

GW - 255

**MONITORING
REPORTS**

DATE:

1998

BURLINGTON RESOURCES

SAN JUAN DIVISION

August 24, 1998

RECEIVED
BLM

20 AUG 26 AM 10:19

610 FARMINGTON, NM

RM
Dale DW 8/26/98

Dale L. Wirth
Bureau of Land Management
1235 La Plata Highway
Farmington, New Mexico 87401

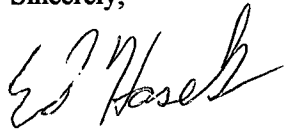
**Re: Buena Vista Compressor Station
Groundwater Sampling Event**

Dear Mr. Wirth:

As we discussed, Burlington Resources Oil and Gas Inc. (BR) is supplying you with a second copy of the final Buena Vista Compressor Station Semi-Annual Report for Groundwater Sampling. You indicated that you would forward this copy down to the New Mexico Oil Conservation Department.

If you have any questions regarding this submittal, please contact me at (505) 326-9841.

Sincerely,



Ed Hasely
Sr. Staff Environmental Representative

Enclosure: (1) Report for Groundwater Sampling, June 1998

Cc: Facility File
Correspondence File

RECEIVED
BLM

93 AUG 26 AM 10:19

670 FARMINGTON, NM

BUENA VISTA COMPRESSOR STATION
Quarterly Report for Groundwater Sampling

June 1998

Prepared For

**BURLINGTON RESOURCES
OIL AND GAS COMPANY,
FARMINGTON, NEW MEXICO**

Project 16060



**4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262**

June 16, 1998

Project 16060

Mr. Ed Hasely
Burlington Resources Oil & Gas Company
3535 East 30th
Farmington, New Mexico 87401

RE: Report for Quarterly Groundwater Sampling at Burlington Resources' Buena Vista Compressor Station, San Juan County, New Mexico

Dear Mr. Hasely:

On November 19, 1997, Philip Services Corporation (Philip) initiated the groundwater sampling at Burlington Resources Oil & Gas Company's (Burlington) Buena Vista Compressor Station (the site). The site is located in San Juan County, New Mexico, Section 13, Township 30 North, Range 9 West, Quadrant B. A site map is presented in Figure 1. The scope of work included:

- Purging of monitoring wells by removing a minimum of three well casing volumes of water and monitoring pH, conductivity, and temperature levels until stabilization occurred for monitoring wells 1 through 4.
- Collection of groundwater samples from each monitoring well and submitting the samples for laboratory analysis for benzene, toluene, ethylbenzene, and total xylenes (BTEX), chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and trichlorofluoromethane by U.S. Environmental Protection Agency (USEPA) Method 8260 and total dissolved solids (TDS) by USEPA Method 160.1.

METHODOLOGY

Monitoring well purging and groundwater sampling of the four monitoring wells at the site took place on May 20, 1998, and was completed the same day. Philip's field representative began by taking a static depth-to-groundwater reading with an electronic water-level indicator. In addition, the total depth of the well was measured using a weighted survey tape. Both measurements were taken from the same reference point at the top of the well casing. The total linear feet of water in the well was then used to calculate the water volume in the well casing. At least three well casing volumes were removed from each well. Each well was purged and sampled with a Grundfos™ submersible pump. The pump was decontaminated between use at each monitoring well by pumping an Alconox™ soap and potable water solution through the pump, followed by a distilled water rinse.

Field water-quality measurements of pH, conductivity, and temperature were performed periodically during the purging of each well to ensure that the water sampled was representative of the ambient groundwater in the aquifer. Once the water quality parameters were stable, and at least three well casing volumes had been removed, the groundwater was sampled by pouring groundwater from a decontaminated discharge line directly into 40-milliliter glass containers with Teflon™ septum closures. All volatile organic samples collected were preserved with hydrochloric acid, placed directly on ice, and transported via overnight service under strict chain-of-custody procedures to Zenon Environmental Laboratories. Each sample was analyzed for BTEX, chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and trichlorofluoromethane by USEPA Method 8260, and TDS by USEPA Method 160.1. Well purging data and groundwater sampling documentation are presented in Attachment A.

