ATTACHMENT H VADOSE ZONE MONITORING PLAN

PROPOSED C.K. DISPOSAL E&P LANDFILL AND PROCESSING FACILITY

Eunice, New Mexico

Project No: 15-04-22

Prepared for:

C.K. Disposal LLC

October 2015

Prepared by:





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1.0 INTRODUCTION

The proposed C.K. Disposal E&P Landfill and Processing Facility, henceforth known as the "Site", is a proposed Surface Waste Management Facility for oilfield waste processing and disposal services. The proposed Site is subject to Title 19 Chapter 15 Part 36 of the New Mexico Administrative Code (NMAC). Specifically the facility is subject to 19.15.36 NMAC, which is administered by the Oil Conservation Division (OCD).

The proposed tract of land encompasses approximately 316.97 acres and is located in the north half of Section 5, Township 22 South, Range 38 East in Southern Lea County, New Mexico. It is situated approximately 4.16 miles east of the town of Eunice and one-half mile west of the New Mexico-Texas state border south of Highway 234.

Per 19.15.36.13.A(1) NMAC, landfills are restricted where groundwater is less than 100 feet below the lowest elevation of the design depth at which oil field waste will be placed. Additionally, 19.15.36.14.B NMAC requires groundwater monitoring at facilities where "fresh groundwater" exists, unless otherwise approved by the division. Fresh groundwater is typically defined as groundwater that contains less than 10,000 mg/L of total dissolved solids. Based on site-specific criteria discussed in the following sections, a vadose monitoring plan is proposed. Vadose zone monitoring has been employed at other landfills around the country and in New Mexico where hydrogeologic conditions warrant. Of special interest, a recently approved oilfield waste disposal site (similar to the proposed Site) in Lea County and the Lea County Landfill, which adjoins the proposed Site on the eastern property boundary, both perform vadose zone monitoring. This Vadose Zone Monitoring Plan has been prepared by Kevin T. Carel P.G., a qualified groundwater scientist, for the C.K. Disposal LLC.

2.0 SITE HYDROGEOLOGY

The hydrogeologic setting is thoroughly discussed in the Hydrogeology Report located in Attachment G of the C.K. Disposal E&P Landfill and Processing Facility permit application. The proposed Site is underlain by strata deposited during the Holocene Series to middle Pleistocene of the Quaternary System, Scholle, 2003. The Quaternary strata is mostly composed of interlayered sands and was deposited by eolian processes. The regional stratigraphy includes geologic units (listed from oldest to youngest) of the Santa Rosa Formation and the Chinle Formation of the Triassic Dockum Group, Cretaceous rocks undifferentiated, the Tertiary Ogallala Formation, and various Holocene to Pleistocene age deposits. Locally the proposed Site is located on the west flank of a topographic high known as Rattlesnake Ridge. Rattlesnake Ridge, also known as the Dockum Red Bed Ridge or Red Bed Ridge, in adjacent Andrews County, Texas is a northwest-southeast trending topographic high. The ridge has a local influence on the occurrence of groundwater in the vicinity of the proposed Site.

According to Nicholson and Clebsch, (1961) the potable groundwater used in southern Lea County is derived from three principal geologic units, the Dockum Group, the Ogallala Formation, and Quaternary Alluvium. Most wells are completed in the shallowest zone that will produce the desired quantity of water because the shallow groundwater in the Quaternary Alluvium and the Ogallala Formation is of better chemical quality than that from the rocks of the Dockum Group and the younger rocks are more permeable and therefore permit greater well yields. Potable groundwater is not available below the Dockum Group.

The proposed Site is located where groundwater resources are limited. A groundwater contour map of the Ogallala Formation and the Quaternary alluvium in the vicinity of the proposed Site is provided as Figure H.1. The map's authors, Nicholson and Clebsch (1961), state that the groundwater contours are generalized, and in areas with limited subsurface data their contours are dashed where approximated. The overall groundwater flow pattern is toward the Southeast. The boundaries of the aquifer are shown by heavy dashed lines, which delineate the areas in which the Dockum Group and overlying strata project above the water table. The map indicates that the Ogallala Formation is not saturated beneath the proposed Site. This is due to the fact that as the Ogallala Formation rises in elevation toward the crest of Rattlesnake Ridge, its entire section projects above the water table. Based on information provided by Lehman and Rainwater (2000), the strata above the Dockum Group becomes saturated again on the northeast flank of the ridge approximately two miles east of the proposed Site in Andrews County, Texas where it plunges back below the saturated zone.

An east-west oriented hydrogeologic cross-section B-B' (Figure H.2), was constructed using information from two site borings (BH-01 and BH-02) and six (6) other wells located in the general vicinity of the proposed Site. The well logs are provided in Appendix H.A. The surface geology was taken from Scholle (2003) and the elevation of the water table within the Ogallala was taken from Nicholson and Clebsch (1961). The cross-section illustrates how the Ogallala Formation rises above the saturated zone along the southwest flank of Rattlesnake Ridge in the vicinity of the proposed Site.

Five (5) borings were advanced each to a depth of 175-feet below ground surface (bgs). No groundwater was observed in the cuttings obtained during advancement of the borings, nor was any groundwater observed in any of the bore holes after a 24-hour period. No groundwater is

present within the upper 175-feet of the Ogallala Formation or Chinle Formation because they rise above the saturated zone of the Ogallala Formation as illustrated in Figure H.1 and Figure H.2.

A low-level radioactive waste disposal site operated by Waste Control Specialists (WCS) is located approximately one-mile northeast of the proposed Site. The WCS site identifies a saturated zone termed the 225-foot zone as the uppermost aquifer beneath the disposal facility. The 225-foot zone is situated within the Chinle Formation. This zone is also identified as the uppermost aquifer in a RCRA hazardous waste permit adjacent to the low-level radioactive waste site. Similarly, the URENCO facility located immediately north of the proposed Site across Highway 234, identifies the shallowest saturated zone as being between 214 to 222 feet bgs. While not encountered by site borings, the 225-foot zone is considered to be the shallowest fresh water aguifer beneath the proposed Site as required by 19.15.36.8.C.15(c) NMAC. However, it should be noted that the total dissolved solids (TDS) concentration available for the URENCO facility is 11,600 mg/L. The concentration is reportedly the maximum detected concentration through April 2011 and is the only known information available for groundwater in close proximity and specifically for the apparent uppermost saturated zone. As previously stated, fresh groundwater is defined as groundwater that contains less than 10,000 mg/L of TDS. Therefore, the groundwater within the 225-foot zone may not meet the criteria for fresh groundwater.

3.0 MONITORING SYSTEM DESIGN CONSIDERATIONS

3.1 Critical Receptors

Critical receptors to groundwater flow downgradient of any landfill could include public drinking water supply wells, individual drinking water or livestock wells, and surface water bodies used for drinking water supply. A search was conducted for water wells within a one-mile radius of the proposed Site. Several groundwater monitoring wells, geotechnical borings and vadose zone monitoring wells are located at two facilities located north and east of the proposed Site. The wells/borings are illustrated on Figure H.3. and the well logs are provided in Appendix H.B.

Some of the groundwater monitor wells illustrated on Figure H.3 appear to monitor the vadose zone while others monitor a zone within the Chinle Formation known as the 225-foot zone at the WCS Facility in Andrews County, Texas. As previously stated, the TDS concentration for this groundwater zone is known to be elevated (i.e. the maximum detected concentration through April 2011 is reportedly 11,600 mg/L). Therefore, this groundwater zone may not be potable. On the basis of available information, no wells are known to exist in the vicinity of the proposed Site that provide potable groundwater. Additionally, there are no surface water bodies used for drinking water supply in the vicinity of the proposed Site.

3.2 Containment System

The landfill at the proposed Site is designed with a double HDPE liner with intervening geonet leak detection layer. The landfill liner is designed to drain liquids to 12 separate leachate collection sumps as illustrated on Figure H.4. Leachate will be pumped out of the sumps. While a leak from a double lined landfill is unlikely, leachate collection sumps are often viewed as the more likely location of a leak. This is because they are the lowest elevation of the lining system and may retain liquids for longer periods of time than other portions of the lining system. Therefore, where possible the monitor wells have been located down-slope of the leachate collection sumps.

3.3 Site Stratigraphy

Three stratigraphic units have been identified at the site based on soil borings installed during a subsurface investigation. They are described in detail below. The boring logs can be found in Appendix H.C.

3.3.1 Stratum I – Clayey Sand

This stratum is composed of brown to reddish brown clayey sand. This stratum represents Quaternary aged eolian and piedmont deposits (Scholle, 2003) or drift sand (Nicholson and Clebsch, 1961). Stratum I was deposited by eolian (i.e. wind) processes. The materials observed are composed largely of quartz and secondary feldspar minerals.

3.3.2 Stratum II – Silty Sand with Caliche

Stratum II is composed of light brown to white silty clayey sand with caliche. This stratum represents the Ogallala Formation. Similar to Stratum I, Stratum II is also composed largely of quartz and secondary feldspar minerals. Two of the borings, BH-03 and BH-05,

contained gravels composed of quartz and caliche nodules up to one inch in diameter. Stratum II was fully penetrated by each of the five (5) borings.

3.3.3 Stratum III - Claystone

Stratum III is described as a reddish brown claystone. The claystone contains some silt and sand layers. The color is predominantly reddish brown but changes to brown, dark brown and purple. This claystone belongs to the Triassic Chinle Formation of the Dockum Group and is locally referred to as "Red Bed". According to Nicholson and Clebsch (1961), the Chinle Formation is as much as 1,270 feet thick.

Each of the five borings encountered Stratum III at depths ranging from 35 to 50 feet bgs. Figure H.5 is a structure map of the top of the Dockum Group that was prepared from the boring information. The structure map indicates that the surface of the Stratum III has a gentle arcuate shape that generally dips to the west-southwest. The surface does not conform to the regional dip in southern Lea County which is easterly toward the Delaware Basin. Thus the surface of Stratum III appears to be the result of the Site's proximity to Rattlesnake Ridge.

3.4 Contaminant Migration Pathway Analysis

In the improbable incident of a leachate release (i.e., failure of several redundant containment systems such as double HDPE liner with leak detection and a leachate collection system), it would move laterally within the more permeable portion of the Ogallala Formation and along the slope of the top of the Dockum Group. Based on the structure map of the top of the Dockum Group, Figure H.5, the leachate flow direction would be to the south and southwest. The potential leachate flow directions at each sump are illustrated by blue flow vectors on Figure H.6. Vadose zone monitor wells VW-3 through VW-8 and VW-11 are positioned down-slope of proximal leachate collection sumps. Wells VW-9 and VW-10 are positioned to detect contaminant migration from other areas of the proposed landfill including the more distal up-slope leachate sumps. A point of compliance has been established and is shown on Figure H.6, that encompasses the potential flow directions. The north and east sides of the site are the considered up-slope portions of the site and the south and west sides are considered the down-slope sides with regard to potential contaminant flow.

4.0 PROPOSED VADOSE ZONE MONITORING SYSTEM

A vadose monitoring system has been designed for the facility based on site specific technical information. The design considered the thickness, stratigraphy, lithology, and hydraulic characteristics of the geologic units, the depth to groundwater, TDS concentration, critical receptors and the contaminant migration pathway analysis.

The presence of groundwater in the vadose zone monitoring wells may not necessarily be the result of leakage from the facility. Rather, other sources such as infiltration of surface water during excavation of the landfill cells or infiltration from proximal storm water detention ponds may cause temporary saturation and water to be detected in down-slope vadose zone wells. Chemical analysis of water samples, if present, and comparison to leachate samples and/or samples from a leak detection system will be used to determine whether the water is a result of a potential release from the facility.

4.1 Proposed Monitoring Well Locations

Nine vadose zone monitoring wells have been designed along a point of compliance that has been identified on the site perimeter, Figure H.6. The compliance monitoring well locations are generally located down-slope of the leachate collection sumps. In addition, two background (up-slope) monitoring wells have been designed along the north side of the facility. The background wells represent the quality of background (up-slope) water (if present) that cannot be affected by leakage from a landfill.

During construction of the initial landfill unit, wells VW-1, VW-2 and VW-3 will be constructed. An initial sample of water (if present) will be collected prior to acceptance of any waste at the facility. Other vadose zone monitoring wells will be installed according to the schedule provided in Table H.1. An initial sample of water (if present) should be collected prior to acceptance of waste in the stated landfill units.

Table H.1
C.K. Disposal E&P Landfill and Processing Facility
Vadose Zone Monitor Well Schedule

		V AUUSE	Zone Moni	IOI ALEN 9	CHEQUIE		
Well ID	Function	Northing ⁽²⁾	Easting ⁽²⁾	Surface Elev. (msl)	Depth ⁽¹⁾⁽²⁾ (bgs)	Screen Interval ⁽²⁾ (bgs)	Sequence ⁽³⁾
VW-1	Background	521651.81	929755.58	3398.4	41	31-41	Phase I, Unit 1
VW-2	Background	521728.91	927830.19	3394.2	38	28-38	Phase I, Unit 1
VW-3	Compliance	519221.99	927237.78	3383.1	51	41-51	Phase I, Unit 1
VW-4	Compliance	519216.78	926746.45	3379.6	50	40-50	Phase I, Unit 2
VW-5	Compliance	519213.21	926300.99	3375.9	50	40-50	Phase II, Unit 3
VW-6	Compliance	519208.53	925836.00	3373.5	50.5	40.5-50.5	Phase II, Unit 4
VW-7	Compliance	519261.27	925358.87	3370.8	50	40-50	Phase III, Unit 5
VW-8	Compliance	519265.14	924911.85	3371.4	54	44-54	Phase III, Unit 6
VW-9	Compliance	519947.76	924800.59	3374.3	51	41-51	Phase III, Unit 6
VW-10	Compliance	520495.93	924793.61	3376.3	46	36-46	Phase III, Unit 6
VW-11	Compliance	520996.46	924782.82	3376.8	51	41-51	Phase III, Unit 6

Notes

- 1. All wells to be drilled through the Ogallala approximately three (3) feet into the Dockum Group (Chinle Formation).
- 2. Values are approximate and may be modified based on field conditions as long as the wells fully penetrate the Ogallala Formation.
- 3. Wells to be installed and an initial sample collected prior to the acceptance of waste in listed unit.

After the first year, the wells will be monitored semi-annually for the life of the landfill and for a period of 30 years after closure in accordance with the Closure/Post Closure Care Plan Attachment L.

4.2 Monitor Well Design and Construction

The vadose zone monitor wells will be constructed to the specifications listed below and illustrated on Figure H.7.

