN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	990388 MW-1	AQUEOUS	9/21/99
02	990389 inw-8	AQUEOUS	9/21/99
03	990390 mw-9	AQUEOUS	9/21/99
04	990391 nw-10	AQUEOUS	9/21/99
05	990392 mw-10 Field Dyplicate	AQUEOUS	9/21/99
06	TRIP BLANK	AQUEOUS	9/21/99



GAS CHROMATOGRAPHY RESULTS

TEST	•	: EPA 8021 MO	DIFIED	•	·		
CLIENT		: EL PASO FIEL	D SERVICES			PINNACLE I.	D.: 909067
PROJECT #	<i>‡</i>	: (none)					
PROJECT		: CHACO MONIT	TOR WELLS				
SAMPLE				DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	990388		AQUEOUS	9/21/99	NA	9/24/99	1
02	990389		AQUEOUS	9/21/99	NA	9/24/99	1
<u>0</u> 3 .	990390		AQUEOUS	9/21/99	NA	9/24/99	1
PARAMETE	R	DET. LIMIT		UNITS	990388	990389	990390
BENZENE		0.5		UG/L	< 0.5	< 0.5	< 0.5
TOLUENE		0.5		UG/L	< 0.5	< 0.5	< 0.5
ETHYLBEN	ZENE	0.5		UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYL	ENES	0.5		UG/L	< 0.5	< 0.5	< 0.5
SURROGAT	ſE:						
TRIFLUORO	TOLUENE (%)				106	101	98
SURROGAT	E LIMITS	(69-117)					
					MW-1	mw - 8	mw-9

CHEMIST NOTES: N/A





GAS CHROMATOGRAPHY RESULTS

TEST		: EPA 8021 MO	DIFIED				
CLIENT		: EL PASO FIEL	D SERVICES			PINNACLE I.I	D.: 909067
PROJECT	¥	: (none)					
PROJECT	NAME	: CHACO MONI	FOR WELLS				
SAMPLE				DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
04	990391		AQUEOUS	9/21/99	NA	9/24/99	10
05	990392		AQUEOUS	9/21/99	NA	9/24/99	5
06	TRIP BLANK		AQUEOUS	9/21/99	NA	9/27/99	1
PARAMETE	ER	DET. LIMIT		UNITS	990391	990392	TRIP BLANK
BENZENE		0.5		UG/L	20	13	< 0.5
TOLUENE		0.5		UG/L	9.2	3.0	< 0.5
ETHYLBEN	IZENE	0.5		UG/L	41	27	< 0.5
TOTAL XYI	ENES	0.5		UG/L	105	75	< 0.5
SURROGA [*]	TE:						
TRIFLUORO	TOLUENE (%)				99	102	105
SURROGA [*]	TE LIMITS	(69 - 117)					
					MW-10	MW-10	
011514055	0770					Field	
CHEMIST N	IOTES:					Duplicate	
N/A						Í	



GAS CHROMATOGRAPHY RESULTS REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 909067
BLANK I. D.	: 092499	DATE EXTRACTED	: NA
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 9/24/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: CHACO MONITOR WELLS		
PARAMETER	UNITS		
BENZENE	UG/L	<0.5	
TOLUENE	UG/L	<0.5	
ETHYLBENZENE	UG/L	<0.5	
TOTAL XYLENES	UG/L	<0.5	
SURROGATE:			
TRIFLUOROTOLUENE (%)		103	
SURROGATE LIMITS	(69-117)		
CHEMIST NOTES:			
N/A			



GAS CHROMATOGRAPHY RESULTS REAGENT BLANK

TEST BLANK I. D. CLIENT	: EPA 8021 MODIFIED : 092799 : EL PASO FIELD SERVICES	PINNACLE I.D. DATE EXTRACTED DATE ANALYZED	: 909067 : NA : 9/27/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: CHACO MONITOR WELLS		
PARAMETER	UNITS		
BENZENE	UG/L	<0.5	
TOLUENE	UG/L	<0.5	
ETHYLBENZENE	UG/L	<0.5	
TOTAL XYLENES	UG/L	<0.5	
METHYL-t-BUTYL ETHER	UG/L	<2.5	
1,3,5-TRIMETHYLBENZENE	UG/L	<0.5	
1,2,4-TRIMETHYLBENZENE	UG/L	<0.5	
SURROGATE:		•	
TRIFLUOROTOLUENE (%)		105	
SURROGATE LIMITS	(69 - 117)		
CHEMIST NOTES:			
N/A			





GAS CHROMATOGRAPHY RESULTS REAGENT BLANK

TEST BLANK I. D. CLIENT PROJECT #	: EPA 8021 MODIFIED : 092999 : EL PASO FIELD SERVICES : (none)	PINNACLE I.D. DATE EXTRACTED DATE ANALYZED SAMPLE MATRIX	: 909067 : NA : 9/29/99 : AQUEOUS
PROJECT NAME	: CHACO MONITOR WELLS		
PARAMETER	UNITS		
BENZENE	UG/L	<0.5	
TOLUENE	UG/L	<0.5	
ETHYLBENZENE	UG/L	<0.5	
TOTAL XYLENES	UG/L	<0.5	
METHYL-t-BUTYL ETHER	UG/L	<2.5	
1,3,5-TRIMETHYLBENZENE	UG/L	<0.5	
1,2,4-TRIMETHYLBENZENE	UG/L	<0.5	
SURROGATE:			
TRIFLUOROTOLUENE (%)		116	
SURROGATE LIMITS	(69-117)		
CHEMIST NOTES:			
N/A			



GAS CHROMATOGRAPHY QUALITY CONTROL

MSMSD	
-------	--

TEST	: EPA 8021 M	ODIFIED							
MSMSD #	: 092999				PINNACLE	I.D.	:	909067	
CLIENT	: EL PASO FIE	ELD SERVIO	ES		DATE EXTR	RACTED	:	NA	
PROJECT #	: (none)				DATE ANAL	YZED	:	9/30/99	
PROJECT NAME	: CHACO MON	ITOR WEL	LS		SAMPLE M	ATRIX	:	AQUEOUS	
					UNITS		:	UG/L	
	SAMPLE	CONC	SPIKED	%	DUP	DUP		REC	RPD
PARAMETER	RESULT	SPIKE	SAMPLE	REC	SPIKE	% REC	RPD	LIMITS	LIMITS
BENZENE	<0.5	10.0	11.4	114	11.8	118	3	(80 - 120)	20
TOLUENE	<0.5	10.0	11.0	110	11.1	111	1	(80 - 120)	20
ETHYLBENZENE	<0.5	10.0	10.2	102	10.1	101	1	(80 - 120)	20
TOTAL XYLENES	<0.5	30.0	32.4	108	31.9	106	2	(80 - 120)	20
METHYL-t-BUTYL ETHER	<2.5	10.0	12.1	121	11.4	114	6	(70 - 133)	20

CHEMIST NOTES: N/A

(Spike Sample Result - Sample Result)

% Recovery =

----- X 100 Spike Concentration

(Sample Result - Duplicate Result)

----- X 100

RPD (Relative Percent Difference) =

Average Result



SIGNATURE PAGE

Severn Trent Laboratories 11 East Olive Road Pensacola FL 32514

Tel: (850) 474-1001 Fax: (850) 478-2671

Reviewed by:

N ΛΛ L Project Manager

Client:

PINNACLE LABORATORIES ALBUQUERQUE, NEW MEXICO

Project Name: EPFS Project Number: 909067 CHACO MONITOR WELLS Project Location: Accession Number: 909661

KIMBERLY D. MCNEILL Project Manager: N/S Sampled By:

Other Laboratory Locations:

149 Pangeway Road, North Bilerica MA 01862
16205 Park Row, Suite 110, Houston TX 77084
200 Monroe Tumpke, Monroe CT 06468
55 South Park Drive, Colchester VT 05446