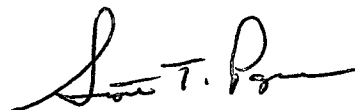
RESULTS

Laboratory results indicated benzene, toluene, ethylbenzene, and total xylenes levels to be below laboratory detection limits for all monitoring wells sampled. Chlorobenzene, 1,2 dichlorobenzene, 1,3-dichlorobenzene, and trichlorofluoromethane were also not detected in any of the samples collected from the monitoring wells at the site. TDS results for each monitoring well sampled were all above the New Mexico Water Quality Control Commission standard of 1,000 mg/L. Laboratory results from the groundwater sampling are presented in Table 1, and a copy of the original laboratory report can be found in Attachment B. This report documents the final sampling event at the Buena Vista Compressor Station. Philip recommends plugging and abandoning all of the monitoring wells at the site upon approval of the appropriate governing agency(s).

Philip appreciates the opportunity of providing professional services to Burlington Resources, and we look forward to working with you on future projects. If you have any questions or require additional information, please contact Scott T. Pope of Philip, at (505) 326-2262.

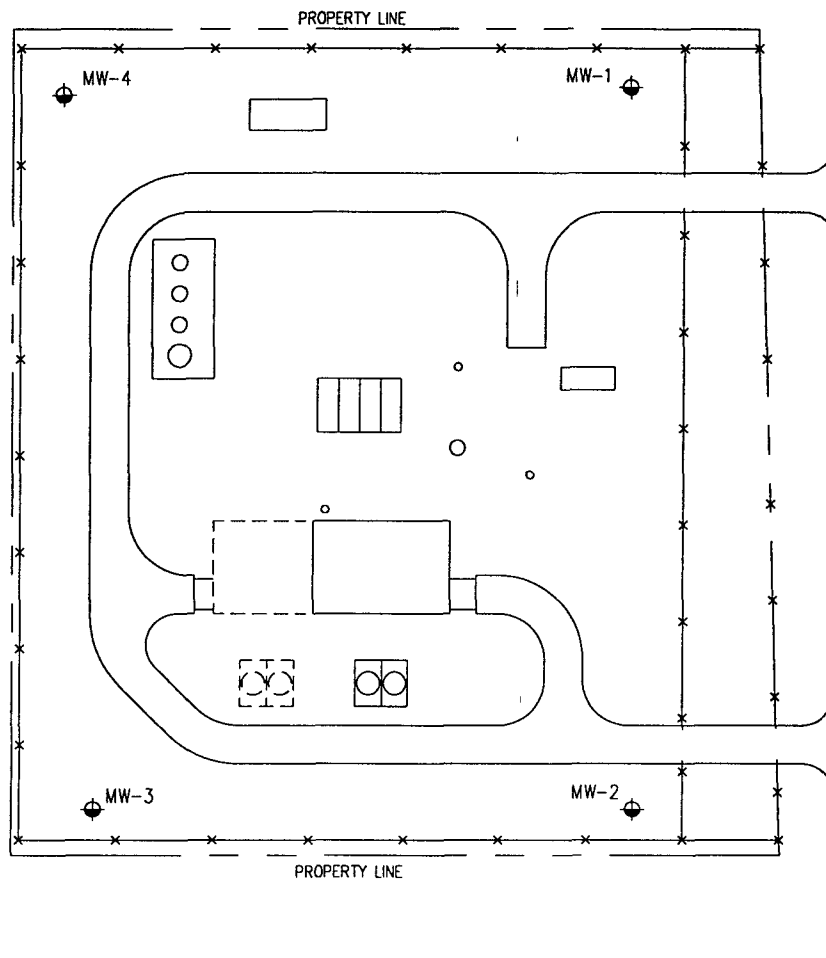
Respectfully submitted,

PHILIP SERVICES CORPORATION



Scott T. Pope
Project Manager

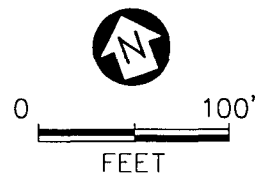
Attachments -
As stated



LEGEND



APPROXIMATE MONITORING WELL LOCATION AND WELL NUMBER



NOTE: THIS FIGURE WAS PREPARED USING TRIGON ENGINEERING, INC. SCHEMATIC, FILE NUMBER 8VEMA2.