Table H.2
C.K. Disposal E&P Landfill and Processing Facility
Vadose Zone Monitor Well Specifications

	One intelligit vi en opeementons
Drill Depth	See Table H.1
Well Materials	4-inch diameter sched. 40 PVC, flush threaded with
	screw joints, and o-rings.
Screen	Ten-foot section, machine slotted with 0.010" slots. A
	one foot sump shall be placed beneath the screen.
Filter Pack	Inert 10-20 silica sand extending 2-feet above top of
	screen.
Annular Seal	Minimum three feet of hydrated sodium bentonite
	pellets above top of filter pack.
Casing Seal	High solids bentonite grout (Volclay Grout) to within
_	three feet of ground surface.
Concrete Pad	A 4' x 4' x 6" steel reinforced concrete pad extending
	to grout below surface.
Protective Casing and Barrier	Steel locking protective casing and four yellow
_	bollards placed outside of concrete pad.

Prior to installation of the vadose zone monitoring wells, drilling permits will be obtained from the New Mexico Office of the State Engineer (NMOSE). A drilling contractor licensed in the State of New Mexico will install the monitoring wells in accordance with the applicable regulations. Wells will be drilled by a method that will not introduce contaminants into the borehole or casing. A licensed professional geoscientist or engineer who is familiar with the geology of the area will supervise monitoring well installation and will provide a log of the boring. A registered professional land surveyor will survey the asbuilt well location, top of concrete pad elevation and top of casing elevation, at a minimum.

If any fluid is required in the drilling of monitoring wells, clean, treated water shall be used and a sample will be collected for chemical analysis of the constituents required in the facility Sampling and Analysis Plan, Attachment I. No glue or solvents will be used in monitoring well construction.

Within 60 days of completion of a vadose zone monitoring well or any other part of a monitoring system, an installation report will be submitted to the Oil Conservation Division (OCD). The report will include a lithologic log and construction details for each well, a site map drawn to scale showing the location of all monitoring wells, well elevations to the nearest 0.01 foot above msl (with year of datum shown), latitude and longitude and/or state plane coordinates of each well, and copies of driller's reports required by other agencies.

All parts of the vadose zone monitoring system will be operated and maintained so that they perform at least to design specifications through the life of the vadose zone monitoring program.

4.3 Sampling and Analysis Procedures

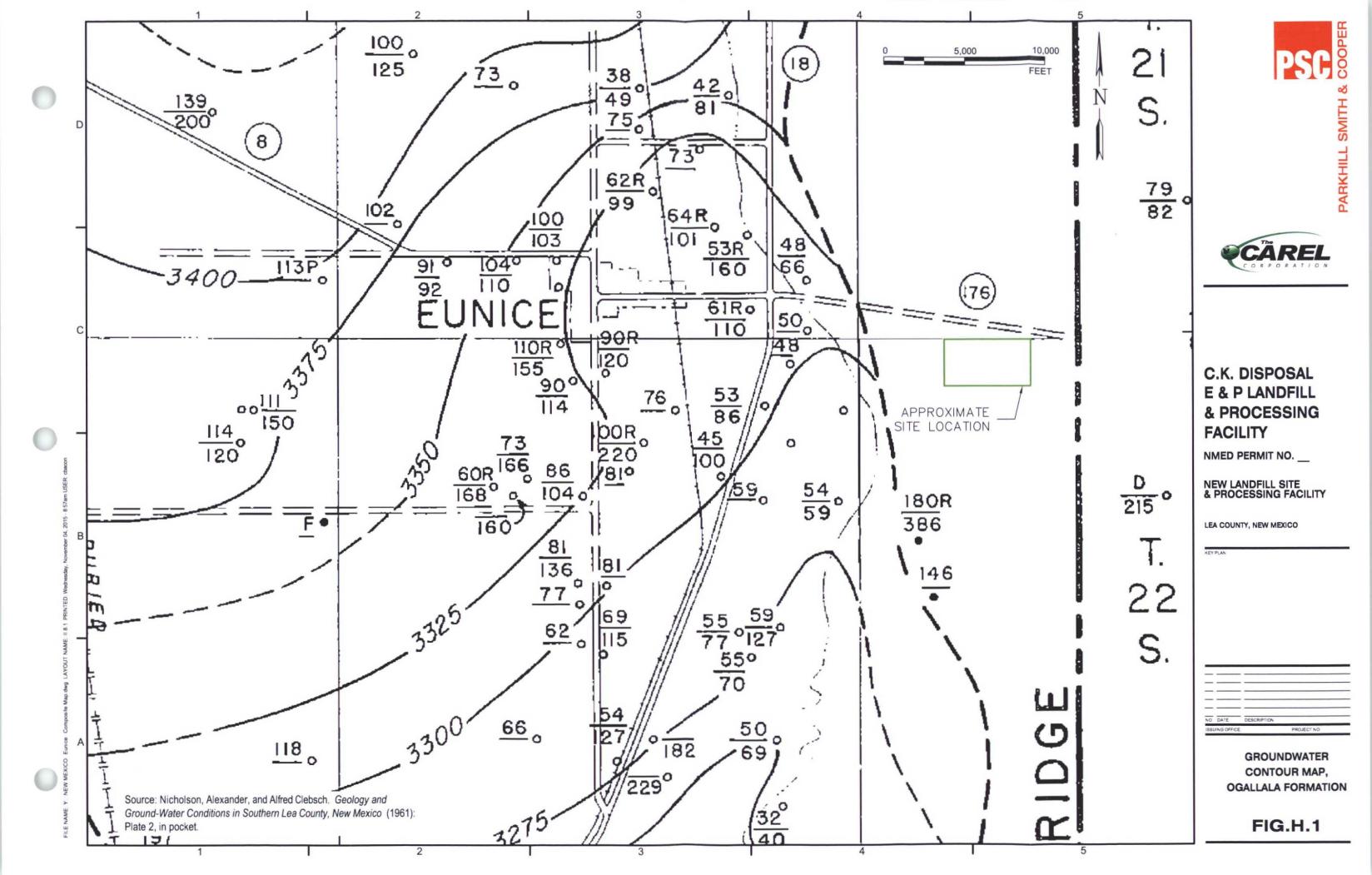
A Sampling and Analysis Plan is provided in Attachment I that contains the general requirements, sampling procedures and reporting procedures.

