Bratcher, Mike, EMNRD

From:	Dale Littlejohn [dale.littlejohn@suddenlink.net]
Sent:	Thursday, September 10, 2009 9:14 AM
То:	Bratcher, Mike, EMNRD
Cc:	qwelborn@valornet.com; 'Randall Hicks'
Subject:	Mark and Garner Loco Hills Sites OCD 2RP-304-310
Attachments:	M & G Loco Hills 9-10-09 Response to OCD.pdf

Mike,

Please find the attached Report for the above referenced sites. I will also send you a hard copy. Please call me if you have any questions or need any additional information.

Thanks,

Dale T Littlejohn, PG (432) 528-3878 (432) 689-4578 (fax)

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This inbound email has been scanned by the MessageLabs Email Security System.

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R. T. HICKS CONSULTANTS, LTD.

PO Box 7624 Midland, TX 79708 432.528-3878 Fax: 432.689-4578

September 10, 2009

Mr. Mike Bratcher New Mexico Oil and Conservation Division District II - Artesia Field Office 1301 West Grand Avenue Artesia, NM 88210

VIA EMAIL AND USPS

RE: Seven Produced Fluid Releases at sites operated by Marks and Garner Production Ltd, Company in Eddy County, NM as follows:

Site Name (type)	Location (T-R-SecUnit)	OCD Reference No.
Levers Fed. No. 7 (battery)	T-16-S, R-29-E, Sec 33 (J)	2RP-304
Levers No. 3Y (well)	T-16-S, R-29-E, Sec 33 (N)	2RP-305
Red 12 Fed. No. 1 (battery)	T-16-S, R-29-E, Sec 33 (O)	2RP-306
Cave State No. 4 (well)	T-17-S, R-29-E, Sec 4 (F)	2RP-307
Red 12 State No. 2 (battery)	T-17-S, R-29-E, Sec 4 (H)	2RP-308
Red 12 State No. 3 (battery)	T-17-S, R-29-E, Sec 5 (J)	2RP-309
Red 12 State No. 4 (battery)	T-17-S, R-29-E, Sec 5 (O)	2RP-310

Dear Mr. Bratcher:

R.T. Hicks Consultants is pleased to submit this response to your August 19, 2009 directive letter concerning the characterization activities on the behalf of Marks and Garner Production Ltd. Because this letter proposes collection of additional data, we request that NMOCD consider this letter an interim response. Plate 1a shows the location of the sites.

Determination of Remediation Action Levels Ranking Score

The ranking criteria of each site is presented below in accordance with the NMOCD August 13, 1993 *Guidance for Remediation of Leaks, Spills and Releases*.

Depth to Ground Water and Ground Water Quality

Plate 1b shows the location of the Marks & Garner sites (red circles) that are the subject of investigations in support of gaining compliance with Part 29 of the NMOCD Rules. Also shown on Plate 1b are:

- The geology of the area from the on-line geologic map of New Mexico (NM Bureau of Mines and Mineral Resources)
- The Loco Hills Gas Storage Facility (south blue circle), which provides information about the nature of ground water in and around Bear Grass Draw (see Appendix A)

- A stock well (RA-8233) completed within the alluvium of Bear Grass Draw (Office of the State Engineer Database)
- A domestic well located in the older alluvium (RA 9342) from the OSE database
- Three sample locations from the PTTC database
- A well identified on the USGS topographic map in Section 10 (north blue circle)

The geologic map shows that Quaternary Alluvium fills the valley of Bear Grass Draw. Quaternary eolian and pediment deposits dominate the southern portion of the area shown in Plate 1b and Quaternary Older Alluvium comprises the majority of the northern portion.

Data obtained from drilling several monitoring wells at the Loco Hills Gas Storage Facility (Appendix A) provide the following data:

- 1. The alluvium in and adjacent to Bear Creek, which is composed of clay, sand and caliche deposits; is less than 15 feet thick.
- 2. Underlying the alluvium in Bear Grass Draw are claystone, sandstone and limestone of the Triassic Dockam Group
- 3. Ground water beneath Bear Grass Draw occurs in permeable units associated with the Dockum Group that are about 80 feet deep.
- 4. Ground water in these units is confined and exhibit 10-20 feet of artesian head

Although no driller's log is available data for RA-8233, records from the OSE in Appendix B show:

- A. Total depth of well RA-9342 is 220 feet with a depth to water upon completion of 110 feet. The driller's log indicates that the top of the redbeds are at 90 feet and the water bearing strata is from 143 to 204 feet. These data suggest the well is completed below the alluvium and within one of the confined aquifers (Chinle or Rustler)
- B. Total depth of well RA-8233 is 87 feet with a reported depth to water of 80 feet. The depth of this well is similar to those at the Loco Hills Gas Storage Facility where artesian conditions exist. We measured a depth to water of about 60 feet during our investigation of the gas storage facility.

Although the sample #7992 from the PTTC database plots due east of the Loco Hills Gas Storage Facility, careful examination of the database shows that this plotted point consists of eight samples from three wells. Two of these three wells are at the same location as well RA 8233 from the OSE database –and we field verified that two wells exist at this location. The PTTC database describes one well of these wells at RA 8233 as an alluvial well and the other as a Triassic Santa Rosa well. The third well in the PTTC database is a supply well for the Loco Hills Gas Facility. The PTTC data from the RA 8233 location show relatively high quality water in the Santa Rosa and alluvium (less than 50 ppm chloride). At the Loco Hills Gas Storage Facility supply well, chloride concentration exceeds 50,000 ppm. As described in Appendix A; evidence suggests that leakage from a storage pit migrated through a water well bore into the underlying aquifer.

From these data we can conclude that the quality of ground water beneath Bear Grass Draw in the area of the Marks & Garner sites is probably similar to that observed at RA 8233. No evidence from the PTTC data suggests that ground water in the area of the Marks & Garner sites is not confined.

Plate 1b shows two other wells from the PTTC database south of the Loco Hills Gas Storage Facility. According to the PTTC database, both of these wells are screened below the alluvial cover in the Triassic Dockham group or the Rustler. These two aquifers are confined in this area.

Because all evidence shows that ground water in the area is confined, we have assigned a "Depth to Ground Water" ranking score of zero (0).

Wellhead Protection Area

Since nearest published water well is located approximately 2 miles northwest of the most northwest site, we have assigned a "Wellhead Protection Area" ranking score of zero (0).

Distance to Surface Water Body

The 1993 guidance document defines surface water as being a perennial river, stream, creek irrigation canal (ditch), lake, pond, or playa. Two of the sites (Levers 3Y and Red-12 Federal No. 1) are located adjacent to Bear Grass Draw, but it is not a perennial stream. No other qualifying surface water is present within 1,000 feet; therefore we have assigned a "Distance to Nearest Surface Water Body" ranking score of zero (0).

Application of these criteria to all of the Marks and Garner Loco Hills sites is demonstrated below resulting in RRALs of 10 ppm benzene, 50 ppm BTEX, and 5,000 ppm TPH.

General Site Characteristics	Ranking Score
Depth to ground water not relevant (confined aquifer)	0
Wellhead greater than 1,000 feet from water source	0
Distance to down gradient surface water greater than 1,000 feet	0
Total Ranking Score	0

Horizontal Delineation of Chlorides

Following receipt of the NMOCD August 19, 2009 directive letter, laboratory analysis of chloride was performed on the deepest samples recovered from each site during the June 2009 investigation. This information provided confirmation that all of the sites contain chloride concentrations that exceed the remediation levels defined in the NMOCD May 28, 2004, *Interim Pit and Below-Grade Tank Guidelines*.

On August 27 and 28, 2009, RT Hicks Consultants returned to the Loco Hills sites in order to recover near surface soil samples used to delineate the horizontal extent of the chloride-impacted soil and provide guidance for future vertical delineation.

Analysis of Field and Laboratory Soil Samples

The following tables have been prepared as a summary of the hydrocarbon and chloride results from the soil samples recovered to date. Bold text indicates those samples that exceed NMOCD guideline RRALs. Field chloride verification and nutrient evaluation samples have been shipped to an agricultural laboratory for analyses. These results will be included in the tables with the final report.

In addition to the tables below, site maps for each site (Plate 2A - 2G) have been prepared to indicate the location of the soil samples recovered; the depth and chloride concentrations of the samples; and the proposed location of vertical delineation soil borings.

Sample Location	Depth (feet)	Sample Date	Field Cl (mg/kg)	Lab Cl (mg/kg)	PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	BTEX (mg/kg)	C ₆₋₁₂ (mg/kg)	C ₁₂₋₂₈ (mg/kg)	C ₂₈₋₃₅ (mg/kg)
								······································			· · · · · · · · · · · · · · · · · · ·		
Center Oil Spill	0.5	6/23/09		-	10	<0.0011	<0.0022	0.0015	< 0.0011	< 0.006	<16.4	461	61.6
	1.0	6/23/09			0	-	-	-					-
	3.0	6/23/09		3,520	0	<0.0011	< 0.0022	< <u>0.0011</u>	<0.0011	< 0.006	<16.7	20.9	<u><</u> 16.7
10-Ft North	2-3	8/27/09	1,802		0			-					_
20-Ft North	2-3	8/27/09	1,428		0		_						
10-Ft South	2-3	8/27/09	948		0								
20-Ft South	2-3	8/27/09	964	-	0	- 1	-				- 1		
30-Ft South	2-3	8/27/09	3,971		0			-					
10-Ft East	2-3	8/27/09	2,907		0		-	-	~				
20-Ft East	2	8/27/09	202	-	0		-	-					
50-Ft Northeast	0-1	8/28/09	176	-	0			-				-	
70-Ft Southeast	0-1	8/28/09	161		0			-					
100-Ft Southeast	0-1	8/28/09	404		0			-					
NMOCD 1993 Gu	ideline F	PAIs.	2	50*		10				50		5.000	

Marks & Garner - Levers Federal No. 7 Site Field and Laboratory Data - Soil Samples

* Chloride RRAL is based on the NMOCD May 28, 2004 Interim Pit and Below-Grade Tank Guidelines

Marks & Garner - Levers No. 3Y Site Field and Laboratory Data - Soil Samples

Sample	Depth	Sample	Field Cl	Lab Ci	PID	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	C 6-12	C ₁₂₋₂₈	C ₂₈₋₃₅
Location	(feet)	Date	(mg/kg)	(mg/kg)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Center Oil Spill	Surf	6/22/09			85	0.013	0.537	1.3850	3.5	5.47	1,340	44,500	3,150
	2.0	6/22/09			39			-		- 1		-	
	3.0	6/22/09			64			-		-		-	
	4.0	6/22/09			127					-			
	5.0	6/22/09			210			-		-			
	6.0	6/22/09		6,820	334	< 0.0107	0.212	0.6995	6.553	7.47	1,690	6,640.0	581
15-Ft East	2-3	8/27/09	455		0								
20-Ft West	2-3	8/27/09	897		0				-				
25-Ft North	2	8/27/09	1,114		0				**				
NMOCD 1993 G	ideline F	RALS	2	50*		10				50		5,000	

* Chloride RRAL is based on the NMOCD May 28, 2004 Interim Pit and Below-Grade Tank Guidelines

Marks & Garner - Red-12 Federal No. 1 Site

Field and Laboratory Data - Soil Samples

Sample Location	Depth (feet)	Sample Date	Field Cl (mg/kg)	Lab Cl (mg/kg)	PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	BTEX (mg/kg)	C ₈₋₁₂ (mg/kg)	C ₁₂₋₂₈ (mg/kg)	C ₂₈₋₃₅ (mg/kg)
Oil Spill Area	0.5	6/23/09		-	0	<0.0011	<0.0022	<0.0011	< 0.0011	<0.006	<335	23,600	2,280
	1.0	6/23/09			0	- 1		-					
	3.0	6/23/09		3,030	0	<0.0011	< 0.0022	< 0.0011	< 0.0011	< 0.006	<16.9	61.3	<16.9
25-Ft WSW	2-3	8/27/09	6,712		0			-		-			-
35-Ft WSW	2-3	8/27/09	7,615		0			-] [-
45-Ft WSW	2-3	8/27/09	8,192		0		-						-
20-Ft NNW	2-3	8/27/09	1,388		0		-						
45-Ft SSE	2-3	8/27/09	1,332		0								
120-Ft Southeast	0-1	8/28/09	392		0								
50-Ft Northeast	0-1	8/28/09	179		0								
NMOCD 1992 Gu	idalina E	DALe		50*		10				50		5 000	

* Chloride RRAL is based on the NMOCD May 28, 2004 Interim Pit and Below-Grade Tank Guidelines

Marks & Garner - Cave State No. 4 Site

Field and Laboratory Data - Soil Samples

Sample Location	Depth (feet)	Sample Date	Field Cl (mg/kg)	Lab Cl (mg/kg)	PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	BTEX (mg/kg)	C 8-12 (mg/kg)	C ₁₂₋₂₈ (mg/kg)	C ₂₈₋₃₅ (mg/kg)
					_								
Stockpile Soil		6/22/09			185	0.0519	1.22	4.45	9.284	15.0	2,050	38,400	2,820
Oil Spill Area	2.0	6/22/09			0	- 1			-		_		
	4.0	6/22/09		1,460	0	<0.0012	< 0.0024	< 0.0012	<0.0024	<0.008	<17.8	18.7	<17.8
55-Ft Southeast	2-3	8/28/09	469		0	-			-			-	-
85-Ft Northeast	2-3	8/28/09	800		0		·			_			
75-Ft Southwest	2-3	8/28/09	66		0				**				
NMOCD 1993 Gu	ideline R	RALs	25	50*		10				50		5,000	

NMOCD 1993 Guideline RRALs 250° -- 10 --Chloride RRAL is based on the NMOCD May 28, 2004 Interim Pit and Below-Grade Tank Guidelines