315 Fullenton Avenue, Newburgh NY 12550
 Westfield Executive Park, 53 Southampton Road, Westfield MA 01085

628 Route 10, Whippany NY 07981
77 New Durham Road, Edison NJ 08817



SEVERN TRENT LABORATORIES, INC. – PENSACOLA, FLORIDA STATE CERTIFICATIONS

Alabama Department of Environmental Management, Laboratory ID No. 40150 (Drinking Water by Reciprocity with FL) Arizona Department of Health Services, Lab ID No. AZ0589 (Hazardous Waste & Wastewater) Arkansas Department of Pollution Control and Ecology, (No Laboratory ID No. assigned by state) (Environmental) State of California, Department of Health Services, Laboratory ID No. 2338 (Hazardous Waste and Wastewater) State of Connecticut, Department of Health Services, Connecticut Lab Approval No. PH-0697 (Drinking Water, Hazardous Waste and Wastewater) Delaware Health & Social Services, Division of Public Health, Laboratory ID No. FL094 (Drinking Water by Reciprocity with FL) Florida DOH Laboratory ID No. 81142 (Drinking Water), Laboratory ID No. E81010 (Hazardous Waste and Wastewater) Florida, Radioactive Materials License No. G0733-1 Foreign Soil Permit, Permit No. S-37599 Kansas Department of Health & Environment, Laboratory ID No. E10253 (Wastewater and Hazardous Waste) Commonwealth of Kentucky, Natural Resources and Environmental Protection Cabinet, Laboratory ID No. 90043 (Drinking Water) State of Louisiana, DHH, Office of Public Health Division of Laboratories, Laboratory ID No. 98-25 (Drinking Water) State of Maryland, DH&MH Laboratory ID No. 233 (Drinking Water by Reciprocity with Florida) Commonwealth of Massachusetts, DEP, Laboratory ID No. M-FL094 (Hazardous Waste and Wastewater) State of Michigan, Bureau of E&OccH (No Laboratory ID No. assigned by state) (Drinking Water by Reciprocity with Florida) New Hampshire DES, Laboratory ID No. 250598-A (Wastewater) State of New Jersey, Department of Environmental Protection & Energy, Laboratory ID No. 49006 (Wastewate and Hazardous Waster) New York State, Department of Health, Laboratory ID No. 11503 (Wastewater and Solids/Hazardous Waste) North Carolina Department of Environment, Health, & Natural Resources, Laboratory ID No. 314 (Hazardous Waste and Wastewater) North Dakota DH&Consol Labs, Laboratory ID No. R-108 (Hazardous Waste and Wastewater by Reciprocity with Florida) State of Oklahoma, Oklahoma Department of Environmental Quality, Laboratory ID No. 9810 (Hazardous Waste and Wastewater) Commonwealth of Pennsylvania, Department of Environmental Resources, Laboratory ID No. 68-467 (Drinking Water) South Carolina DH&EC, Laboratory ID No. 96026 (Wastewater by Reciprocity with FL and Solids/Hazardous Waste by Reciprocity with CA) Tennessee Department of Health & Environment, Laboratory ID No. 02907 (Drinking Water) Tennessee Division of Underground Storage Tanks Approved Laboratory Virginia Department of General Services, Laboratory ID No. 00008 (Drinking Water by Reciprocity with FL) State of Washington, Department of Ecology, Laboratory ID No. C282 (Hazardous Waste and Wastewater) West Virginia Division of Environmental Protection, Office of Water Resources, Laboratory ID No. 136 (Hazardous Waste and Wastewater by Reciprocity with FL)

American Industrial Hygiene Association (AIHA) Accredited Laboratory, Laboratory ID No. 9133

.

Analysis Report

.

Analysis: Group of Single Metals

.

Accession:909661Client:PINNACLE LABORATORIESProject Number:909067Project Name:EPFSProject Location:CHACO MONITOR WELLSDepartment:METALS

. SEVERN TRENT LABORATORIES

11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

[0) Page 1 Date 29-Sep-99

"FINAL REPORT FORMAT - SINGLE"

909661 Accession: PINNACLE LABORATORIES Client: 909067 Project Number: MW - 1Project Name: EPFS Project Location: CHACO MONITOR WELLS Tesť: Group of Single Metals WATER Matrix: QC Level: II 001 Sample Date/Time: 21-SEP-99 1246 Lab Id: Client Sample Id: 909067-01 Received Date: 24-SEP-99 Rpt Lmts: Q: Batch: Units: Results: Analyst: Parameters: MG/L MG/L MERCURY (245.1) CADMIUM (200.7) ND 0.0002 M2W093 CH 0.005 GSP ND CYW284 0.005 CHROMIUM (200.7) MG/L ND HYW284 GSP

Comments:

2

ļ

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

		"FINAL REPOP	SINGLE"	[0) Page 2 Date 29-Sep-99 NGLE"					
Accession: Client: Project Number: Project Name: Project Location: Test: Matrix: QC Level:	909661 PINNACLE LABORATORIES 909067 EPFS CHACO MONITOR WELLS Group of Single Metals WATER II				MW - 8				
Lab Id: Client Sample Id:	002 909067-0)2		Sample Receive	Date/Tin ed Date:	ne:	21-SEP-99 24-SEP-99	1246	
Parameters:		Units:	Results:	Rpt 1	Lmts:	Q:	Batch:	Analyst:	
MERCURY (245.1) CADMIUM (200.7) CHROMIUM (200.7)		MG/L MG/L MG/L	ND ND ND	0.000 0.009 0.009	02 5 5		M2W093 CYW284 HYW284	CH GSP GSP	

Comments:

•

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

909661 PINNACLE LABORATORIES Accession: Accession. Client: PINNACLE PINNACLE Project Number: 909067 Project Name: EPFS Project Location: CHACO MONITOR WELLS Pepartment: SEMI-VOLATILE FUELS
.

	"FINA	AL REPORT FOR	MAT - SINGLE	ŧŧ	[0) Page Date 05-0	1 ct-99
Accession: Client: Project Number: Project Location: Test: Analysis Method: Extraction Method: Matrix: QC Level:	909661 PINNACLE LABORA 909067 EPFS CHACO MONITOR WI POLYNUCLEAR ARO 8310/SW-846, 3rd 3510C/SW-846, 3rd 3510C/SW-846, 3rd	TORIES ELLS MATICS BY 831 d Ed, Sep 198 rd Ed, 3rd Up	0 6. date, Dec 19	96.	MW - 1	
Lab Id: Client Sample Id:	001 909067-01		Sample Da Received 1	te/Time: Date:	21-SEP-99 3 24-SEP-99	1246
Batch: PAW270 Blank: A	Dry Weight %:	N/A	Extraction Analysis	n Date: Date:	28-SEP-99 04-OCT-99	
Parameter:		Units:	Results:	Rpt Lm	ts: Q:	
ACENAPHTHENE ACENAPHTHYLENE ANTHRACENE BENZO (a) ANTHRACENE BENZO (a) PYRENE BENZO (b) FLUORANTHEI BENZO (c) FLUORANTHEI CHRYSENE DIBENZO (a, h) ANTHRAC FLUORANTHENE FLUORENE INDENO (1, 2, 3-cd) PYI NAPHTHALENE PYRENE 1-METHYLNAPHTHALENI 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 ND ND ND N	1 1 0.7 1 1 1 1 1 1 1 1 28-138		

Comments:

SEVERN TRENT LABORATORIES

11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

[0) Page 2 Date 05-Oct-99 "FINAL REPORT FORMAT - SINGLE" Accession: 909661 Client: PINNACLE LABORATORIES 909067 Project Number: Project Name: Project Location: EPFS mw - 8 CHACO MONITOR WELLS POLYNUCLEAR AROMATICS BY 8310 Test: Analysis Method: 8310/SW-846, 3rd Ed, Sep 1986. Extraction Method: 3510C/SW-846, 3rd Ed, 3rd Update, Dec 1996. Matrix: WATER QC Level: II Lab Id: 002 Sample Date/Time: 21-SEP-99 1246 909067-02 Received Date: 24-SEP-99 Client Sample Id: Batch: PAW270 Extraction Date: 28-SEP-99 Blank: A Dry Weight %: N/A Analysis Date: 04-OCT-99 Units: Results: Rpt Lmts: Q: Parameter: ACENAPHTHENE UG/L ND 1 UG/L ACENAPHTHYLENE ND 1 UG/L ND ANTHRACENE 1 BENZO(a) ANTHRACENE UG/L ND 1 BENZO (a) PYRENE BENZO (b) FLUORANTHENE UG/L 0.7 ND UG/L ND 1 BENZO (g, h, i) PERYLENE BENZO (k) FLUORANTHENE UG/L ND 1 UG/L ND 1 CHRYSENE UG/L ND 1 UG/L ND DIBENZO(a, h) ANTHRACENE 1 ND FLUORANTHENE UG/L 1 FLUORENE UG/L 2 1 ND UG/L 1 INDENO(1,2,3-cd) PYRENE UG/L ND 1 NAPHTHALENE UG/L UG/L PHENANTHRENE ND 1 ND 1 PYRENE **1-METHYLNAPHTHALENE** UG/L ND 1 2-METHYLNAPHTHALENE ND UG/L 1 %REC/SURR 88 28-138 2-CHLOROANTHRACENE ANALYST INITIALS SB