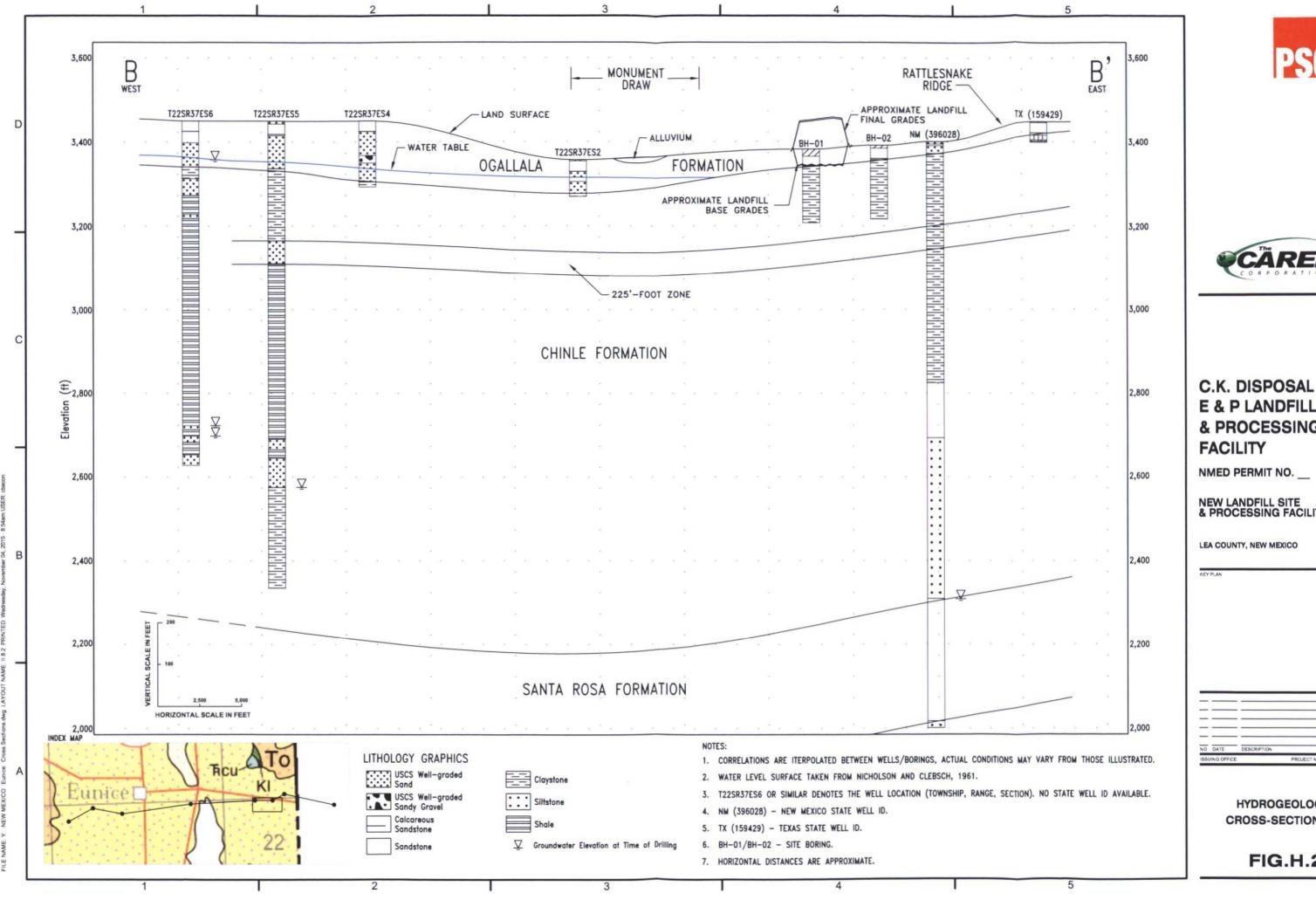
5.0 REFERENCES

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FIGURES





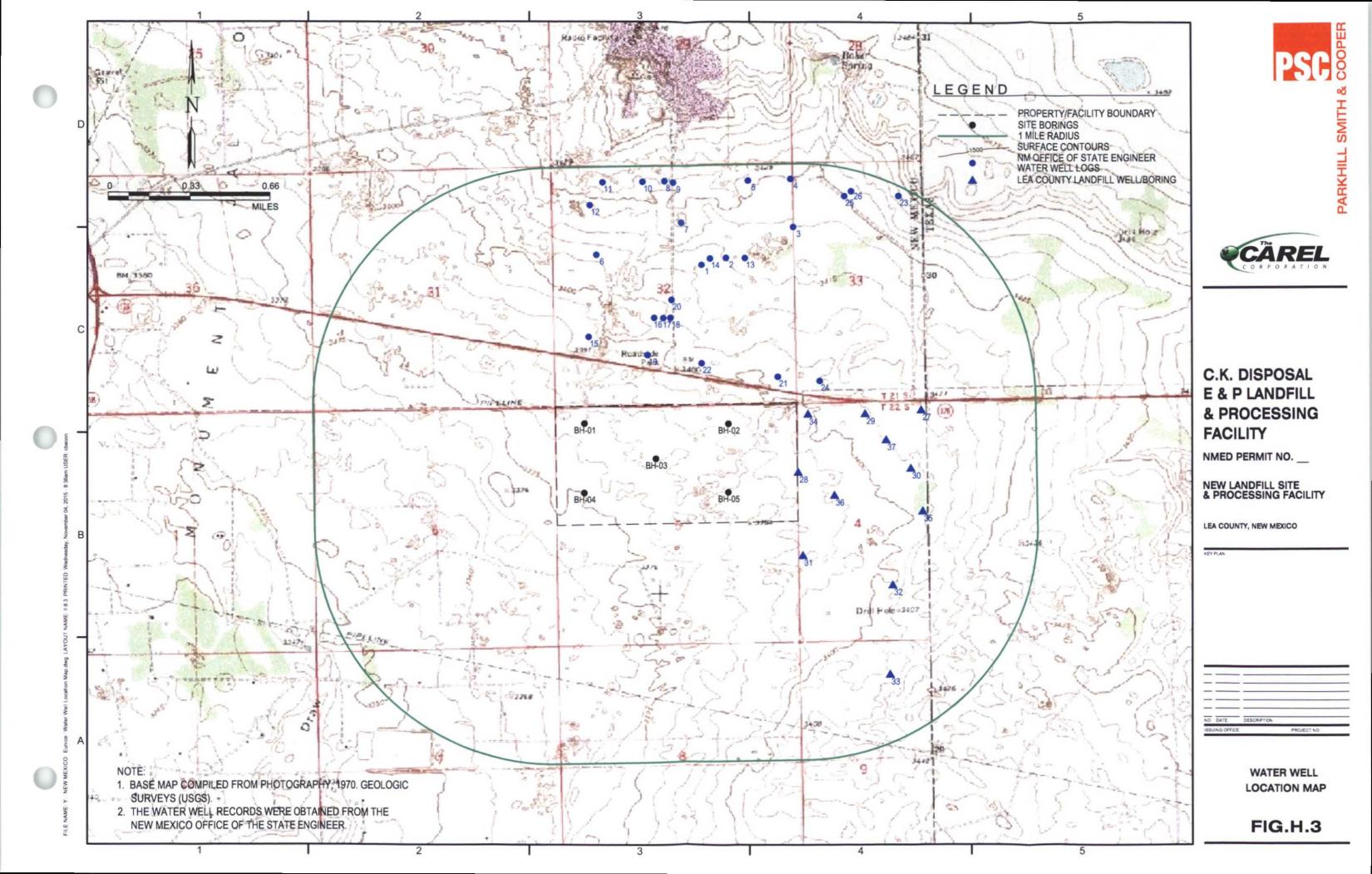


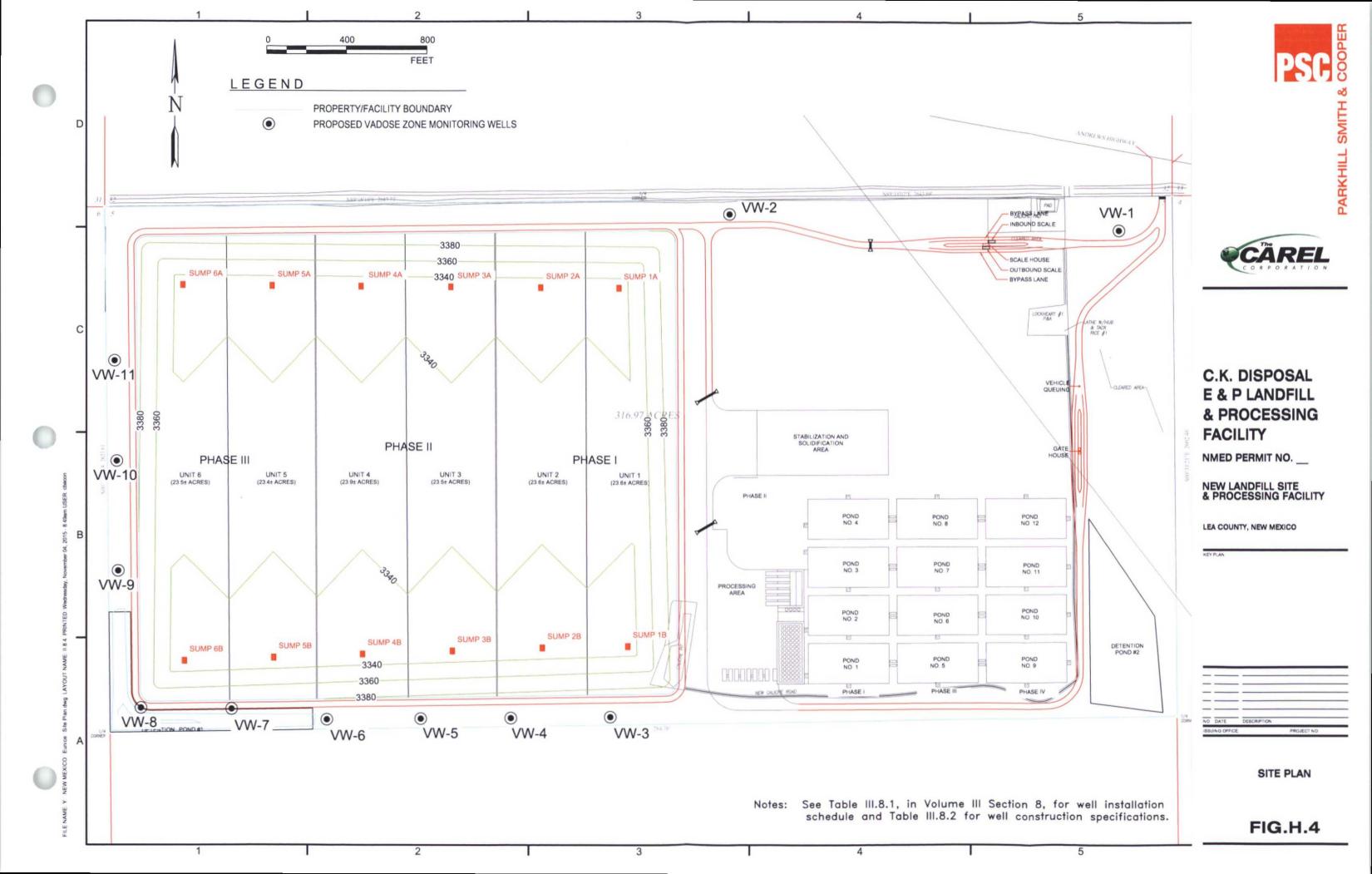
E & P LANDFILL & PROCESSING

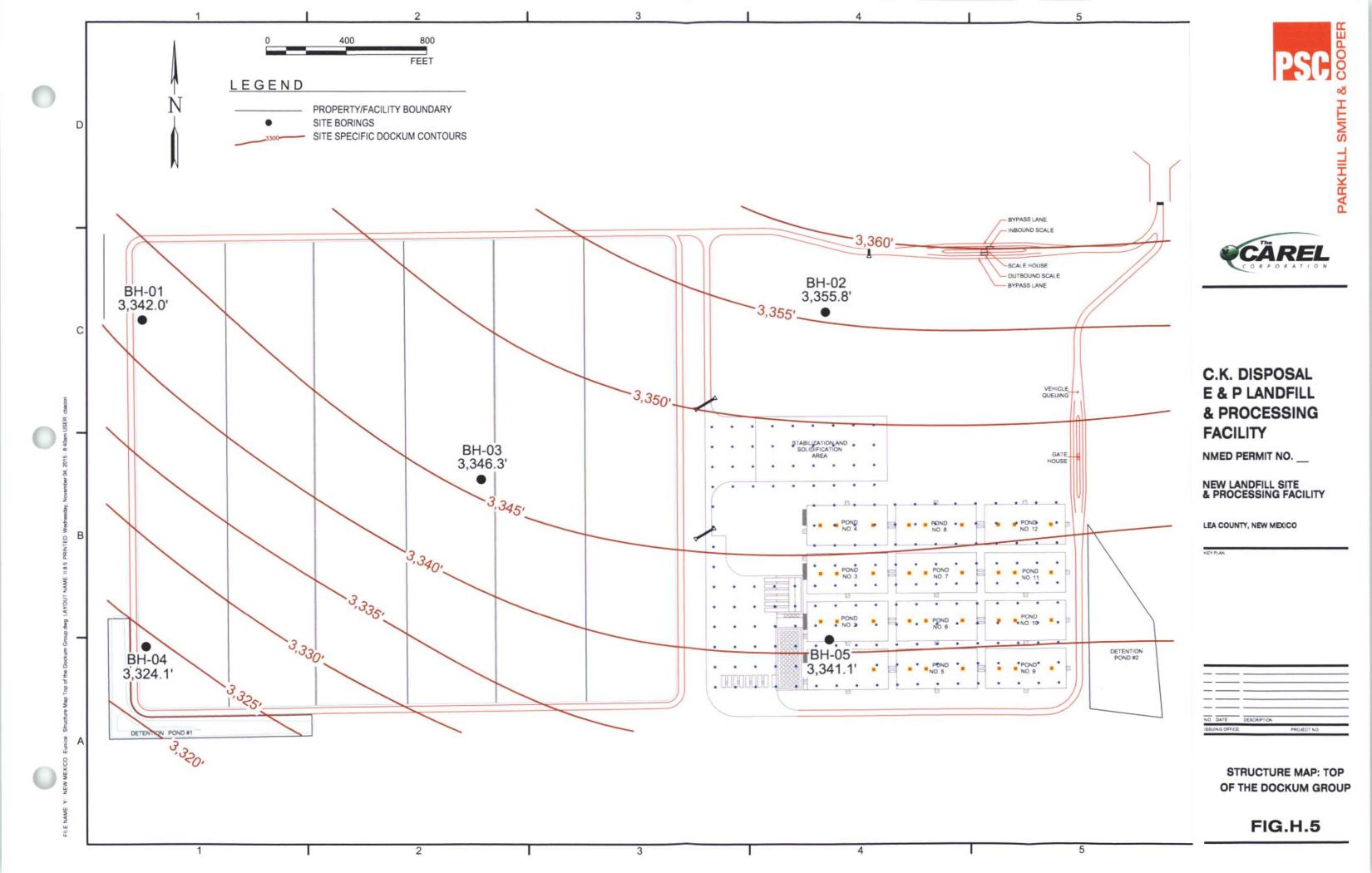
NEW LANDFILL SITE & PROCESSING FACILITY

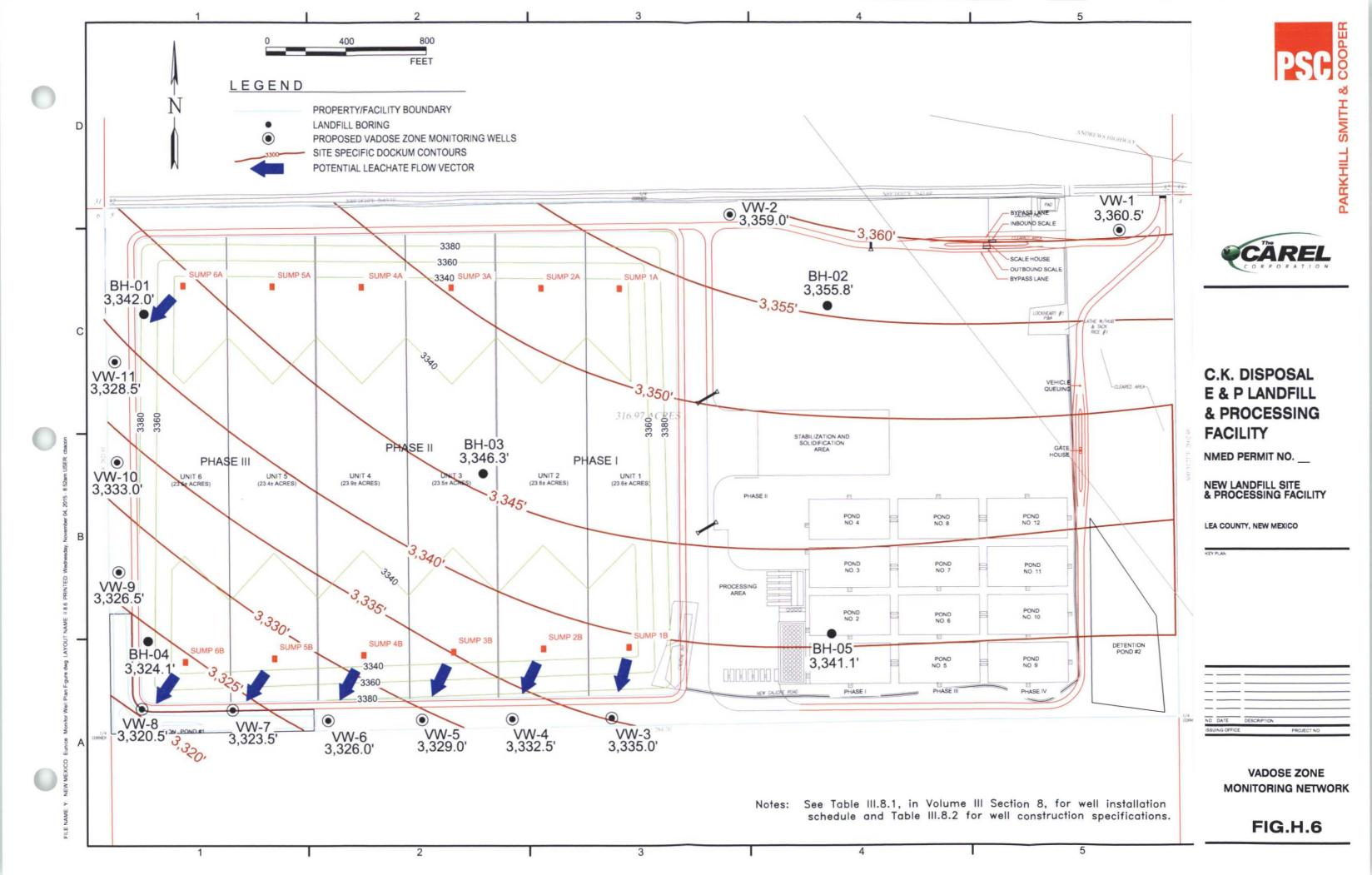
HYDROGEOLOGIC CROSS-SECTION B-B

FIG.H.2













C.K. DISPOSAL E & P LANDFILL & PROCESSING FACILITY

NMED PERMIT NO. ___

NEW LANDFILL SITE & PROCESSING FACILITY

LEA COUNTY, NEW MEXICO

O DATE DESCRIPTION
SSUING OFFICE PROJECT NO

TYPICAL VADOSE ZONE MONITORING WELL

FIG.H.7

APPENDICES

APPENDIX H.A WELLS USED ON CROSS-SECTION B-B'

Revised June 1972

STATE ENGINEER OFFICE WELL RECORD

Section 1. GENERAL INFORMATION

Street or	Post Office A					Well No.	<u></u>
Vell was driller	d under Permit	No		and is located	l in the:		
a	_ ½ ⅓	4	¼ of Section	Township_	Range	N.M	.P.M
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d. X= the		_ fect, Y=		cet, N.M. Coordinate	System	2o	ne ir rant
B) Drilling (Contractor		·		Livense No		
ddress				····			
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levation of la	nd surface or -			at well is	ft. Total depth o	f well	ft
Completed wel	itis 🗀 s	ihallow 🗀 a	rtesian.	Depth to wate	r upon dompletion o	f well	ft
Davel	in Feet	Sect Thickness	tion 2. PRINCIPAL V	VATER-BEARING S	TRATA	Estimated Yield	
From	To	in Feet	Descripti	on of Water-Bearing 1	Formation	(gallons per minute)	
						<u> </u>	
-							
•	i	-l	Section 2 DEC	CORD OF CASING			
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		 			<u> </u>		
							
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From	То	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method	of Placement	
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		<u>L</u>		<u></u>		- 	
			Section 5. PLU	GGING RECORD			
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File No	_		Use	011	Location No. 22.	37.6.41000	

Section 6. LOG OF HOLE

701	in France	71	Section 6, LOG OF HOLE
From .	in Feet To	Thickness in Feet	Color and Type of Material Encountered
0_	55		Caliche and sand
55	95		Dry sand
95	112		Water sand
112	140		Red hed, shale
140	180		Sand
180	225		Shale
225	235		Sand
235	730		Shale, red rock
730	740		Water sand
740	755		Shale
755	770		Hater send
<u>770</u>	800		Shaje
800	825		Sand
	<u> </u>		1.6 Elevi 2405
			L S Elev Depth to K Trc
<u> </u>			Elev of K Tro 3333
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	<u> </u>		<u></u>

Section 7. REMARKS AND ADDITIONAL INFORMATION

This well	record is at	OYCABET	from Oil	Conservation	Commission	files a	it Nobbe	N M

Location: 22.37.6.41000 Owner: Gulf Oil Corp.