TITLE:
GROUNDWATER MONITORING WELLS
BUENTA VISTA COMPRESSOR STATION
SAN JUAN COUNTY, NEW MEXICO

NO.	REVISION	BY	APPR.	DATE
△				
SCALE	AS NOTED	DATE	PROJECT NO: 16060	
DWN:	M.R.W.	9/16/96	BURLINGTON RESOURCES	
DES:			SAN JUAN COUNTY, NM	
CHKD:			FIGURE 1	
APPD:			REV: 0	

TABLE 1
SAMPLE RESULTS FROM GROUNDWATER SAMPLING
BURLINGTON RESOURCES OIL & GAS COMPANY
BUENA VISTA COMPRESSOR STATION

Location	Date Sampled	Benzene µg/L	Toluene µg/L	Ethyl- benzene µg/L	Total Xylenes µg/L	Chloro- benzene µg/L	1,2- Dichloro- benzene µg/L	1,3- Dichloro- benzene µg/L	Trichloro- fluoro- methane µg/L	TDS mg/L
MW-1	05/20/98	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	2100
	11/19/97	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	2100
	05/20/97	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	1100
	02/20/97	< 0.5	< 1.2	< 0.5	< 1.3	< 0.6	< 0.7	< 1.1	< 0.6	2200
	11/20/96	< 0.5	3.4	0.5	2.2	< 0.6	< 0.7	< 1.1	< 0.6	2100
	08/29/96	< 0.5	< 0.5	< 0.5	< 1.3	< 0.6	< 0.7	< 1.1	< 0.6	2200
	05/23/96	< 0.5	5.3	< 0.5	< 1.3	< 0.6	< 0.7	< 1.1	NA	2100
MW-2	05/20/98	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	2300
	11/19/97	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	2100
	05/20/97	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	1100
	02/20/97	< 0.5	< 1.2	< 0.5	< 1.3	< 0.6	< 0.7	< 1.1	< 0.6	2300
	11/20/96	< 0.5	3.1	0.6	3.3	< 0.6	< 0.7	< 1.1	< 0.6	2300
	08/29/96	< 0.5	< 0.5	< 0.5	< 1.3	< 0.6	< 0.7	< 1.1	< 0.6	2300
	05/23/96	< 0.5	5.3	< 0.5	< 1.3	< 0.6	< 0.7	< 1.1	NA	2400
MW-3	05/20/98	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	6100
	11/19/97	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	5600
	05/20/97	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	2700
	02/20/97	< 0.5	< 1.2	< 0.5	< 1.3	< 0.6	< 0.7	< 1.1	< 0.6	4800
	11/20/96	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	4400
	08/29/96	< 0.5	< 0.5	< 0.5	< 1.3	< 0.6	< 0.7	< 1.1	< 0.6	4400
	05/23/96	< 0.5	5.4	< 0.5	< 1.3	< 0.6	< 0.7	< 1.1	NA	4000
µg/L = micrograms per liter				mg/L = milligrams per liter						
BTEX Analysis by USEPA Method 8260				TDS Analysis by USEPA Method 160.1						
NA - Data not available for this sampling event										