Marks & Garner - Red-12 State No. 2 Site Field and Laboratory Data - Soil Samples

Sample	Depth	Sample	Field CI	Lab CI	PID	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX -	C ₆₋₁₂	C ₁₂₋₂₈	C ₂₈₋₃₅
Location	(feet)	Date	(mg/kg)	(mg/kg)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
													-
Center Oil Spill	0.5	6/23/09		••	10	<0.0011	<0.0023	0.0099	0.0186	0.032	340	20,500	1,360
	1.0	6/23/09			6				-			-	
	3.0	6/23/09		10,300	0	<0.0011	<0.0022	<0.0011	< 0.0011	<0.006	<16.2	58.6	<16.2
10-Ft West	2-3	8/27/09	2,518		0			-			-	-	-
20-Ft West	2-3	8/27/09	5,846		0				-	-	-		
30-FT West	2-3	8/27/09	2,358		0								-
20-Ft North	2-3	8/27/09	2,784		0				-				-
40-Ft South	2-3	8/27/09	6,500		0						-	_	
100-Ft South	0-1	8/28/09	221		0					-		÷	-
100-Ft North	2-3	8/28/09	2,760		0	-						-	
160-Ft North	0-1	8/28/09	526		0					-	-		-
70-Ft West	0-2	8/28/09	817		0	-				-	**	-	
160-Ft West	0-1	8/28/09	229		0								
	_												
NMOCD 1993 G	udalina B	PAI e	20	50*		10				50		5,000	

* Chloride RRAL is based on the NMOCD May 28, 2004 Interim Pit and Below-Grade Tank Guidelines

Marks & Garner - Red-12 State No. 3 Site Field and Laboratory Data - Soil Samples

Sample Location	Depth (feet)	Sample Date	Field Cl (mg/kg)	Lab Cl (mg/kg)	PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	BTEX (mg/kg)	C ₈₋₁₂ (mg/kg)	C ₁₂₋₂₈ (mg/kg)	C ₂₈₋₃₅ (mg/kg)
Composite	Surf	6/22/09	8,068		0	0.0016	<0.0022	0.0015	0.0054	0.011	1,780	57,000	5,510
Oil Spill West	1.0	6/22/09	2,408		0	<0.0011	<0.0022	<0.0011	<0.0022	<0.007	<16.7	24.7	<16.7
Oil Spill East	2.0	6/22/09	2,887	2,600	0	<0.0011	< 0.0023	< 0.0011	< 0.0011	<0.006	<16.9	35.8	<16.9
CI Spill East	2.0	8/27/09	4,156	-	0	-							
CI Spill Center	2.0	8/27/09	4,805		0				-				-
CI Spill West	1.0	8/27/09	6,514		0						-		-
60-Ft North	0-1	8/28/09	175		0								-
35-Ft West	0-1	8/28/09	137		0						- 1		
100-Ft Southeast	0-1	8/28/09	857		0				-	-			
NMOCD 1993 Gu	ideline R	RALs	2	50*		10			_	50		5,000	

NMOCD 1993 Guideline RRALs 250° - 10 • Chloride RRAL is based on the NMOCD May 28, 2004 Interim Pit and Below-Grade Tank Guidelines

Marks & Garner - Red-12 State No. 4 Site Field and Laboratory Data - Soil Samples

Sample Location	Depth (feet)	Sample Date	Field Cl (mg/kg)	Lab Cl (mg/kg)	PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	BTEX (mg/kg)	C 8-12 (mg/kg)	C ₁₂₋₂₈ (mg/kg)	C ₂₈₋₃₅ (mg/kg)
Composite	Surf	6/22/09	8,068		10	0.0024	0.0040	0.0153	0.0411	0.060	<308	18,400	3,030
180-Ft South	1.0	6/22/09		193	0								
	3.0	6/22/09		257	0	-			-	-		-	
440-Ft Southwest	0.5	6/22/09		19,200	0								
180-Ft North	1.0	6/22/09	6,085	5,340	0				-				
	3	6/22/09	6,227	5,830	0								
NMOCD 1993 Gui	deline R	RALs	2	50*		j 10				50		5,000	

* Chloride RRAL is based on the NMOCD May 28, 2004 Interim Pit and Below-Grade Tank Guidelines

Recommendations for Additional Corrective Actions

In mid to late August 2009 a roust-a-bout contractor was hired by Marks and Garner to remove the visible oil-stained soil and backfill the areas with clean soil and gravel. All of the hydrocarbon-impacted soil was disposed of off-site. Photographic documentation of the site clean-up results and waste soil manifests will be provided with the final report.

Hicks Consultants recommends that a hollow-stem auger be used to complete the vertical delineation of hydrocarbon- and chloride-impacted soil at each site according to the attached plates. We anticipate that a drilling rig will be available in mid to late October 2009 and a final report for each site, including recommendations for remedial actions, will be submitted to the NMOCD by the end of 2009. In the final report we will provide remediation action levels for soil and underlying sediment based upon criteria in NMOCD Rules, science-based evaluation of the sampling data and physical setting.

Please contact me if you have any questions, comments or require additional information prior to completion of the final report.

Sincerely, R.T. Hicks Consultants, Ltd.

Dalit. Lottegolu

Dale T. Littlejohn Project Manager (432) 528-3878

Copy: Quinton Welborn, Marks and Garner Production Ltd, Co.







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APPENDIX A Hydrogeological Study of the Loco Hills Gas Storage Facility

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TABLES

Table 1. History of Loco Hills GSF Fa	acility
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 Table 2.
 Depth to Water and Elevation of Potentiometric Surface

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Table 3.Chloride Concentrations in Wells

PLATES

- Plate 1. Map Showing Land Acquisition
- Plate 2. Surface Geologic Map
- Plate 3. Structure Contour Map
- Plate 4. Hydrogeologic Cross Section
- Plate 5. Potentiometric Surface Map (Static)
- Plate 6. Potentiometric Surface Map Using Data After Pumping SW-2
- Plate 7. Chloride Cuttings Graph
- Plate 8. Chloride in Ground Water
- Plate 9. Maximum Extent of Ground Water Impairment

APPENDICES

Appendix A. Well Logs

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ABATEMENT PLAN TABLE 1

Table 1. Loc	o Hills	Histo	ricity
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Table 1.	Loco Hills Historicity
Date	Event
1952	The salt caverns and water supply wells now used by Loco Hills GSF, Ltd. were created by Sacra Brothers, a propane distributor. Sacra Brothers probably employed an unlined seepage pit to dispose of more than 30,000,000 gallons of brine generated during the construction of the caverns
1959	Ownership changed from Sacra Brothers to Arrow Gas Company, presumably due to the acquisition of Sacra Brothers Propane by Arrow Gas Company.
1981	Arrow Gas reported to NMOCD that ground water quality below facility was at least 60,680 ppm, presumably due to facility operation actions.
1995	Arrow Gas sold to National Propane and the facility changed hands.
2000	Ownership changed from National Propane to Columbia Propane, and the facility changed hands
2001	Operator Name Change from Columbia Propane to AmeriGas Eagle Propane
Jul-04	AmeriGas sold property to current owners Loco Hills GSF, Ltd.
Apr-04	Loco Hills GSF, Ltd. begins process to install a new storage pond at the facility
Jul-04	NMOCD issues a Public Notice of the proposed Discharge Permit as required by the WQCC Regulations
Aug-04	NMOCD approves the WQCC Discharge Permit of Loco Hills GSF
Oct-04	Loco Hills GSF proposes to modify their approved WQCC Discharge Plan by adding a ground water quality restoration program and proposing a clay lined pond after soil samples suggest that a clay lined pond could be approved under WQCC Regulations.
Nov-04	The new clay lined pond was completed and tested for compaction.
Dec-04	NMOCD and Loco Hills agree that a clay liner with a demonstrated low permeability should be sufficient to meet WQCC requirements, but NMOCD notes that Loco Hills GSF does not own the land. The WQCC Regulations would prohibit a clay-lined pond in the absence of surface ownership of the site.
Jan-04	Loco Hills GSF, Ltd. takes action to acquire land from Bogle Farms and the State of New Mexico.
Jun-04	In a meeting with NMOCD, Loco Hills GSF, Ltd. was notified that the facility would no longer be governed by WQCC Regulations, but would be under NMOCD Rule 50. Loco Hills GSF, Ltd. was notified that this facility would fall under the new Rule 50, which does not allow for a single lined pond without an exemption petition. Rule 50 allowed "grandfathering" of certain single-lined ponds if the operator petitioned NMOCD for continued use before May 2004.
Aug-04	Loco Hills GSF, Ltd. submits Stage I & II Abatement Plan and a Best Management Practices Plan for approval to NMOCD, requesting exemption from Rule 50 and outlining how facility operation is meeting NMOCD goals of preventing ground water impact, and protecting human health and the environment with the current facility design.

ABATEMENT PLAN PLATES

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R.T. Hicks Consultants, Ltd. 901 Rio Grande Blvd. NW, Suite F-142 Albuquerque, NM 87104 505.266.5004 Fax: 505.266.0745