South Penrose Skelly Unit 109

Record of Casing: 16"

Cable

1980' PSL - 1980' FEL

Cthe State Engineer, Ali

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

	Driller
	•
INSTRUCTIONS: This form-should be executed in triplicate, preferably	typewritten, and submitted to the appropriate district office.

ons, except Section 5, shall be answered as completely and accurate possible when any well is

Elevation: 3453' GL

- 14 2 Eng

STATE ENGINEER OFFICE WELL RECORD

Section I. GENERAL INFORMATION

Street or	Post Office A					Own	ner's Well N	0	
Vell was drilled	1 under Permit	No		and	l is located	in the:			
a	_ % 3	414	¼ of Section _	Т	ownship <u> </u>	R	enge		N.M.P.
b. Tract	No	of Map No.		of the	· · · · · · · · · · · · · · · · · · ·				
c. Lot N	0	of Block No		of the					<u></u>
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B) Drilling C	Contractor					_ License No,_			_
ddress									
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Diameter	Pounds	Threads	Section 3, RE Depth in Feet		Length	T C CL		Perforati	ons
(inches)	per foot	per in.	Top Bot	totu	(fcet)	Type of Sh	106	From	То
		Section	on 4. RECORD OF :	MUDDING	4 N.D CFW1	ENTING	<u>-</u>		
Depth i		Hole	Sacks	Cubic	Peci		od of Plac	ement	
From	То	Diameter	of Mud	of Cen	ieat	<u>-</u>			
				 -	 -				
		-		 					
			<u>[</u>					_ _	
			Section 5. PLU	HCCING RI	CORD				
lugging Contra	octor								
ddress					No.	Depth in			Feet
						Тінэ	Bottom	of Ce	ment
ugging approv	red by:				2				
•		State Engi	ncer Representative		3				
	·	- 	FOR USE OF STA	TE ENGIN	EER ONLY	· · · · · · · · · · · · · · · · · · ·			
ate Received	Typed 1.	/20/78						DCI :	
						FWL			
File No			Use _		l	ocation No. 22		2000	<u> </u>

Section 6. I	LOG OF	HOLE
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		<u> </u>	Section 6. LOG OF HOLE
	in Feet	Thickness	Color and Type of Material Encountered
From .	To	in Feet	<u> </u>
0	12	<u> </u>	Cellar
12	40		Caliche
40	118		Sand
118	290		Red bed
290	345		Sand
345	765		Shale, red rock
765	790		Sand
	810		Shale
810	880		Sand
088	1120		Red bed (water 220'-235')
		<u> </u>	
	/		L S Elev
· 			Depth to KTrc
			
 -			
	 		
	· ···· ·		
	-		
		 	
	 		

Section 7. REMARKS AND ADDITIONAL INFORMATION

This	well	record	is	an	excerpt	from O	/11	Conservation	Commission	files	at	Hobbs	N. 14

Location: 22.37.5.12000 Elévation: 3455' LGL Owner: Gulf Oil Corp. South Penrose Skelly Unit #106 Record of Casing: 16"

- 122' - 288' 13" 10 3/4" - 6771

Cable

660' FNL - 1980' FUL

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.

	
Driller	

STATE ENGINEER OFFICE

ELELU ENGR. LOG

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

(A) Owner of well Skelly Casoline) Oil Company

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I								l is located in the	
<u> </u>	<u> </u>	<u> </u>					_	Rge. 37.	
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()	Plat of 040	acres)	_	-			•	•	
								.62	
State wh	ether we	ll is shallo	w or artesian.	<u>shall</u>	OW	Depth to wa	ter upon comple	tion90	
Section 2	2		PRIN	CIPAL WA	ATER-BEARI	NG STRATA			
(Depth i	n Feet	Thickness in		Dás	cription of Water	-Bearing Formatio		
No.	From	To	Feet		Des	cription or water	-Dearing Forciatio	n	
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2				Grave	<u>1. ana </u>	Ballu			
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Section 3	3	<u></u>		RECOR	D OF CAS	ING			
Dia	Pounds	Thread			Feet	Type Shoe	Perforations		
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<u>85/8</u>	. 23	10		160_	160	none	128	150	
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Section 4	,		RECOR	D OF MUD	DING AN	D CEMENTING			
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From	To	Hole in	in. Clay	Cem	ent		Memods Used		
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Section 5			_				7 1 3 7		
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	-					· -			
						•		19	
Plugging	approved	.by:			<u> </u>	Cement Plug	s were placed as	follows:	
					No.	Depth of Pl	No. of	Sacks Used	
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•	FOR USE		ENGINEER OF			.	·-··		
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Date F	leceived	ब्रा १८ प	<u> </u>	/	-1		<u> </u>		
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	101)	25	4		ilvd.		. 11 27	46 1261	
File No.			7	Use∠	1,40,	Location	No. 22.37	7.170	

Section 6

LOG OF WELL

-	in Feci	Thickness	Color	Type of Material Encountered			
From	То	in Fect					
0	4	4	brown	soil			
_4	30	26	gray	caliche			
_30	68	38	brown	sand			
68	67	19	brown	tight sand			
87	105	18	_hrown	sand & gravel			
105	150	45	<u>brown</u>	Eand			
150	62	12	_red	clay			
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	l	L		L S Elev			
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				SOURCE OF ALTITUDE GIVEN			
				Interpolated from Topo. Sheet			
 -				Determinad by Inst. Laveling			
				Other			
		 .					
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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 well.

Well Driller

File No...

STATE ENGINEER OFFICE

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to t nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely an accurately as possible when any well is drilled, repaired or deepened. When this form is used as a pluggir record, only Section 1A and Section 5 need be completed.

Section 1	t			(A) Owne	r of well	H	umb	1è 011 Co.				
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		_ _		Well was	drilled un	der Per	mit	. No		and	is loca	ated in t
	<u> </u>		{	<u>NB 14</u>	<u>NE</u> 4		% (of Section 2	J		Kge	
1			-		_			E. E. Burke				
1	}											
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 Elevatio	n at top-of-	ري) cesing.ii	n fee	et above ser	a level	راج نزقه أ	وتهز	Total de	oth of	well	87	
	-							Depth to wa		-		
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5				<u> </u>	· ·							:
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Section 5	<u></u>	<u> </u>		<u>. </u>	MILEC	ING REC			. 		•	
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	upp. or							Depth of Pl		o princed do	,10410111	-
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Sched	iule by A	Nicho	lso.	n 10/9/53	;	"	-			L		
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22.37.2.222
Humble Oil Co.

Section 6

LOG OF WELL

-	in Feet	Thickness	Color	Type of Material Encountered				
From	To	in Feet						
0	3			soil				
3	28	<u> </u>		caliche				
28	_42	<u> </u>		sand				
42	52			lime				
52	80			basa				
80	87		grand School of the September Co	red bed				
		<u> </u>						
				2200 3357				
				3357 Decident T. 80 80 Elev of K. 1:3278 3277				
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		 		1900 30473				
		 						
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 -	 -	 -		Other				
	 	 						
	 	 						
		 						
	 	 						
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	<u> </u>	<u> </u>	<u> </u>	<u></u>				

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 well.

E. B. Burke	
Well Driller	

roje	ect C)escri	ption: CK Disposal					CAREL
	Location: Eurrice, NM Top of PVC EL: feet MSL Surface EL: 3382 feet MS Completion Depth: 175 fe Date Boring Started: 5/26 Date Boring Completed: 5)15	lorthing: 160.00 Easting: 1850.00	Monitor Well Construction Details	Monitor Wel	Description
			MATERIAL	. DESCRIP	TION			
<u> </u>			CLAYEY SAND, brown well sorted, subrounded slightly moist, none HCl	, fine to me				
			SILTY SAND, with callo sorted, well rounded, ve strong HCL reaction	he, light bro ry fine to fir	own to white, well ne grained, dry,			
5	H	· .						
0 5 5			CLAYSTONE, reddish to moist to dry, weak HCL	rown some	gray, slightly			
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<u> </u>	<u> </u>		. 11/21 D-35	Groundw	rater Observations	Pomerke:	5 1/8" diameter boring; TH60	Attac Conco Dail Pla
ng	Met	hod: Al	: HCl Drilling r Rotary	Date	Depth to Water (ft)	runens.	o no diameter boiling, 17100	mus capas o in rag
log	jist: S	never	Outrings J. Wimmer	5/26/15	Dry			
		15-04	-22 IG NO. BH-01	The stantificant	ion lines represent approxi	male atmas t	wardanes V	at time of drilling.

							
1			ORING NO. BH-02 iption: CK Disposal				CAREL
Depth, feel	Samples	Symboliuscs	Location: Eunice, NM Top of PVC EL: feet MSL Surface EL: 3391.8 feet MS Completion Depth: 175 feet Date Boring Started: 5/26/2 Date Boring Completed: 5/2	L 015	Northing: 521273.70 Easting: 928310.35	Monitor Woll Construction Details	Manitor Well Description
			MATERIA	L DESCRIP	TION		
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25 30	I	·				-	
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65 70 75	}		less gray and purple; si	lghtly moist	to dry		
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Oriting Oriting	Con Met	iraciór hod: Al	: HCI Drilling r' Rotary	Date	Depth to Water (ft)	Kemarks:	s: 5 1/8" diameter boring; TH60 Atlas Copco Drill Rig
Sampl	ing N	lcliod:	Cuttings	5/26/15	Dry		••
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Projec	No.	: 15-04	-22 IG NO. BH-02	The confiles	ión lines represent approxi	יו ביביים פובר	boundaries. Water level at time of drilling.

PAGE 1 of 1

¥Water level at time of drilling. ¥Water level at end of drilling. ¥Water level after drilling.



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For OSE Use C,	

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD and DRILLING LOG

PERMIT	HOLDER(S) E. CONTROL	SPECTALL	ያቸያ እነ _{ገሞ}			
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City:	ANDRE	is	City			-
State: TX	Zip: 797	14			p:	
	(505) 3		Pho	ne:		
	MICHAEL					
Contact Phon	e: <u>(505)</u>	394-4300	0			
	NGINEER RI P 975 EXPI			C.P	<u>.</u> 975	
		(The Datum	Is Assumed T	o Be WGS 84	4 Unless Other	wise Specified)
	32	Deg	25		45.8	Sec
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Name: <u>WE:</u>	ST TEXAS	JATER WEL	L SERVICE	Work Pl	hone: <u>(432)</u>	<u>53</u> 0-2696
Drill Rig Seri	ial Number: _		26	1602		
	ne Of Each Dri	II Rig Supervi	isor That Man	aged On-Site	Operations D	uring The Drilling
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S. DRILLIN	G RECORD					\$ ∯
Orilling Bega	n: <u>1-21-</u>	08; Com	oleted: <u>4~2</u>	9-08 ; Di	rilling Method	MUD ROTARY 5
	Bore Hole:					
	Of Well:		- 1 -	(ft);		
Completed W	ell Is (Circle (One): Shallow	Artesian;			
-	ter First Encou		<u> </u>	(ft);		
	ter Upon Com				(ft).	
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page 1 of 4

21.38.33.333





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NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD and DRILLING LOG

6. RECORD OF CASING

Diameter (inches)	Pounds (per ft.)	Threads (per inch)	Depth (feet)	Length Top to Bottom (feet)	Type of Shoe	Perforations (from to)
13-3/8	48	8	2 AGL	401		1.
8-5/8	24	8	3' AGL	1,440'	FLOAT GUIDE	
			<u> </u>			<u> </u>
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					·	
		1				
					·	

7. RECORD OF MUDDING AND CEMENTING

Depth (feet)	Hole (diameter)	Mud Used (# of sacks)	Cement (cubic feet)	Method of Placement	
0 - 40	17-1/2		35	TRIMMIE	
0 - 1,440	12-1/4		574	POSITIVE	
1,380-2,020	7-7/8		275	TRIMMIE	
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NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

8. LOG OF HOLE. For Each Water Bearing Strata, Estimate The Yield Of The Formation In Gallons Per

Depth (feet) TI		Thickness	For Water Bearing			
From	То	(Feet)	Strata Enter The Estimated Yield in GPM	Color and Type of Material Encountered	d .	
	·		SEE ATTACHED	CEOLOGIC LOG	,	
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CP-975 Geolo	gic log
0-6 ft (φ	pad fill and fine brown sand
6-10 ft	white sandy limestone (Mescalero caliche)
	sand, light brown, and brown calcareous sandstone (Gatuña Formation)
	interbedded sandstone, siltstone, and claystone; reddish-brown to gray; bioturbated (Cooper Canyon Formation)
132 576-708 ft	sandstone and siltstone, gray to reddish brown (Trujillo Formation)
	interbedded very fine sandstone and siltstone, gray to dark reddish brown (Tecovas Formation)
	gray, fine sandstone with interbedded reddish brown and weak red siltstone and claystone (Santa Rosa Formation)
	reddish brown, very fine sandstone and siltstone, with some fibrous gypsum in lower part (Dewey Lake Formation)
	gray anhydrite beds, with intermediate reddish-brown and gray siltstone (Forty-niner Member of the Rustler Formation)
	gray anhydrite and wavy thin laminae of dolomite (Magenta Dolomite Member of the Rustler Formation)

1609-1736 ft gray anhydrite beds, with intermediate halite including anhydrite and polyhalite (Tamarisk Member of the Rustler Formation)

1807-2020 ft halite with anhydrite/polyhalitic marker beds (MB103 and uppermost

MB109) (Salado Formation)

1736-1807 ft halite with thin two thin anhydrite beds and basal reddish-brown, very fine sandstone (Los Medaños Member of the Rustler Formation)

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ADDITIONAL STATEMENT	rs or explanations:	·
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and correct record of the above de	that, to the best of his or her knowled escribed bore hole. The undersigned be Of The State Engineer and permit	further certifies that he or she will
Tonny Reit	05-12-08	
Oriller /	(mm/dd/year)	
	Do Not Write Below This Line	.
		· · · · · · · · · · · · · · · · · · ·
m Number:		File Number:

STATE OF TEXAS WELL REPORT for Tracking #159429

Owner:

Waste Control Specialists

Owner Well #:

TP-62

Address:

P.O. Box 1129

Andrews, TX 79714

Grid #:

26-40-5

Well Location:

30 Miles NW of Andrews

Andrews TX 79714

Latitude:

32° 25' 21" N

Well County:

Andrews

Longitude:

103° 02' 59" W

Elevation:

No Data

GPS Brand Used:

Garmin etrex

Type of Work:

New Well

Proposed Use:

Monitor

Drilling Date:

Started: 1/10/2008 Completed: 1/10/2008

Diameter of Hole:

Diameter: 5.625 in From Surface To 49 ft

Drilling Method:

Air Rotary

Borehole Completion:

Gravel Packed From: 35 ft to 49 ft

Gravel Pack Size: 8/16

Annular Seal Data:

1st Interval: From 0 ft to 5 ft with 20 Cement (#sacks and material) 2nd Interval: From 5 ft to 35 ft with 10 bentonite (#sacks and material)

3rd Interval: No Data Method Used: poured Cemented By: Talon

Distance to Septic Field or other Concentrated Contamination: No Data

Distance to Property Line: No Data Method of Verification: No Data Approved by Variance: No Data

Surface Completion:

Surface Slab Installed

Water Level:

Static level: No Data
Artesian flow: No Data

Packers:

No Data

Plugging Info:

Casing or Cement/Bentonite left in well: No Data

Type Of Pump:

No Data

Well Tests:

No Data

Water Quality:

Type of Water: fresh Depth of Strata: No Data

Chemical Analysis Made: No

Did the driller knowingly penetrate any strata which contained undesirable

constituents: No

Certification Data:

The driller certified that the driller drilled this well (or the well was drilled

under the driller's direct supervision) and that each and all of the

statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for

completion and resubmittal.

