



SAN JUAN DIVISION

May 28, 1998

Certified: P 103 693 121

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

RE: Hampton 4M - Groundwater Contamination Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Olson:

As requested in your April 7, 1998 letter, the following is a status report on the soil/groundwater investigation and remediation activities that have been conducted at the Hampton 4M gas production location. This report addresses the activity by Burlington Resources Oil and Gas Company (BR) near our area of operations. Details on earlier investigation work were submitted to you on July 30, 1997 and January 30, 1998, and will not be repeated in this report. A site diagram showing the location of the discussed monitoring wells and soil excavation is included in Attachment #1.

Additional Monitor Well Installation

As required in your April 7 letter, BR installed additional monitor wells near the locations of the former temporary boreholes TPW-1 and TPW-2. On May 11, 1998, Philip Services Corporation drilled and completed both monitor wells (identified as MW-9 and MW-10). The geologic logs and well completion diagrams for these wells are included in Attachment #2.

Monitoring Well Sampling

Since the last report on January 30, 1998, the monitor wells have been sampled twice, first on April 14, 1998 and again on May 12, 1998. The details of the sample results, along with earlier sample results, are shown in Table 1. Due to MW-3 showing "non-detect" for BTEX components over the last five sampling events, it was not sampled during the last sampling event.

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		Groundwater	able 1 Sampling EX (ppb)	Summary		
	MW-1	MW-3	MW-4	MW-8	MW-9	MW-10
1/31/97		ND	2651.3			
5/1/97		ND	3477.0			
10/30/97	5.8	ND				
1/12/98	8.8	ND	1362.0	33,801		
4/14/98	2.3	ND	1147.2	0.37 ft		
5/12/98	ND	Not sampled	1024.8	0.29 ft	10.5	1.41 ft

NOTE: The shaded areas indicate the thickness of free phase hydrocarbons.

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The well development details and analytical results of the May 12 sampling event are included in Attachment #3. PNM collected the April 14 samples and BR does not have copies of the laboratory reports. In addition to the BTEX components, the water was also analyzed for New Mexico Water Quality Control Commission (WQCC) metals and cations and anions pursuant to your April 7 letter.

PNM had all the monitoring wells surveyed for location and groundwater elevation on January 12, 1998. The direction and magnitude of the hydraulic gradient, using this data, is shown in Attachment #4. The map, which was provided to BR from PNM, also details the analytical results of the sampling events up through April 14, 1998. The most recent monitor wells (MW-9 and MW-10) have not been surveyed for location or elevation yet and are not included on this groundwater contour map.

Ongoing Remediation/Investigation

The excavation created during BR's source removal work in December 1997 remains open to allow air to contact the groundwater. This should continue the improvement of the quality of groundwater. PNM sampled the water from this excavation in February 1998 and total BTEX was 4920 ppb. No further sampling has taken place.

In addition to the source removal work that BR performed in the southeast corner of the location, BR has tested both our well bore and the underground flowline from the well to our separation equipment for mechanical integrity. Both tests showed we have mechanical integrity with no indication of leakage.

Conclusions

The water quality of the upgradient well (MW#1) indicates the likelihood that groundwater contamination is not coming from an off site source. The quality of the water from the monitoring well, located approximately 50 feet south of the location, has been tested four times and is within water quality standards.

The groundwater in MW-3 and the recently installed MW-9 has shown to be below regulatory limits. This indicates that the potential plume is relatively narrow and does not travel to the west. The fact that water was not encountered in TPW-3 indicates that the potential plume does not leave location to the east.

The BTEX level in MW-4, located near BR's excavation, continues to drop. Since the last sample prior to our source removal work, the BTEX level in MW-4 has dropped over 70 percent (from 3477.0 ppb to 1024.8 ppb). The BTEX level dropped a little over 10 percent in less than a month between the last two sampling events. It appears that the source removal in the southeast portion of the location is having a positive impact on groundwater.

Less than five inches of free phase hydrocarbons were detected in MW-8 during the April (4.44") and May (3.48") sampling events. BR anticipates the level of free phase will continue to decrease and the groundwater will clean up over time due to the source removal work.