Maximum Extent of Ground Water Impairment

October 2004

ABATEMENT PLAN APPENDIX A

WELL LOGS

Drilling Drilling Start Date: Dubose 6/17/2004 Project Name: Location: P-1 Notes: Location: P-1 Optiming foreith Description Location: P-1 Optiming foreith Description Location: P-1 Optiming foreith Description Location: P-1 Optiming foreith Description Location: P-1 0.0 Sand gate med. syn: 6/12 R. Librology Percometer Construction 10.0 Cabro, smit. 4/12 R. Librology Description Cament Bentonite and Cotings Bentonite and Cotings Bentonite and Cotings Description Cament Bentonite and Cotings Description Cament Description	Logger:		David Hamilton	Client:	Well ID:
Drilling Method: Air Relay Project Name: P-1 Start Date: 6/17/2004 Loco Hile P-1 Notes:		Driller:	Dubose Drilling	LHGSF	
Star Date 6/11/2004 Location: Notes: Location: Location: P-1 Paphiner Description Location: Piccometer Construction 00 Surface, send, some gaps:n, some day, red, 0, 7-10 T Piccometer Construction 00 Call, editor, editor, red, 0, 12-64 Description Description Description 10.0 Call, editor, red, 0, 12-64 Description Description Description 10.0 Call, editor, red, 0, 12-64 Description Description Description 10.0 Call, editor, red, 0, 12-64 Description Description Description 10.0 Clay, red, ny, 14-17 ft. Description Description Description 11.0 Clay, red, ny, 24-27 ft. Description Description Description 12.0 Clay, red, ny, 22-27 ft. Sand Sand Description Description 12.0 Clay, red, ny, 40-9, 23-7, 25, 25, 25, 25, 25, 25, 25, 25, 25, 25	Drillin	ng Method:	Air Rotary	Project Name:	
End Date: 6/16/2004 Location: P-1 Repair Location: Location: Location: Period 0 Surface, sand, some groum, some cay, red, Q 7 Period: Perio		Start Date:	6/17/2004	· · · · · · · · · · · · · · · · · · ·	
Notes: Correction 20 Surface, suid, some gyseum, some clay, red, 0, 74.0 Plezometer Construction 20 Surface, suid, some day, roth, 1. Ethology 30 Castee, tand, 49, 12-04. Ethology 10.0 Clay, contra stand, 19, 12-04. Ethology 10.0 Clay, contra stand, 19, 12-04. Ethology 10.0 Clay, contra stand, 19, 12-04. Ethology 22.0 Clay, contra stand, 19, 12-04. Ethology 23.0 Clay, contra stand, 19, 12-04. Ethology 24.0 Sand, dat, day, 12-27.0 Ethology 24.0 Sand, sat, day, 19, 12-04. Ethology 24.0 Clay, root, son, 42-40. Ethology 24.0 Clay, root, son, 42-40. Ethology 25.0 Clay, root, son, 42-40. Ethology 26.0 Clay, root, son, 42-40. Ethology 26.0 Clay,	N - 4	End Date:	6/18/2004	Location:	
Depth Description 20 Surface, and, some gysem, some cay, red. 0, 7.4 30 Sand, light red. dy, 7.6 H. 80 Callebe, sand, 6.12 R. 10.0 Callebe, sand, 6.12 R. 12.0 Callebe, sand, 6.12 R. 13.0 Callebe, sand, 6.12 R. 13.0 Callebe, sand, 6.12 R. 13.0 Callebe, sand, 6.12 R. 20.0 Callebe, sand, more day, 177.22 R. 20.0 Callebe, sand, more day, 191.4 R. 13.0 Callebe, sand, more day, 191.4 R. 20.0 Callebe, sand, son, exp. 22.25 R. 23.0 Sand, son, exp. 49, 23.25 R. 24.0 Sand, son, exp. 49, 23.25 R. 25.0 Callebe, sand and callebe, e4-63 R. 46.0 Callebe, sand and callebe, e4-63 R. 45.0 Gapsaum, hold, while, 61-63 R. 65.0 Gapsaum, hold, while, 61-63 R. 65.0 Gapsaum, day, lan, day, lan, 29.138.2 <td< td=""><td>Notes:</td><td></td><td></td><td>Loco Hills</td><td></td></td<>	Notes:			Loco Hills	
Cepth Description 20 Surface, sund, some gypeum, some day, red, 0, 7 rd 40 7 50 Sand, light red, dry, 7-9 1. 100 Caller, sand, 9 r12 ft. 1100 Caller, sand, 11-17 ft. 1100 Caller, red, by, red, by, 12-14 ft. 1100 Caller, red, by, red, by, 12-14 ft. 1100 Caller, red, by, red, by, 25-27 ft. 220 Caller, red, by, red, by, 25-27 ft. 220 Caller, red, by, red, by, 25-27 ft. 230 Caller, red, by, red, by, 25-27 ft. 240 Sand, light red, dry, 23-27 ft. 250 Sand, sing, light gey, dy, 30-41 ft. 360 Lithestone, ft.42 ft. 440 Caller, red, dy, red, dy, 23-26 ft. 350 Gypsum, hard, white, dy, 43-91 ft. 450 Caller, red, dy, red, dy, 23-26 ft. 550 Gypsum, hard, white, dy, 63-92 ft. 550 Gypsum, hard, white, dy, 63-92 ft. 550 Gypsum, hard, white, dy, 63-92 ft. 560 Gypsum, hard, white, dy, 63-92 ft. 560 Gypsum, hard, white, dy, 63-92 ft.					
Oppin					
(feet) Description 2.0 Surface, sand, some gasum, some day, red, or n. C 4.0 Surface, sand, some gasum, some day, red, or n. C 8.0 Sarda, light red, dry, 7.5 ft. E 10.0 Calkete, sand, 9.12 ft. E 12.0 Clay, calter, ere, dry, 12-4 ft. E 13.0 Clay, calter, ere, dry, 12-4 ft. E 14.0 Clay, calter, ere, dry, 12-4 ft. E 20.0 Clay, some sand, micro calche, red, dry, 7.52 ft. E 22.0 Clay, some sand, micro calche, red, dry, 7.52 ft. E 22.0 Clay, sand, sand, freed, dry, 7.52 ft. E 23.0 Sand, dry, fort, dry, 27.27 ft. E 23.0 Sand, sand, freed, dry, 7.53 ft. E 40.0 Clay, red, mort, 42-68 ft. E 40.0 Clay, red, mort, 42-68 ft. E 50.0 Craysum, white, dry, 63-62 ft. E 50.0 Craysum, white, dry, 63-62 ft. E 66.0 Craysum, white, dry, 63-62 ft. Sand 74.0 Clay, red, gasam, d	Depth				Biozomotor Construction
0.0 Surface, sand, some gysturn, some clay, red, 0, 7.8 Cernent 4.0 Sarfa, light red, dy, 7.5 Bentonite 8.0 Calidate, sand, 1912 R. Bentonite 12.0 City, cultice, red, dy, 1214 R. Bentonite 13.0 Clay, some sand, more cultiple, red, dy, 1722 R. Bentonite 20.0 Clay, some sand, more cultiple, red, dy, 1722 R. Bentonite 20.0 Clay, some sand, dy, red, dy, 222 R. Bentonite 20.0 Sand, some day, ind, dy, 222 R. Bentonite 20.0 Sand, some day, ind, dy, 22 ST R. Sand, some day, ind, dy, 22 ST R. 20.0 Sand, some day, ind, dy, 22 ST R. Sand, some day, ind, dy, 22 ST R. 20.0 Sand, some day, ind, dy, 22 ST R. Sand, some day, ind, dy, 23 ST R. 30.0 Sand, some day, ind, dy, 23 ST R. Sand 30.0 Clay, some sand, more day, 23 ST R. Sand 30.0 Clay, red, dy, 3447 R. Bentonite 30.0 Clay, red, dy, 48-81 R. Sand 40.0 Glay, red, dy, 84-87 R. Sand 50.0 Gypsum, white, dy, 63-82 R. Sand<	(feet)		Description	Lithology	Plezometer Construction
2.0 37. 37. Centrol 100, 100, 100, 100, 100, 100, 100, 100	0.0		Surface sand some gynsum some clay red 0-		
4.0 Caliche, sand, 1ight red, dry, 7.9 ft. 8.0 Caliche, sand, 0-12 ft. 12.0 City, caliche, red, dry, 114 ft. 14.0 City, caliche, red, dry, 114 ft. 16.0 City, some sand, red, dry, 22-25 ft. 22.0 City, some sand, red, dry, 22-25 ft. 24.0 Sand, sit, dry, red, dry, 22-32 ft. 23.0 City, red, dry, 25-27 ft. 23.0 Sand, sit, dry, red, dry, 23-32 ft. 30.0 Sand, sit, dry, right red, dry, 23-32 ft. 30.0 Sand, sit, dry, right red, dry, 23-32 ft. 30.0 Sand, sit, dry, right red, dry, 23-32 ft. 30.0 Sand, sit, dry, right red, dry, 23-32 ft. 44.0 Citay, red, stript argr, dry, 39-41 ft. 45.0 Gypsum, white, dry, 48-61 ft. 56.0 Gypsum, white, dry, 63-42 ft. 74.0 Grypsum, white, dry, 63-42 ft. 74.0 Grypsum, dry, ft., et. 1-2 gal./min. 80.0 City, red, red, red, red. 1-2 gal./min. 90.0 Grypsum, dry, ft., et. 1-2 gal./min. 90.0 Grypsum, dry, ft., et. 1-2 gal./min. 90.0 Grawl, wd, 93 97 ft., et. 1-2 gal./min. 90.0 Grawl, wd, 93 97 f	2.0		7 ft.		
0.0 Sand, ignt red, dy, 241. 10.0 Catche, sand, 9.12 ft. 10.0 Clay, catche, red, dy, 12-14 ft. 14.0 Clay, catche, red, dy, 12-14 ft. 14.0 Clay, catche, red, dy, 17-22 ft. 18.0 Clay, some sand, red, dy, 222 ft. 22.0 Clay, some sand, red, dy, 222 ft. 24.0 Sand, clay, red, dy, 25-27 ft. 25.0 Clay, catche, some day, light red, dy, 25-27 ft. 25.0 Clay, catche, some day, light red, dy, 25-27 ft. 25.0 Clay, catche, some day, light red, dy, 25-27 ft. 25.0 Clay, catche, some day, light red, dy, 25-26 ft. 36.0 Clay, catche, 424.0 ft. 46.0 Clay, catche, 424.6 ft. 46.0 Clay, sed, 94.246 ft. 46.0 Clay, red, pypaun, while, dy, 48-61ft. 66.0 Clay, red, mout. 82-94 ft. 77.0 Clay, red, mout. 82-94 ft. 76.0 Clay, red, mout. 82-94 ft. 76.0 Clay, red, mout. 82-94 ft. 76.0 Clay, red, mout. 82-94 ft. 86.0 Clay, red, mout. 82-94 ft. 86.0 Clay, red, mo	4.0				Cement III
6.0 Catche, sand, 9-12.t. 12.0 Clay, catche, red, dy, 12-14.ft. 12.0 Clay, catche, red, dy, 14-17.ft. 18.0 Clay, some sand, rot, dw, 22-25.ft. 20.0 Clay, some sand, rot, dw, 22-25.ft. 24.0 Sand, day, red, dy, 25-27.ft. 26.0 Clay, some sand, strict, day, 23-28.ft. 30.0 Sand, strict, day, light red, dy, 23-28.ft. 30.0 Sand, strict, day, light red, dy, 23-29.ft. 36.0 Limestone, light gray, dy, 33-94.ft. 40.0 Clay, some dand, light red, 42-8.9.ft. 42.0 Clay, sand and catche, 45-48.ft. 43.0 Clay, red, sand, 414.2 ft. 43.0 Gypsum, while, dy, 83-82.ft. 54.0 Gypsum, while, dy, 83-82.ft. 56.0 Gypsum, while, dy, 83-82.ft. 72.0 Gypsum, while, dy, 91-93.ft. 72.0 Gypsum, day, lan, dy, 91-93.ft. 90.0 Grawit, wet, 93-97.ft., est, 1.2 gal.min. 98.0 <td>6.0</td> <td></td> <td>Sand, light red, dry, 7-9 ft.</td> <td></td> <td></td>	6.0		Sand, light red, dry, 7-9 ft.		
Disc Clay, calche, red, dy, 12-14 ft. 14.0 Clay, calche, red, dy, 12-14 ft. 16.0 Clay, some and, minor calche, ed, dy, 17-22 Bentonite 22.0 Clay, some and, minor calche, ed, dy, 17-22 Bentonite 22.0 Clay, some and, red, dy, 25-27. Bentonite 22.0 Clay, some and, red, dy, 25-27. Bentonite 23.0 Clay, cad, day, red, dy, 25-27. Bentonite 30.0 Sand, store day, Ed, dy, 25-27. Bentonite 30.0 Limestone, light red, dy, 33-29. Bentonite 33.0 Limestone, light red, dy, 32-39. Bentonite 40.0 Sand, store, dy, 27-28. Bentonite 43.0 Clay, red, and calche, 46-46 ft. Bentonite 43.0 Clay, red, most, 82-84. Bentonite 50.0 Clay, red, most, 82-84. Bentonite 60.0 Clay, red, most, 82-84. Bentonite 50.0 Clay, red, most, 82-84. Sand 60.0 Clay, red, most, 82-84. Sand 60.0 Gray, red, most, 82-84. Sand 82.0	<u> </u>		Caliche, sand, 9-12 ft.		
14:0 Clay, red, dy, 14-17 ft. 16:0 Clay, some sand, minor calche, red, dy, 17-22 20:0 ft. 20:0 Clay, some sand, minor calche, red, dy, 17-22 20:0 Clay, some sand, minor calche, red, dy, 17-22 20:0 Clay, some sand, minor calche, red, dy, 25-27 ft. 20:0 Clay, red, dy, 25-27 ft. 20:0 Clay, red, dy, 25-27 ft. 20:0 Sand, clay, red, dy, 23-28 ft. 30:0 Sand, sand, sand, red, vy, 23-32 ft. 30:0 Sand, sand	12.0		Clay caliche red dry 12-14 ft		Dentonite
16.0 Clay, red, dy, 14.17 ft. 18.0 Clay, some sand, mind, red, dy, 17.22 ft. 20.0 Clay, some sand, rod, dy, 22.25 ft. 22.0 Clay, some sand, rod, dy, 22.25 ft. 22.0 Clay, red, dy, 27.28 ft. 23.0 Sand, clay, red, dy, 25.27 ft. 26.0 Clay, red, dy, 27.28 ft. 30.0 Sand, sinc day, red, dy, 23.91 ft. 30.0 Sand, sinc day, red, dy, 23.91 ft. 30.0 Clay, red, dy, 34.41 ft. 40.0 Clay, red, dy, 48.61 ft. 56.0 Gypsum, white, dy, 48.61 ft. 56.0 Gypsum, hard, white, 61.63 ft. 56.0 Gypsum, hard, white, 61.43 ft. 66.0 Gypsum, hard, white, 61.43 ft. 66.0 Gypsum, hard, white, 61.43 ft. 67.0 Gypsum, hard, white, 61.43 ft. 68.0 Gravel, well, 30.7 ft., est. 1.2 gal./min. 78.0 Gravel, well, 30.47 ft., est. 1.2 gal./min. 90.0 Gypsum, dad, 7.80 ft. 92.0 Gypsum, dad, 7.80 ft. 93.0 Sand, clay, tan, 97.101 ft. 93.0 Sand, clay, tan, 97.101 ft. 90.1 Sand, clay, tan, 97.101 ft.	14.0	·			
18.0 Clay, some sand, more callen, ed, dy, 17-22 a. 22.0 Clay, some sand, red, dy, 22-25 ft. Cuttings 24.0 Sand, clay, red, dy, 22-25 ft. Cuttings 26.0 Clay, red, dy, 25-27 ft. Clay, red, dy, 25-27 ft. 26.0 Clay, red, dy, 25-27 ft. Clay, red, dy, 25-27 ft. 26.0 Clay, red, dy, 25-27 ft. Clay, red, dy, 25-27 ft. 30.0 Sand, same, sam	16.0		Clay, red, dry, 14-17 ft.		Bentonite
20.0 n. n. 22.0 Clay, some and, red. dy, 22-25 ft. Clay, some and, red. dy, 25-27 ft. 28.0 Sand, clay, red. dy, 25-27 ft. Bentonite 23.0 Sand, some clay, light red, dy, 25-27 ft. Bentonite 30.0 Sand, some clay, light red, dy, 25-27 ft. Bentonite 30.0 Sand, some clay, light red, dy, 25-27 ft. Bentonite 34.0 Sand, some clay, light red, dy, 25-27 ft. Bentonite 34.0 Sand, some clay, light red, dy, 25-32 ft. Bentonite 34.0 Clay, red, soft, 42-46 ft. Bentonite 44.0 Clay, red, soft, 42-46 ft. Bentonite 45.0 Gypsum, hard, while, 61-63 ft. Bentonite 56.0 Gypsum, hard, while, 61-63 ft. Bentonite 66.0 Gypsum, hard, sold 82 ft. Bentonite 72.0 Gypsum, hard, 82 ft. Sand 73.0 Gaver, red, groum, 64 67 ft. Sand 80.0 Clay, red, groum, 64 67 ft. Sand 94.0 Gravel, wel, 93 of ft., est. 12 gal./min. Sand 94.0 Gravel, wel, 93 o	18.0		Clay, some sand, minor caliche, red, dry, 17-22		and 💋
22.0 Clay, some sand, red, vhy, 22-25 ft. 28.0 Sand, day, red, vhy, 22-27 ft. 28.0 Clay, red, vhy, 22-27 ft. 30.0 Sand, sand, sitt, red, vhy, 22-32 ft. 32.0 Sand, sitt, red, vhy, 28-32 ft. 33.0 Limestone, ilpit grey, vhy, 39-41 ft. 40.0 Sand, sitt, red, vhy, 28-32 ft. 40.0 Giay, red, sont, 42-4 ft. 40.0 Clay, red, sont, 42-4 ft. 40.0 Gypsum, while, dry, 48-61 ft. 56.0 Gypsum, while, dry, 63-82 ft. 74.0 Gypsum, while, dry, 63-82 ft. 74.0 Gypsum, while, dry, 63-82 ft. 74.0 Gypsum, stard, 87-86 ft. 82.0 Clay, red, most, 82-84 ft. 82.0 Gravel, wel, 93-97 ft., est. 1-2 gal./min. 96.0 Gravel, wel, 93-97 ft., est. 1-2 gal./min. 96.0 Gravel, wel, 93-97 ft., est. 1-2 gal./min. 96.0 Gravel, wel, 93-97 ft., est. 1-2 gal./min. 96.0 <td< td=""><td>20.0</td><td></td><td>ft.</td><td></td><td>Cuttings</td></td<>	20.0		ft.		Cuttings