TABLE 1
SAMPLE RESULTS FROM GROUNDWATER SAMPLING
BURLINGTON RESOURCES OIL & GAS COMPANY
BUENA VISTA COMPRESSOR STATION

CONTINUED

Location	Date Sampled	Benzene µg/L	Toluene µg/L	Ethyl- benzene µg/L	Total Nxylenes µg/L	Chloro- benzene µg/L	1,2- Dichloro- benzene µg/L	1,3- Dichloro- benzene µg/L	Trichloro- fluoro- methane µg/L	TDS mg/L
MW-4	05/20/98	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	2500
	11/19/97	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	2800
	05/20/97	< 0.5	< 1.2	< 0.5	< 0.8	< 0.6	< 0.7	< 1.1	< 0.6	1400
	02/20/97	< 0.5	< 1.2	< 0.5	< 1.3	< 0.6	< 0.7	< 1.1	< 0.6	2600
	11/20/96	< 0.5	< 1.2	0.5	0.8	< 0.6	< 0.7	< 1.1	< 0.6	2300
	08/29/96	< 0.5	< 0.5	< 0.5	< 1.3	< 0.6	< 0.7	< 1.1	< 0.6	2600
	05/23/96	2.5	18	< 2.0	9.7	< 0.6	< 0.7	< 1.1	NA	2500
µg/L = micrograms per liter BTEX Analysis by USEPA Method 8260 NA - Data not available for this sampling event				mg/L = milligrams per liter TDS Analysis by USEPA Method 160.1						

ATTACHMENT A

Well Purging and Sampling Data

Well Number MW-1☐ Development
☒ Purging

WELL DEVELOPMENT AND PURGING DATA

Page 1 of 1Project Name BR BUENA VISTAProject Manager SCOTT POPEProject No. 16060Client Company BURLINGTON RESOURCESPhase/Task No. 2001.77Site Name BUENA VISTASite Address SAN JUAN Co., NM

Development Criteria

☒ 0 to 5 Casing Volumes of Water Removal☒ Stabilization of Indicator Parameters☐ Other _____

Water Volume Calculation

Initial Depth of Well (feet) 60.13' TORInitial Depth to Water (feet) 48.55' TORHeight of Water Column in Well (feet) 11.58Diameter (inches): Well 4 Gravel Pack _____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing	7.56	7.56 x 3	22.68
Gravel Pack			
Drilling Fluids			
Total			22.68

Instruments

Serial No. (if applicable)

☒ pH MeterOYSTER☐ DO Monitor☒ Conductivity MeterOYSTER☒ Temperature MeterOYSTER☐ Other _____

Water Disposal

ON GROUND ON SITE

Methods of Development

Pump

Bailer

☐ Centrifugal ☐ Bottom Valve☒ Submersible ☐ Double Check Valve☐ Peristaltic ☐ Stainless-steel Kemmerer☐ Other _____

Water Removal Data

Date	Time	Development Method		Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons)		Product Volume Removed (gallons)		Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
		Pump	Bailer				Increment	Cumulative	Increment	Cumulative					
5-20-98	1320	X			59.13		5	5			18.3	6.71	1970		CLOUDY
5-20-98	1323	X			59.13		5	10			17.7	6.70	2010		CLOUDY
5-20-98	1326	X			59.13		5	15			17.7	6.67	2010		CLOUDY
5-20-98	1329	X			59.13		5	20			17.5	6.67	2010		CLEAR
5-20-98	1333	X			59.13		5	25			17.4	6.66	2010		CLEAR

Circle the date and time that the development criteria are met.

Comments _____

Developer's Signature(s) _____

Date 5-20-98

Reviewer _____

Date _____



Location No. MW-1
Serial No. WSD

WATER SAMPLING DATA

Group List Number _____

Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other _____ Date 5.20.98

Project Name BR BUENA VISTA Project No. 16060

Project Manager SCOTT POPE Phase/Task No. 2001.77

Site Name BUENA VISTA

Sampling Specifications

Requested Sampling
Depth Interval (feet) TOP 3'
Requested Wait Following
Development/Purging (hours) NONE

Initial Measurements

Time Elapsed From Final Development/Purging (hours) 5 MIN
Initial Water Depth (feet) 48.55' TOP
Nonaqueous Liquids Present (Describe) N/A

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data					Notes (Explain in Comment Below)
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (ft)	Bail	Final Water Depth (ft)	

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Sample Containers

Preservatives: H = HCl; N = HNO₃; S = H₂SO₄; A = NaOH; O = Other (Specify); --- = None

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Comments
	Number	Type	Volume (mL)	Yes	No		Yes	No	
<u>Volatiles 8260</u>	<u>3</u>	<u>V</u>	<u>40</u>		<u>X</u>	<u>H</u>	<u>X</u>		<u>SAMPLED AT 1338</u>
<u>TDS</u>	<u>1</u>	<u>P</u>	<u>500</u>		<u>X</u>		<u>X</u>		<u>SAMPLED AT 1338</u>