The recently installed MW-10, located near PNM's operations, had 1.41 feet of free phase hydrocarbons on May 12, 1998. Attachment #5 shows an approximate cross section from MW-4 to PNM's MW-2 (including MW-8 and MW-10). The cross section shows that the elevation of the hydrocarbons in MW-10

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is less than the level in PNM's MW-2. The progressively increased thickness of "free product" towards PNM's operations implicates at a minimum either an active source of free phase hydrocarbons or unresolved soil contamination. Depending on the source of this hydrocarbon, it can clearly migrate in a contrary direction to groundwater flow until it reaches a static level. Based upon the close proximity to PNM's equipment and that the free phase hydrocarbons are at a lower elevation, BR feels the contamination present in MW-10 is directly related to the contamination under and around PNM's operations.

Plan of Action

Given the continued improvement shown in MW-4, BR's plans are to continue to leave the source removal excavation open for a period of time while we monitor the contaminant levels in the monitor wells.

As the downward trend of contaminant levels continues to progress in the wells near Burlington's source removal area, the excavation will be backfilled with clean soils. A monitoring well will then be installed in the source area. Water quality from the source well and the other monitor wells will be tested periodically to show improvement in water quality.

The Hampton 4M location continues to require monitoring and potentially further remediation. BR's source removal in the southeast corner of the location should continue to have a positive impact on the situation. If you have questions or additional information is needed, please contact me at (505) 326-9841.

Sincerely,

cc:

Ed Hasely Sr. Staff Environmental Representative

Enclosures: Attachment #1: Hampton 4M Site Diagram Attachment #2: Geologic Logs and Well Completion Diagrams Attachment #3: Well Development Laboratory Results Attachment #4: Groundwater Contour Map Attachment #5: Cross Section from MW-4 to MW-2

Denny Foust - NMOCD Aztec Johnny Ellis - BR Ken Raybon - BR Bruce Gantner - BR John Bemis - BR Denver Bearden - PNM Farmington Maurene Gannon - PNM Albuquerque Hampton 4M File

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ATTACHMENT #1

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SITE DIAGRAM

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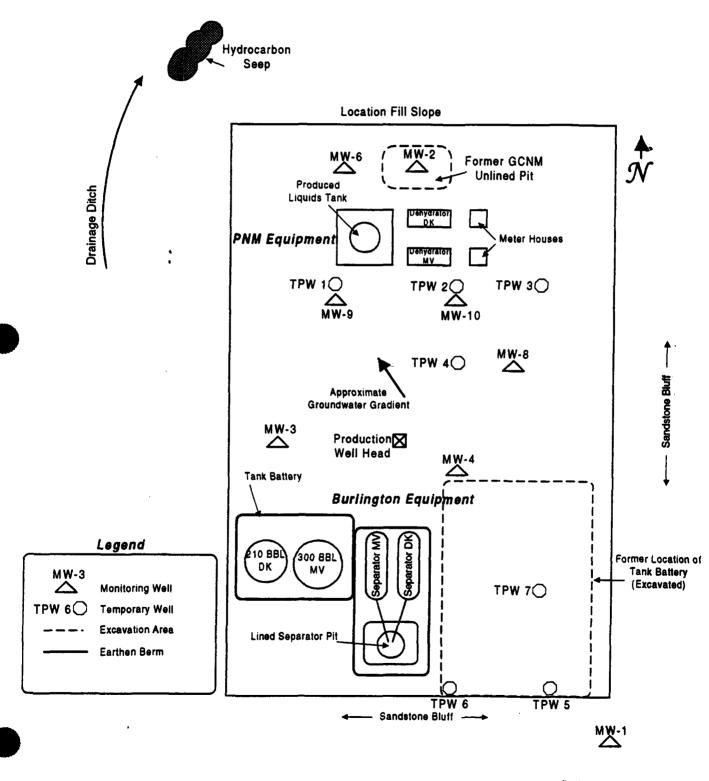
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Hampton 4M Site Diagram



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ATTACHMENT #2

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GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

RECORD OF SUBSURFACE PLORATION

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PHILIP SERVICES CORP.