24.0 Sand, day, red, dry, 25-27 ft. 28.0 Clay, red, dry, 27-28 ft. 30.0 Sand, some day, light red, dry, 23-32 ft. 32.0 Sand, some day, light red, dry, 23-32 ft. 34.0 Sand, some day, light red, dry, 23-32 ft. 36.0 Limestone, light grey, dry, 39-41 ft. 42.0 Clay, red, sont, 42-48 ft. 44.0 Clay, red, sont, 42-48 ft. 44.0 Gypsum, while, dry, 48-61 ft. 54.0 Gypsum, while, dry, 63-82 ft. 54.0 Gypsum, while, dry, 63-82 ft. 72.0 Gypsum, start, 82-84 ft. 68.0 Clay, red, moist, 82-84 ft. 72.0 Gypsum, start, 67-88 ft. 88.0 Clay, red, moist, 82-84 ft. 88.0 Clay, red, moist, 82-84 ft. 72.0 Gypsum, start, 67-88 ft. 72.0 Gypsum, clay, tan, dry, 01-33 ft. 92.0 Gypsum, clay, tan, dry, 01-33 ft. 92.0 Gypsum, clay, tan, 07-101 ft. 93.0 Sand, Gay, tan, 07-101 ft.	22.0		Clay, some sand, red, dry, 22-25 ft.		
28.0 Clay, red, dry, 27-28 ft. 30.0 Sand, some day, light red, dry, 28-32 ft. 34.0 Sand, sitt, day, light red, dry, 32-39 ft. 36.0 Limestone, light grey, dry, 39-41 ft. 40.0 Sand, sitt, day, light red, dry, 28-32 ft. 36.0 Limestone, sitt day, 32-39 ft. 40.0 Sand, limestone, 41-42 ft. 42.0 Clay, red, sont, 42-46 ft. 48.0 Clay, sand and caliche, 46-48 ft. 48.0 Clay, sand and caliche, 46-48 ft. 48.0 Clay, sand and caliche, 46-48 ft. 48.0 Cypsum, while, dry, 63-82 ft. 70.0 Gypsum, hard, while, 61-63 ft. 66.0 Gravel, wel, 93-87 ft., est. 1-2 gal.min. 90.0 Gypsum, day, tan, dry, 91-93 ft. 92.0 Gravel, wel, 93-97 ft., est. 1-2 gal.min. 98.0 Sand, day, tan, 97-101 ft. 900 Gravel, wel, 93-97 ft., est. 1-2 gal.min. 98.0 Sand, day, tan, 97-101 ft. 900 Gravel, wel, 93-97 ft., est. 1-2 gal.min. 98.0 Sand, day, tan, 97-101 ft. 900 Gravel, wel, 93-97 ft., est. 1-2 gal.min. 98.0 Sand, day, tan, 97-101 ft.	24.0	<u> </u>	Sand, clay, red, dry, 25-27 ft.		
20.0 Cody (Rd) (plt) red. (my, 28-32 ft. 30.0 Sand. some clay, (plt) red. (my, 28-32 ft. 32.0 Sand. some clay, (plt) red. (my, 28-32 ft. 34.0 Sand. some clay, (plt) red. (my, 28-32 ft. 36.0 Limestone, light gray, dy, 39-41 ft. 40.0 Sand. some clay, (plt) red. (my, 28-32 ft. 42.0 Clay, red, soft, 42-46 ft. 44.0 Clay, red, soft, 42-46 ft. 46.0 Clay, and and caliche, 46-48 ft. 48.0 Gypsum, while, dy, 48-61 ft. 56.0 Gypsum, hard, while, 61-63 ft. 62.0 Gypsum, while, dy, 63-82 ft. 70.0 Gypsum, while, dy, 63-82 ft. 72.0 Gypsum, day, tan, dy, 91-93 ft. 92.0 Gypsum, day, tan, dy, 91-93 ft. 92.0 Gypsum, day, tan, dy, 91-93 ft. 94.0 Gravel, wel, 93-97 ft., est. 1-2 gal/min. 98.0 Sand, clay, tan, 97-101 ft. 100.0 Sand, clay, tan, 97-101 ft. 98.0 Gravel, wel, 93-97 ft., est. 1-2 gal/min. 98.0 Sand, clay, tan, 97-101 ft. 98.0 Gravel, wel, 93-97 ft., est. 1-2 gal/min.	26.0	<u> </u>			
32.0 Other below series and the day light red, dry, 32-39 ft. 38.0 Limestone, light grey, dry, 32-39 ft. 40.0 Sand, silt, ciay, light red, dry, 32-39 ft. 40.0 Sand, timestone, 41-42 ft. 40.0 Clay, red, soft, 42-46 ft. 46.0 Clay, soft and and caliche, 46-48 ft. 46.0 Clay, soft and and caliche, 46-48 ft. 46.0 Gypsum, while, dry, 48-61 ft. 56.0 Gypsum, hard, while, 61-63 ft. 56.0 Gypsum, hard, while, 61-63 ft. 66.0 Gypsum, while, dry, 63-82 ft. 74.0 Gypsum, dray, 78-88 ft. 86.0 Clay, red, moist, 52-84 ft. 84.0 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 92.0 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 94.0 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 94.0 Gravel, wet, 81-97 ft., est. 1-2 gal./min. 94.0 Gravel, wet, 81-97 ft., est. 1-2 gal./min. 94.0 Gravel, wet, 81-97 ft., est. 1-2 gal./min	20.0	<u> </u>	Sand some clay light red dry 28-32 ft		Bentonite
34.0 Sand, silt, clay, light red, dry, 32-39 ft. Sand Sand 36.0 Limestone, light grey, dry, 39-41 ft. Bentonite Bentonite 42.0 Clay, red, soft, 42-46 ft. Bentonite Bentonite 44.0 Clay, red, soft, 42-46 ft. Bentonite Bentonite 54.0 Gypsum, white, dry, 48-61ft. Gypsum, white, dry, 48-61ft. Bentonite 56.0 Gypsum, white, dry, 63-82 ft. Gypsum, white, dry, 63-82 ft. Bentonite 70.0 Gypsum, white, dry, 63-82 ft. Bentonite Bentonite 74.0 Gypsum, white, dry, 63-82 ft. Sand Bentonite 78.0 Gypsum, white, dry, 63-82 ft. Sand Bentonite 84.0 Clay, red, moist, 62-84 ft. Sand Bentonite Bentonite 84.0 Clay, red, moist, 62-84 ft. Sand Sand Sand Sand 99.0 Gypsum, drg, tran, gr.7 10ft. Sand Sand Sand Sand 98.0 Sand, clay, tran, 97-10ft. Sand Sand Sand Sand Sand Sand S	32.0		Cana, come day, ign 160, dry, 20-02 It.		
36.0 Sand Sand 38.0 Limestone, light grey, dry, 39-41 ft. Sand, imestone, 41-42 ft. 42.0 Clay, red, soft, 42-46 ft. Bentonite 44.0 Clay, red, soft, 42-46 ft. Bentonite 46.0 Clay, sand and caliche, 46-48 ft. Bentonite 50.0 Gypsum, white, dry, 48-61 ft. Bentonite 56.0 Gypsum, white, dry, 63-82 ft. Gypsum, white, dry, 63-82 ft. 76.0 Gypsum, white, dry, 63-82 ft. Bentonite 76.0 Gypsum, white, dry, 63-82 ft. Sand 78.0 Gypsum, white, dry, 63-82 ft. Sand 78.0 Gypsum, dry, 16, 78-81 ft. Sand 88.0 Clay, red, moist, 82-84 ft. Sand 78.0 Gypsum, dry, 16, 98-79 ft. Sand 92.0 Gypsum, dry, 16, 98-79 ft. Sand 94.0 Gravel, wel, 93-97 ft., est. 1-2 gal./min. Sand 98.0 Gravel, wel, 93-97 ft. Sand 98.0 Gravel, wel, 93-97 ft. Sand 98.0 Gravel, wel, 93-97 ft. 98.0 Gravel, we	34.0		Sand, silt, clay, light red, dry, 32-39 ft.		
38.0 Limestore, light grey, dry, 39-41 ft. 40.0 Sand, limestore, 41-42 ft. 42.0 Clay, red, soft, 42-46 ft. 44.0 Clay, red, soft, 42-46 ft. 46.0 Clay, sand and caliche, 46-48 ft. 46.0 Clay, sand and caliche, 46-48 ft. 46.0 Clay, sand and caliche, 46-48 ft. 50.0 Gypsum, while, dry, 48-61ft. 56.0 Gypsum, hard, while, 61-63 ft. 58.0 Gypsum, while, dry, 63-82 ft. 76.0 Gravel, weit, 93-97 ft., est. 1-2 gal./min. 86.0 Clay, red, gypsum, hard, 97-88 ft. 88.0 Gravel, weit, 93-97 ft., est. 1-2 gal./min. 98.0 Sand, clay, lan, 97-101ft. 98.0 Gravel, weit, 93-97 ft., est. 1-2 gal./min. 98.0 Gravel, weit, 93-97 ft., est. 1-2 gal./min. 98.0 Sand, clay, lan, 97-101ft. 99.0 Gravel, weit, 93-97 ft., est. 1-2 gal./min. 98.0 <td>36.0</td> <td></td> <td></td> <td></td> <td>Sand E</td>	36.0				Sand E
40.0 Sand, limestone, 41-42 ft. 42.0 Clay, red, soft, 42-46 ft. 44.0 Clay, sand and caliche, 46-48 ft. 46.0 Clay, sand and caliche, 46-48 ft. 50.0 Gypsum, while, dry, 48-61 ft. 56.0 Gypsum, while, dry, 48-61 ft. 56.0 Gypsum, hard, white, 61-63 ft. 62.0 Gypsum, while, dry, 63-82 ft. 74.0 Gypsum, dry, 84-87 ft. 86.0 Clay, red, moist, 82-84 ft. 86.0 Clay, red, grpsum, 84-87 ft. 86.0 Clay, red, grpsum, 84-87 ft. 86.0 Gravel, wel, 93-97 ft., est. 1-2 gal/min. 90.0 Gravel, wel, 93-97 ft., est. 1-2 gal/min. 94.0 Gravel, wel, 93-97 ft., est. 1-2 gal/min. 98.0 Sand, clay, linestone, 88-91 ft. 90.0 Gravel, wel, 93-97 ft., est. 1-2 gal/min. 98.0 Sand, clay, linestore, 82-91 ft. 90.0 Gravel, wel, 93-97 ft., est. 1-2 gal/min. 98.0 Sand,	38.0		Limestone, light grey, dry, 39-41 ft.		
42.0 Clay, red, soft, 42-48 ft. 44.0 Clay, sand and caliche, 46-48 ft. 48.0 Clay, sand and caliche, 46-48 ft. 50.0 Gypsum, while, dry, 48-61 ft. 54.0 Gypsum, while, dry, 48-61 ft. 56.0 Gypsum, hard, white, 61-63 ft. 66.0 Gypsum, hard, white, 61-63 ft. 68.0 Gypsum, white, dry, 63-82 ft. 70.0 Gypsum, white, dry, 63-82 ft. 76.0 Gypsum, white, dry, 63-82 ft. 76.0 Gypsum, mad, 87-80 ft. 80.0 Clay, red, moist, 82-84 ft. 84.0 Clay, red, moist, 82-84 ft. 88.0 Sand, clay, limestone, 88-91 ft. 90.0 Gypsum, drd, 87-80 ft. 88.0 Sand, clay, limestone, 88-91 ft. 94.0 Gravel, wel, 93-97 ft, est. 1-2 gal./min. 98.0 Sand, clay, tan, 97-101 ft. 94.0 Gravel, wel, 93-97 ft, est. 1-2 gal./min. 98.0 Sand, clay, tan, 97-101 ft. 901 Ro Grande Blvd NW Suite F-142 Albonquerque, NM 87104 S05-266-5004 Loco Hills GSF Plate D-1 July 2004 Soft-6-5004 July 2004	40.0		Sand, limestone, 41-42 ft.		Bentonite
44.0 Clay, sand and caliche, 46-48 ft. 46.0 Clay, sand and caliche, 46-48 ft. 50.0 Gypsum, while, dry, 48-61 ft. 54.0 Gypsum, while, dry, 48-61 ft. 56.0 Gypsum, hard, white, 61-63 ft. 60.0 Gypsum, hard, white, 61-63 ft. 62.0 Gypsum, while, dry, 63-82 ft. 74.0 Gypsum, while, dry, 63-82 ft. 74.0 Gypsum, and, 82-84 ft. 82.0 Clay, red, moist, 82-84 ft. 84.0 Clay, red, gypsum, 84-87 ft. 86.0 Gaysum, clay, lan, dry, 91-93 ft. 94.0 Gravel, wel, 93-97 ft., est. 1-2 gal./min. 98.0 Sand, clay, tan, 97-101ft. 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 505-266-5004	42.0		Clay red soft 42-46 ft		
46.0 Clay, sand and caliche, 46-48 ft. 48.0 Guysum, white, dry, 48-61 ft. 52.0 Gypsum, white, dry, 48-61 ft. 56.0 Guysum, white, dry, 48-61 ft. 56.0 Guysum, white, dry, 63-82 ft. 64.0 Gypsum, white, dry, 63-82 ft. 74.0 Gypsum, mard, 87-88 ft. 88.0 Clay, red, moist, 82-84 ft. 84.0 Clay, red, moist, 82-84 ft. 84.0 Clay, red, moist, 82-84 ft. 84.0 Gipy gypsum, hard, 87-88 ft. 88.0 Sand, clay, ilmestone, 88-91 ft. 90.0 Gypsum, clay, tan, dry, 91-93 ft. 92.0 Gypsum, clay, tan, 97-101ft. 90 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 S05-266-5004	44.0				
48.0	46.0		Clay, sand and caliche, 46-48 ft.		
S0.0 Gypsum, while, dry, 48-61ft. 54.0 Gypsum, while, dry, 48-61ft. 56.0 Gypsum, hard, while, 61-63 ft. 60.0 Gypsum, hard, while, 61-63 ft. 62.0 Gypsum, while, dry, 63-82 ft. 74.0 Gypsum, kard, 87-88 ft. 80.0 Clay, red, moist, 82-84 ft. 84.0 Clay, red, gypsum, 84-87 ft. 86.0 Gypsum, dry, 91-93 ft. 92.0 Gypsum, clay, 1an, dry, 91-93 ft. 94.0 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 98.0 Sand 98.0 Sand, clay, tlamestone, 88-91 ft. 90.1 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 98.0 Sand, clay, tlamestone, 88-91 ft. 90.1 Sand, clay, tlamestone, 88-91 ft. 90.1 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 98.0 Sand, clay, tlamestone, 88-91 ft. 901 Sand, clay, tlay, 57-101ft. <	48.0	<u> </u>			
32.0 Gypsum, while, dry, 48-61ft. 56.0 Gypsum, hard, while, dry, 48-61ft. 56.0 Gypsum, hard, while, dry, 48-61ft. 66.0 Gypsum, hard, while, 61-63 ft. 64.0 Gypsum, hard, while, 61-63 ft. 66.0 Gopsum, while, dry, 63-82 ft. 70.0 Gypsum, while, dry, 63-82 ft. 72.0 Gypsum, dry, ft., grypsum, 84-87 ft. 74.0 Gopsum, while, dry, 63-82 ft. 76.0 Gypsum, dry, grypsum, 84-87 ft. 80.0 Clay, red, gypsum, 84-87 ft. 86.0 Clay, red, gypsum, hard, 87-88 ft. 88.0 Sand, clay, timestone, 88-91 ft. 90.0 Gypsum, dray, tan, dry, 91-93 ft. 94.0 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 96.0 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 505-266-5004	52.0				
56.0	54.0		Gypsum, white, dry, 48-61ft.		Bentonite
58.0	56.0	+			and
60.0	58.0	<u> </u>			Cuttings
62.0	60.0		Gypsum, hard, white, 61-63 ft.		
64.0	62.0				
66.0	64.0	<u> </u>			
68.0	66.0				
72.0	68.0				
74.0	72.0	<u> </u>	Gypsum, white, dry, 63-82 ft.		
76.0	74.0				
78.0	76.0				
80.0 Clay, red, moist, 82-84 ft. 82.0 Clay, red, gypsum, 84-87 ft. 86.0 Clay, gypsum, hard, 87-88 ft. 88.0 Sand, clay, limestone, 88-91 ft. 90.0 Gypsum, clay, tan, dry, 91-93 ft. 94.0 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 96.0 Sand, clay, tan, 97-101ft. 100.0 Sand, clay, tan, 97-101ft. 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 505-266-5004	78.0				
82.0 Clay, red, moist, 82-84 ft. 84.0 Clay, red, gypsum, 84-87 ft. 86.0 Clay, gypsum, hard, 87-88 ft. 88.0 Sand, clay, limestone, 88-91 ft. 90.0 Gypsum, clay, tan, dry, 91-93 ft. 94.0 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 96.0 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 98.0 Sand, clay, tan, 97-101ft. 100.0 Sand, clay, tan, 97-101ft. Loco Hills GSF Plate D-1 July 2004	80.0				Bentonite
O4.0 Clay, red, gypsum, hard, 87-88 ft. 86.0 Clay, gypsum, hard, 87-88 ft. 88.0 Sand, clay, limestone, 88-91 ft. 90.0 Gypsum, clay, tan, dry, 91-93 ft. 94.0 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 96.0 Sand, clay, tan, 97-101ft. 100.0 Sand, clay, tan, 97-101ft. 98.0 Sand, clay, tan, 97-101ft. 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 505-266-5004 Loco Hills GSF Plate D-1 July 2004	82.0	<u> </u>	Clay, red, moist, 82-84 ft.	88593593955999533	
Band Sand, clay, timestone, 88-91 ft. 90.0	84.0	+	Clay gypsum, 84-87 ft.		Sand
90.0	88.0	<u> </u>	Sand, clay, limestone, 88-91 ft.		
92.0 Gypsum, clay, tan, dry, 91-93 ft. Bentonite 94.0 Gravel, wet, 93-97 ft., est. 1-2 gal./min. Sand 96.0 Sand, clay, tan, 97-101ft. Sand 98.0 Sand, clay, tan, 97-101ft. Sand 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 505-266-5004 Loco Hills GSF Plate D-1 July 2004	90.0	1			
94.0 Gravel, wet, 93-97 ft., est. 1-2 gal./min. 96.0 Sand, clay, tan, 97-101ft. 100.0 Sand, clay, tan, 97-101ft. 100.0 Loco Hills GSF Plate D-1 Albuquerque, NM 87104 505-266-5004	92.0	<u> </u>	Gypsum, cíay, tan, dry, 91-93 ft.	∇	Bentonite
96.0 Sand, clay, tan, 97-101ft. 98.0 Sand, clay, tan, 97-101ft. 100.0 Loco Hills GSF Plate D-1 Albuquerque, NM 87104 July 2004	94.0		Gravel wet 02.07 ft act 1.2 act /min		
98.0 Sand, clay, tan, 97-101ft. Sand 100.0 Image: Sand Sand, clay, tan, 97-101ft. Image: Sand Sand Sand Sand Sand Sand Sand Sand	96.0		Graver, wet, 95-97 ft., est. 1-2 gar./min.		
100.0 R.T. Hicks Consultants, Ltd Loco Hills GSF Plate D-1 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 July 2004	98.0		Sand clay tan 97-101ft		Sand Sand
R.T. Hicks Consultants, Ltd Loco Hills GSF Plate D-1 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 July 2004 505-266-5004 505-266-5004 July 2004	100.0				
K. I. Hicks Consultants, LtdLoco Hills GSFPlate D-1901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 505-266-5004July 2004		<u> </u>		· T	
Albuquerque, NM 87104 505-266-5004 July 2004		001	K.T. Hicks Consultants, Ltd Die Grande Dlud NW Suite E 142	Loco Hills GSF	Plate D-1
July 2004	1	901	Albuquerque NM 87104		
			505-266-5004		July 2004
	L			I	