Well Report: Tracking #:159429

Company Information:

Talon Drilling, LP 921 N Bivins

Amarillo, TX 79107

Driller License Number:

54499

Licensed Well Driller Signature:

Shane Currie

Registered Driller Apprentice Signature:

No Data

Apprentice Registration Number:

No Data

Comments:

No Data

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking #159429) on your written request.

Texas Department of Licensing & Regulation P.O. Box 12157 Austin, TX 78711 (512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

CASING, BLANK PIPE & WELL SCREEN DATA

From (ft) To (ft) Description 0 to 2 Sandy SILT, tan. 2 to 32 CALICHE, light gray to tan. 32 to 43 Silty SAND, tan. 43 to 46.25 Sandy GRAVEL, various colored chert. 46.25 to 49 CLAY, maroon with gray mottling.

Dia New/Used Type Setting From/To 2 new pvc casing 0 to 39 sch 40 2 new pvc screening 39 to 49 slot 0.010

APPENDIX H.B WATER WELLS WITHIN ONE MILE

NUB

File	Number	:			
		(For	OSE	Vse	Only

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

I. OWNER OF WELL	505 204 5004
Name: Louisiana Energy Services	
Contact: Laurie Wetherell Address: P.O. Box 1789	nome rnone:
	•
City: Eunice	State: NM Zip: 88231
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. $\frac{NW}{1/4}$ $\frac{SW}{LCA}$ $\frac{1/4}{LCA}$ Section: 32 Township	: <u>2/S</u> Range: <u>38E</u> N.M.P.M.
B. X = feet, Y = fe	
U.S.G.S. Quad Map	
C. Latitude: 32 d 26 m 14.8698 s Longitude:	<u>103</u> d <u>04</u> m <u>49.8642</u> s
D. East (m), North (m), UTM	Zone 13, NAD (27 or 83)
E. Tract No, Map No of the	Hydrographic Survey
F. Lot No Block No. of Unit/Tract	of the
F. Lot No, Block No of Unit/Tract Subdivision recorded in	County
	े इस्ते । -
G. Other:	
H. Give State Engineer File Number if existing wel	1: <u>CP-993</u> \sim
I. On land owned by (required): Louisiana Energ	gy Services > 43
3: DRILLING CONTRACTOR	7 199 CA 15
License Number: 1575	— A
Name: Talon Drilling	Work Phone: 806.467.0607
Agent: Shane Currie Mailing Address: 921 N. Bivins	Home Phone: 806.467.0622
Mailing Address: <u>921 N. Bivins</u>	-
City: Amarillo	- State: TY 7in: 70107
city: Amariiio	Scace. IX 21p/910/
4. DRILLING RECORD	
Drilling began: $12/5/08$; Completed: $12/5/08$; Size of hole: $7-7/8$ in.; Total depth of well: 231	Type tools: Air-Rotary:
Completed well is: Monitor (shallow, arte	
Depth to water upon completion of well: Dry	
· · · · · · · · · · · · · · · · · · ·	
Do Not Write Below This Li	Lne .
File Number: CP-993 Tr Form: wr-20 page 1 of 4	n Number: 4/5/642
\	21.38.32.231
Monitor	
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File	Number	:				
		(For	OSE	Use	Only)	

Depth in Feet From To Dry	in feet	water-b		Lon -		ted Yie GPM)	
<u> </u>							
RECORD OF CASIN					-		
Diameter Poun (inches) per 4 PVC Sch	ft. per in. 40 2	Top E	ottom (feet) 231 234	end	cap	From 211	To 231
		· -				· ·	
RECORD OF MUDI			 				
Depth in Feet From To	Diameter	Sacks of mud		Method			omor
$ \begin{array}{c c} 0 & 20 \\ \hline 20 & 206 \end{array} $	<u>7-7/8</u> <u>7-7/8</u>		20 Sacks 1	oured	Bento	nite c	hips
						<u></u>	<u></u>
LUGGING RECOR	ល			•			
Plugging Contr	actor:						
N.d	drage:					- 3	
Ad Plugging M	Method:					:-	
Ad Plugging M Date Well Pl	lugged:					1 3	
Ad Plugging M	lugged:					11 > 21 ::	
Ad Plugging M Date Well Pl	No. Depth		State Enginee	r Represe		÷ 21	
Ad Plugging M Date Well Pl	No. Depth	in Feet Bottom	State Enginee	r Represe f Cement		11 > 21 ::	
Ad Plugging M Date Well Pl	No. Depth Top 1 2 3	n in Feet Bottom	State Enginee Cubic Feeto	r Represe f Cement		11 > 21 ::	
Ad Plugging M Date Well Pl	No. Depth Top 1 2 3 4	n in Feet Bottom	State Enginee Cubic Feeto	r Represe f Cement		11 > 21 ::	

page 2 of 4 Form: wr-20

File	Number	:			
		(For	OSE	Üse	Only)

9. LOG OF HOLE

Depth From	in Feet To	Thickness in feet	Color and Type of Material Encountered
0	5	5	Sandstone, lightly cemented, burnt orange
5	15	10	Caliche, relatively soft, gray to lt orange
15	30	15	Sand, minor chert gravel, lt orange sand
30	85		Claystone, maroon
<u>85</u>	90	 5	Siltstone, hard gray
90	210	120	Claystone, dark purple
210	225	15	Sandstone, very fine-grained, hard, gray
225	231		Sandstone, very line-qualited, mard, quay
225			Clayston, maroon
			
			
			
			
			
			
			
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Form:	wr-20		103	age 3 d	of 4		

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he unde elief, ole.	ersigned here the foregoin	eby certifies thang is a true and Driller	t, to the best of h correct record of t 2/28/08 (mm/dd/year)	is knowledge and he above described
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page 4 of 4

Form: wr-20

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ile	Number:	<u> </u>				
		(For	OSE	Use	Only)	

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

I, OWNER OF WEI	ouisiana Energy S	omit aca	Marela Dhasas	EGE 304 E204
Contact: La	urie Wetherell	ETATCER .	Work Phone:	<u>505-394-52</u> 04
Address: P.	O. Box 1789		Work Phone: Home Phone:	
City: <u>E</u> t	unice		State: NM 2i	p: <u>88231</u>
_	WELL (A, B, C, or D require	•		
A. NE _{1/4}	SW 1/4 NE 1/4 Sec Lea	ction:32 Township	: <u>2/5</u> Range:	38E N.M.P.M County.
2	feet, Y = Zone in the Quad Map	fe	et, N.M. Coor	dinate System Grant.
C. Latitude:	: <u>32 d 26 m 14.</u>	9172 s Longitude:	<u>103</u> d <u>04</u>	_m <u>45.4866</u> s
D, East	(m), North	(m), UTM	Zone 13, NAD	(27 or B3)
E. Tract No.	, Map No	of the	Hydrog	raphic Survey
F: Lot No.	, Block NoSubdivi	of Unit/Tract sion recorded in		of the County.
G. Other: _				
u Give Stat	te Engineer File Numb	per if evicting well	1. CD-004	
n. dive stat	.e bligineer rite wom	ver it existing wer	1. <u>CE-334</u>	
I. On land o	owned by (required):	Louisiana Energ	y Services	7 3
				20
3. DRILLING CONT	TRACTOR			j H
tiinna Mu-	-han. 1575			. ~
Tićense MAN	mber: 1575 Name: <u>Talon Drilli</u> Ment: Shane Currie	ng	Mark Bhass.	000 407 0002
n A	gent: Shane Currie	<u>119</u>	Home Phone:	806.4167.0622
Mailing Addr	ress: <u>921 N. Bivir</u>	<u>. </u>	nome mone.	000.307.00a2
C	City: <u>Amarillo</u>		State: TX Zi	p: <u>79107</u>
4. DRILLING RECO	, , n n			
	JKD			
		nleted: 12/5/00 ·	Tune tools:	Air-Rotary
Drilling beg	gan: 12/5/08 ; Comp	leted: <u>12/5/08</u> ;	Type tools:	Air-Rotary:
Drilling beg Size of hole		depth of well: 36	_ ft.;	Air-Rotary;
Drilling beg Size of hole Completed we	gan: <u>12/5/08</u> ; Comp e: 7-7/8 in.; Total o	depth of well: <u>36</u> (shallow, arte	_ ft.; sian);	Air-Rotary:
Drilling beg Size of hole Completed we	gan: <u>12/5/08</u> ; Comp e: <u>7-7/8</u> in.; Total c ell is: <u>Monitor</u>	depth of well: <u>36</u> (shallow, arte	_ ft.; sian);	Air-Rotary:
Drilling beg Size of hole Completed we	gan: <u>12/5/08</u> ; Comp e: <u>7-7/8</u> in.; Total c ell is: <u>Monitor</u>	depth of well: <u>36</u> (shallow, arte	_ ft.; sian);	Air-Rotary:
Drilling beg Size of hole Completed we	gan: <u>12/5/08</u> ; Comp e: <u>7-7/8</u> in.; Total c ell is: <u>Monitor</u>	depth of well: <u>36</u> (shallow, arte	_ ft.; sian);	Air-Rotary:
Drilling beg Size of hole Completed we	gan: 12/5/08; Comp e: 7-7/8 in.; Total of ell is: Monitor eer upon completion of	depth of well: <u>36</u> (shallow, arte	_ ft.; sian); ft.	Air-Rotary:
Drilling beg Size of hole Completed we	gan: 12/5/08; Comp e: 7-7/8 in.; Total of ell is: Monitor eer upon completion of	depth of well: 36 (shallow, arte of well: Dry Write Below This Li	ft.; sian); ft.	
Drilling beg Size of hole Completed we Depth to wat	gan: 12/5/08; Compe: 7-7/8 in.; Total of the control of the completion of the comple	depth of well: 36 (shallow, arte of well: Dry Write Below This Li	ft.; sian); ft.	
Drilling beg Size of hole Completed we Depth to wat	gan: 12/5/08; Compe: 7-7/8 in.; Total of the control of the completion of the comple	depth of well: 36 (shallow, arte) of well: Dry Write Below This Li page 1 of 4	ft.; sian); ft.	
Drilling beg Size of hole Completed we Depth to wat	gan: 12/5/08; Compe: 7-7/8 in.; Total of the control of the completion of the comple	depth of well: 36 (shallow, arte of well: Dry Write Below This Li	_ ft.; sian); ft.	

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File	Number	:			<u></u>	
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Depth in Feet From To Dry	in feet	Description water-beari	ng formati			ted Yie (GPM)	eld
	· · ·	· 					· · · · · · · · · · · · · · · · · · ·
RECORD OF CASIN		·		·		· ·	<u>-</u>
Diameter Poun (inches) per 4 PVC Sch	ds Threads ft. per in.	Top Botto	om (feet) 36 39	end	cap	26	36
RECORD OF MUDD	ING AND CEM	ENTING					· · · · · · · · · · · · · · · · · · ·
5 23	Diameter 7-7/8 7-7/8	of mud of 20		Method rimie oured	(Bento	nite/	Cemen chips
Plugging M	actor: dress: ethod:				 ,		
Plugging appro	ved by:			Banyas			J
		Stat	e Engineer	- kepres	encaciv		
		ıin Feet Cı	bia Footof	Cement			
÷	No. Depth Top 1 2 3 4 5	Bottom	bic reetor	Comerc			

Form: wr-20

page 2 of 4

File	Number	:			-
		(For	OSE	Use	Only

9. LOG OF HOLE

	in Feet	Thickness	Color and Type of Material Encountered
From	To	in feet	
0	10	10	Sandstone, lightly cemented, burnt orange
10 23	23	13	Caliche hard gray
23	34	11	Gravelly sand, chert gravel, red sand matri
34	36	2	Gravelly sand, chert gravel, red sand matri Claystone, dark purple
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the undersigned hereby certification in the delief, the foregoing is a tracked to the delief. Driller	fies that, rue and cor	to the best rect record 12/24 (mm/dd/y	of the	knowled above d	ge and esogibe	ed
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FOR STA	ATE ENGINEI	ER USE ONLY ; Location No		-		

WLB

File	Number	:			-
		(For	OSE	Use	Only)

1. UWNER OF WELL	11 - 12 Dr
Name: Coustanna Energy Services Contact: Laurie wethereil	Home Phone: 505.344,5004
Address: P.O. Buk 1789	- :
City: Eunice	
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. $\frac{SE_{1/4}}{In} \frac{NE_{1/4}}{Lea} \frac{NE_{1/4}}{NE_{1/4}}$ Section: 32 Township	p: <u>2/5</u> Range: <u>38E</u> N.M.P.M.
B. X =feet, Y =	
C. Latitude: 32 d 26 m 21.907 s Longitude	: <u>103 d 04 m 27.019</u> s
D. East (m), North (m), UTM	
F. Tract No, Map No of the	Hydrographic Survey
F. Lot No, Block No of Unit/Tract Subdivision recorded in	of the County.
G. Other:	
H. Give State Engineer File Number if existing wel	11: (P-947
I. On land owned by (required): Lez County,	NM
3. DRILLING CONTRACTOR	
License Number: (575	
Name: Talon LPG Agent: Shane Carrie Mailing Address: QZI N. Bivins	Work Phone: 806.467.0607 Home Phone: 806.415.8770
City: Amarillo	State: TX 2ip: 79107
4. DRILLING RECORD	
Drilling began: 3/15/07; Completed: 4/03/07; Size of hole: 7-7% in.; Total depth of well: 220; Completed well is: Wlonitor (shallow, arts Depth to water upon completion of well: 178.43	<u>5</u> ft.; :sian);
	~. ⊒ι Ø
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Moritar	n Number: 376945 500 NUMBER 21,38,32,224 0 NUMBER 21,38,224 0 NUMBER 21,38,244 0 NUMBER 21,38,2
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File Number: ___

(For OSE Use Only)