Monroe Road hington, New Mexico 87401

(505) 326-2262 FAX (505) 326-2388

1 of 19584 Phase 6000.77 Project Name Burlington Resources Hampton 4M Project Location Hampton 4M

Borehole #

Well #

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MW9

BH-1-511

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Elevation R: S. of Production fir S: T: **Borehole Location LTR:** K. PADILLA BGS GWL Depth .7' Drilled By Well Logged By C. CHANCE 5/11/98 **Date Started** Date Completed 5/11/98

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)		r Monito Jnits: Pl BH	-	Drilling Conditions & Blow Counts
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Drilling Method 4 1/4 ID HSA

Air Monitoring Method PID

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Philip Services Corp.			Page	<u>1</u> of <u>1</u>
4000 Monroe Rd.				
Farmington, NM 87401		Project Name	BR HAMPTON 4M	Dhaw 0000
(505) 326-2282 FAX (505) 326-2388		Project Numbe Site Location	Hampton YM	Phase0000
Elevation	1	On-Site Geolog	st C CHANCE	
Well Location S. of Fred	votion 1/1	Personnel On-	Site	
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		Cherk Personn		· y
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Bottom of Well Riser	0			
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Bottom of Well Screen		<u> </u>		
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Top of Gravel Pack		5		
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RECORD OF SUBSURFACE PLORATION

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PHILIP SERVICES CORP.

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p Monroe Road nington, New Mexico 87401 (505) 326-2262 FAX (505) 326-2388

Elevation R: S. of Dehy Borehole Location LTR: S: T: GWL Depth 24.7' K. PADILLA Drilled By C. CHANCE Well Logged By Date Started 5/11/98 Date Completed 5/11/98

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Project Location	Hampton 4	4M		

Drilling Method 4 1/4 ID HSA Air Monitoring Method PID

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ATTACHMENT #3

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WELL DEVELOPMENT and LABORATORY RESULTS

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		Analysis esources, Inc.		IGTON LABORATC 807 S. CARLTON INGTON, NM 87499-128 (505) 326-2588
Sample ID: Matrix: Lab ID:	MW - 1 Water 9805054-01	Dat	te Reported: te Sampled: te Received:	05/20/98 05/12/98 05/12/98
Parameter		Analytical Result	et e contse	
General				
	рH	4.78	s.u.	
	Conductivity	2,790	µmohs/cn	n
	Specific Gravity	1.005		
	TDS (calc)	3,100	mg/L	
	TDS (Measured)	3,330	mg/L	-
Cations				
	Hardness	2,100	mg/L	
	Calcium	600	mg/L	
	Magnesium	147	mg/L	
	Sodium	113	mg/L	
	Potassium	7.0	mg/L	
Anions				
	Alkalinity	12.5	mg/L	
	Carbonate	1.0	mg/L	
	Bicarbonate	11.5	mg/L	
	Hydroxide	<1.0	mg/L	
	Chloride	47.5	mg/L	
	Sulfate	2,180	mg/L	
Data Validat	ion		Acceptable L	imits
	% Difference cations/anions meq/l	0.20	+/- 2 - 5 %	, D
	TDS Ratio	1.1	1.0 - 1.2	

Danisa Garman, Lab Manager



Certificate of Analysis No. 9805054-01

FARMINGTON LABORATORY

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807 S. CARLTON FARMINGTON, NM 87499-1289 (505) 326-2588

	Philip Environmental 4000 Monroe Rd Farmington, NM 87401 Attn: Robert Thompson		Date:	05/20/98
	Project: BR Hampton 4M	······································	Project No:	19584
	Site: Farmington		Matrix:	Water
	Sampled By: C. Chance		Date Sampled:	05/12/98
	Sample ID: MW - 1		Date Received:	05/12/98
		Analytical Data	eta internet anno 1911 - 1911 - 1911	
	DADAMETED		DETECTION LIMIT	
	PARAMETER	RESULTS		UNITS
	Benzene	ND	1.0	μg/L
	Toluene	ND	1.0	– μg/L
	Ethylbenzene	ND	1.0	μg/L
	Total Xylene	ND	1.0	μg/L
	Total Volatile Aromatic Hydrocarbons	ND		μg/L
	Surrogate	% Recovery		
	1,4,Difluorobenzene	107		
	4-Bromofluorobenzene	97		
-	Method 8020A***			
	Analyzed by: VHZ			
	Date: 05/14/98			

ND-Not Detected

Notes:

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

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Danica Carman, Lab Director



Philip Environmental

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Certificate of Analysis No. 9805054-01