	Logger:		David Hamilton	Client:	Well ID:
	Driller:		Dubose Drilling	LHGSF	
Drilling	g Method:		Air Rotary	Project Name:	
s	End Date:		6/18/2004	Location:	BGD MW-1
Notes:			0,10,2001	Loco Hills	
Depth					Well and Piezometer
(feet)			Description	Lithology	Construction
0.0			Surface, 0-5 ft.		
2.0					Comont
4.0			Sand, clay, grey, 5-9 ft.		Cement
8.0			Sand, caliche, tan, 9-11 ft.		
10.0			Clay, sand, red, 11-14 ft.		Bentonite
12.0				BASED SALES	
14.0			Sand, clay, red, 14-19 ft.		
18.0			Class red little cond 10.22 ft		
20.0			Clay, reu, nue sand, 19-22 it.		
22.0			Sand, clay, red, 22-26 ft.		
24.0			Clay, sand, red, 26-29 ft.		
28.0					
30.0				100 A	
32.0			Sand, clay, red, dry, 29-39 ft.		Bentonite
34.0				a a state a st	and
38.0			Clay, red, 39-41 ft.		cuttings
40.0					
42.0			Sand, clay, red, 41-48 ft.		
44.0				100000	
48.0			Clay, sand, 48-49 ft.		
50.0			Sand, clay, 49-51 ft.		
52.0			Clay, red, soft, some sand, 51-54ft.		
54.0			Sand, tan, 54-55 ft.		
58.0	· · ·				
60.0			Clay, red, some sand and gypsum, 55-62 ft.		
62.0					
64.0					
68.0			Gypsum, white, dry, 62-74 ft.		
70.0					
72.0	-				
76.0			Gypsum ciay soft 74-80 ft		
78.0					
80.0					
82.0		<u> </u>	Gypsum, white, dry, 80-87 ft.		
84.0		I			Bentonite
88.0			Clay, gypsum, moist, 87-93 ft.		
90.0]				
92.0	4		Clay, sand, red, moist, 93-97 ft.		
94.0	ł				Sano
98.0	1		Clay, gypsum, sand, 97-100 ft.		
100.0			Clay, sand, red, 100-102 ft.		
102.0			Gypsum, 102-105 ft.		
104.0	1		Limestone, gypsum, 105-109 ft.		
108.0	1				
110.0			Clay, limestone, gypsum, 109-114 ft.		
112.0	-		Gypsum 114-117 ft		Bentonite
116.0	1		Gypadii, H+HH R.		Dentonite
118.0	1		Clay red 117,126.8		
120.0	-		l ciay, iou, ini-120 ft.		
122.0	4				Sond
124.0	1		Clay, grey-blue, 125-129 ft.		Joanu -
128.0	1		L		
130.0]				
	L	0 T		1	
1	901	K. L. H i Rio Gra	cks Consultants, Ltd inde Blyd NW Suite F-142	Loco Hills GSF	Plate D- 2
	201	Albu	querque, NM 87104		July 2004
			505-266-5004		July 2004