Filter Type NONE Chain-of-Custody Form Number C2113

Comments SAMPLED W/ PUMP

Signature Robert Champion Date 5.20.98 Reviewer _____ Date _____

Well Number MW-2☐ Development
☒ Purging

WELL DEVELOPMENT AND PURGING DATA

Page 1 of 1Project Name BR BUENA VISTAProject Manager SCOTT POPEProject No. 16060Client Company BURLINGTON RESOURCESPhase/Task No. 2001-77Site Name BUENA VISTASite Address SAN JUAN Co., NM

Development Criteria

☒ ① to 5 Casing Volumes of Water Removal☒ Stabilization of Indicator Parameters☐ Other _____

Water Volume Calculation

Initial Depth of Well (feet) 54.11' TORInitial Depth to Water (feet) 37.27' TORHeight of Water Column in Well (feet) 16.84'Diameter (inches): Well 4 Gravel Pack _____

Instruments

Serial No. (if applicable)

☒ pH MeterOYSTER☐ DO Monitor☒ Conductivity MeterOYSTER☒ Temperature MeterOYSTER☐ Other _____

Methods of Development

Pump

Bailer

☐ Centrifugal☐ Bottom Valve☒ Submersible☐ Double Check Valve☐ Peristaltic☐ Stainless-steel Kemmerer☐ Other _____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing	10.99	10.99 x 3	32.97
Gravel Pack			
Drilling Fluids			
Total			32.97

Water Disposal

ON GROUND ON SITE

Water Removal Data

Date	Time	Development Method		Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons)		Product Volume Removed (gallons)		Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
		Pump	Bailer				Increment	Cumulative	Increment	Cumulative					
5-20-98	1111	X			53.11		5	5			18.4	6.74	2030		CLOUDY
5-20-98	1118	X			53.11		5	10			17.7	7.13	2080		CLOUDY
5-20-98	1122	X			53.11		5	15			17.0	6.96	2080		CLOUDY
5-20-98	1127	X			53.11		5	20			17.2	6.90	2080		CLOUDY
5-20-98	1132	X			53.11		5	25			17.1	6.85	2170		CLOUDY
5-20-98	1134	X			53.11		5	30			17.1	6.84	2170		CLOUDY
5-20-98	1136	X			53.11		5	35			17.1	6.84	2170		SLIGHTLY CLOUDY

Circle the date and time that the development criteria are met.

Comments _____

Developer's Signature(s) Det ChampionDate 5-20-98

Reviewer _____

Date _____

Location No. MW-2

WATER SAMPLING DATA

Serial No. WSD-Group List Number Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other Date 5-2-98Project Name BR BUENA VISTA Project No. 16060Project Manager SCOTT POPE Phase Task No. 2001-77Site Name BUENA VISTA

Sampling Specifications

Requested Sampling

Depth Interval (feet) TOP 3'

Requested Wait Following

Development/Purging (hours) NONE

Initial Measurements

Time Elapsed From Final Development/Purging (hours) 6 MIN.Initial Water Depth (feet) 37.27' TORNonaqueous Liquids Present (Describe) N/A

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data					Notes (Explain in Comment Below)
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (ft)	Bail	Final Water Depth (ft)	

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Sample Containers

Preservatives: H = HCl; N = HNO₃; S = H₂SO₄; A = NaOH; O = Other (Specify); ... = None

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Comments
	Number	Type	Volume (mL)	Yes	No		Yes	No	
Volatiles 8260	3	V	40		X	H	X		SAMPLED AT 1142
TDS	1	P	500		X		X		SAMPLED AT 1142

Filter Type NONE Chain-of-Custody Form Number C2113Comments SAMPLED W/ PUMPSignature Robert Thompson Date 5-20-98 Reviewer Date

Well Number MW-3Serial No. WOPD-☐ Development
☒ Purging

WELL DEVELOPMENT AND PURGING DATA

Page 1 of 1Project Name BR BUENA VISTAProject Manager SCOTT POPEProject No. 16060Client Company BURLINGTON RESOURCESPhase/Task No. 2001.77Site Name BUENA VISTASite Address SAN JUAN CO., NM