Comments:

{0) Page 3
Date 05-Oct-99

"Method Report Summary"

Accession Number Client: Project Number: Project Name: Project Location Test:	: 909661 PINNACLE LABORATORIES 909067 EPFS : CHACO MONITOR WELLS POLYNUCLEAR AROMATICS BY 8310		
Client Sample Id	: Parameter:	Unit:	Result:

909067-02

T

FLUORENE

UG/L 2



Severn Trent Laboratories, Inc. Pensacola, FL 32514 Tel: (850) 474-1001 Fax: (850) 478-2671

Data Qualifiers for Final Report

STL-Pensacola Inorganic/Organic and AFCEE Projects (under QAPP)

J4	(For positive results)	Temperature limits	exceeded ($\leq 2^{\circ}C \text{ or } \geq 6^{\circ}C$)			
J5	(TICs)	The reported value	is quantitated as a TIC; th	erefore, it is estimated		
J6	(For positive results)	LCS or Surrogate %	R is > upper control limit (L	JCL) or < lower control limit (LCL)		
J7	(For positive results)	The reported value i	s > the laboratory MDL and	< lowest calibration standards; therefore,		
	•	the quantitation is a	n estimation.			
J (AFCEE description)	The analyte was positively iden	ntified, the quantitatio	n is an estimation			
R1	(For nondetects)	Temperature limits	exceeded ($\leq 2^{\circ}C \text{ or } \geq 6^{\circ}C$)			
R2	Improper preservation, no pres	servative present in s	ample upon receipt			
R3	Improper preservation, incorrect	ct preservative prese	nt in sample upon receipt			
R4	Holding time exceeded					
R10	Holding time exceeded, non-re	portable for NDPES	compliance monitoring			
R5	Collection requirements not me	et, improper containe	r used for sample	9. 6		
R6	LCS or surrogate %R is < LCL	S or surrogate %R is < LCL and analyte is not detected or surrogate %R is < 10% for detects/nondetects				
R7	Internal standard area outside	temal standard area outside -50% to +100% of initial calibration midpoint standard.				
R8	Initial calibration or any calibration verification exceeds acceptance criteria.					
R9	Improper preservation, sample not filtered in the field.					
R (AFCEE description)	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria					
F	< laboratory or AFCEE RL and > laboratory MDL					
F (AFCEE description)	The analyte was positively identified but the associated numerical value is below the AFCEE or lab RL					
U2	< Laboratory MDL (value for result will be the MDL, never below the MDL)					
U (AFCEE description)	The analyte was analyzed for b	out not detected. The	e associated numerical value	e is at or below the MDL		
B (AFCEE description)	The analyte was found in the a	ssociated blank, as v	vell as in the sample			
81	Analyte was detected in the as	ssociated method bl	ank.			
0	Adjusted reporting limit due to	o sample matrix (dilu	tion prior to digestion and/o	or analysis)		
+	Elevated reporting limit due to	dilution into calibrat	ion range			
* (Metals & Wet Chem)	Elevated reporting limit due to	matrix interference	(dilution prior to digestion a	and/or analysis)		
** (Organics)	Compounds flagged are not w	rithin the five point in	itial calibration curve. The	y are searched for qualitatively or as TICs.		
#	Elevated reporting limit due to	insufficient sample	size			
D	Diluted out					
M	A matrix effect was present (s	ample was analyzed	twice to confirm or chrom	atogram had interfering peaks)		
S	Incorrect sample amount was	submitted to the lab	oratory for analysis			
Т	Second-column confirmation exceeded the SW-846 criteria of 40% RPD for this compound.					
E	Compound concentration exce	eeds the upper calib	ration range of the instrum	ent.		
W	Post-digestion spike for Fuma absorbance.	ice AA is out of contr	rol limits (85-115%), while	sample absorbance is less than 50% spike		
ND = Not Detected at or abov	re the STL-Pensacola reporting	limit (RL)	N/S = Not Submitted MDL = Laboratory Method	N/A = Not Applicable		
RL = Reporting Limit (AFCFF	RLs are listed in the AFCEE QA	PP)		·		
		•		•		

<u>Any time</u> a sample arrives at the laboratory improperly preserved (at improper pH or temperature) or after holding time has expired or prepared or analyzed after holding time, client must be notified in writing (i.e. case narrative)

Florida Projects Inorganic/Organic

Y1	Improper preservation, no preservative present in sample upon receipt
Y2	Improper preservation, incorrect preservative present in sample upon receipt
Y3	Improper preservation, sample temperature exceeded EPA temperature limits of 2-6°C upon receipt
Y (FL description)	The analysis was from an unpreserved or improperly preserved sample. Data may not be accurate
Q	Sample held beyond the accepted holding time
1	The reported value is < Laboratory RL and > laboratory MDL
U1	The reported value is \leq Laboratory MDL (value for sample result is reported as the MDL)
U (FL description)	Indicates the compound was analyzed for but not detected
Τ	The reported value is < Laboratory MDL (value shall not be used for statistical analysis)
V	The analyte was detected in both the sample and the associated method blank
J1	Surrogate recovery outside acceptance limits. Not enough sample available to reextract and/or reanalyze.
J2	The sample matrix interfered with the ability to make any accurate determinations
J3	The reported value failed to meet the established quality control criteria for either precision or accuracy
J (FL description)	Estimated value; not accurate

CLP and CLP-like Projects: Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers.

2

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: Group of Single Metals

Client:909661Project Number:909067Project Name:EPFSProject Location:CHACO MONITOR WELLSDepartment:METALS

. 2

.

ļ

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

[0) Page 1 Date 29-Sep-99

......

.....

Parameter: Batch Id: Blank Result: Anal. Method: Prep. Method: Analysis Date: Prep. Date:	MERCURY M2W093 <0.0002 245.1 245.1 28-SEP-99 28-SEP-99	"Metals (CADMIUM CYW284 <0.005 6010B 3010A 28-SEP-99 27-SEP-99	Quality Cont CHROMIUM HYW284 <0.005 6010B 3010A 28-SEP-99 27-SEP-99	rol	Report"
Sample Dup	lication				
Sample Dup: Rept Limit:	909635-2 <0.0002	909661-1 <0.005	909661-1 <0.005		
Sample Result: Dup Result: Sample RPD: Max RPD: Dry Weight%	0.0063 0.0062 2 20 N/A	0.50 0.50 0 20 N/A	1.0 1.0 20 N/A		
Matrix Spi	ke				
Sample Spiked: Rept Limit:	909635-2 <0.0002	909661-1 <0.005	909661-1 <0.005		
Sample Result: Spiked Result: Spike Added: % Recovery: % Rec Limits: Dry Weight%	0.0013 0.0063 0.0050 100 75-125 N/A	<0.005 0.50 0.5 100 75-125 N/A	<0.005 1.0 1.0 100 75-125 N/A		
ICV		<u> </u>			
ICV Result: True Result: % Recovery: % Rec Limits:	0.004 0.0040 100 90-110	0.51 0.5 102 90-110	1.0 1.0 100 90-110		
LCS					
LCS Result: True Result: % Recovery: % Rec Limits:	0.0046 0.0050 92 85-115	0.51 0.5 102 80-120	1.0 1.0 100 80-120		

[0] Page 2 Date 29-Sep-99

--- Data Qualifiers for Metals QC Report ----

N/A = NOT APPLICABLE.

N/S = NOT SUBMITTED. N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW THE REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY. N/D = NOT DETECTED AT OR ABOVE THE STL-PENSACOLA REPORTING LIMIT (RL).

- DISS. OR D = DISSOLVED
- T & D = TOTAL AND DISSOLVED

R = REACTIVE

T = TOTAL

G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X THE REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW STL REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL". Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY

BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.

- # = ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE. + = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
- * = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR TO ANALYSIS)
- @ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO DIGESTION)
- P = ANALYTICAL (POST DIGESTION) SPIKE.
- I = DUPLICATE INJECTION.
- & = AUTOMATED
- F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
- N/C+ = NOT CALCULABLE N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
- H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X STL REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE STL REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL". A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
- Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE STL REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
- NH= THE RELATIVE PERCENT DIFFERENCE (RPD) EXCEEDS THE STL CONTROL LIMIT
- NH= THE RELATIVE PERCENT DIFFERENCE (RPD) EXCEEDS THE SIL CONTROL LIMIT AND IS "OUT OF CONTROL; DUE TO A NON-HOMOGENEOUS SAMPLE MATRIX.
 J = (FLORIDA DEP 'J' FLAG) MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
 U = (FLORIDA DEP 'U' FLAG) THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
 S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

- M = A MATRIX EFFECT WAS PRESENT (SAMPLE WAS ANALYZED TWICE TO CONFIRM).
- SCN = SEE CASE NARRATIVE.