Driller Outcose Drilling Project Name: Start Date: 6/22/2004 Location: Project Name: Bed Date: 6/22/2004 Location: Licot Hills Notes: Licot Hills Licot Hills Project Name: Orghth Description Licot Hills Licot Hills Vell and Piezometer Construction Surface, 0.4 ft. Lithology 4.0 Car, red, dy, Rite Sand 15:18 ft. Lithology Bentonite 10.0 Car, red, dy, Rite Sand 15:18 ft. Lithology Bentonite Bentonite 2.0 Car, red, dy, Rite Sand 15:18 ft. Lithology Bentonite Bentonite 2.0 Car, red, dy, Rite Sand 15:18 ft. Lithology Bentonite Bentonite 3.0 Car, red, dy, Rite Sand 15:18 ft. Sand, Car, red, Sand, Car, red, Sand ft. Bentonite Sand 3.0 Car, red, dy, Rite, Sand ft. Sand, Car, red, Sand ft. Bentonite Sand 3.0 Car, red, graum, day, red, Sand ft. Sand Sand Cartings Sand 3.0 Car, red, graum,	Logger:	David Hamilton	Client:	Well ID:	
Driting Method: Air Rolary Project Ame: Stat Date: 6/23/2004 Location: P-2 Notes: Lico Hills P-2 Oppht Correction: Lico Hills Correction: P-2 Oppht: Correction: Lico Hills Correction: Correction: 10.0 Clay, red. dy, 10-28 Hill Action: Bentonile Correction: 20.0 Clay, red. dy, 16-27 Hill Action: Bentonile Bentonile Bentonile 20.0 Clay, red. dy, 13-37 Hill Action: Bentonile Sand Cutings 20.0 Clay, red. dy, 167-95 Sand Sand Bentonile Sa	Driller:	Dubose Drilling	LHGSF		
Start Date: 67.3/2004 Location: P-2 Notes: Libbolig Libbolig Libbolig P-2 Depth Loco Hills Loco Hills Cement Cement 0.0 Clay, red, dry, 12-0 ft, Surface, 0-6 ft, Surface, 0-6 ft, Cement Cement Cement 10.0 Clay, red, dry, 12-0 ft, Clay, red, dry, 12-0 ft, Surface, 12-ft, Cement Bentonite 10.0 Clay, red, dry, 12-0 ft, Clay, red, dry, 12-0 ft, Surface, 12-ft, Surface, 12-ft, <td>Drilling Method:</td> <td>Air Rotary</td> <td>Project Name:</td> <td></td> <td></td>	Drilling Method:	Air Rotary	Project Name:		
Note: Location Depth	Start Date:	6/23/2004	1		D 2
Notes Librolay 0.1 Surface, 0.6 ft. 0.2 Surface, 0.6 ft. 0.1 Surface, 0.6 ft. 0.2 Surface, 0.6 ft. 0.1 Clay, red, dy, 10 th. 0.2 Clay, red, dy, 10 th. 0.1 Clay, red, dy, 12 th. 10.0 Clay, red, dy, 16 th. 2.0 Clay, red, dy, 18 th. 3.0 Clay, red, dy, red, 53 th. 3.0 Clay, red, dy, dy, 26 th. 3.0 Clay, red, dy, dy, 27 th.	End Date:	6/24/2004	Location:		P-2
Depth Description 0.0 Surface, 0.6 ft. 4.0 Cernent 8.0 Clay, red, dy, 10-10 ft. 10.0 Clay, red, dy, 12-10 ft. 12.0 Clay, red, dy, 12-10 ft. 24.0 Clay, red, dy, 12-10 ft. 25.0 Clay, red, dy, 27-33 ft. 20.0 Clay, red, dy, 27-33 ft. 20.0 Clay, red, dy, 23-47 ft. 40.0 Clay, red, dy, 23-47 ft. 41.0 Sand, clay, red, dy, 23-53 ft. 42.0 Clay, red, dy, 25-56 ft. 42.0 Clay, red, some sind 76-43 ft. 43.0 Gypsum, clay, dey, 33-68 ft. 43.0 Gypsum, clay, dey, 43-48 ft. 43.0 Gypsum, ubite, dy, 65-56 ft.<	NOTES:				
Pepth Description Lithology 2.0 Surface, 0.6 ft. Clay, red, dy, 6-10 ft. 4.0 Clay, red, dy, 6-10 ft. Carrent 12.0 Clay, red, dy, 10-10 ft. Carrent 20.0 Clay, red, dy, 27-33 ft. Carrent 20.0 Clay, red, dy, 33-47 ft. Carrent 40.0 Sand, clay, red, 50-55 ft. Carrent 20.0 Clay, red, some pypeum, 65-67 ft. Sand 20.0 Clay, red, some pypeum, 65-67 ft. Sand 20.0 Clay, red, gyssum, 67-67 ft. Sand 20.0 Clay, red, gyssum, 63-67 ft. Sand 20.0 Clay, red, gyssum, 63-67 ft.			and the second state of th		
(feet) Description Uthology Well and Plezometer Construction 2.0 Surface, 0.6 R Clay, red, dy, 8-10 R. Cernent	Depth			•	
0.0 Surface. 0-0 ft. 4.0 Cament 6.0 Clay, red, dry, 6-10 ft. 10.0 Clay, red, dry, 12-18 ft. 11.0 Clay, red, dry, 18-27 ft. 22.0 Clay, red, dry, 18-27 ft. 23.0 Clay, red, dry, 18-27 ft. 24.0 Clay, red, dry, 18-37 ft. 24.0 Clay, red, dry, 18-37 ft. 24.0 Clay, red, dry, 18-37 ft. 25.0 Clay, red, dry, 53-63 ft. 56.0 Clay, red, grysum, 45-50 ft. 56.0 Clay, red, grysum, 69-75 ft. 57.0 Clay, red, grysum, 69-76 ft. 57.0 Clay, red, grysum, 69-76 ft. 57.0 Clay, red, grysum, 69-103 ft. 58.0	(feet)	Description	Lithology	Well and Piezo	ometer Construction
2.0 Surface 6.6 ft 4.0 Clay, red, dy, 5-10 ft 6.0 Clay, red, dy, 187 ft 10.0 Clay, red, dy, 187 ft 12.0 Clay, red, dy, 187 ft 16.0 Clay, red, dy, 187 ft 16.0 Clay, red, dy, 187 ft 22.0 Clay, red, dy, 187 ft 23.0 Clay, red, dy, 27-33 ft 30.0 Sand, clay, red, dy, 27-33 ft 30.0 Sand, clay, red, dy, 27-33 ft 30.0 Sand, clay, red, dy, 27-33 ft 30.0 Clay, red, dy, 27-33 ft 30.0 Sand, clay, red, dy, 27-33 ft 30.0 Sand, clay, red, dy, 27-33 ft 30.0 Sand, clay, red, dy, 33-47 ft 40.0 Clay, red, gypsum, 45-50 ft 42.0 Sand, clay, red, 53-63 ft 55.0 Sand, red, 53-63 ft 56.0 Gypsum, white, dy, 67-69 ft 72.0 Clay, red, gypsum, 63-75 ft 72.0 Clay, red, gypsum, 63-76 ft 76.0 Clay, red, sone gypsum, 63-69 ft 78.0 Clay, red, sone sind 78-50 ft 78.0	0.0				
4.0 Clay, red, dry, 6:10 ft. 6.0 Clay, red, dry, 10:10 ft. 12.0 Clay, red, dry, 12:15 ft. 14.0 Clay, red, dry, 12:15 ft. 16.0 Clay, red, dry, 12:15 ft. 16.0 Clay, red, dry, 12:27 ft. 22.0 Clay, red, dry, 12:27 ft. 23.0 Clay, red, dry, 12:37 ft. 24.0 Clay, red, dry, 13:47 ft. 40.0 Sand, clay, red, dry, 33:47 ft. 40.0 Clay, red, dry, 33:47 ft. 40.0 Clay, red, dry, 33:47 ft. 40.0 Clay, red, dry, 63:63 ft. 50.0 Sand, clay, red, 50:53 ft. 52.0 Sand, clay, red, 50:53 ft. 54.0 Gypsum, white, dry, 67:68 ft. 65.0 Gypsum, white, dry, 67:68 ft. 65.0 Gypsum, clay, red, synam, soft soft. 70.0 Clay, red, gypsum, soft soft. 72.0 Gypsum, clay, red, gypsum, 68:78 ft. 72.0 Gypsum, clay, red, synam, soft. 72.0 Gypsum, clay, grey and red, 83:88 ft. 73.0 Gypsum, clay, grey and red, 83:88 ft. 74.0	2.0	Surface, 0-6 ft.			
6.0 Clay, red, dry, 12:16 ft. 10.0 Clay, red, dry, 12:16 ft. 12.0 Clay, red, dry, 12:16 ft. 14.0 Clay, red, dry, 18:27 ft. 22.0 Clay, red, dry, 18:27 ft. 23.0 Clay, red, dry, 27:33 ft. 30.0 Clay, red, dry, 33:47 ft. 40.0 Sand, clay, red, dry, 33:47 ft. 41.0 Clay, red, dry, 105:50 ft. 50.0 Clay, red, dry, 63:63 ft. 50.0 Clay, red, dry, 63:63 ft. 50.0 Clay, red, some gypsum, 63:67 ft. 65.0 Clay, red, grpsum, 45:50 ft. 65.0 Sand, clay, red, 53:63 ft. 65.0 Clay, red, grpsum, 63:67 ft. 66.0 Clay, red, grpsum, 63:67 ft. 72.0 Clay, red, grpsum, soft, 103:10 ft. 72.0 Clay,	4.0			Cement	
8.0 Clay, red, dry, 1116 caliche 10-12 ft. 12.0 Clay, red, dry, 12-16 ft. 14.0 Clay, red, dry, 12-16 ft. 16.0 Clay, red, dry, 18-27 ft. 22.0 Clay, red, dry, 18-27 ft. 24.0 Clay, red, dry, 17-35 ft. 30.0 Clay, red, dry, 17-35 ft. 30.0 Clay, red, dry, 17-35 ft. 30.0 Clay, red, dry, 33-47 ft. 40.0 Clay, red, song synam, 45-50 ft. 50.0 Clay, red, song synam, 45-50 ft. 50.0 Clay, red, song synam, 65-57 ft. 50.0 Clay, red, song synam, 65-75 ft. 72.0 Clay, red, gynaum, song sand, 78-83 ft. 66.0 Clay, red, gynaum, song sand, 78-83 ft. 67.0 Clay, red, song sum, 68-96 ft. 68.0 Gynaum, white, dry, 69-103 ft. 72.0 Clay, red, song sum, 68-96 ft. 68.0 Gynaum, white, dry, 69-103 ft. 72.0 Clay, red, song suit and gynaum, soft, 103-105 ft.	6.0	Clay, red, dry, 6-10 ft.			
10.0 Cuty, Cel, vij, Nink stands fr.10 % ft. 12.0 Cuty, Cel, vij, Nink stands 16-18 ft. 14.0 Clay, red, dry, 18-27 ft. 22.0 Clay, red, dry, 27-33 ft. 30.0 Sand, clay, red, dry, 33-47 ft. 40.0 Clay, red, dry, 33-47 ft. 40.0 Clay, red, dry, 33-47 ft. 40.0 Clay, red, dry, 27-33 ft. 30.0 Sand, clay, red, 550 ft. 52.0 Clay, red, dry, 33-47 ft. 40.0 Clay, red, sppsum, 45-50 ft. 56.0 Sand, clay, red, 53-63 ft. 56.0 Sand, clay, red, 57-66 ft. 66.0 Clay, red, gypsum, clay, 67-56 ft. 66.0 Clay, red, gypsum, clay, 67-56 ft. 70.0 Clay, red, gypsum, clay, 67-56 ft. 71.0 Gypsum, clay, grey and red, 83-68 ft. 88.0 Glay, red, some stand, 78-83 ft. 90.0 Clay, red, some gypsum, soft, 103-105 ft. 72.0 Clay, red, some gypsum, soft, 103-105 ft.	8.0	Clay rad day little caliaba 10.12.ft	8222282828288	Bontonito	
12.0 Clay, red, dy, 12:10 ft. 16.0 Clay, red, dy, 18:0 sand, 16:18 ft. 16.0 Clay, red, dy, 18:27 ft. 22.0 Clay, red, dy, 27:33 ft. 30.0 Clay, sand, red, dy, 27:33 ft. 30.0 Clay, sand, red, dy, 33:47 ft. 40.0 Sand, clay, red, dy, 33:47 ft. 40.0 Clay, sand, red, sightly soft, 50:53 ft. 50.0 Clay, sand, red, sightly soft, 50:53 ft. 50.0 Clay, red, gypsum, 45:50 ft. 40.0 Clay, sand, red, sightly soft, 50:53 ft. 50.0 Clay, red, gypsum, 63:67 ft. 50.0 Clay, red, gypsum, 63:67 ft. 50.0 Clay, red, gypsum, 69:75 ft. 72.0 Clay, red, gypsum, 69:75 ft. 74.0 Gypsum, clay, red, some blue, 75:78 ft. 76.0 Clay, red, some sand. 78:43 ft. 60.0 Gypsum, some sand. 78:43 ft.	12.0	Clay, red, dry, intie calicite 10-12 it.	2222222222222222222	Dentonite	
11.0 Clay, red, dry, 18:427 ft. 18.0 Clay, red, dry, 18:427 ft. 22.0 Clay, red, dry, 18:27 ft. 23.0 Clay, sand, red, dry, 27:33 ft. 30.0 Clay, sand, red, dry, 33:47 ft. 40.0 Gamma and the source dry, 33:47 ft. 40.0 Clay, red, dry, 33:47 ft. 40.0 Gamma and the source dry, 33:47 ft. 40.0 Clay, red, dry, 27:53 ft. 50.0 Sand, clay, red, 50:53 ft. 50.0 Sand, clay, red, 50:53 ft. 50.0 Sand, red, some gypsum, 63:57 ft. 70.0 Clay, red, gypsum, 63:57 ft. 70.0 Clay, red, gypsum, some sand, 78:83 ft. 80.0 Gypsum, clay, grey and red, 83:88 ft. 80.0 Gypsum, drag, grey and red, 83:88 ft. 80.0 Gypsum, white, dry, 99-103 ft. 70.0 Clay, red, some silt and gypsum, soft, 103-105 ft. 710.0 Clay, red, some silt and gypsum, soft,	14.0	Clay, red, dry, 12-16 ft.			
B.0 Clay, red, dry, 18-27 ft. 22.0 Clay, red, dry, 27-33 ft. 30.0 Clay, sand, red, dry, 27-33 ft. 30.0 Clay, sand, red, dry, 27-33 ft. 30.0 Clay, red, dry, 33-47 ft. 40.0 Clay, red, dry, 33-47 ft. 40.0 Clay, red, gypsum, 45-50 ft. 45.0 Clay, red, gypsum, 45-50 ft. 46.0 Clay, red, gypsum, 45-50 ft. 56.0 Sand, clay, red, 53-63 ft. 56.0 Sand, clay, red, 53-63 ft. 56.0 Sand, clay, red, 53-63 ft. 56.0 Clay, red, gypsum, 63-67 ft. 70.0 Clay, red, some blue, 75-76 ft. 76.0 Clay, red, some blue, 75-76 ft. 76.0 Clay, red, some sand, 78-83 ft. 80.0 Gypsum, some sand, 78-83 ft. 80.0 Gypsum, white, dry, 69-103 ft. 72.0 Clay, red, some gypsum, soft, 103-105 ft. 76.0 Clay, red, some sit and gypsum, soft, 103-105 ft. 76.0 Clay, red, some sit and gypsum, soft, 103-105 ft. 76.0 Clay, red, some sit and gypsum, soft, 103-105 ft. 76.0 Clay, red, dr	16.0	Clay, red, dry, little sand 16-18 ft	100000000000000000000000000000000000000		
220 Clay, red, dry, 18-27 ft. Bentonite and cuttings 22.0 Clay, sand, red, dry, 27-33 ft. Clay, sand, red, dry, 27-33 ft. 30.0 Clay, sand, red, dry, 27-33 ft. Clay, sand, red, dry, 33-47 ft. 40.0 Sand, day, red, dry, 33-47 ft. Sand, day, red, dry, 33-47 ft. 40.0 Clay, sand, red, dry, 33-47 ft. Sand, day, red, dry, 33-47 ft. 40.0 Clay, sand, red, sightly soft, 50-53 ft. Sand, clay, red, 53-63 ft. 50.0 Clay, sand, red, some gypsum, 63-67 ft. Sand 66.0 Clay, sand, red, some gypsum, 63-67 ft. Bentonite 70.0 Clay, red, gypsum, 69-75 ft. Sand 70.0 Clay, red, gypsum, 69-75 ft. Sand 70.0 Clay, red, gypsum, some sand, 78-83 ft. Bentonite 80.0 Gypsum, clay, grey and red, 83-88 ft. Sand 80.0 Clay, red, some gypsum, 88-99 ft. Sand 70.0 Clay, red, some gypsum, 88-99 ft. Bentonite 80.0 Gypsum, white, dry, 105-110 ft. Sand 80.0 Clay, red, some sitt and gypsum, soft, 103-105 Bentonite 80.0 <td< td=""><td>18.0</td><td></td><td></td><td></td><td></td></td<>	18.0				
22.0 Clay, red, dry, 15-27 ft. 24.0	20.0				
24.0	22.0	Clay, red, dry, 18-27 ft.			
28.0 Clay. sand. red, dry, 27-33 ft. Bentonite and cutings 32.0 Sand. clay, red, dry, 33-47 ft. 40.0 Sand. clay, red, dry, 33-47 ft. 40.0 Clay. sand, red, sightly soft, 50-53 ft. Sand. clay, red, dry, 50-63 ft. Sand. clay, red, sone dypsum, 63-67 ft. Sand. clay, red, sone dypsum, 63-67 ft. 50.0 Clay, red, gypsum, 63-67 ft. Sand. clay, red, gypsum, 63-75 ft. Sand 70.0 Clay, red, gypsum, 63-75 ft. Sand Bentonite 72.0 Clay, red, gypsum, 63-75 ft. Sand Sand 74.0 Gypsum, clay, red, some bue, 75-76 ft. Sand Bentonite 76.0 Clay, red, gypsum, some sand, 78-63 ft. Sand Bentonite 88.0 Gypsum, clay, grey and red, 83-86 ft. Sand Bentonite 88.0 Gypsum, white, dry, 98-103 ft. Bentonite Sand 70.0 Clay, red, some sit and gypsum, soft, 103-105 Sand Sand	24.0				
28.0 Clay, sand, red, dry, 27-33 ft. 30.0	26.0			Bentonite	
30.0	28.0	Clay, sand, red, dry, 27-33 ft.		and	
32.0	30.0		Brain agriculture	cuttings	
34.0	32.0				
38.0	34.0	_			
38.0	36.0	Sand clay red doy 32.47 ft			
10.0 10.0 <th< td=""><td>40.0</td><td></td><td></td><td></td><td></td></th<>	40.0				
44.0	42.0			1	
46.0 Clay, red, gypsum, 45-50 ft. 50.0 Clay, sand, red, sightly soft, 50-53 ft. 52.0 Sand, clay, red, 53-63 ft. 56.0 Sand, clay, red, 53-63 ft. 58.0 Sand 60.0 Clay, sand, red, some gypsum, 63-67 ft. 64.0 Clay, red, gypsum, 63-75 ft. 72.0 Clay, red, gypsum, 63-75 ft. 72.0 Clay, red, gypsum, 63-75 ft. 72.0 Clay, red, gypsum, 63-75 ft. 74.0 Gypsum, clay, red, some blue, 75-78 ft. 78.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Gypsum, clay, grey and red, 83-88 ft. 86.0 Gypsum, white, dry, 99-103 ft. 90.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, dry, 105-110 ft. 104.0 Clay, red, dry, 105-110 ft.	44.0				
48.0 Clay, red, gypsuff, 43-50 ft. 50.0 Clay, sand, red, slightly soft, 50-53 ft. 52.0 Sand, clay, red, 53-63 ft. 58.0 Sand, clay, red, 53-63 ft. 60.0 Clay, sand, red, some gypsum, 63-67 ft. 64.0 Gypsum, white, dry, 67-69 ft. 66.0 Gypsum, white, dry, 67-69 ft. 66.0 Gypsum, clay, red, gypsum, 69-75 ft. 72.0 Clay, red, gypsum, 69-75 ft. 74.0 Gypsum, clay, red, some blue, 75-78 ft. 76.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Gypsum, clay, red, 83-88 ft. 82.0 Gypsum, white, dry, 99-103 ft. 92.0 Gypsum, white, dry, 99-103 ft. 92.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, some gypsum, soft, 103-105 ft. 102.0 Clay, red, dry, 105-110 ft. 108.0 Clay, red, dry, 105-110 ft.	46.0				
50.0 Clay, sand, red, slightly soft, 50-53 ft. 52.0 54.0 56.0 Sand, clay, red, 53-63 ft. 68.0 62.0 Clay, sand, red, some gypsum, 63-67 ft. 64.0 66.0 66.0 67.0 70.0 Clay, red, gypsum, 69-75 ft. 72.0 74.0 74.0 78.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 84.0 88.0 92.0 Clay, grey and red, some gypsum, 88-99 ft. 98.0 98.0 98.0 100.0 100.0 102.0 104.0 98.0 104.0 104.0	48.0	Clay, red, gypsum, 45-50 ft.			
52.0 Bentonite 54.0 Sand, clay, red, 53-63 ft. 56.0 Clay, sand, red, some gypsum, 63-67 ft. 62.0 Clay, sand, red, some gypsum, 63-67 ft. 64.0 Gypsum, while, dry, 67-69 ft. 66.0 Gypsum, while, dry, 67-69 ft. 66.0 Gypsum, while, dry, 67-76 ft. 70.0 Clay, red, gypsum, 69-75 ft. 74.0 Gypsum, clay, red, some blue, 75-76 ft. 78.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Gypsum, clay, grey and red, 83-88 ft. 86.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, dry, 105-110 ft. 106.0 Clay, red, dry, 105-110 ft.	50.0	Clay, sand, red, slightly soft, 50-53 ft.			
54.0 Sand, clay, red, 53-63 ft. 58.0 Sand, clay, red, 53-63 ft. 60.0 Clay, sand, red, some gypsum, 63-67 ft. 64.0 Clay, sand, red, some gypsum, 63-67 ft. 66.0 Gypsum, white, dry, 67-69 ft. 68.0 Clay, red, gypsum, 69-75 ft. 70.0 Clay, red, gypsum, 69-75 ft. 72.0 Gypsum, clay, red, some blue, 75-78 ft. 76.0 Gypsum, clay, grey and red, 83-88 ft. 80.0 Gypsum, clay, grey and red, 83-88 ft. 86.0 Gypsum, clay, grey and red, 83-88 ft. 86.0 Gypsum, white, dry, 99-103 ft. Clay, red, dry, 105-110 ft. Bentonite 96.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, dry, 105-110 ft.	52.0		-	Bentonite	
56.0 Sand, clay, red, 53-63 ft. Sand 68.0 Clay, sand, red, some gypsum, 63-67 ft. Bentonite 66.0 Gypsum, white, dry, 67-69 ft. Bentonite 70.0 Clay, red, gypsum, 69-75 ft. Bentonite 74.0 Gypsum, clay, red, some blue, 75-78 ft. Bentonite 78.0 Clay, red, gypsum, some sand, 78-83 ft. Bentonite 80.0 Gypsum, clay, grey and red, 83-88 ft. Bentonite 84.0 Gypsum, clay, grey and red, 83-88 ft. Bentonite 88.0 Clay, grey and red, some gypsum, 88-99 ft. Bentonite 90.0 Gypsum, white, dry, 99-103 ft. Bentonite 102.0 Clay, red, some sit and gypsum, soft, 103-105 ft. Bentonite 102.0 Clay, red, dry, 105-110 ft. Sand	54.0				
58.0 Sand 60.0 Clay, sand, red, some gypsum, 63-67 ft. 66.0 Gypsum, white, dry, 67-69 ft. 68.0 Clay, red, gypsum, 69-75 ft. 70.0 Clay, red, gypsum, 69-75 ft. 74.0 Gypsum, clay, red, some blue, 75-78 ft. 78.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Gypsum, clay, grey and red, 83-88 ft. 82.0 Gypsum, clay, grey and red, 83-88 ft. 86.0 Gypsum, white, dry, 99-103 ft. 00.0 Clay, red, some silt and gypsum, soft, 103-105 ft. 0102.0 Clay, red, dry, 105-110 ft. 110.0 Clay, red, dry, 105-110 ft.	56.0	Sand, clay, red, 53-63 ft.	1222	0	
Bentonite Bentonite 62.0 Clay, sand, red, some gypsum, 63-67 ft. Bentonite 66.0 Gypsum, white, dry, 67-69 ft. Bentonite 68.0 Clay, red, gypsum, 69-75 ft. Bentonite 74.0 Gypsum, clay, red, some blue, 75-78 ft. Bentonite 78.0 Clay, red, gypsum, some sand, 78-83 ft. Bentonite 80.0 Gypsum, clay, grey and red, 83-88 ft. Bentonite 84.0 Gypsum, clay, grey and red, 83-88 ft. Bentonite 90.0 Gypsum, white, dry, 99-103 ft. Bentonite Clay, red, some sit and gypsum, soft, 103-105 ft. Bentonite 100.0 Clay, red, dry, 105-110 ft. Sand Gypsum, clay, red, dry, 105-110 ft.	58.0	_	and the second second	Sand	
O2.0 Clay, sand, red, some gypsum, 63-67 ft. 66.0 Gypsum, white, dry, 67-69 ft. 68.0 Clay, red, gypsum, 69-75 ft. 70.0 Clay, red, gypsum, 69-75 ft. 74.0 Gypsum, clay, red, some blue, 75-78 ft. 78.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Gypsum, clay, grey and red, 83-88 ft. 84.0 Gypsum, clay, grey and red, 83-88 ft. 88.0 Gypsum, white, dry, 99-103 ft. Clay, red, some silt and gypsum, soft, 103-105 Bentonite 99.0 Clay, red, some silt and gypsum, soft, 103-105 100.0 Clay, red, dry, 105-110 ft.	62.0			Bentonite	
0.00 Gypsum, white, dry, 67-69 ft. 66.0 Clay, red, gypsum, 69-75 ft. 72.0 Clay, red, gypsum, 69-75 ft. 74.0 Gypsum, clay, red, some blue, 75-78 ft. 78.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Gypsum, clay, grey and red, 83-88 ft. 84.0 Gypsum, clay, grey and red, 83-88 ft. 88.0 Gypsum, white, dry, 99-103 ft. 00.0 Clay, red, some gypsum, soft, 103-105 ft. 0100.0 Clay, red, dry, 105-110 ft. 110.0 Clay, red, dry, 105-110 ft.	64.0	Clay, sand, red, some gypsum, 63-67 ft.		Demonite	
08.0 Bentonite 70.0 Clay, red, gypsum, 69-75 ft. 72.0 Gypsum, clay, red, some blue, 75-78 ft. 76.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Gypsum, clay, grey and red, 83-88 ft. 84.0 Gypsum, clay, grey and red, 83-88 ft. 86.0 Bentonite 90.0 Gypsum, clay, grey and red, 83-88 ft. 86.0 Clay, grey and red, some gypsum, 88-99 ft. 92.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, some sit and gypsum, soft, 103-105 ft. 102.0 Clay, red, dry, 105-110 ft. 106.0 Clay, red, dry, 105-110 ft.	66.0	Gypsum, white, dry, 67-69 ft.			
T0.0 Clay, red, gypsum, 69-75 ft. 72.0 Gypsum, clay, red, some blue, 75-76 ft. 76.0 Gypsum, clay, red, some blue, 75-76 ft. 78.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Gypsum, clay, grey and red, 83-86 ft. 84.0 Gypsum, clay, grey and red, 83-86 ft. 86.0 Bentonite 90.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, some gypsum, soft, 103-105 ft. 102.0 Clay, red, dry, 105-110 ft. 108.0 Clay, red, dry, 105-110 ft.	68.0			Bentonite	
72.0 Cuttings 74.0 Gypsum, clay, red, some blue, 75-78 ft. 76.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Gypsum, clay, grey and red, 83-86 ft. 84.0 Gypsum, clay, grey and red, 83-86 ft. 86.0 Bentonite 90.0 Gypsum, clay, grey and red, 83-86 ft. 90.0 Gypsum, clay, grey and red, 83-86 ft. 90.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, some gypsum, soft, 103-105 102.0 Clay, red, some silt and gypsum, soft, 103-105 106.0 Clay, red, dry, 105-110 ft. 108.0 Clay, red, dry, 105-110 ft.	70.0	Clay, red, gypsum, 69-75 ft.		and	
74.0 Gypsum, clay, red, some blue, 75-78 ft. 76.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Gypsum, clay, grey and red, 83-88 ft. 86.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, some gypsum, soft, 103-105 ft. 100.0 Clay, red, dry, 105-110 ft. 108.0 Clay, red, dry, 105-110 ft.	72.0			cuttings	
76.0 Bentonite 78.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Gypsum, clay, grey and red, 83-88 ft. 86.0 Gypsum, clay, grey and red, 83-88 ft. 86.0 Bentonite 90.0 Clay, red, dry, 99-103 ft. 100.0 Clay, red, dry, 99-103 ft. 102.0 Clay, red, dry, 105-110 ft. 108.0 Clay, red, dry, 105-110 ft.	74.0	Gypsum, clay, red. some blue. 75-78 ft			
78.0 Clay, red, gypsum, some sand, 78-83 ft. 80.0 Gypsum, clay, grey and red, 83-88 ft. 84.0 Gypsum, clay, grey and red, 83-88 ft. 86.0 Bentonite 90.0 Clay, grey and red, some gypsum, 88-99 ft. 90.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, some silt and gypsum, soft, 103-105 102.0 Clay, red, dry, 105-110 ft. 106.0 Clay, red, dry, 105-110 ft.	76.0			Bentonite	
Solution Sand 82.0 Gypsum, clay, grey and red, 83-88 ft. 86.0 Gypsum, clay, grey and red, 83-88 ft. 90.0 Bentonite 92.0 Clay, grey and red, some gypsum, 88-99 ft. 96.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, some silt and gypsum, soft, 103-105 104.0 ft. 106.0 Clay, red, dry, 105-110 ft. 108.0 Clay, red, dry, 105-110 ft.	78.0	Clay, red, gypsum, some sand, 78-83 ft.	11111	0	
OZ.0 Gypsum, clay, grey and red, 83-88 ft. Bentonite 86.0 88.0 90.0 90.0 Bentonite and cuttings 92.0 Glay, grey and red, some gypsum, 88-99 ft. Bentonite and cuttings Bentonite 94.0 96.0 Gypsum, white, dry, 99-103 ft. Bentonite and cuttings Bentonite 98.0 Gypsum, white, dry, 99-103 ft. Clay, red, some silt and gypsum, soft, 103-105 ft. Bentonite Bentonite 102.0 Clay, red, dry, 105-110 ft. Sand Sand Sand Sand	82.0			Sand	
Bit O Bentonite 90.0 90.0 92.0 Clay, grey and red, some gypsum, 88-99 ft. 94.0 96.0 98.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, some silt and gypsum, soft, 103-105 ft. 104.0 Clay, red, dry, 105-110 ft. 108.0 Clay, red, dry, 105-110 ft.	84.0	Gypsum, clay, grey and red, 83-88 ft		Bentonite	
88.0 Bentonite 92.0 Clay, grey and red, some gypsum, 88-99 ft. 94.0 94.0 94.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, some silt and gypsum, soft, 103-105 ft. 102.0 Clay, red, some silt and gypsum, soft, 103-105 ft. 106.0 Clay, red, dry, 105-110 ft.	86.0			Bontonito	
90.0 Bentonite 92.0 Glay, grey and red, some gypsum, 88-99 ft. Bentonite 94.0 Gypsum, white, dry, 99-103 ft. Bentonite 100.0 Glay, red, some silt and gypsum, soft, 103-105 Bentonite 102.0 Clay, red, some silt and gypsum, soft, 103-105 Bentonite 106.0 Clay, red, dry, 105-110 ft. Sand	88.0				
92.0 Clay, grey and red, some gypsum, 88-99 ft. and cuttings 94.0 96.0 Gypsum, white, dry, 99-103 ft. Bentonite 100.0 Clay, red, some silt and gypsum, soft, 103-105 ft. Bentonite Sand 106.0 Clay, red, dry, 105-110 ft. Sand Sand	90.0			Bentonite	
94.0 96.0 96.0 98.0 000.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, some silt and gypsum, soft, 103-105 ft. 106.0 Clay, red, dry, 105-110 ft. 110.0 Clay, red, dry, 105-110 ft.	92.0	Clay, grey and red, some gypsum, 88-99 ft.		and	
96.0 98.0 Gypsum, white, dry, 99-103 ft. Bentonite 100.0 Clay, red, some silt and gypsum, soft, 103-105 ft. Bentonite Image: Clay, red, dry, 105-110 ft. 106.0 Clay, red, dry, 105-110 ft. Sand Image: Clay, red, dry, 105-110 ft.	94.0			cuttings	
98.0 Gypsum, white, dry, 99-103 ft. 100.0 Clay, red, some silt and gypsum, soft, 103-105 ft. 104.0 ft. 106.0 Clay, red, dry, 105-110 ft. 110.0 Sand	96.0				
100.0 Clay, red, some silt and gypsum, soft, 103-105 Bentonice 102.0 104.0 106.0 Sand 106.0 Clay, red, dry, 105-110 ft. Sand Sand	98.0	Gypsum, white, dry, 99-103 ft.		Pontonito	
102.0 Clay, red, some sin and gypsum, son, 105-105 Annual State Sand Annual State 106.0 Clay, red, dry, 105-110 ft. Sand Annual State Annual	102.0	Clau rod pama alt and superior and 100 100	-	Demonite	
106.0 Clay, red, dry, 105-110 ft. Sand 108.0 110.0	102.0	tiay, red, some silt and gypsum, soft, 103-105			
Clay, red, dry, 105-110 ft. Sand 110.0	104.0	14		Sand	
	108.0	Clay, red, dry, 105-110 ft.		Janu	
	110.0				
			· r		