FARMINGTON LABORATORY 807 S. CARLTON FARMINGTON, NM 87499-1289 (505) 326-2588

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4000 Monroe Farmington, M Attn: Robert	NM 87401		Date:	05/20/98
Project: Site: Sampled By: Sample ID:	BR Hampton 4M Farmington C. Chance MW - 1		Project No: Matrix: Date Sampled: Date Received:	19584 Water 05/12/98 05/12/98
		Analytical Data		
	_		Detection	
PARAMETER Dissolved M		RESULTS	Limit	UNITS
Arsenic		ND	0.1	∽ mg/L
Barium	•	0.006	0.005	mg/L
Cadmium	•	ND	0.005	mg/L
Chromium		ND	0.01	mg/L
Copper		ND	0.01	mg/L
iron		4.50	0.02	mg/L
Lead		ND	0.05	mg/L
Manganese		3.12	0.005	mg/L
Selenium		ND	0.1	mg/L
Silver		ND	0.01	mg/L
Method 6010				
Analyzed by: Date:	JM 5/19/98			
Mercury Method 747(Analyzed by: Date:		ND	0.0002	mg/L

ND-Not Detected

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

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

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Daniea Carman, Lab Manager

	Comments)0	0		Shalaro	Date		Water Removal Data	Other		Pump) Methods of Development	Other Other	Development Criteria		Project Name	EINALUOISIAICIA VI
	na iime mai				0958	1560	1400 H	0936	Time	-	val Data		<u></u>	ni Exercitation)evelopr	ng Volum nof Indic	nt Criteria	1	10	
)	nne devei			_					Method Pump Bailer	velopment	D		Double Check Valve	Bailer Rottom Valve	nent	ator Para	5		RHampton	Serial No. WDPD-
	opmeni ca								(gal/min)	Removal Rate			neck Val			ater Rem meters		Nes	tes	WDPD-
>	end dre me									Inlake Depth (leet)			<e< td=""><td></td><td></td><td>oval</td><td></td><td>in esport e</td><td>Rota</td><td></td></e<>			oval		in esport e	Rota	
									(feet)	×.				51		! *== *	<			ĺ
					بر 0	5-6	e.s	عند				Drilling Fluids Total	Gravel Pack	Item)iameter (i	nitial Dept nitial Dept leight of W	Vater Voli	-		i
			1		9.0	7.0	5.0	a.s	Cumulalive	Water Volume Removed (gallons)				Cubic Feet	Diameter (inches): Well <u>A</u> Grave	Initial Depth of Well (feet) Initial Depth to Water (feet) Initial Depth to Water (feet) Height of Water Column in v	Water Volume Calculation		Project <i>I</i>	
										Product Volume Removed (gallons)			0.0	et Gallons	Water Valume in Well	(feet) <u>3</u> (feet) <u>1</u> mn in We	ilation		Project Manager_	
		-													Gravel Pack	1.29			<u>R.</u>	}
\					14.0	<u> .3. 9</u>	13.9	13.8		Temperature (°C)		8. F	ע. ג ע	Removed	Gallons to be	17.62			homeson	<u> </u>
					675	6.67	6.52	08.9	<u> </u>	рч		 <	<u> </u>		<u>ا</u> ا		-		Son	
					398	368	250	242	Xio	Conductivity (mmhos/cm)	<u>، ، بي ا</u>	Water Disposal	Other_	Gremperature Meter	Conductivity Meter	DO Monitor	netrumente			
									{mg/L}	Dissolved Oxygen		osal 1+P		ature Me	tivity Me	ifor a		Phase.1	Project	
					less	AA		Black, sl si		Comment				ter	ter	Jena No. (II applicable)		Phase.lask No.	Project No. 19584	
					ess silt			s(s; 1ry		mmente						o, (II applicable)			000 P83	of (

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Form A0107 Rev. 10/6/94

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Date	Tim		Sam Initi	pler	Ten (%	Wa	ater Qua	lity Rea DO (mg/Li	C. (m	; ond. nhos/ ml	Volu Remo (gallo	ime ived		Pump Intake Depth	Data		Notes (Explain in Comments Below
				•	Ę	7	E) e	· Ve	top	,	\downarrow	P	V.9	9	
				Con	tainer	Typ	xe: G = (Jear Gia:			R/	А is; Р	7 = Plastic	; V = V((Glass);	0 = Other (Specify
Analytic Parameter	al		mber	Pres Co		er		1; N = 1 Fi	HNO _s ; ïeld tered	S = H		A = 1 Ca Di	NaOH; O poled pring ection			fy); - =	None
BTE>			<u>}</u>)	V P		40 250				- ا درv	$\overline{\mathbf{v}}$					
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									<u>.</u>								
									Chair		Custod	lv Fo		nber (192	