5. PRINCIPAL WATE	R-BEARING ST	RATA						
Depth in Feet From To 178/83 ZIS.	in feet	water-	bearing	formati		(ted Yi	
			- -					
RECORD OF CASIN	iG							
Diameter Poun	ds Threads	Denth i	n Feet	Length	Tyme of	Shoe	Perfo	rations
(inches) per	ft. per in.	Top 1	Bottom	(feet)	1300 01	. D110¢	From	
	PVC Z						.v. 4	
<u> 4 5-h 110</u>	1911 _ Z	198:1	7.8.1	20	PVC 2010	cap	148.1	518.1
RECORD OF MUDE	ING AND CEM	ENTING						
Depth in Feet	Hole		Cubic	Feet	Mcthod	of Pla	cement	
From To	Diameter							, .
	7.7/8		<u> </u>		tremie			
15 42	<u> </u>			 -	<u>boured</u>	- 1200	rtcarte	<u>Chips</u>
	<u>····</u>							
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PLUGGING RECOR	D							
Plugging Contr	d							
Plugging M								
Date Well Pl								
								
Plugging appro	ved by:			 _			-	 .
			State	Engineer	Represe	ntativ	e	
	No. Depth	in Foot	Cubi		. C			10
	Top	Bottom	CODI	c reetor	Cement			얼 집물
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(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

9. LOG OF HOLE

Depth	in Feet	Thickness	Color and Type of Material Encountered
From	To	in feet	
	2_	2	SAND, locse, dry, brown - tan
2	25_	23	calicité soft, dry gray
25	30	<u> </u>	SANDY gravel dry orange to tan
30	130		Clay, highly plastic, marcon with army mottling
13C	140		siltstone, hard, dry gray with marcon mottling
140	195	<u> </u>	claystone, dry maroon w/ gray mottling
195	205		Sillstone hard dry gray ill Maroon solotching
2C5			claystone, firm dry marcon w/ gray mothing
2c1	215	<u> </u>	Siltstone with clarstone hard, gray & margon
<u> 2i5</u>	2-30	15	Claystone , firm dry marcon w/ gray mothing 5: Itstone with claystone hard, gray & marcon claystone, firm dry marcon w/ gray mothling
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belief, the forego	reby certifies that, t	o the best o	f his knowle f the above	edge and described
The undersigned he belief, the forego hole.	reby certifies that, ting is a true and corr	o the best o ect record o O4/24/ (mm/dd/ye	f his knowle f the above / <u>200</u> 7 ar)	edge and described
belief, the forego	ang is a true and corr	o the best o ect record o O4/24/ (mm/dd/ye	f his knowle f the above / <u>200</u> 1 ar)	edge and described
belief, the forego	ang is a true and corr	o the best o ect record o OH / 74 / (mm/dd/ye	f his knowle f the above <u>200</u> 7 ar)	edge and described
belief, the forego	ang is a true and corr	o the best o ect record o OH / ZH / (mm/dd/ye	f his knowle f the above / 2007 ar)	edge and described
belief, the forego	Driller	O4/24/ (mm/dd/ye	f his knowle f the above / 2001 ar)	described
belief, the forego	ang is a true and corr	O4/24/ (mm/dd/ye	f his knowle f the above 2007 ar)	described
belief, the forego hole.	Driller FOR STATE ENGINEER	O4/24/ (mm/dd/ye	f the above / 200	described
belief, the forego hole.	Driller	O4/24/ (mm/dd/ye	f the above / 200	described
belief, the forego hole.	Driller FOR STATE ENGINEER	O4/24/ (mm/dd/ye	f the above / 200	described
belief, the forego hole.	Driller FOR STATE ENGINEER	O4/24/ (mm/dd/ye	f the above / 200	described
belief, the forego hole.	Driller FOR STATE ENGINEER FSL; Use;	OH / 74 / (mm/dd/ye	f the above 2007 ar)	described
Delief, the forego hole.	FOR STATE ENGINEER Do Not Write Bel	OH / 74 / (mm/dd/ye) R USE ONLY Location No	f the above 2007 ar)	described
Delief, the forego hole.	FOR STATE ENGINEER Do Not Write Bel	OH / 74 / (mm/dd/ye) R USE ONLY Location No	f the above 2007 ar)	described
Delief, the forego hole.	FOR STATE ENGINEER Do Not Write Bell	OH / 74 / (mm/dd/ye) R USE ONLY Location No ow This Line	f the above 2007 ar)	described
Quad; FWL	FOR STATE ENGINEER Do Not Write Bel	OH / 74 / (mm/dd/ye) R USE ONLY Location No ow This Line	f the above 2007 ar)	described

File	Number	:		_	
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1. OWNER OF V		_	•				
Name:	Foorsi	anz Energy	y Service	<u>es</u>	Work Phone	: <u>5</u> 05. 394. :	<u> 5204</u>
Contact:	-Fantre	wetherell			Home Phone		—
Addless.	<u> </u>	Box 1789			•		
City:	EUNIC	<u>e</u>			State: Z	ip:	
2. LOCATION C	OF WELL	(A, B, C, or D requ	iired, E or F if	known)			
A. <u>NE</u> 1/	4 NE	1/4 <u>NE</u> 1/4 s	Section: 36	Z Township	<u>2/5</u> Range	:38EN.M.P.I	М, У·
B. X =	Zone : S. Quad	feet, Y = in the Map		fe	et, N.M. Coo	dinate System Gran	em t.
C. Latitu	de: <u>37</u>	d 26 m 3	3.098 s	Longitude:	103 a 04	m 27.582	_s
D. East _		_ (m), North		(m), UTM	Zone 13, NAD	(27 or 8	3)
E. Tract	No,	_, Map No	of the	·	Hydrog	raphic Surv	ey
F. Lot No	·	Block No. Subdiv	of Uni	t/Tract orded in		of the County	he y.
G. Other:			<u> </u>				
		jineer File Nu				18	
I. On lan	d owned	by (required)	: Lea	County	, NM		_
3. DRILLING CO	ONTRAC1	OR	,				
	Agent:	Talon /LPE Shane Cur 921 N. Biv	v 132	· · · · · · · · · · · · · · · · · · ·	Work Phone:	866.467.06 866.676.82	07 ??!
	City:	Amarillo		:	State: 🏂 Zi	p: <u>79107</u>	
4. DRILLING RI	ECORD						
Size of h Completed	ole: 7-7 well is	3/15/07; Co Vy in.; Total : Monitor on completion	depth of (sha	well: <u>37.</u> llow, arte	<u>'</u> ft.;	Air rotary	: SOX
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NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

ECORD C			<u> </u>		format			GPM)	
ECORD O				•					
•	F CASING			· ·					
Diamete (inches 4		. per in.	Top	Bottom	(feet)	Type of N/A TYC end	८२०	From	To
ECORD O	- ——— F MUDDIN	G AND CEMI	ENTING						·
0 0	Γο D. <u>(Ο</u>	Hole iameter 7 - 7/g			_ با	Method Fremie Pour -	- ber	ntonit	
Plugging Plug	g Contrac Addr gging Met Well Plug	ess:							
Plugging	3 approve	d by:		State :	Enginee	Represe	ntative	e	
	1 2 3 4 5	No. Depth Top	in Feet Bottom		c Feetoi	Cement			Masser LE LO C
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Monitor

File Number:

(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

9. LOG OF HOLE

Depth : From	in Feet To	Thickness in feet	Color and Type of Material Encountered		
110	3.0	3	Topsoil - Silt love - dry brown		
-	30	27	Calicle P. David. click tag to crear		_
30	35		Topsoil - silt look dry brown caliche, hard, dry, tan to gray clay, highly place, dry, maroon & gra	· /	
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page 3 of 1

Monitor

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Driller	(3.0.0)	<u> 24 2007</u> dd/year)	
FOR STA	ATE ENGINEER USE ON	ILY	
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ad; FWL; FSL; U	se; Location N	No	SI A
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File	Number	:	_		
		(For	OSE	Use	Only)

1. OWNER OF WELL	_
Name: Louisiana Energy Services	Work Phone: <u>505 394.52</u> 04
Contact: <u>Laurie Welhevell</u> Address: P. O. Box 1789	Home Phone:
Address. Trot Dox 1181	-
city: <u>Eunice</u>	State: NM Zip: 88731
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. NW1/4 NE 1/4 NE 1/4 Section: 32 Township	0: <u>215</u> Range:38E N.M.P.M. County.
B. X = feet, Y - fe Zone in the	et, N.M. Coordinate System Grant.
C. Latitude: 37 d 76 m 37.845 s Longitude:	103 d 04 m 39.176 s
D. East (m), North (m), UTM	
E. Tract No, Map No of the	
F. Lot No, Block No of Unit/Tract Subdivision recorded in	of the
G. Other:	· · · · · · · · · · · · · · · · · · ·
H. Give State Engineer File Number if existing wel	1: (P-949
I. On land owned by (required): Lea County	
	N P
3. DRILLING CONTRACTOR	
License Number: 1575 Name: Talon / LPF Agent: Shane Corric Mailing Address: 921 N. Rivins	Work Phone: 806.467.0607 Home Phone: 806.467.0507
City: Amarillo	State:TX 2ip: 79/07
4. DRILLING RECORD	
Drilling began: 3/6/07; Completed: 4/03/07; Size of hole: 3-74 in.; Total depth of well: 240.	<u> </u>
Completed well is: Monitor (shallow, arte Depth to water upon completion of well: DRY	TAIL.
	ण <u>ा</u> स
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File Number: CP- 444 Tr	n Number: 376947 1
Form: wr-20 page 1 of 4	
\)? 22
Monitor	21.38.32.221

File	Number	:				
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	in feet	water-	iption of bearing fo	rmati	on	(ted Yi (GPM)	
			·					
RECORD OF CASIN	G			·				
Diameter Pound (inches) per 4.0 5th 40	ft. per in. <u>PVL</u> Z	Top	Bottom (f 220.9 2	eet) <u>20.4</u>	N/A		From NA	To
RECORD OF MUDD		ENTING						
Depth in Feet From To O 15 15 7:5	Hole Diameter 7-7% 7-7%	of mud	of Cemen	t	Method Aremis 2000 - be	- ben	tonite	legacut
PLUGGING RECOR	 D		<u> </u>					
Plugging Contra Ado Plugging Me Date Well Plu Plugging approx	dress: ethod: ngged:		State Eng.					
		in Feet Bottom	Cubic Fe	eetof	Cement			ROSEELLE 191 EE 27
le Number: <i>Of</i>	Do D- 949	Not Wri	te Below T	his L	ine rn Numbe:	r. 37	769	P 2: 02/7
Form: wr-2		الم	page 2 of Junitar					22/

File	Number	:			
		(For	OSE	Use	Only

9. LOG OF HOLE

Depth i	in Feet	Thickness	
From	To	in feet	
<u> </u>	4	4	SAND, loose, dry, orange to light and
<u> </u>	30	<u> </u>	CALICITE, moderately haved; chert, dry oranged rec
3e	<u>5c</u>	_20_	SANDY, Gravel, chert, dry, tax to light orange
<u>_50</u> _	115	کون	Clay, highly plastic, firm, dry, 9524 of marron
<u> </u>	. 125		Silbtone, hard moist, gray
125		55	claystone, dry, marcon wilgray mottling
<u> </u>	110		Siltstone + claystone interbeddedidry gray
<u> </u>	235	<u> </u>	Classone have con margon we gray veining
235 240	240	<u> </u>	Siffstone have to have, dry avay
2.10	<u> </u>		Claystone, hard, dry, marcon w/ gray form mottling
			
			
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	270		Do Not Write Below This Line Trn Number: 376947
le Numbe	er: <u>CP</u>	-949	Trn Number: 376947
Fo	orm: wr=	20	page 3 of 4

File Number: (P-949)
Form: wr-20

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File Number:

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elief, the foregole.	Oing is a true Oriller	e and correc	한 record of		described
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elief, the foregole.	Driller FOR STAT	e and correc	D4/24/0- (mm/dd/yea	the above	described
elief, the foregole.	Driller FOR STAT	e and correc	D4/24/0- (mm/dd/yea	the above	described
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Quad; FWL	Driller FOR STAT _; FSL; Use	e and correc	SE ONLY This Line	the above	described NUMBER 27 17 2: 02
Quad; FWL	Driller FOR STAT _; FSL; Use	E ENGINEER U	SE ONLY This Line	the above	described NUMBER 27 17 2: 02
Quad; FWL	Driller FOR STAT ; FSL; Use	E ENGINEER U Write Below	SE ONLY This Line	the above 7 ir) Jumber: 37	described 137 1-127 7 2: 02 6947
Quad; FWL	Driller FOR STAT ; FSL; Use	E ENGINEER U	SE ONLY This Line	the above 7 ir) Jumber: 37	described NUMBER 27 17 2: 02

WLB

File	Number	:	. <u>-</u>		
		(For	OSE	Use	Only)

Name: Louisiana Energy Services	Work Phone: 505 394.570
Contact: Laurie Wetherell Address: D. O. Box 1789	Home Phone:
	-
City: <u>Eunice</u>	State: NiM Zip: 83231
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. $\frac{NW}{\ln Lea}$ 1/4 $\frac{NW}{Lea}$ 1/4 Section: $\frac{32}{10}$ Township	0:215 Range: 38EN.M.P.M.
B. X = feet, Y =	eet, N.M. Coordinate System Grant.
C. Latitude: 32 d 26 m 16,2 s Longitude:	103 a 5 m 21,2 s
D. East (m), North (m), UTM	Zone 13, NAD (27 or 83)
E. Tract No, Map No of the	Hydrographic Survey
F. Lot No, Block No of Unit/Tract Subdivision recorded in	of the County.
G. Other:	
H. Give State Engineer File Number if existing wel	1: CP-959
I. On land owned by (required): Let County	
'	., ., ., ., ., ., ., ., ., ., ., ., ., .
3. DRILLING CONTRACTOR	
License Number: 1575 Name: Talon LPE Agent: Shawe Curvie Mailing Address: 92(N. Bivins	Work Phone: <u>\$06.41.1.06</u> 07 Home Phone: <u>\$06.476.\$220</u>
city: Amarillo	State: TX Zip: 79107
4. DRILLING RECORD	•
Drilling began: 3/23/07; Completed: 3/24/07; Size of hole: 7-7% in.; Total depth of well: 23, Completed well is: Monitor (shallow, arte Depth to water upon completion of well: DRY	L ft.;
Do Not Write Below This Li	ne The
0000	n Number: 376955
Monitori	21,38,32,131

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E.3	10	Number:
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(For OSE Use Only)

Depth in Feet From To DRV	in feet	water-	-bearing	format		Estima (ted Yi GPM)	eld
								_ <u>-</u>
RECORD OF CASIN								
Diameter Poun	ds Threads	Depth i	in Feet	Length	Type of	Shoe	Perfo	rations
(inches) per	ft. per in.	Тор	Bottom	(feet)			From	
- 4 <u>5ch 40</u>	0 PVC	210	211	-20	216		2/1	271
					PVI/	<i></i>		<u> </u>
				· · · · · · · · · · · · · · · · · · ·		 -		
ECORD OF MUDD	DING AND CEM	ENTING	•					
Depth in Feet	Hole		Cubic		Method	of Pla	cement	
From To	Diameter 7-78	of mud	of Cer	ment /	1 1 -	4.	, .,	1
70 205	7-7/8	48	Z		tremie	- Dens	tonite	Chip
								· ·
PLUGGING RECOR Plugging Contr Ad Plugging M Date Well Pl	actor: dress: ethod:							
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(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