	Logger:		Glient:	well ID:
	Driller:		LHGSF	
Drillin	g Method:	5/1/2003	Project Name:	
	Find Date:	5/1/2003	Location:	MW-
Notes:		0, 112000	Loco Hills	
]
Donth				1
(feet)	1	Description	Lithology	
0.0		Beachption		
2.0		Surface, very fine grained sand, red, 0-5 ft.		
4.0				
6.0			슻 슻슻슻슻슻슻슻슻슻슻슻슻슻슻슻슻슻슻슻슻 닅슻슻슻슻슻슻슻슻슻슻슻슻슻슻	
8.0		Caliche, sand, clay, 5-14 ft.		
10.0		_		
12.0				
16.0		-		
18.0				
20.0		Clay red very sandy 14-30 ft		
22.0				
24.0		_		1
26.0				
20.0				
32.0		-1		
34.0	· · · · · · · · · · · · · · · · ·			
36.0				
38.0				
40.0				
42.0				
44.0				
48.0		Clay, some fine gravel, 30-67 ft.		
50.0				
52.0				
54.0				
56.0				
58.0				
60.0				
64.0				
66.0				
68.0				
70.0		Conglomerate, limestone, grey to dark grey, 6	57- 00000000000	
72.0	_	77 ft.		
74.0				
70.U 78.0				!
80.0			¥	
82.0		Clay, red, 77-88 ft.		
84.0				ĺ
86.0				
88.0				
90.0		Clay, red, very sticky, 88-93 ft.		
94 N	+			
96.0	<u> -</u>			
98.0		Limostono gupsum white to light area		
100.0		fractured, 93-109 ft.		
102.0				
104.0	├───┤─			
106.0	<u>├</u> ──┤~			
110.0	<u> </u>	Clay, red, 109-113 ft.		
112.0				
114.0		Clay, blue grey, 113-116 ft.		
116.0		Clav red silty 116-120 ft		
118.0		(idy, red, sity, rio-120 it.		
120.0	l			
	1			
	пт	Highs Consultants 1 to		
	901 Rio	Hicks Consultants, Ltd Grande Blvd NW Suite F-142	Loco Hills GSF	Plate