		Water Analysis Burlington Resources, Inc.		NGTON LABORA 807 S. CARLTON IINGTON, NM 87499-1; (505) 326-2588
Sample ID: Matrix: Lab ID:	MW - 4 Water 9805054-02		Date Reported: Date Sampled: Date Received:	05/20/98 05/12/98 05/12/98
Parameter		Analytica Résult		
General				
	pН	7.07	s.u.	. '
	Conductivity	3,280	µmohs/cr	n
	Specific Gravity	1.006		
	TDS (calc)	3,480	mg/L	
	TDS (Measured)	3,950	mg/L	-
Cations	•			
	Hardness	2,300	mg/L	
	Calcium	620	mg/L	
	Magnesium	183	mg/L	
	Sodium	179	mg/L	
	Potassium	5.0	mg/L	
Anions				
	Alkalinity	183	mg/L	
	Carbonate	15.7	mg/L	
	Bicarbonate	167	mg/L	
	Hydroxide	<1.0	mg/L	
	Chloride	45.0	mg/L	
	Sulfate	2,340	mg/L	
Data Validat	ion		Acceptable L	imits
	% Difference cations/a	-	+/- 2 - 5 %	
	TDS Ratio	1.1	1.0 - 1.2	

Danica Carman, Lab Manager

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Certificate of Analysis No. 9805054-02

 FARMINGTON LABORATORY 807 S. CARLTON FARMINGTON, NM 87499-1289 (505) 326-2588

Philip Environmental 4000 Monroe Rd Farmington, NM 87401 Attn: Robert Thompson

Date: 05/20/98

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Project:	BR Hampton 4M		Project No:	19584
Site:	Farmington		Matrix:	Water
Sampled By:	C. Chance		Date Sampled:	05/12/98
Sample ID:	MW - 4		Date Received:	05/12/98
		Analytical Data	<u> </u>	<u></u>
PARAMETE	R	RESULTS	DETECTION LIMIT	UNITS
Benzene		1000	10.0	μ g/L
Toluene		1.8	1.0	_ μg/L
Ethylbenzene	•	20	1.0	μg/L
Total Xylene	•	3.0	1.0	μg/L
Total Volatile	Aromatic Hydrocarbons	1024.8		μg/L
	Surrogate	% Recovery		
	1,4,Difluorobenzene	107		
	4-Bromofluorobenzene	93		
Meth	nod 8020A***			
A	Analyzed by: VHZ			
	Date: 05/15/98			

ND-Not Detected

Notes:

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

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Danics Carman, Lab Director





FARMINGTON LABORATORY 807 S. CARLTON FARMINGTON, NM 87499-1289 (505) 326-2588

Certificate of Analysis No. 9805054-02

Philip Environmental 4000 Monroe Rd. Farmington, NM 87401 Attn: Robert Thompson

Date: 05/20/98

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Project:	BR Hampton 4M	Project No:	19584	
Site:	Farmington	Matrix:	Water	
Sampled By:	C. Chance	Date Sampled:	05/12/98	
Sample ID:	MW - 4	Date Received:	05/12/98	

	Analytical Data		
		Detection	
PARAMETER	RESULTS	Limit	UNITS
Dissolved Metals			
Arsenic	ND	0.1	- mg/L
Barium	0.009	0.005	mg/L
Cadmium •	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.01	mg/L
Iron	4.87	0.02	mg/L
Lead	ND	0.05	mg/L
Manganese	5.80	0.005	mg/L
Selenium	ND	0.1	mg/L
Silver	ND	0.01	mg/L
Method 6010B ***			-
Analyzed by: JM			
Date: 5/19/98			
Mercury Method 7470A *** Analyzed by: AG	0.0002	0.0002	mg/L