FROM QUALITY CONTROL REPORT: RPD= RELATIVE PERCENT DEVIATION. REPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

- NOTE: ALL RESULTS REPORTED UNDER 'SAMPLE DUPLICATION' ARE THE MS/MSD.
- NOTE : THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS RUN BASIS. (NOT ADJUSTED FOR DRY WEIGHT).

SW-846. 3rd Edition. EPA 600/4-79-020, Revised March 1983. NIOSH Manual of Analytical Methods, 4th Edition. Standard Methods For the Examination of Water and Wastewater, 18th Edition, 1992. Methods For the Determination of Metals in Environmental Samples - Supplement I, EPA 600/R-94-111, May 1994.

GSP =	GARY ST PERE	KN = KAREN NALL	
CH =	CHRIS HIGH	JL = JANET LECLEAR	MPE = MARTY EDWARDS

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession: Client: Project Number: Project Name: Project Location: Department:

909661 PINNACLE LABORATORIES 909067 EPFS CHACO MONITOR WELLS SEMI-VOLATILE FUELS I

Į.

[0) Page 1 Date 05-Oct-99

Title:	Water Blank	<u>y</u> c .		
Analysis Method:	8310/SW-846,	3rd Ed,	Sep 1986.	Dec 1996.
Extraction Method:	3510C/SW-846,	3rd Ed,	3rd Update,	

Blank	Id: A	Date	Analyzed:	04-OCT-99	Date Ex	tracted:	28-SEP-99	
Parame	ters:			Units:	Re	esults:	Reporting	Limits:
ACENAP ACENAP ANTHRA BENZO (BENZO (BENZO (BENZO (BENZO (CHRYSE DIBENZ FLUORA INDENO NAPHTH PHENAN PYRENE 1-METH 2-CHLOI 2-CHLOI ANALYS	HTHENE HTHYLEI CENE a) ANTHI a) PYREI b) FLUOI g, h, i) J k) FLUOI	VE RACENE VE RANTHEN: RANTHEN: ANTHRAC: CA) PYR: CHALENE RALENE RALENE RACENE	e 5 3 3NE 3NE	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	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1	
MINALIS.	1			TNTITAT	10 20			

Comments:

96

66 85

82

69-131

63-124 61-126

28-138

	[0]	Page	2	

9.6 6.6 9.3

Date 05-Oct-99

Title:	Water LCS		"QC Repo	ort"		Duce
Batch: Analysis Method: Extraction Method:	PAW270 8310/SW-846 3510C/SW-84	, 3rd Ed, 6, 3rd Ed	Sep 1980 , 3rd Up	6. date, Dec 1	1996.	
RS Date Analyzed:	04-OCT-99		RS Date	Extracted	: 28	-SEP-99
Parameters: ACENAPHTHYLENE BENZO(k)FLUORANTHEN	1E	Spike Added 12.0 10.0	Sample Conc <1 <1	RS Conc 6.4 7.9	RS %Rec 53 79	Rec Lmts 45-127 68-131

10.0

<1 <1

<1

PHENANTHRENE	10.0
PYRENE	11.0
Surrogates: 2-CHLOROANTHRACENE	

Comments:

CHRYSENE

İ

Notes:

NOLES: 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.

[0) Page 3 Date 05-Oct-99

		"QC Report"
Title:	Water Matrix	Spike/Matrix Spike Duplicate
Analysis Method: Extraction Method:	8310/SW-846, 3510C/SW-846,	3rd Ed, Sep 1986. 3rd Ed, 3rd Update, Dec 1996.

Dry Weight %: N/A Sample Spiked: 909661-1	MS Date . MSD Date	Analyzed: Analyzed	04-OCT- : 04-OCT-	99 99	MS Date MSD Date	Extra e Exti	acte racte	d: 22 ed: 22	8-SEP-99 8-SEP-99
Parameters: ACENAPHTHYLENE BENZO(k) FLUORANTHENE CHRYSENE PHENANTHRENE PYRENE	Spike Added 12.0 10.0 10.0 10.0 11.1	Sample Conc <1 <1 <1 <1 <1 <1	MS Conc 7.6 9.5 9.9 8.1 9.9	MS %Rec 63 95 99 81 89	MSD Conc 6.5 9.1 9.5 7.6 9.4	MSD %Rec 54 91 95 76 85	RPD 15 4 6 5	RPD Lmts 51 40 69 36 41	Rec Lmts 18-146 26-137 16-156 30-145 39-137
Surrogates: 2-CHLOROANTHRACENE				91		88			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. 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

[0) Page 4 Date 05-Oct-99

Common Notation for Organic Reporting

N/S = NOT SUBMITTEDN/A = NOT APPLICABLEUG = 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
ND = NOT DETECTED AT OR ABOVE THE STL-PENSACOLA REPORTING LIMIT (RL).</pre> E = EXCEED THE CALIBRATION CURVE; THEREFORE, RESULTS ARE ESTIMATED. SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD. ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS. RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES. RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION) STL/GC/FID STL GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID). STL/GC/FIX STL GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID). STL/GC/FPD STL GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE. STL/GC/PID STL GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID). STL/GC/TCD STL 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. **RSK 175** SAMPLE PREPARATION AND CALCULATIONS FOR DISSOLVED GAS ANALYSIS IN WATER SAMPLES USING A GC HEADSPACE EQUILIBRATION TECHNIQUE, RSK SOP-175, ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY, ÜSEPA, AUGUST 11, 1994. STL-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS . SW = STEVE WILHITE RP = ROB PEREZ RW = RITA WINGO = KENDALL SMITH KS LBL = LISA BIZZELL-LOWE WEM = WARREN MILBRANDT PLD = PAULA DOUGHTY

- SB = STEPHANIE BUBIEN
- AHT = AUBURN H. THOMPSON, JR.
- BT = BECKY TREMMEL HAH = HOLLIE HOFFMAN
- HC
- = HOLLY CHANCE

Severn Trent Laboratories of Florida PROJECT SAMPLE INSPECTION FORM

PRUJECT SAMPLE	INSPECTION FORM
Lab Accession #: 9091661	Date Received: 24-5-9-55
1. Was there a Chain of Custody? Yes No*	8. Were samples checked for preservative? (Check pH of all H20 requiring preservative (STL-PN SOP 917) except VOA vials that require zero
2. Was Chain of Custody properly Yes No*	9. Is there sufficient volume for Yes No ⁺ N/A analysis requested?
3. Were samples received cold? (Yes) No* N/A (Criteria: 2° - 6°C: STL-SOP 1055)	10. Were samples received within Holding Time? (REFER TO STL-SOP 1040)
 Were all samples properly (Yes) No* labeled and identified? Did samples require splitting? Yes* No Reg By: PM Client Other* 	11. Is Headspace visible > ¼" in Yes* No NA diameter in VOA vials?* If any headspace is evident, comment in out-of-control section.
 Were samples received in proper Yes No⁺ containers for analysis 	12. If sent, were matrix spike bottles Yes No* NA returned?
requested? 7. Were all sample containers received intact?	13. Was Project Manager notified of Yes No* (NHA) problems? (initials: LKM)
Airbill Number(s):	2493 Shipped By: UPS
Cooler Number(s): $Third S$	Shipping Charges:
Cooler Weight(s):	Cooler Temp(s) (°C): 5,5 CUL 10 (LIST THERMOMETER NUMBER(S) FOR VERIFICATION)
Out of Control Events and Inspection Comment,	s:
SAmples received packed on t	live ice who is temp blank,
Ing then is then birst one of	24/77
THID Doe Lifer Ambers livere Su	hmilled Rip 9190107-2 but
weren't listed on the coc. 49/2	4995
Avringe # 2 8310 per che	USE BACK OF PSIFFOR ADDITIONAL NOTES AND COMMENTS)
Inspected By: AM Date: 24-38-51	Logged By: The Date: 24-Sep-55
A Note all Out-of-Control and/or questionable events on Comment Section	of this form.

- Note who requested the splitting of samples on the Comment Section of this form.
- + All preservatives for the State of North Carolina, the State of New York, and other requested samples are to be recorded on the sheet provided to record pH results (STL-SOP 938).
- * According to EPA, %" of headspace is allowed in 40 ml vials requiring volatile analysis, however, STL makes it policy to record any headspace as outof-control (STL-SOP 938).