Development Criteria

☒ 0 to 5 Casing Volumes of Water Removal☒ Stabilization of Indicator Parameters☐ Other _____

Methods of Development

Pump

Bailer

☐ Centrifugal☐ Bottom Valve☒ Submersible☐ Double Check Valve☐ Peristaltic☐ Stainless-steel Kemmerer☐ Other _____

Water Volume Calculation

Initial Depth of Well (feet) 38.36' TOPInitial Depth to Water (feet) 26.54' TOPHeight of Water Column in Well (feet) 11.82'Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing	7.72	7.72 x 3	23.16
Gravel Pack			
Drilling Fluids			
Total			23.16

Instruments

Serial No. (if applicable)

☒ pH MeterOYSTER☐ DO Monitor☒ Conductivity MeterOYSTER☒ Temperature MeterOYSTER☐ Other _____

Water Disposal

ON GROUND ON SITE

Water Removal Data

Date	Time	Development Method		Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons)		Product Volume Removed (gallons)		Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
		Pump	Bailer				Increment	Cumulative	Increment	Cumulative					
5-20-98	1040	X			37.36'		5	5			21.7	6.57	4520		CLOUDY
5-20-98	1408	X			37.36'		5	10			18.6	6.34	5560		CLOUDY

Circle the date and time that the development criteria are met.

Comments WELL PUMPED DRY AT 7 GAL. WILL LET RECOVER. LET RECOVER 3 HRS. PUMPED 3 GAL AND PUMPED DRY. WILL LET RECOVER AND SAMPLE. SAMPLED WITH DISPOSABLE BAILER.Developer's Signature(s) Scott ChampionDate 5-20-98

Reviewer _____

Date _____

Location No. MW-3

WATER SAMPLING DATA

Serial No. WSD

Group List Number _____

Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other _____Date 5-20-98Project Name BR BUENA VISTAProject No. 16060Project Manager SCOTT POPEPhase/Task No. 2001-77Site Name BUENA VISTA

Sampling Specifications

Requested Sampling

Depth Interval (feet) TOP 3'

Requested Wait Following

Development/Purging (hours) NONE

Initial Measurements

Time Elapsed From Final Development/Purging (hours) 17 MIN.Initial Water Depth (feet) 24.54' TORNonaqueous Liquids Present (Describe) N/A

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data					Notes (Explain in Comment Below)
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (ft)	Bail	Final Water Depth (ft)	

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Sample Containers

Preservatives: H = HCl; N = HNO₃; S = H₂SO₄; A = NaOH; O = Other (Specify); ... = None

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Comments
	Number	Type	Volume (mL)	Yes	No		Yes	No	
<u>VOLATILES B210</u>	<u>3</u>	<u>V</u>	<u>40</u>		<u>X</u>	<u>H</u>	<u>X</u>		<u>SAMPLED AT 1425</u>
<u>TDS</u>	<u>1</u>	<u>P</u>	<u>500</u>		<u>X</u>		<u>X</u>		<u>SAMPLED AT 1425</u>

Filter Type NONEChain-of-Custody Form Number C 2113Comments SAMPLED W/ DISPOSABLE BAILER.

Signature

Date 5-20-98

Reviewer _____

Date _____

Well Number MW-4☐ Development
☒ Purging

WELL DEVELOPMENT AND PURGING DATA

Page 1 of 1Project Name BR BUENA VISTAProject Manager SCOTT POPEProject No. 16060Client Company BURLINGTON RESOURCESPhase/Task No. 2001.77Site Name BUENA VISTASite Address SAN JUAN Co., NM

Development Criteria

☒ ③ to 5 Casing Volumes of Water Removal☒ Stabilization of Indicator Parameters☐ Other _____

Methods of Development

Pump

Bailer

☐ Centrifugal☐ Bottom Valve☒ Submersible☐ Double Check Valve☐ Peristaltic☐ Stainless-steel Kemmerer☐ Other _____