ND-Not Detected

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

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

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Danica Carman, Lab Manager

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Form ADIO	Developer's Signature(s)	Circle the date and time that the development criteria are met. Comments								S/12/98	Date	·	Water Removal Data	Other_	Peristaltic	Submersible	Pump	Methods of Development	Other	123 to 5)Casing Volumes of Water Removal	Development Criteria	Site Name	Client Company_	Project Name	ENVIOUNIVIEN	PHI	
Rev. 10/6/94	Signatu	and lime I					1059	1050	1041	10J4	Time		Ioval Da					Develo		sing Volu	nt Crite	Hampton			IEN FAL		
	re(s)	hal lhe o									Pump	Development Method	ata		Stainless-steel Kemmerei	Bottom valve Double Check Valve	Bailer	omen		Jmes o	ria	ptor	Burli	H	Seria	¥e	
	C	developr			-		-								ess-stee	e Chei	: -	+	000	f Wate		- LIM	inster-	ampton	Serial No. WDPD-	Well Number_	
\bigcirc	¥	nent crit										Removal Rate (gal/min)			el Kem	ck Val				r Remo	I	5		1	PD-		
	CL	ena ore me										intake Depth (feet)			merei	< Ø				val			Kespurces	4M		MW-9	
		9 <i>1</i> .										Water Depth (feet)		۲ ۲	01	പട					<		وم			4	
						_	3.5	2.5	2.5	2.5	Increment				Drilling Fluids	Gravel Pack	Item	Urameter (inches): Well A '	Height of Water Column in Well (feet)	Initial Depth of Well (leet)	Water Volume Calculation	-			1	ł	
					_		10.	7	5.0	2.5	Cumulative	Water Volume Removed (gallons)		Total	2			r (inche	Water	pth of M	olume (Site		Proj		Covelopment	
		-					0	5	C	- y							Cubic Feet	Water Volume in Well	Columi	lell (fee	Calcula	Site Address		Project Manager_		lopment ng	
	_D ate _S/										ncremen Cumulailve I	Product Volume Removed (gollons)					Gallons				ation	ŝ		nager		<	
	1/2										umulalive	(gollons)						~	ill (feet	20 108	,			$ \tau $	>	WELL D	
	1 4 / 9						16.5	15.2	15.5	1 <i>-</i> 51		Temperature (°C)		5.5		4.4	Removed	Gravel Pack	11.29					Thumpson			
	δ		-	+	+		à-		6-	6.				-0		+0	ed		9					105		VEL	
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	Reviewer						096	996	262	260	7	Conductivity (mmhos/cm) X (O		1 A SITE		Other_	Tempe	Condu	DO Monitor	PPH Meter	Instruments					ENT	
_												Dissolved Oxygen (mg/L)	1	170			Gremperature Meter	Conductivity Meter	nitor	e	S		Phase	Projec		EVELOPMENT AND PURGING DATA	
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100.10												Comments									Serial No. (If applicable)			4.5	으 이 이	ς D/	
1/31/96																					able		12	9		λTA	

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Vater Q	uality	//Wa	ater (Colle	T							,			00 = 0is:	olved	Oxygen; C	Cond. = Conductivi
			Sam	oler	Тета		er Qua		Rea	6	ond.	Volu	me	Remov	1	Ī	Final Water Depth	Notes (Explain in
Date	Tin	ne	loiti	als	(°C)		рH	1	g/L)	1	m)	(gall	1	(gal/mid		Bail	(feet)	Comments Below
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																		0 = Other (Specify
ample C	Conta	iners	5	Pres	ervative	es: f	1 = HC	<u>и ;</u> Т	= H	NO ₃ ;	S = H	I₂SO₄;	1	NaOH; (D = Other	(Speci	fy); - =	None
Analytic	al			Co	ntainer					eid ered			Du	ring				
Parameter		Nur	nber	r	γpe	Vol	ume (m	U,	Yes	No	Pres	served	Yes				Comment	S
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er Type _ mments	s										~ ~ ~							

Sample ID: Matrix: Lab ID: Parameter:	MW - 9 Water 9805054-03			
Pårameter			Date Reported: Date Sampled: Date Received:	05/20/98 05/12/98 05/12/98
		Analytical Result	CUNIS	
General				
	рН	6.14	s.u.	
	Conductivity	3,530	µmohs/cm	n
	Specific Gravity	1.006	•	
	TDS (calc)	3,710	mg/L	
	TDS (Measured)	4,080	mg/L	-
Cations	•			
	Hardness	2,450	mg/L	
	Calcium	560	mg/L	
	Magnesium	256	mg/L	
	Sodium	166	mg/L	
	Potassium	9.0	mg/L	
Anions				
	Alkalinity	92.5	mg/L	
	Carbonate	19.4	mg/L	
	Bicarbonate	73.1	mg/L	
	Hydroxide	<1.0	mg/L	
	Chloride	272	mg/L	
	Sulfate	2,390	mg/L	
Data Validatio	n		Acceptable Li	imits
	% Difference cations/anions meq/l	2.52	+/- 2 - 5 %	
	TDS Ratio	1.1	1.0 - 1.2	
			\square	