9. LOG OF HOLE

Depth in Feet Thickness From To in feet C 2 2 7 15 13 15 20 5 20 30 10 30 95 65 95 110 15	SAND losse must overge/brown CALICITE SOFF day ton Gavelly sand losse ary orange to tan Claystone w/ siltstone marcon & gray Claystone ory marcon w/ gray morthing Claystone w/ siltstone city marcons & gray
110 130 20 130 135 5 135 210 15 210 215 5 215 240 25	Claystone, hard, dry marcon wi good continue claystone in sitistone dry marcon & gray claystone, hard dry marcon & gray Sitistone wi claystone hard, gray & marcon & gray Claystone, moderate hard dry marcon & gray
	7. ST. ST. ST. ST. ST. ST. ST. ST. ST. ST
File Number: CP-959	o Not Write Below This Line
Form: wr-20	page 3 of 4 2/38 32/3/

Monitor

File Number:

(For OSE Use Only)

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Quad; FWL	FOR STATE ENGINEER USE ONLY ; FSL; Use; Location No Do Not Write Below This Line	above described

1. OWNER OF WELL	Want Bland 105 294 6204
Name: Louislana Energy Services Contact: Laurie Wethereil	Home Phone: 303. 314. 3107
Address: P.O. Box 1789	nome rhome.
	_
city: Eunice	State: <u>N/M</u>
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. $SE_{1/4} NE_{1/4} NW_{1/4} Section: 32$ Townshi	p: <u>215</u> Range: <u>38</u> EN:M.P.M.
B. X = feet, Y = f Zone in the U.S.G.S. Quad Map	eet, N.M. Coordinate System Grant.
C. Latitude: 3Z d Z6 m 23.387 s Longitude	:: <u>/03 d 04 m 57.803</u> s
D. East (m), North (m), UTM	Zone 13, NAD (27 or 83)
E. Tract No of the	
F. Lot No, Block No of Unit/Tract Subdivision recorded in	of the County.
G. Other:	
H. Give State Engineer File Number if existing we	11: CP958
I. On land owned by (required): Lea County	• •
3. DRILLING CONTRACTOR	• •
License Number: 1575, Name: Talon LPE Agent: Shane Currie Mailing Address: 971 Al. Bivins	Work Phone: 806.467.0607 Home Phone: 806.676.8770
	State: <u>7X</u>
4. DRILLING RECORD	ROS
Drilling began: 3/20/07; Completed: 3/29/07 Size of hole: 7-7% in.; Total depth of well: 249 Completed well is: Monitor (shallow, arto Depth to water upon completion of well: 217.19	6.3ft.; esian);
Do Not Brito Dolon Which	ROFFICE P 2: 0
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File Number: 45 y page 1 of 4	rn Number: 376938
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From To 217.19 246.3	Thickness in feet 29.11	water-b	· · · · · · · · · · · · · · · · · · ·	One .	0.5	
RECORD OF CASI			.: !:-	; -		
Diameter Pour (inches) per	nds Threads ft. per in.	Depth in	ı Feet Leng Bottom (fee	th Type of	f Shoe	Perforations
<u> </u>	ft. per in. \(\frac{PV(2\)}{2\)	226.3	<u> 24ь.3 — 20</u>	PUC End	Cap	226.3 <u>246.</u>
RECORD OF MUDI	DING AND CEM	ENTING	•			
Depth in Feet From To	Hole Diameter	Sacks of mud	Cubic Feet of Cement		of Plac	
<u>n 70</u>	7-7/8	(18	tremie -	Cemen	1 / bentante
70 270	7-7/8			bony -	benton l	Le chips
PLUGGING RECOI	RD.					-
Plugging Cont						
	102000					
Plugging N						
Date Well Pl	luggea:					<u></u>
Plusains same	oved by:					
FindGing appro			State Engin	eer Represe	entative	2
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riugging appic						er.
riugging appic			Cubic Fee	tof Cement		12 02 20 20 20 20
riugging appic	Top	Bottom		tof Cement		7.05 Vi
riugging appic	Top 1 2	Bottom	Cubic Fee	tof Cement	<u>-</u>	1805 FELL 1801 199
riugging appro	Top 1 2 3	Bottom		tof Cement		101 198 2
riugging appic	Top 1 2	Bottom		tof Cement		TEN 158 27
riugging appic	Top 1 2 3 4	Bottom		tof Cement		TEN EN ET ?
riugging appic	Top 1 2 3 4	Bottom		tof Cement		TEN EN 27 9 2
riugging appic	Top 1 2 3 4	Bottom		tof Cement		THE PROPERTY OF STREET
riugging appic	Top 1 2 3 4 5	Bottom		s Line		
7	Top 1 2 3 4 5	Bottom		s Line		
le Number: Cr	Top 1 2 3 4 5 Do	Not Writ		s Line		19 19 27 19 20 19 19 19 19 19 19 19 19 19 19 19 19 19

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(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

9. LOG OF HOLE

Depth in Feet Thickness From To in feet O 5 5 G 35 30 35 40 5 40 70 30 70 80 775 145 225 245 20 245 250 5	SAND, loose, damp; burnt orange CALICHE, hard dry light orange to gray SANDY Gravel, Gray Sand matrix City, Plastic, firm gray & marcon Claystone wi siltchare dry marcon gray Maystone wi siltchare dry marcon gray Maystone wi siltstone dry, light red Claystone wi siltstone dry, light red Claystone stiff, dry marcon wi gray mottling
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	o Not Write Below This Line Trn Number 376958 0 555 page 3 of 4
File Number: P-958 Form: wr-20	page 3 of 4 21, 38, 3.2.124

		
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pelief, the foregoing nole.	certifies that, to the best of hi is a true and correct record of the correct record of	s knowledge and e above described
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pelief, the foregoing nole.	is a true and correct record of the O4/24/2007 (mm/dd/year)	e above described
pelief, the foregoing nole.	is a true and correct record of the O4/24/2007 (mm/dd/year)	e above described
Dr	is a true and correct record of the O4/24/2007 (mm/dd/year) FOR STATE ENGINEER USE ONLY : Use; Location No Do Not Write Below This Line	e above described

File	Number	:			
		(For	OSE	Use	Only)

1. OWNER OF WELL	
Name: LOIUSIANA ENEWGY Services	Work Phone: <u>505. 394.57</u> 04
Contact: Laurie Wetherell	Home Phone:
Name: LOIUSIANA ENERGY Services Contact: Laurie Wetherell Address: P.O. Box 1789	
City: Eunice	State: NM Zip: 88731
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. NE 1/4 NE 1/4 NUL 1/4 Section: 32 Township in Sea	: <u>2/5</u> Range: <u>386</u> N.M.P.M.
B. X = feet, Y = fee Zone in the U.S.G.S. Quad Map	et, N.M. Coordinate System Grant.
U.S.G.S. Quad Map	
C. Latitude: 32 d 26 m 33.072 s Longitude:	103 d 05 m 2.128 s
D. East (m), North (m), UTM :	Zone 13, NAD (27 or 83)
E. Tract No, Map No of the	Hydrographic Survey
F. Lot No, Block No of Unit/Tract Subdivision recorded in	of the County.
G. Other:	
H. Give State Engineer File Number if existing well	: CP-951
I. On land owned by (required): Lea County, A	• •
3. DRILLING CONTRACTOR	
License Number: 1575	
Name: Talou LPE .	Work Phone: 806,467.0607
Agent: Shane Corre	Home Phone: 806.676.8220
Mailing Address: 921 N. Bivin 6	
City: Amarillo	State: TX 2ip: 79107
4. DRILLING RECORD	
Drilling began: 3/29/07; Completed: 3/29/07; Size of hole: 7-7/2 in.; Total depth of well: 261.3 Completed well is: Mon for (shallow, artes Depth to water upon completion of well: 243.31	ft./
Do Not Write Below This Lin	ne XH
File Number: $G = 95$	Number: 3769459 38
Form: wr-20 page 1 of 4	- · · -
Micros For	21,38,32,122

File	Number:			
	(Fo:	OSE	Üşe	Only)

		water-bearing formation Siltstone, hard, gray		Estimated Yield (GPM) 0 - 2				
RECORD OF CASIN			* * *	-		<u> </u>	· ·	
Diameter Pound (inches) per		Top	Bottom	(feet)			Perfor	
	PL Z	24 <u>1.3</u>	261.3	_20_	Pvc end	<u> CPP</u>	241.3	261
RECORD OF MUDD	ING AND CEM	ENTING	:					
Depth in Feet From To 0 75 -75 235	<u>7-78</u>	Sacks of mud	of Ce	ment	Method Method Method Method	<u>bentoui</u>	te/ce	
LUGGING RECOR	D							
Plugging Me	dress:							
Date Well Pla	-							
Plugging approv	ved by:		State	Engineer	Represe	ntative		
	ved by:		State	Engineer	Represe	ntative	 e	·
	No. Depth	in Feet Bottom	: Cubi			ntative	r s	761 62 27 0 2:00
	No. Depth Top 1 2 3 4 5	Bottom	: Cubi	reetof	Cement			51 in 5:00

File Number:

(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

9. LOG OF HOLE

Depth in Feet	Thickness	Color and Type of Material Encountered
From To	in feet	
<u>~~ 4</u>	4	SAND loos, dry tan-brown
<u> 4 20 </u>	<u></u>	CALICHE, soft, chert, dry, tan
20 _ 25	5	Gravelly SAND, chert, or ange SAND MUNICIA
25 45	ec	CIAY, highly plastic, firm, dry marrow
<u>45 65</u>		Sittstone, hard, dry, gray
120 125	<u>55</u>	Claystone, hard, dry marcon w/ gray mottling
125 240	1(5	Claystone, interbedded of siltstone marcon Claystone dry marcon wi gray mottling
240 260	50	Claystone dry marcon wi gray mottling
260 765	5	claystone, dry, marcon with gray mottling
		Cot strike, or y harder on order per sound
	,	
		
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<u> </u>		
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Trn Number: 376949

21.38.32.122

File Number: (For OSE Use Only)

ADDITIONAL STATEMENTS OR	EXPLANATIONS:	
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hole.	04/24/07 er (mm/dd/year)	
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FOR	STATE ENGINEER USE ONLY	(3) \(\frac{1}{2}\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(
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	Meritor 21.3	00. Ok. (

W-B

1. OWNER OF WELL

File	Number	; _			
		(For	OSE	Use	Only)

Name: Louisiana Energy Services Contact: Laurie wetherell	Work Phone: <u>506.314,5204</u> Home Phone:
Address: Po Box 1789	
City: Eunice	State: Nim Zip: 88231
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. $NE_{1/4}$ $NE_{1/4}$ $NE_{1/4}$ $NE_{1/4}$ Section: 32 Town in $NE_{1/4}$	ship: <u>2/5</u> Range: <u>38E</u> N.M.P.M.
B. X = feet, Y = Zone in the U.S.G.S. Quad Map	_ feet, N.M. Coordinate System Grant.
C. Latitude: <u>32</u> d <u>26 m 3280</u> s Longit	ude: <u>103</u> d <u>04</u> m <u>59.861</u> s
D. East (m), North (m),	UTM Zone 13, NAD (27 or 83)
E. Tract No, Map No of the	Hydrographic Survey
F. Lot No, Block No of Unit/Trac Subdivision recorded i	of the County.
G. Other:	
H. Give State Engineer File Number if existing	well: <u>CP-950</u>
I. On land owned by (required): Lea County	, NM
3. DRILLING CONTRACTOR	
Name: 1575 Name: Talon/LPE Agent: Shaw Curre Mailing Address: 921 N. Bivins	
City: Amarillo	State: [X Zip: 79107
4. DRILLING RECORD	
Drilling began: $3/21/01$; Completed: $3/30/0$ Size of hole: $1.7x$ in.; Total depth of well: Completed well is: Montor (shallow,	<pre>22 ft.; artesian);</pre>
Depth to water upon completion of well:	
	OSWELL, OSWELL, S Line
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File Number: <u>CP- 950</u> Form: wr-20 page 1 of 4	Trn Number: 376948
Monitor	PFFICE 2: 02
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	in feet	water-	·	format		(
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RECORD OF CASIN	G							
Diameter Poun						f Shoe		
(inches) per	ft. per in. vc2	Top !	Bottom	(feet)	r /		From	
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RECORD OF MUDD	ING AND CEM		··					
Depth in Feet		Sacks		Feet	Method	of Pla	cement	
From To	Diameter	of mud		ent			-1 1	_
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	7-78	<u></u>						<u>~</u>
Plugging Contro Ad Plugging M Date Well Pl	dress: ethod:							 _
Plugging appro					· · ·		_	
			State E	nginee.	r Repres	entativ	e	
	No. Depth	in Feet	Cubic	Feeto	f Cement			
		Bottom					7	<u> </u>
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File Number:

(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

9. LOG OF HOLE

Depth in Feet	Thickness	Color and Type of Material Encountered
From To	in feet Z	SAND, loose moist tan to brown
2 15	13	CALICHE, SOFF, Chert gravel, moist, orange -tain,
15: 19	4	Gravelly SAND, light comentation moist red sand
14 72		Clay, highly plastic; firm, moist, marcon w/ gray mottling
		
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		- Water Person 1112 2210
le Number: <u>(/</u>	2-950	Trn Number: 3769488 68
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(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

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The undersigned hereby belief, the foregoing in hole.						d
belief, the foregoing is hole. Dri	iler	rrect reco	rd of the a	above desc	cribe	
belief, the foregoing is hole. Dri	iler	rrect reco	rd of the a	above desc	cribe	
belief, the foregoing is hole. Dri	or a true and continue and cont	CER USE ONL	rd of the a	above desc	cribe	
Dri	or a true and continue and cont	CER USE ONL	rd of the a	above desc	cribe	
belief, the foregoing is hole. Dri	or a true and continue and cont	CER USE ONL	rd of the a	above desc	cribe	
Dri	or a true and continue and cont	CER USE ONL	rd of the a	above desc	cribe	
belief, the foregoing is hole. Dri	or a true and continue and cont	CH USE ONL	rd of the a	above desc	781 APR 27	70000000000000000000000000000000000000
Quad; FWL; FSL _	or a true and continue and cont	CER USE ONL	rd of the a	above desc	1981 1981 27 P	
belief, the foregoing is hole. Dri	Do Not Write Bo	CER USE ONL	rd of the a	above desc	781 APR 27	