Water Volume Calculation

Initial Depth of Well (feet) 43.60' TORInitial Depth to Water (feet) 33.91' TORHeight of Water Column in Well (feet) 9.69'Diameter (inches): Well 4 Gravel Pack _____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing	6.33	6.33 x 3	18.99
Gravel Pack			
Drilling Fluids			
Total			18.99

Instruments

Serial No. (if applicable)

☒ pH MeterOYSTER☐ DO Monitor☒ Conductivity MeterOYSTER☒ Temperature MeterOYSTER☐ Other _____

Water Disposal

ON GROUND ON SITE

Water Removal Data

Date	Time	Development Method		Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons)		Product Volume Removed (gallons)		Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
		Pump	Bailer				Increment	Cumulative	Increment	Cumulative					
5-20-98	1236	X			42.60		5	5			17.9	6.80	2230		CLEAR
5-20-98	1238	X			42.60		5	10			17.2	6.74	2360		CLEAR
5-20-98	1240	X			42.60		5	15			17.0	6.70	2380		CLEAR
5-20-98	1242	X			42.60		5	20			17.0	6.70	2380		CLEAR

Circle the date and time that the development criteria are met.

Comments _____

Developer's Signature(s) _____

Date 5-20-98

Reviewer _____

Date _____

Location No. MW-4

WATER SAMPLING DATA

Serial No. WSD-Group List Number Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other Date 5-20-98Project Name BR BUENA VISTA Project No. 16060Project Manager SCOTT POPE Phase Task No. 2001-77Site Name BUENA VISTA

Sampling Specifications

Requested Sampling

Depth Interval (feet) TOP 3'

Requested Wait Following

Development/Purging (hours) NONE

Initial Measurements

Time Elapsed From Final Development/Purging (hours) 7 MIN.Initial Water Depth (feet) 33.91' TORNonaqueous Liquids Present (Describe) N/A

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data					Notes (Explain in Comment Below)
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (ft)	Bail	Final Water Depth (ft)	

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Sample Containers

Preservatives: H = HCl; N = HNO₃; S = H₂SO₄; A = NaOH; O = Other (Specify); ... = None

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Comments
	Number	Type	Volume (mL)	Yes	No		Yes	No	
Volatiles 8260	3	V	40		X	H	X		SAMPLED AT 1249
TDS	1	P	500		X		X		SAMPLED AT 1249

Filter Type NONE Chain-of-Custody Form Number C2113Comments SAMPLED w/ PUMPSignature Robert Champion Date 5-20-98 Reviewer Date



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

COC Serial No. C 2113

Relinquished by:

Received By:

Samples Iced: ☒ Yes ☐ No

Carrier: FED EX

Airbill No. 8004162822604

Preservatives (ONLY for Water Samples)

- ☐ Cyanide Sodium hydroxide (NaOH)
☒ Volatile Organic Analysis Hydrochloric acid (HCl)
☐ Metals Nitric acid (HNO₃)
☐ TPH (418.1) Sulfuric acid (H₂SO₄)
☐ Other (Specify) _____
☐ Other (Specify) _____

Shipping and Lab Notes:

ATTACHMENT B

Laboratory Report



Certificate of Analysis

CLIENT INFORMATION

Attention: Scott Pope
Client Name: Philip Environmental Inc.
Project: 16060
Project Desc: MOI Bucana Vista

Address: 4000 Monroe Road
Farmington, NM
87401

Fax Number: 505 326-2388
Phone Number: 505 326-2262

LABORATORY INFORMATION

Contact: Ada Blythe, B.Sc., C.Chem.
Project: AN960508
Date Received: 98/05/22
Date Reported: 98/05/29

Submission No.: 8E0697
Sample No.: 023018-023022

NOTES: *'-' = not analysed '<' = less than Method Detection Limit (MDL) 'NA' = no data available*
LOQ can be determined for all analytes by multiplying the appropriate MDL X 3.33
Solids data is based on dry weight except for biota analyses.
Organic analyses are not corrected for extraction recovery standards except for isotope dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)

Methods used by PASC are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', Seventeenth Edition. Other methods are based on the principles of MISA or EPA methodologies. New York State: ELAP Identification Number 10756.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at PASC for a period of three weeks from receipt of data or as per contract.