FARMINGTON LABORATORY 807 S. CARLTON FARMINGTON, NM 87499-1289 (505) 326-2588

Philip Environmental 4000 Monroe Rd Farmington, NM 87401 Attn: Robert Thompson

Date: 05/20/98 **BR Hampton 4M** Project: **Project No:** 19584 Farmington Matrix: Water Site: Sampled By: C. Chance Date Sampled: 05/12/98 MW - 9 Date Received: Sample ID: 05/12/98 **Analytical Data** DETECTION PARAMETER RESULTS LIMIT UNITS Benzene 6.7 1.0 μg/L Toluene 1.0 1.1 μg/L Ethylbenzene ND 1.0 μg/L **Total Xylene** 2.7 1.0 μg/L **Total Volatile Aromatic Hydrocarbons** 10.5 μg/L Surrogate % Recovery 1.4.Difluorobenzene 100 4-Bromofluorobenzene 93 Method 8020A*** Analyzed by: VHZ Date: 05/15/98

ND-Not Detected

Notes:

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

Danica Carman, Lab Director





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Certificate of Analysis No. 9805054-03

FARMINGTON LABORATORY

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807 S. CARLTON FARMINGTON, NM 87499-1289 (505) 326-2588

05/20/98

Date:

Philip Environmental 4000 Monroe Rd. Farmington, NM 87401 Attn: Robert Thompson

Dissolved Metals

Project: **BR Hampton 4M** Project No: 19584 Site: Farmington Matrix: Water Sampled By: C. Chance Date Sampled: 05/12/98 **Date Received:** 05/12/98 Sample ID: MW - 9 **Analytical Data** Detection PARAMETER RESULTS Limit UNITS

Arsenic	ND	0.1	– mg/L
Barium	0.024	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.01	mg/L
Iron	6.38	0.02	mg/L
Lead	ND	0.05	mg/L
Manganese	9.90	0.005	mg/L
Selenium	ND	0.1	mg/L
Silver	ND	0.01	mg/L
Method 6010B ***			÷
Analyzed by: JM			
Date: 5/19/98			
Mercury	0.0002	0.0002	mg/L
Method 7470A ***			
Analyzed by: AG			
Date: 5/15/98			