· ·	SPECIAL CERTIFICATION	CLIENT DISCOUNT:	DUE DATE: 1017 COMMENTS		TAT: (STANDARD RUSHII [LAB NUMBER:	QC REQUIRED MS MSD BLANK Received Good Cond./Cold	QC_LEVEL: STD_ IV Received Intact?	PROJ. NAME: EPES Chain of Custody Seals	PROJECT #: 909007 Total Number of Containers	PROJECT INFORMATION									. 61C1 . 30	NH 1412 10 1001 01	G(19()/07 - 11 - 10/1 - 10/1	Pinnacle Laboratories, Inc. 2709-D Pan American Freeway, NE Albuquerque, New Mexico 87107 (505) 344-3777 Fax (505) 344-4413 SAMPLE ID DAJTE TIME MATRIX LAB ID	Network Project Manager: Kimberly D. McNeill	Pinnacle Laboratories, Inc. Interla
																					N F	Metals (8) RCRA RCRA TCLP METALS		b Cha
			SEQU	BARF	N. OF	STL-	STL-	POR	PENS	SAMI										<u> </u>	. IN	Metals-13 PP List		Ín o
			NOL	NING	R	NEW	9	FLAN	SACC	PLES		 		ļ							N	Metals-TAL		- T C
				R		JER		<u>р</u> -ш	ž	SEN		 		 	ļ	-	<u> </u>	1	X	\mathbb{P}	$\langle $	Hg. Cd, Cr	法法律	ust
						SEY		sr-o	STL-F	TTO		 		 			<u> </u>		+		T	TOX		g
\vdash	┼┼		\vdash	<u> </u>	<u> </u>			~	Ĵ		ł	 							+					
ŝ	H		Ē		<u> </u>		F			R	ł	 					+		+	+		Gen Chemistry	学校的	
mpany		halla	hature	ECE	nnac	B	N peru	ħu	hature	ELN	$\left\{ \right\}$	 		┣─	+		+			+	$-\frac{1}{2}$	Oil and Grease		
L'	e me	5	Т	VED	e Lab	MC	ame:	2010		S	ł	 		$\left - \right $	$\left - \right $	╀╴	┼─	╉─	+		-	Volatile Organics GC/MS (8260)	NA	
4	F	F.	•	BY:	orato	3	•	B		HEL	ł	 		-	-			+	+	+		30D	IS ₁	Date
1	F.	100			ies, l	5	-\	P.	2	ЪЧ	ł	 		<u> </u>	\square		+	+	+	+		COD	SRE	2
	NOV Base	Ĩ	Time		ö	MN	Date	MA.	-Time		ł	-				<u> </u>	1	1	+		P	PESTICIDES/PCB (608/8080)	2	T
	5	2	õ			12					Ī	 \neg					1	1	1	1	8	270 BY GC/MS	EST	10
L	52		R			36		00			Ţ				1		1	1	1	X	(P,	PNA (8310)		Page
Comp	Printe	2	Signe	REC	Сотр	9	Printe	6	Siona	R	ſ							Τ		Ĺ	82	240 (TCLP 1311) ZHE		Ĩ,
YUB	d Nam		ture:	YEN.	any		d Nam		huna.	Z	ſ										н	terbicides (615/8150)		
	, ē			ED B						Fish											Ba (6	ase/Neutral Acid Compounds GC/MS 525/8270)		1
			ĺ	:						B											U	JRANIUM		1
	_									Ĭ	L										R	RADIUM 226+228		
	Date:		Time:				Date:	11(18,													G	Gross Alpha/Beta		
												_									T	O-14		
				N						N											N	UMBER OF CONTAINERS	2	

PLEASE FILL THIS	ORM IN COMPLETELY.	SHADED AREAS ARE FOR PABUSE ONLY	Ame
SHIPPED VIA: FED-L WOODWULWLEIS WALL IN VO GUSTIONYSE SANDA IN VIA BECEIVEDWACT IN VIA BECEIVEDWACT IN VIA BULELCE/CE) VIA	TRY BURNY	PROJECT MANAGER: $72/4$ COMPANY: $62/72/4$ ADDRESS: $71/2$ ADDRESS: $71/2$ BILL TO: $52/1/2$ COMPANY: $52/7/2$ ADDRESS: $77/23/7/2$ PHONE: $77/23/7/2$	rican Environmenta
COMMENTS: FIXED FEE D	PHOR WATER OU PRIOR AUTHORIZATIONISIE NM (RUSH) 24hr 48hr 72hr IMAL CERTIFICATION REQUIRED: NM	1. LAMBOW 1. LAMBOW	l Network (NM). Inc.
EO (A) PYRENE KO.7PPB		Petroleum Hydrocarbons (418.1) TRPH (MOD.8015) Diesel/Direct Inject (M8015) Gas/Purge & Trap 8021 (BTEX)/8015 (Gasoline) % X X 8021 (BTEX) □ MTBE □ TMB □ PCE 8021 (EDX) 8021 (HALO) 8021 (CUST) 504.1 EDB □ / DBCP □	CHAIN OF CUST
Company: 22 PAST FIXIO SERVICEST 30 ECCEVERIENTIME: Signature: Time: Printed Name: Date: Company Company	Signate: Signate: Signate: Prime: 1458 Prime: 1-22-99	8260 (TCL) Volatile Organics 8260 (Full) Volatile Organics 8260 (CUST) Volatile Organics 8260 (Landfill) Volatile Organics 9 9 10 8260 (Full) Volatile Organics 8260 (Landfill) Volatile Organics 9 11 12 13 14 15 15 16 17 17 18 19 19 10 10 10 11 11 12 13 14 15 16 17 18 19 10 10 10 11 12 13 14 15 16 16 17 18 19 10 10 <td< td=""><td>ODY MANAGEM</td></td<>	ODY MANAGEM
Company BECEIVEOBAX (IAB) 12: SHUMUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU	Signature: Time: Time:	General Chemistry: Priority Pollutant Metals (13) Target Analyte List Metals (23) RCRA Metals (8) RCRA Metals by TCLP (Method 1311) Xx Metals: Torper Contrainers	

·

1 -

.

1

I

..... writte - AEN, Uanary - Originator

December 29, 1999

Quarterly ANALYTICAL REPORT

Chaco Plant Monitor Well #9, #10 Lab Sample #'s 990468 to 990470 Sampled 12/8/99 Sampled by Dennis Bird

REMARKS:

These samples represent the fourth quarter 1999 sampling for MW#9 and #10. The New Mexico WQCC limit for Benzene (10 PPB) was exceeded in MW#10. MW-9 and 10 were installed on July 24, 1997. They are being monitored quarterly for BTEX components. Product removal was initiated on MW#10 on October 15, 1998 using a PetroTrap brand passive skimmer. Since this time, 1,555 milliliters of product have been removed from this well. Product removal was stopped on December 8, 1999 and the petro-trap removed.

Starting January 1, 1999, responsibility for sampling these monitor wells is contracted to PSC. All analytical work will be contracted to Pinnacle laboratories in Albuquerque, NM and Scott Pope will be the coordinator.

Distribution:

Scott Pope - W/Attachments Mike Hansen/Don Hensley - W/Attachments Results File

Attachments

Site Name CHACO PMIN Site Name CHACO PMIN Site Name CHACO PMIN Berlone Well Number Well Number Baseline of Note Remote Site Stanty Note Remote Site Stanty Noteme of Note Remote Site Stanty Note Remote Site Stanty Noteme of Note Remote Well Number Site Stanty Noteme of Note Remote Well Number Other Other Site Stanty Noteme of Note Remote Well Number Other Site Stanty Note Site Stanty Note Site Stanty Note Note Romote Site Stanty Note Site Stanty Note Site Stanty Note Note Romote Site Stanty Note Note Romote Site Stanty Note Site Stanty Note Site Stanty Note Other Site Stanty Note Dotal Check Note Site Stanty Note Site Stanty Note Site Stanty Note Dotal Check Note Site Note Site Stanty Note Site Note Dotal Check Note Site Note Site Stanty Note Site Note Dotal Check Note Site Note Site Stanty Note Site Note Dotal Check Note Site Note Dotal Check Note <	Site Name CHACO HUMber Multon Site Name CHACO HUMber Meter Code Meter Code Perceionante State Voltmer Charter Meter Code Meter Code Site State Voltmer Charter State Voltmer Charter Meter Code Meter Code Site State Voltmer Charter State Voltmer Charter Meter Code Meter Code Site State Voltmer Charter Site State Voltmer Charter Meter Code Meter Code Site State Voltmer Charter Site State Voltmer Charter Meter Code Meter Code Site State Voltmer Charter Site State Voltmer Charter Meter Code Meter Code Site State Voltmer Charter Site State Voltmer Charter Meter Code Meter Code Site State Voltmer Charter Site State Voltmer Charter Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Meter Code Site State Meter Code Meter Code Meter Code Meter Code							Well Dev	velopm	ent and P	urging D	ata			
Soldoment Citeria Mater Solution Mater Solution Mater Solution Solution of indicate Framelies Solution of indicate Framelies Instruments Solution of indicate Framelies Solution Mater Solution Othor Solution Mater Solution Methods Consultation Mater Solution Methods Development Mater Solution Methods Consultation Mater Solution Methods Solution Solution Solution Solution Solution Methods Solutio	Development Citteria Imate: Same and the second memory and	Site Nan	De	HACO 1	NHY	k				Development Purging	Well	Number_	-WW- WA	6	
Wethods of Development Pure Balt Contraction balt Con	Wethods of Development Heart of Weth Column Internation of the control with th		a to 5 Ca Stabilizat Other	Criteria sing Volumes of W ion of Indicator Parr	ater Removel ameters		Water VC Initial Depth of Initial Depth to	blume Cald Well (feet) <u>A</u> Water (feet) <u>A</u>	culation				DD Monito	·	
Image: Submersible Submersible Double Check Value Walt Casing Matter Disposal Persiatio Stainless-steet Kommere Gravel Pack Gravel Pack Matter Disposal Image: Double Check Value Stainless-steet Kommere Gravel Pack Matter Disposal Image: Double Check Value Image: Double Check Value Matter Disposal Image: Double Check Value Image: Double Check Value Matter Disposal Image: Double Check Value Image: Double Check Value Matter Disposal Image: Double Check Value Image: Double Check Value Matter Disposal Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value Image: Double Check Value <td>Image: Statieness deel Kommer Nater Disposal Perisali: Statieness deel Kommer Perisali: Statieness deel Kommer One Statieness deel Kommer One Statieness deel Kommer One Dilling Fluids One Dilling Fluids Mater Renoval Dilling Fluids Perisali: Statieness deel Kommer Date Time Date Time Deel Time Defen Time Defen<td>Aethod:</td><td>s of De Pump Centrifug</td><td>svelopment Bailer al (X Botton</td><td>n Valve</td><td></td><td>Height of Wat Diameter (inch Item</td><td>er Column in We ies): Well <u>We</u> <u>Water Volu</u> Cubic Feet</td><td>ell (feet) Z Gravel P. Ime in Well Gallons</td><td>ack Gallons to Removed</td><td>pe</td><td></td><td>Conductivi Temperatu</td><td>ty Meter Ire Meter </td><td>NETS KIT</td></td>	Image: Statieness deel Kommer Nater Disposal Perisali: Statieness deel Kommer Perisali: Statieness deel Kommer One Statieness deel Kommer One Statieness deel Kommer One Dilling Fluids One Dilling Fluids Mater Renoval Dilling Fluids Perisali: Statieness deel Kommer Date Time Date Time Deel Time Defen Time Defen <td>Aethod:</td> <td>s of De Pump Centrifug</td> <td>svelopment Bailer al (X Botton</td> <td>n Valve</td> <td></td> <td>Height of Wat Diameter (inch Item</td> <td>er Column in We ies): Well <u>We</u> <u>Water Volu</u> Cubic Feet</td> <td>ell (feet) Z Gravel P. Ime in Well Gallons</td> <td>ack Gallons to Removed</td> <td>pe</td> <td></td> <td>Conductivi Temperatu</td> <td>ty Meter Ire Meter </td> <td>NETS KIT</td>	Aethod:	s of De Pump Centrifug	svelopment Bailer al (X Botton	n Valve		Height of Wat Diameter (inch Item	er Column in We ies): Well <u>We</u> <u>Water Volu</u> Cubic Feet	ell (feet) Z Gravel P. Ime in Well Gallons	ack Gallons to Removed	pe		Conductivi Temperatu	ty Meter Ire Meter 	NETS KIT
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Image: Long Funds Onling Fluds Onling Fluds Onling Fluds Image: Long Time Time Time Product Volume Time Date Time Development Removed (galins) °C PH PH Date Development Removed (galins) °C PH PH Date Date SC SC PH PH Date Date SC PH PH PH Date PH SC PH PH Date SC <td< td=""><td></td><td>Submers Peristalti</td><td>sible Doub</td><td>ile Check Valv less-steel Ker</td><td>/e nmerer</td><td>Well Casing Gravel Pack</td><td></td><td>6,3</td><td>19.0</td><td></td><td>Water KV7</td><td>Disposa</td><td>0ARA7.</td><td>de</td></td<>		Submers Peristalti	sible Doub	ile Check Valv less-steel Ker	/e nmerer	Well Casing Gravel Pack		6,3	19.0		Water KV7	Disposa	0ARA7.	de
Vater Removal Data Vater Removal Data Date Time Devisionment Removed Nater Vater Volume Product With Disorder Date Time Devisionment Removed	Vater Removal Data Vater Removal Data Data Time Conductiving Dissolved Data Time Order to the pailing Conductiving Dissolved Data Time Deepin Removal Removal (gallons) Prove Prove <t< td=""><td></td><td>Other</td><td></td><td></td><td></td><td>Drilling Fluids Total</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		Other				Drilling Fluids Total								
Date Time Develorment Ramonal Intake Ending Water Water Volume Fentoreature Conductivity Dissolved -2-79 //0/18 Balater (galim) (ee) (fe) Nater Volume Pronomation Organ Organ 2-79 //0/18 Balater (galim) (fe) (fe) (fe) Nater Volume Conductivity Dissolved 2-79 //0/18 Balater (fe) (fe) (fe) Nater Volume Conductivity Dissolved 2-79 //0/18 Balater (fe) (fe) (fe) Nater Volume Conductivity Dissolved 2-79 //0/18 Balater (fe) (fe) (fe) Nater Volume Conductivity Dissolved 2-79 //0/18 A A A A A A 2-79 //0/18 A A A A A 2-79 //0/12 A A A A A 2-79 //0/12 A A A A A 2-79 //0/12 //0/12 A A A A 2-79 //0/12 //0/12 //0/12	Date Time Devolopment Ramonal Indiate Product volume Fonduct volume Product volume Conductivity Dissolved	Vater R	emova	ıl Data											
28-79 1018 rate (garm) (rest) (rest) (rest) (12, 2, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7,	Rest Common (reet) Incoment Currulative 7.77 7.77 Molt 2.8.99 1024 12 5.7 12 7.77 182 177 2.8.99 1024 12 12 7.79 182 177 175 177 2.8.99 1024 12 7.74 12 7.74 175 175 175 2.8.99 1050 12 7.79 12 7.79 12 12 12 2.8.99 1050 12 7.79 175 179 12 2.8.99 1050 12 7.79 17 15 179 2.8.99 1050 12 7.79 17 15 179 2.8.99 1050 12 7.79 17 15 179 2.8.99 1050 12 7.79 17 15 17 2.8.99 1050 12 12 7.79 17 15 2.8.9 1050 12 12 7.79 12 12	Date	Time	Development Method	Removal Rate	Intake Depth	Ending Water Depth	Remov	Volume /ed (gal)	Product Volu Removed (gal	me Temper ons) °C	ature pH	Conductivity µmho/cm	Dissolved Oxygen	Comments
2.849 1024 126 719 1863 128 1863 126 719 1863 128 1863 128 1863 128 1863 128 1863 128 1863 128 1869 128 1869 128 1869 117 128 1876 128 1876 128 1876 1876 1876 1876 1876 1876 1876 187	2. 8-99 1024 12.8 20 5.0 1.2 2.7 1.8 2.7 1.8 2.7 1.8 2.7 1.8 2.8 1.2 2.8 1.0 1.2 2.8 1.8 1.2 2.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1	66-8-2	1018		(dai/min)	(reet)	(reet)	Increment	Cumulative	Increment Cun	nulative	739	4221	mg/L	
2.8.99 1032 1 124 735 1878 124 735 1878 124 735 1878 124 1810 124 1810 125 187 1810 125 1870 125 1870 125 1870 125 1870 1870 1870 1870 1870 1870 1870 1870	2-8-79 /032 132 132 132 132 132 132 132 132 132 1	2899	1024					50	25		12	5 12/9	1887		
289108 126 749 1810 50 150 126 749 1810 125 179 15 15 179 15 15 179 15 15 179 15 15 15 15 15 15 15 15 15 15 15 15 15	2.8.19 1016 1 5.0 15.0 15.0 12.6 7.44 1870 5.0 2.8.19.05 11.7 15.1 17.8 1.5 1.79 1.5 1.79 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	6-8-2	1032					25	10.0		12	4 7.35	dilde/		
2-2-19/1050 11/17 75/ 179/65 15/ 179/65 15/ 179/65 15/ 179/65 15/ 179/65 15/ 179/65 15/ 179/65 15/ 179/65 15/ 170/65 15/	2-8-19/1050 3-2-8-720 71/7 75/ 178 25 720 71/2 75/ 178 25 720 71/2 75/ 178 25 720 71/2 75/ 178 25 720 71/2 72/2 72/2 72/2 72/2 72/2 72/2 72/2	62-2-20	101					50	150		12	6 7.44	0/20/		
onments	in the signature I may a signature I may a signature I mark and the signature I mark and the state 12/29/94	2-2-3-29	1050					50	062		×	1512	1790	1.5	
oments	ioments ioments Date 22 P. Previewer Jan Date 12/29/94														
omments	omments														
ments Remain Rind 12.499 1 F.	omments Developer's Signature Demonstration Big Date 12-8-99 Reviewer Jahn Lander Date 12/29/99														
Monnie Bindi	Developer's Signature LEMMID Bird Date 12-8-99 Reviewer Jahn Jahn Date 12/29/99	Comments													
	Developer s alginame	avalonar's	Cinnature	JAMM.	, Oh	3 420				2-2/2-B	99		J		10 100 100