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Well Log Legend

Anhydrites, white, yellow, and limey

Gravels

Sands, coarse to fine grained

Silts, tan, brown, red and grey

Limestone, light grey, grey

Clays, dry, wet, red to dark red

Hydrocarbon impacted lithology

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APPENDIX B Water Well Driller's Logs

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	Ec	ldy County		
Declaration No. 03-13-	RA-8237	Date received	July_10, 199	<u>u</u>
	5	К У∃С МЕНТ		
1. Name of Declarant Bog	le Farms	Doxtor		······································
County of Chaves	Diawei 40	, State of		·
2. Source of water supplyShall	ov_water	gainn or shallow water	squiler)	
 Describe well location under one of the finance of th	offowing sublicating % of Sc County.	ка с. <u>22</u> Тжр	<u>175 ngo 29E</u>	N.M.P.M.,
b. Truct No of Map No of Map No	u	of the	· System	
in the Bogle Fa	rms			Geen
A Development of wells down drifted T	rior 1015	dritler and	denth 8	7 (***
outside disputer of entities 6	nduct original a	maciny 313 and	per ailest present const	
ent and a number of Charling	nenco, nogimor c	level 80 ture tube	vc) (below) lood surface	
wave and transformer for the Mind		Demoster		
make and type of propagation	، بىلەلەلمايلەرىرىمىيەت يەرىيى تىسى			
Fractitional or nervectore intervet	dnined in well	100%		
5. Duantity of water approximation of the	oneficially	1.54		
 Z manté or saits abhabuated and pi 		laare feet par vere	(aste feat pe	e lenning V
MLivestock & Wildl	ife			pur71sca
C. Acreage actually irrigated	seres, breated is	of described as follows	(describe only lands a)	enally inigated)
Subdivision	Sec. Two.	Acies Renos triouted	C wr	167
••••••••••••••••••••••••••••••••••••••				
		· · · · · · · · · · · · · · · · · · ·		
Mats: location of well and	actually in	rigoted must be shown or	plat an reverse side.)	
fliote: location of well and 7. Water was first applied to beneficial (actually in	rtigoted must be shown or	plat on reverse side.) Prior 1915an	i vinte tint ti n c
Here: location of well and 7. Water was first applied to beneficial t has been used fully and continuously	actually in be	rigoted must be shown or day reg described tarris or 6	plot on reverse side.) Prior 1915 pear ir the above described ;	i vinte that time
Hote: location of well and Hote: location of well and 7. Water was first applied to beneficial in has been used fully and centinously as follows:	actually in the	rigoted must be shown or day day ce described tarris or (plot on reverse side.) FIOF 1915 and year r the above described ;	i vinte chat time express except
fliate: location of well and 7. Water was first applied to beneficial t has been used fully and continuously as follows:	actually in the month on all of the abov	rigoted must be shown or day ce described tants or (plot on reverse side.) Tior 1915 pear in the above described p	i sinte that ti s t
fliate: location of well and 5. Water was first applied to beneficial a has been used fully and continuously as follows:	actually in the south an all of the above	erigoted must be shown or day ee described tarris or (plot on reverse side.) Prior 1915rear prote above described ;	i sinte chas ti n c mapuses escept
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Hate: location of well out Thate: location of well out To Water was first applied to beneficial to has been used fully and continuously as follows: Additional statements or explanations	actions actually in the an all of the above	reignted must be shown or day ce denceibed tands or (plot on reverse side.) Prior 1915 and pear or the above described ;	
Hers: location ai well and The Water was first applied to beneficial i has been used fully and continuously as follows: Additional statements or explanations, L. Stuart Bogle	accease actually in the	rigoted must be shown or day degree described tarris or (plot on reverse side.) Prior 1915 pear or the above described ;	i vinto char ti- e
Itiets: location of well and Itiets: location of well and Autor was first applied to beneficial i has been used fully and continuously as follows:	accease actually in the on all of the above and complete at and complete at a could nee of a set	regoted must be shown or day ce described hands or (ce described hands or (c	plot on reverse side.) Tior 1915 year in the above described (being first doly sweet ordance with the instru- ground water right, then	I share that the t states except states or the solution states or the solution there is a solution
Here been of well and Mater was first applied to beneficial a has been used fully nod continuously as follows:	acceage actually in the south an all of the abay and exaplete at a code accord of the d therein and code	rigoted must be shown or day ee described tarris or to storient prepared in act crabig of a valid unde the some are true to to	plat on reverse side.) Prior 1915 pear in the above described p being first doly sweet ordance with the instru- pround water right, then be heat of my knowledge	E winter that the e expression of the end of the end of the end of the end of the end of

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UNDER MEW MEXICO LAW A DECLARATION IS ONLY A STATEMENT OF DECLARANT'S CLAIM ACCEPTANCE FOR FILING DOES NOT CONSTITUTE APPROVAL OR REJECTION OF THE CLAIM.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well $\frac{\Lambda^2 U S T}{M}$ Street or Post Office Ad City and State $\frac{\Lambda}{M}$	y + Josi dress <u>13</u> tesia	e Van Curen Own Diane Drive NM g8210	ner's Well No. <u>RA - 9.343</u>
Well was drilled under Permit LOT 7, Block a 4 NEV	NO RA- 3 Rock SE4 SW	9342 and is located in the: Farm SUDJUISION Wof Section 19 Township 165 R	ange <u>2/1 </u>
b. Tract No	of Map No	of the	
c. Lot No Subdivision, recorded	of Block No	of the County.	
d. X=	feet, Y=	feet, N.M. Coordinate System	Zone in Zone in Grant.
(B) Drilling Contractor A	artin Wa	ter Well Drlg Co License No	WD-1064
Address 9775 Ha	pe Hwy	Artesia, New Mexico	8.8210
Drilling Began Alay 2,	95 Complete	d May 3, 9 & Type tools Rotary_	Size of hole $\frac{2}{5}$ in.
Elevation of land surface or	· <u>·</u>	at well is ft. Total dept	h of well <u>220</u> ft.
Completed well is S sh	allow 🗔 artes	ian. Depth to water upon completic	on of well <u>110</u> ft.
	Section	2. PRINCIPAL WATER-BEARING STRATA	
Depth in Feet	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
143.204	61	Sand t Gravel	30+

Section 3. RECORD OF CASING

Diameter	Pounds	Threads	Depth	Depth in Feet		Tune of Shee	Perfo	ations
(inches)	per foot	per in.	Тор	Bottom	(feet)	Type of Shoe	From	To
55	PVC	BEII	0	220	220		140	220
								}
							<u> </u>	

Section 4. RECORD OF MUDDING AND CEMENTING

Depth	in Feet	Hole	Sacks	Cubic Feet	Mathed of Discourses
From	То	Diameter	of Mud	of Cement	Method of Flacement
		1			
		1			

Section 5. PLUGGING RECORD

Plugging Contractor					
Address	······		Depth	in Feet	Cubic Feet
Plugging Method		NO.	Тор	Bottom	of Cement
Date Well Plugged		1			
Plugging approved by:		2			
		3			
Sta	te Engineer Representative	4			

FOR USE OF STATE ENGINEER ONLY

Date Received 5118198 File No. RAG342

Quad _ Use DON

FWL _____ FSL_____ Location NoILSSPIE.19.3449/1

i

Depti	h in Feet	h Thickney In Feet	Co. 7 and Type of M.	al Encountered
Ċ)	Teosoil	Brown
	15		caticha + Rack	Tan-Varinus
15	3.6	21	calicha & sand	Tan
<u></u>	62	26	clo-y	Tan
<u> </u>	90	28	5.a.n.d	Tan
96	108	1.3	clay	Red
	1.1.4	<u>b</u>	sond & Sparel	Tan-Vacinus
114	143	29	<u>clay</u>	Red
143	204	61	Sand + Gravel	Fand Various
2 7 14	220	16	clay	Red
				าการสาราราช และเป็นเป็นการเรียง เพิ่ม เพิ่ม และ เพิ่ม เป็นเป็นเป็นเป็นเป็น เป็นเป็น (C.) ก็ร่าง
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			an a	
	,		waa waxaa ahaa aha ahaa ahaa ahaa ahaa a	
Nandra sama na na da na ya ya ya wa sa a na a na a		Section	7. REMARKS AND ADDITIONAL INFORMATIO	N Grs
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				with The second se
				and and \$eesta turna ang

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Defford Martin Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, everyt Section 5, shall be answer if as completely and accurately as possible when any well is irilled, report to deepened. When the form is used as a plogging record, and Section 1 and Section 5 need be completed.