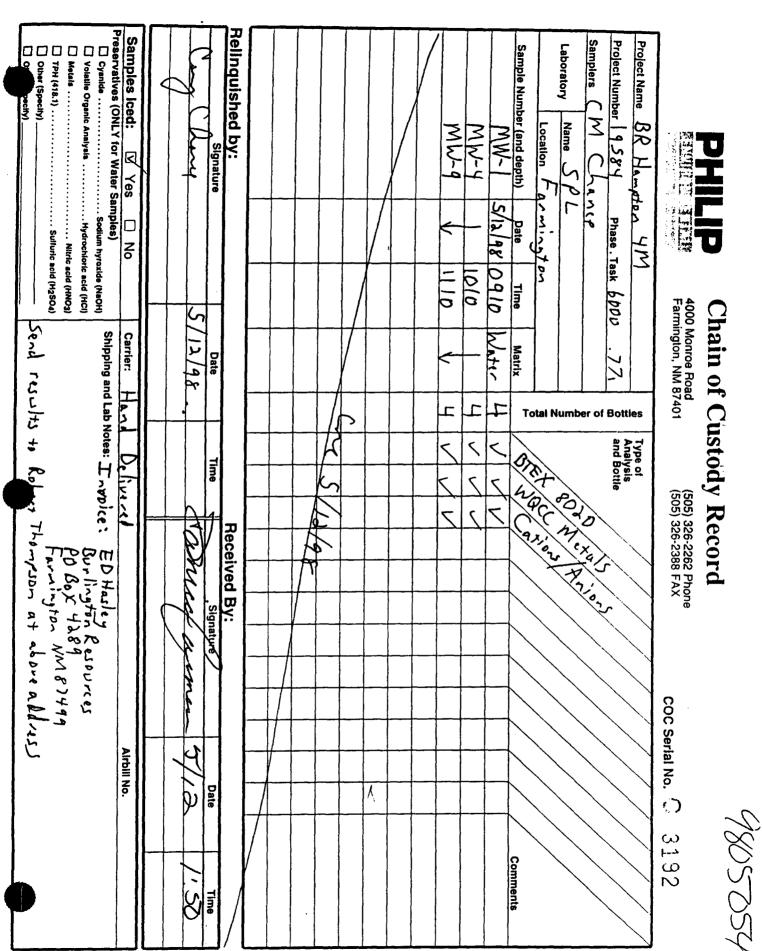
ND-Not Detected

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA **Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.

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

Danica Carman, Lab Manager

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PE-176 4/05

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ATTACHMENT #4

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GROUNDWATER CONTOUR MAP

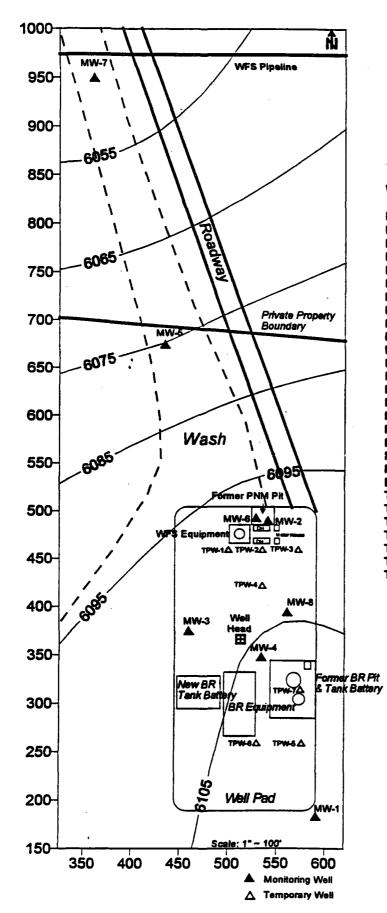


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Hampton 4M Site ap and Analytical Results (Cor. Intrations in ppb) Groundwater Contour Map (January, 1998)

EB - Private Well (Not to Scale)



Well #	Date	8	Т	E	X
MW-1	10/30/97	2.4	2.3	<0.2	1.1
MW-1	1/12/98	4.3	3.3	0.2	1
MW-1	4/14/98	1	1.3	<0.5	<1.5
MW-2	1/12/98	4.41	feet of proc	juct	
MW-2	4/14/98	2.59 feet of product			
MW-3	1/31/97	<0.2	<0.2	<0.2	<0.2
MW-3	1/12/98	<0.2	<0.2	<0.2	<0.2
MW-3	4/14/98	<0.5	<0.5	<0.5	<1.5
MW-4	1/31/97	811.7	1420.5	31.0	388.1
MW-4	1/12/98	1251	6	81	24
MW-4	4/14/98	1100	7.2	28	12
MW-5	10/29/97	5934	10024	709	8188
MW-5	1/12/98	7521	11213	779	8436
MW-5	4/14/98	7000	11000	720	7800
MW-6	1/12/98	4.71 feet of product			
MW-6	4/14/98	Product Recovery (pump in well)			
MW-7	1/12/98	780	246	258	3942
MW-7	4/14/98	820	340	190	2450
8-V/M	1/12/98	5410	17301	693	9397
MW-8	4/14/98	0.37 feet of product			
EB-Well	11/25/97	<0.2	<0.2	<0.2	<0.2
TPW-1	6 /5/9 7	20	<1.0	<1.0	<1.0
TPW-2	6 /9/ 97	2.48 f	eet of prod	luct	
TPW-3	6 /5/ 97	No G	roundwate	r Water	
TPW-4	6 /6/ 97	2000	57	3100	810
TPW-5	6/6/97	5800	460	16000	7000
TPW-6	6 /6/ 97	1600	48	3400	690
TPW-7	6 <i>/</i> 6/97	5300	620	18000	9300

CBI C.

ATTACHMENT #5

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CROSS SECTION FROM MW-4 TO MW-2

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