Nite Name Children Neutron Neutron Neutron Bevolopment Criteria Neter Code Meter Code Meter Code Bevolopment State Volume Criteria Neter Code Meter Code Internet in Neter Criteria State Volume Criteria Neter Code Meter Code Internet in Neter Criteria State Volume Criteria Neter Code Meter Code Internet in Neter Criteria State Volume Criteria Neter Code Meter Code Internet in Neter Criteria State Volume Criteria Neter Code Meter Code Internet in Neter Criteria State Volume Criteria Neter Code Meter Code Internet in Neter Criteria State Volume Criteria Neter Code Meter Code Internet in Neter Criteria State Volume Criteria Neter Code Meter Cod						/eiopme	ent and Purg	ing Data	m.			
Bevelopment Criteria Sale 5 casag Vournes of Voter Remove One Mater Volume Calculation 	Site Nam	CHACO E	TURNT		-		Development Purging	Well Nui Meter Co	nber 🖉	1-ML	0	
Retholds of Development Demeter (inclusi) Cannot bering Cannot bering <td></td> <td>nent Criteria to 5 Casing Volumes of Wa stabilization of Indicator Para</td> <td>ater Removel imeters</td> <td>Water Vo Initial Depth of Initial Depth to Height of Wate</td> <td>Hume Calc Well (feet) <u>7</u> Water (feet) <u>1</u> sr Column in Wel</td> <td>ulation </td> <td>28</td> <td></td> <td>⊠⊠⊠</td> <td>ents pH Meter DO Monitor Conductivit</td> <td>y Meter</td> <td></td>		nent Criteria to 5 Casing Volumes of Wa stabilization of Indicator Para	ater Removel imeters	Water Vo Initial Depth of Initial Depth to Height of Wate	Hume Calc Well (feet) <u>7</u> Water (feet) <u>1</u> sr Column in Wel	ulation 	28		⊠⊠⊠	ents pH Meter DO Monitor Conductivit	y Meter	
Image: Image	Methods	of Development Pump Bailer Sentrifugal X Bottom	: Valve	Diameter (inch	es): Well <u> </u>	Gravel Pa ne in Well Gallons	ck Gallons to be Removed			Temperatu Other	e Meter O. CHEM	ers Kit
International Data Difficiend Fluids Difficiend Fluids Difficiend Fluids Vater Removal Time Difficiend Fluids Difficiend Fluids Data Time Development Removed (gal) Removed (gal) Carbon Difficiend Deptinion Removed (gal) Removed (gal) Carbon Difficiend Deptinion Removed (gal) Removed (gal) Carbon Difficiend Conductivity Dissolved Carbon Difficiend Removed (gal) Removed (gal) Removed (gal) Carbon Difficiend Removed (gal) Removed (gal) Conductivity Carbon Difficiend Conductivity Removed (gal) Conductivity Carbon Carbon Conductivity Removed (gal) Conductivity Carbon Carbon Carbon Carbon Carbon Carbon Carbon <td< td=""><td></td><td>Submersible Double Peristattic Stainle</td><td>e Check Valve ess-steel Kemmere</td><td>Well Casing</td><td></td><td>02</td><td>31.0</td><td></td><td>Water D</td><td>Disposal</td><td>MARATON</td><td>0</td></td<>		Submersible Double Peristattic Stainle	e Check Valve ess-steel Kemmere	Well Casing		02	31.0		Water D	Disposal	MARATON	0
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Drilling Fluids								
Varian Variant Kermoval Data Date Time Development Removal Instact Ending Water Volume Forduct Volume Temperature Development Removal Gaugins) Product Volume Temperature Removal Gaugins) C moductivity Dissolved Conductivity Dissolved Conductity Dissolved Conductivity Dis		Other		Total								
Date Time Method Rate Depth Depth Removed (gal) Removed (gal) C PH µmhoim Oxygen Comments 2.2.9.17 ///3 //3 <td>Vater Ke</td> <td>moval Data</td> <td>Removal</td> <td>ike Ending Water</td> <td>Water V</td> <td>olume</td> <td>Product Volume</td> <td>Temperature</td> <td></td> <td>Conductivity</td> <td>Dissolved</td> <td></td>	Vater Ke	moval Data	Removal	ike Ending Water	Water V	olume	Product Volume	Temperature		Conductivity	Dissolved	
2599 //43 //13 7.3 2650 //13 7.3 2650 //13 7.3 2650 //13 2.3 2650 //13 2.3 2650 //13 2.3 2650 //13 2.3 2650 //13 2.3 2650 //12 2.4 2.3 2650 //23 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5	Date	Time Method Pump Bailer	Rate Del (gal/min) (fe	oth Depth et) (feet)	Remove Increment	ed (gal) Cumulative	Removed (gallons) Increment Cumulative	<u>ပ</u>	Ha	րանօ/շա	Oxygen mg/L	Comments
2.899 1159 5.0 5.0 5.0 12, 11, 21, 21, 0 1 2.899 1158 5.0 150 12, 12, 25, 250 12, 25, 25, 250 12, 25, 25, 25, 250 12, 25, 25, 25, 25, 250 12, 25, 25, 25, 25, 25, 25, 25, 25, 25, 2	2899 1	//#3						11.3	7.32	2650	 	
2-899 1158 1206 150 150 150 150 12 4 744 2520 150 12 4 744 2520 12 11 2 4 744 2520 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 2 4 744 250 12 11 12 11 2 4 744 250 12 11 1	2-2-99	1120			5.0	20		12.7	219	2112		
2-899 1206 12, 12, 12, 12, 12, 12, 12, 12, 12, 12,	2-8-99 1	1153			50	0:0/		123	7.32	2590		
2-899 [217] 2-899 [217] 2-899 [23] 2-899 [23	162-8-2.	1206			50	150		124	ン44	2020		
2-899/23/ 50 750 11.6 8.00 256 0.5	2-8-991	1212			50	002		12.5	7.84	2700		
THE WATER HAD A LIGHT HUDDOLD BADA SAFLA.	66-8-2	23/			50	250		11.6	D'A	2660	50	
THE WATER HAIL A LIGHT HUMPLEARIAL SWELL.												
THE WATER HAN A LIGHT HUMPICARANN SWELL.												
		THE WATER	HBI A	UIGHT,	YVDRAC	APAN	1) SMED					



Pinnacle Lab ID number December 22, 1999 912040



EL PASO FIELD SERVICES 770 WEST NAVAJO FARMINGTON, NM 87401

Project Name Project Number CHACO MONITOR WELLS (none)

Attention: JOHN LAMBDIN

On 12/14/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), 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.

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

Kimberly D. McNeill Project Manager

MR: jt

Enclosure

H. Mitchell Rubenstein, Ph. D. General Manager

Reviewel + Approved J. Jane 12/0/99



4.4

2709-D Pan American Freeway NE Albuquerque, New Mexico 87107 Phone (505) 344-3777 Fax (505) 344-4413

CLIENT	: EL PASO FIELD SERVICES	PINNACLE ID	: 912040
PROJECT #	: (none)	DATE RECEIVED	: 12/14/99
PROJECT NAME	: CHACO MONITOR WELLS	REPORT DATE	: 12/21/99
PIN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	990468 - mw - 9	AQUEOUS	12/8/99
02	990469 - mw - 10	AQUEOUS	12/8/99
03	990470-mw-10 Field Duplicate	AQUEOUS	12/8/99
04		AQUEOUS	12/8/99



> Poor Duplication . Las Oc Good .