COMMENTS:

Certified by: 

Page 1



Component	Client ID:		Method	Blank	% Recovery	MW-2	MW-2	MW-4	MW-1	MW-3	MW-3
	Lab No.:		Blank	Spike							
	Date Sampled:		023018 98	023018 98	023018 98	023019 98	023019 98	023020 98	023021 98	023022 98	023022 98
			98/05/20	98/05/20	98/05/20	98/05/20	98/05/20	98/05/20	98/05/20	98/05/20	98/05/20
MDL	Units					Duplicate					M. Spike
TDS (180 °C)	11	mg/L	<	-	-	2300	2300	2500	2100	6100	-
<i>Volatiles via SW846 Method 8260</i>											
Trichlorofluoromethane	0.6	ug/L	<	46	92	<	-	<	<	<	52
Benzene	0.5	"	<	51	100	<	-	<	<	<	54
Toluene	1.2	"	<	52	100	<	-	<	<	<	54
Ethylbenzene	0.5	"	<	51	100	<	-	<	<	<	50
m&p-Xylene	0.8	"	<	110	110	<	-	<	<	<	100
o-Xylene	0.5	"	<	51	100	<	-	<	<	<	51
Chlorobenzene	0.6	"	<	53	110	<	-	<	<	<	53
1,2-Dichlorobenzene	0.7	"	<	55	110	<	-	<	<	<	53
1,3-Dichlorobenzene	1.1	"	<	55	110	<	-	<	<	<	48
Surrogate Recoveries		%									
d4-1,2-Dichloroethane			86	91	91	87	-	85	89	84	93
d8-Toluene			94	97	97	95	-	93	93	95	102
Bromofluorobenzene			94	102	102	94	-	96	90	87	107

	<i>Client ID:</i>		MW-3	MW-3	MW-3
	<i>Lab No.:</i>		023022 98	023022 98	023022 98
	<i>Date Sampled:</i>		98/05/20	98/05/20	98/05/20
Component	MDL	Units	MS % Rec.	MS Dup	MSD % Rec.
TDS (180 °C)	11	mg/L	-	-	-
<i>Volatiles via SW846 Method 8260</i>					
Trichlorofluoromethane	0.6	ug/L	100	55	110
Benzene	0.5	"	110	53	110
Toluene	1.2	"	110	53	110
Ethylbenzene	0.5	"	100	53	110
m&p-Xylene	0.8	"	100	110	110
o-Xylene	0.5	"	100	52	110
Chlorobenzene	0.6	"	110	54	110
1,2-Dichlorobenzene	0.7	"	110	52	100
1,3-Dichlorobenzene	1.1	"	95	52	100
Surrogate Recoveries		%			
d4-1,2-Dichloroethane			93	94	94
d8-Toluene			102	101	101
Bromofluorobenzene			107	111	111

6/16/98

PASC - Summary of Analysis Pre. Dates

Page MS-4 of 4

Batch Code: 0526MSA1
TDS (180 °C)

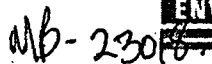
023018 98
023019 98
023020 98
023021 98
023022 98

Date Analysed: 98/05/27
Preparation Date: 98/05/26

Batch Code: 0526SM02
Volatiles

023018 98
023019 98
023020 98
023021 98
023022 98

Date Analysed: 98/05/26
Preparation Date: 98/05/26



4000 Monroe Road
Farmington, NM 87401

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

COC Serial No. C 2113

Relinquished by:			Received By:		
Signature	Date	Time	Signature	Date	Time
<i>Pat Champion</i>	5-20-98	1630	<i>[Signature]</i>	980522	11:50

Samples Iced: ☒ Yes ☐ No Preservatives (ONLY for Water Samples) ☐ Cyanide Sodium hydroxide (NaOH) ☒ Volatile Organic Analysis Hydrochloric acid (HCl) ☐ Metals Nitric acid (HNO ₃) ☐ (418.1) Sulfuric acid (H ₂ SO ₄) _____ (specify) _____ _____	Carrier: <u>FED EX</u> Shipping and Lab Notes:	Airbill No. <u>800462822604</u>
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