GAS CHROMATOGRAPHY RESULTS

TEST		: EPA 8021 MO	DIFIED				
CLIENT		: EL PASO FIEL	D SERVICES			PINNACLE I.	D.: 912040
PROJECT	4	: (none)					
PROJECT	NAME	: CHACO MONIT	TOR WELLS				
SAMPLE				DATE	DATE	DATE	DIL.
<u>ID.</u> #	CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	990468		AQUEOUS	12/8/99	NA	12/17/99	1
02	990469		AQUEOUS	12/8/99	NA	12/17/99	1
03	990470		AQUEOUS	12/8/99	NA	12/17/99	11
PARAMETE	ER	DET. LIMIT		UNITS	990468	990469	990470
BENZENE		0.5		UG/L	< 0.5	18	< 0.5
TOLUENE		0.5		UG/L	< 0.5	< 0.5	< 0.5
ETHYLBEN	IZENE	0.5		UG/L	< 0.5	37	22
TOTAL XYI	ENES	0.5		UG/L	< 0.5	120	61
SURROGA	re:						
BROMOFLU	JOROBENZENE	(%)			102	109	101
SURROGA	FE LIMITS	(80 - 120)				6 *	
				n	116-9	MN-10	MW-10
							Field
N/A							Duplicato



GAS CHROMATOGRAPHY RESULTS

TEST		: EPA 8021 MO	DIFIED				
CLIENT		: EL PASO FIEL	D SERVICES			PINNACLE I.D	.: 912040
PROJECT #	ŧ	: (none)					
PROJECT	NAME	: CHACO MONIT	TOR WELLS				
SAMPLE				DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
04	TRIP BLANK		AQUEOUS	12/8/99	NA	12/17/99	1
PARAMETE	R	DET. LIMIT		UNITS	TRIP BLANK		
BENZENE		0.5		UG/L	< 0.5		
TOLUENE		0.5		UG/L	< 0.5		
ETHYLBEN	ZENE	0.5		UG/L	< 0.5		
TOTAL XYL	ENES	0.5		UG/L	< 0.5		
SURROGAT	ſE:						
BROMOFLU	JOROBENZENE	Ξ(%)			110		
SURROGAT	E LIMITS	(80 - 120)					
						r	

CHEMIST NOTES: N/A



GAS CHROMATOGRAPHY RESULTS REAGENT BLANK

TEST BLANK I. D. CLIENT PROJECT #	: EPA 8021 MODIFIED : 121799 : EL PASO FIELD SERVICES : (none)	PINNACLE I.D. DATE EXTRACTED DATE ANALYZED SAMPLE MATRIX	: 912040 : N/A : 12/17/99 : AQUEOUS
PROJECT NAME	: CHACO MONITOR WELLS		
PARAMETER	UNITS		
BENZENE	UG/L	<0.5	
TOLUENE	UG/L	<0.5	
ETHYLBENZENE	UG/L	<0.5	
TOTAL XYLENES	UG/L	<0.5	
SURROGATE: BROMOFLUOROBENZENE (%) SURROGATE LIMITS: CHEMIST NOTES: N/A	(80 - 120)	105	



			GAS CHR	OMATOGRAPH		Y CONTROL			· .	
TEST		· EDA 8021 M	יטובובט	1410141	50					
MSMSD #		· 121799					חו		912040	
CLIENT		· FL PASO FIE		ES		DATE EXTE	RACTED	:	N/A	
PROJECT #		: (none)				DATE ANAL	YZED		12/17/99	
PROJECT NAME		: CHACO MON	ITOR WEL	LS		SAMPLE M	ATRIX		AQUEQUS	
						UNITS		÷	UG/L	
·		SAMPLE	CONC	SPIKED	%	DUP	DUP		REC	RPD
PARAMETER		RESULT	SPIKE	SAMPLE	REC	SPIKE	% REC	RPD	LIMITS	LIMITS
BENZENE		<0.5	20.0	22.2	111	22.1	111	0	(80 - 120)	20
TOLUENE		<0.5	20.0	20.9	105	20.9	104	0	(80 - 120)	20
ETHYLBENZENE		<0.5	20.0	21.8	109	21.7	108	1	(80 - 120)	20
TOTAL XYLENES		<0.5	60.0	65.8	110	64.7	108	2	(80 - 120)	20
N/A										
	(Spike Sarr	nple Result - Sa	mple Result)				8.		
% Recovery =				X 100						

---- X 100

Spike Concentration

(Sample Result - Duplicate Result)

RPD (Relative Percent Difference) =

Average Result

Accordent &.

P	LE	AS	EF	ILL	. T	HIS	5 F(DR	MI	N C	0	MF	ETE	ELY	' .	S	ЗНА	DE	D	ARI	EAS	SARE FOR LAB USE ONLY.	
12/10/98 PLI Inc.: Pinnacle Laboratories	BUNE ICIPICE	RECEIVED INTACT	CUSTODY SEALS	NO. CONTAINERS	SAMPLE HECEIPT	SHIPPED VIA: F-60-X	P.O. NO.:	PROJ. NAME: CHACO MONTO	PROJ. NO.:	PROJECT INFORMATIO							THIN DUNI	OLHOLL	17047	Report.	SAMPLE ID	PROJECT MANAGER: C COMPANY: C ADDRESS: C PHONE: C FAX: C BILL TO: C ADDRESS: C ADDRESS: C	AND Dimmed
Inc. • 2709-D Pan A	2.	Aps	ININ	4		COM	METH	K WELLS CERTI	(RUSF	N PRI							12-22	12-2-19	12-2419	12-29	DATE	577 4 577 br>4 577 4 577 4 577 4 577 5777 4 5777 5777	, r .L.
merican Freeway NF • Alt						MENTS: FIXED FE	ANOL PRESERVATION	FICATION REQUIRED:	1) 🗆 24hr 🗌 48hr	OR AUTHORIZATI							h.A.T.T.R.	1292 WATER	12/12 11191721	11/2 WATTER	TIME MATRIX	Antories I	
viniarnia New Meri									72hr 1 WEI	ION IS REQUIF		法語ない美		1. C.	21469		04	03	120	0	LAB I.D. Pet	troleum Hydrocarbons (418.1) TRPH	
m 87107 - 15051 244									Υ Π	IED FOR RUS											(Mi (Mi 802	8015) Gas/Purge & Trap 21 (BTEX)/8015 (Gasoline) MTBE	
1 9777 - Eav IENEL 9									(NORMAL)	H PROJECTS								×			802 802 802 802	21 (BTEX)) U MTBE U TMB U PCE 21 (TCL) 21 (EDX) 21 (HALO)	
	Company	Finned Name;		Signature:	RECEIVED	Company EC/	(IEANIS)	Printed Name		RELINQUIS											802 504 826	A.1 EDB / DBCP / DBCP / ANALY STREET	
		Oale:		Time:	BY CARACTER STREET	FORE MADULE	BIRD	Dale: 17-0 6	E Ime 1545	SHED BY											826 826 826 Pesi Hert	00 (Full) Volatile Organics SS 00 (CUST) Volatile Organics REOURS 00 (Landfill) Volatile Organics REOURS 10 (Landfill) Volatile Organics REOURS 10 icides /PCB (608/8081/8082) REOURS 10 bicides (615/8151) REOURS	
	D	Printed Name:	Alunan	Signature: 4	DECEIVEN	W. Dompany		Printed Name:	Signature:	1. RELINQUIS				-+					+		Base/ Polyr Gene	/Neutral/Acid Compounds GC/MS (625/8270) nuclear Aromatics (610/8310/8270-SIMS) eral Chemistry:	F
- THOURDARD I		C MWID	L MMinu 1	3T: (LAB)	V- /1 AD		Date.		Time:	1ED BY:											Targ RCR RCR Meta	Let Analyte List Metals (23) LA Metals (8) LA Metals by TCLP (Method 1311) als:	
	+	24	5	2/2	,					n n						ŀ	i	11/2	2	22	NUME	BER OF CONTAINERS	

VUHLUNE I.AI I.NEI

ļ Ì

ļ 4 1 ł

DISTRIBUTION: White - PLI, Canary - Originator