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File	Number	:			
		(For	OSE	Use	Onlv)

1. OWNER OF WELL	Sa. 1:	Marile Dhana.	505.394.5204
Name: Louisiana Energy Contact: Laurie wetherei	Jervices .	Home Phone:	
Address: P. O. Box 1789		_	
City: EUNICE		State: Zip	o: <u>88231</u>
2. LOCATION OF WELL (A, B, C, or D requi			
A. NW 1/4 NE 1/4 NW 1/4 S	ection: <u>32</u> Township	p: <u>215</u> Range:	38En.m.p.m.
B. X = feet, Y = Zone in the U.S.G.S. Quad Map	fe	eet, N.M. Coord	dinate System Grant.
C. Latitude: 32 d 26 m 3	5.007 s Longitude	: <u>103</u> d <u>05</u>	m <u>8.300</u> s
D. East (m), North	(m), UTM	Zone 13, NAD	_ (27 or 83)
E. Tract No, Map No	of the	Hydrogi	aphic Survey
F. Lot No, Block No Subdiv	of Unit/Tract ision recorded in		of the County.
G. Other:			
H. Give State Engineer File Nu	mber if existing wel	ii: <u>CP-95</u>	2
I. On land owned by (required)	: Lea County,	NM	
3. DRILLING CONTRACTOR	1		
License Number: 1575 Name: Talon LPE Agent: Shave Cur Mailing Address: 921 N. Biv	cie	Work Phone: Home Phone:	806:467.0607 806:616.8770
City: Amarillo		State: T <u>K</u> Zip	: <u>79107</u>
4. DRILLING RECORD			TATE ROS!
Drilling began: 3/21/07; Consize of hole: 7.7/x in.; Total Completed well is: Monitor Depth to water upon completion	depth of well: <u>76.</u>	<u>q</u> ft.; esian);	Air Polanies Personal Property of the Po
B- N-4	Maika Dalan mbia ri	: 	S SA
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From To DRY	in feet	Description of water-bearing	formation	(GPN	()
Diameter Pound (inches) per :	is Threads ft. per in. PW Z PVC Z	0 16.9 16.9 26.9	(feet) 16.9 N	Fr id cap (om To
. RECORD OF MUDD	ING AND CEM	ENTING			
	Diameter 7-7/g	Sacks Cubic of mud of Ce	12 poor -	bentonile	1 bentonite
PLUGGING RECOR	D				
Plugging Me	ress:				
Plugging approv	ed by:				
		State	Engineer Repres	sentative	
	Top 1 2 3 4 5	in Feet Cubi			ROSWELL TEN DEXICO
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ile Number: /// Form: wr-2	952	page 2	Trn Numb	per: <u>376</u> 21,38	<u>450</u>
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(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

9. LOG OF HOLE

Depth i	in Feet To	Thickness in feet	Color and Type of Material Encountered
0	ئے ۔	2_	Sand, losse moist, burnt orange
		<u> </u>	Christian Color of the Color of
2/	<u> 20</u>	7	CALICHE, realative soft, chert, dry tan-light orange
<u> </u>	_27_		Gravelly, SAND, chert gravel buint avange.
<u>_27_</u>	<u> </u>	<u></u>	Clay highly plastic, firm, dry marcon
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page 3 of 4

21.38.32.121

File Number:

(For OSE Use Only)

21.38.32.121

			
			
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he undersigned her	eby certifies the	nat, to the best of his	knowledge and
he undersigned her elief, the foregoi ole.	reby certifies thing is a true and	nat, to the best of his dicorrect record of the	knowledge and above described
elief, the foregoi	reby certifies thing is a true and	nat, to the best of his dicorrect record of the OU/ZU/ZCO1 (mm/dd/year)	knowledge and above described
elief, the foregoi	reby certifies thing is a true and	nat, to the best of his dicorrect record of the $\frac{O4/24/zco}{(\text{mm/dd/year})}$	knowledge and above described
elief, the foregoi	Driller	correct record of the U4/Z4/Z201 (mm/dd/year)	knowledge and above described
elief, the foregoi	Driller	correct record of the U4/Z4/Z201 (mm/dd/year)	above described
elief, the foregoi	Driller	correct record of the U4/Z4/Z201 (mm/dd/year)	above described
elief, the foregoi	Driller FOR STATE ENG	COTTECT TECOTO OF THE U4/Z4/Z001 (mm/dd/year) GINEER USE ONLY	above described
elief, the foregoi	Driller FOR STATE ENG	correct record of the U4/Z4/Z201 (mm/dd/year)	above described
elief, the foregoi	Driller FOR STATE ENG	COTTECT TECOTO OF THE U4/Z4/Z001 (mm/dd/year) GINEER USE ONLY	above described
elief, the foregoi	Driller FOR STATE ENG	COTTECT TECOTO OF THE U4/Z4/Z001 (mm/dd/year) GINEER USE ONLY	above described

File	Number:			
	(For	OȘE	Use	Only

1. OWNER OF WELL	,	
Name: Louisiana Energy Services Contact: Laurie Wetherell	_ Work Phone: 5	205. 4 14 570
Contact: Laurie methereil	_ Home Phone: _	
Address: P.O. Box 1789	-	
City: Eunice	State: Apr Zip:	88231
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)		
A. $\frac{NE}{L}$ 1/4 $\frac{NW}{L}$ 1/4 $\frac{MW}{L}$ 1/4 Section: 32 Townshi	p: <u>2/5</u> Range: <u>3</u>	8E N.M.P.M.
B. X = feet, Y = f Zone in the f	eet, N.M. Coordi	nate System Grant.
U.S.G.S. Quad Map		
C. Latitude: 32 d 26 m 37.999 s Longitude	: <u>/03</u> d <u>05</u> m	1 <u>9.283</u> s
D. East (m), North (m), UTM	Zone 13, NAD	(27 or 83)
E. Tract No, Map No of the	Hydrogra	phic Survey
F. Lot No, Block No of Unit/Tract Subdivision recorded in		of the County.
G. Other:		
H. Give State Engineer File Number if existing we	11. (D. 953	
		<u>-</u>
I. On land owned by (required): Lea County,	NM	
3. DRILLING CONTRACTOR		
License Number: 1575	6	AL WAY ALAM
Name: Tolon LPE	Work Phone: <u>၆</u> _ Home Phone: <u>၆</u>	
Agent: Shane Currie Mailing Address: 721 V. Byins	_ nome mone. 8	<u> </u>
	- 	76400
city: _Amarillo	_ States: <u>TX</u> Zip:	19101
4. DRILLING RECORD		
Drilling began: $3/22/07$; Completed: $3/29/07$ Size of hole: $7-7/x$ in.; Total depth of well: 257 Completed well is: M_{001} (shallow, arte	<u>.ح</u> ft.;	STATE ENGRETHLE ROSEWELL
Depth to water upon completion of well: 241.76	ft.	1. E.
Do Not Write Below This L	ine	'S ≥±
File Number: <u>CP-953</u>	rn Number: 376	,952 ²⁹
Form: wr-20 page 1 of 4		
Monitor	21.38.3.	2,112

File	Number	:		_	
		(For	OSE	Use	Only)

5. PRINCIPAL WATER-BEARING ST	TRATA	
Depth in Feet Thickness From To in feet 241.26 257.5 16.24	water-bearing formation (GP	
6. RECORD OF CASING		
Diameter Pounds Threads (inches) per ft. per in. 4 Sch 40PW Z 4 Sch 40PW Z	Top Bottom (feet) F.	rom To
7. RECORD OF MUDDING AND CEM	IENTING	
Depth in Feet Hole From To Diameter O 75 7-7/8 75 Z30 1-7/8	Sacks Cubic Feet Method of Places of mud of Cement ZO frame - Cement LIS DIM POUT - Benton	1 benton te
8. PLUGGING RECORD		
Address: Plugging Method:		
Plugging approved by:		
No. Depth	State Engineer Representative n in Feet Cubic Feetof Cement	ENGINEEN 27
Top 1 2 3 4 5	Bottom	P 2: Ou
20 0	Not Write Below This Line	000
File Number: <u>CP- 953</u> Form: wr-20	Trn Number: <u>376</u> page 2 of 4	
	21,28	<u> </u>

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(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

9. LOG OF HOLE

Depth From C5	in Feet To S 15 35 50 200 210 245 255 260	Thickness in feet 5 10 20 /5 /5 / 15 0 / 0 35 / 10 5	SAND, loose moist burnt orange CALICHE, hard dry orange CIAY, high Plastic marron w/ gray mottling Sitstone; hard dry gray Claystone; wi interbedded Silfstone, hard dry marron Claystone; hard, dry marron w/ gray splacking Claystone; wi interbedded Silfstone hard, dry marron Claystone; wi interbedded Silfstone hard, dry marron Claystone; wi interbedded Silfstone hard, dry marron Claystone; word, dry marron gray mottling
			
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The undersigned he belief, the forego hole.	reby certifies ing is a true a	that, to th	e best of h	nis knowle he above	edge and described
belief, the forego	reby certifies ing is a true as	that, to the	ne best of herecord of the second of the sec	nis knowle the above	edge and described ROSWELL.
belief, the forego	ing is a true a	nd correct	record of the second of the se	nis knowle the above	edge and described ROSWC-LL.
belief, the forego	Driller FOR STATE E	nd correct	record of the second of the se	the above	described ROSNELL.
belief, the forego hole.	Driller FOR STATE E	nd correct	record of the second of the se	the above	described ROSNELL.
belief, the forego hole.	FOR STATE E	nd correct	record of the state of the stat	the above	described ROSNELL.
belief, the forego hole.	FOR STATE E	NGINEER US	record of the state of the stat	the above	described ROSNELL.

MrB

File	Number	:			
		(For	OSE	Use	Only)

1. OWNER OF WELL	
Name: Louisiana Energy Services	_ Work Phone: <u>505.394,620</u> L
Contact: Laurie Wetherell Address: P.O. Box 1789	Home Phone:
	_
city: Eunice	State: <u>88 Z 31</u>
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. $\frac{NW_{1/4}}{\ln \frac{NW}{Lea}}$ 1/4 Section: 32 Townshi	p:215 Range: 36 N.M.P.M. County.
B. X = feet, Y = f Zone in the U.S.G.S. Quad Map	eet, N.M. Coordinate System Grant.
C. Latitude: 32 d 26 m 27.446 s Longitude	: 103 d .05 m ZZ.714 s
D. East (m), North (m), UTM	
E. Tract No, Map No of the	Hydrographic Survey
F. Lot No, Block No of Unit/Tract Subdivision recorded in	of the County.
G. Other:	
H. Give State Engineer File Number if existing we	n: CP-954
I. On land owned by (required): Lea County	1000
3. DRILLING CONTRACTOR	
License Number: 1575	
Name: Talon / LPE	Work Phone: 806.467.0607
Agent: Shawr Courte	Home Phone: 806.676.8770
Mailing Address: 921 N. Rivins	_
city: Amarillo	State: TX Zip: 79/07
4. DRILLING RECORD	87. R0 21
Drilling began: 3/22/07; Completed: 3/30/07	· Turn tools: 1: 3 25.
Size of hole: 7-7k in.; Total depth of well: 236	
Completed well is: <u>Non tor</u> (shallow, arte	articity assigns; and the second seco
Depth to water upon completion of well: DRY	_ ft. 2 iii
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File	Number:			
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From T	o 	hickness in feet	water	-bearing	format	ion	ated Yio	eld
								
ECORD OI			·					
	per ft.	Threads	Top	Bottom	(feet)	Type of Shoe	From	To
<u>4</u>	SC4 40 PW Sc4 40 PW	2	216.4	216.4 236.4		NIA PUC. PND CZP	2/A 2/64	2366
		AND CEM						
rom To	Di 15 7	Hole ameter -7/y	Sacks of mud 1	of Ce	ment	Method of Pla Comie - Cem Pour - bouton	ent /be	enton. 1PS
UGGING								
Date We	Addre ging Meth ell Plugg approved	ss: od: ed:				r Representativ		· · · · · · · · · · · · · · · · · · ·
	1	No. Depth Top	in Feet Botton		C Feetoi	f Cement		
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9. LOG OF HOLE

epth i	in Feet To	Thickness in feet	Color and Type of Material Encountered
C	₹ <i>©</i>	In reet	SAND, fine loose moist, burnt orange
102	20	10	CALICHE SOFT Light Avange
20	35	15	Silkhour, hand any gray
35	45	10	claystone, have dry maroon wherey mottleng
45	20	_ <	claystone is interpedded siltstone margon faray
50	15	25	claystone dry marnon ul gray mottling
<u> 75 </u>	<u> 35</u>		siltstone of interbedded claystone
<u>85</u>	105	<u> </u>	Claystone, hand dry marron u/gray mottling
105	110	<u> </u>	Siltstone wi interprended classione band dry grave man
(10)	130	<u>20</u> 30	- Clarstone, cury marroya wil gray mottling
<u>130 </u>	170	10	Clarstone, with siltstone dry marcon & giray.
170	175	5	
175	180		claratone, hard, dry, gray
180	190	10	Siltstone w/ Claystone dry gray & marcon
190	215	25	(laystone, harr), dry, marron w/ gray & marron
215	295	25	silt Hone, hard. dry gray
235	245	10	claystone, hard, dry maronn w/ gray
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belief, the foregoing is a tru	ies that, to the be we and correct reco	st of his kr and of the ab	owledge and oove described
pelief, the foregoing is a tru	ies that, to the be ue and correct reco	est of his kr ord of the ab 24/2007 dd/year)	oowledge and oove described
pelief, the foregoing is a tru	ies that, to the be ue and correct reco	est of his kr and of the above $\frac{24}{2007}$ $\frac{3}{200}$	owledge and bove described
pelief, the foregoing is a tru	ue and correct reco	st of his kr rd of the ab 24/2007 id/year)	owledge and ove described
Driller	ue and correct reco	24 / 200 7 id/year)	ove described
Driller	ue and correct reco	24 / 200 7 id/year)	owledge and ove described
Pelief, the foregoing is a tropole. Driller FOR STA	TE ENGINEER USE ONI	z4/zco7 id/year)	ove described
Pelief, the foregoing is a tropole. Driller FOR STA	TE ENGINEER USE ONI	z4/zco7 id/year)	ove described
Pelief, the foregoing is a tropole. Driller FOR STA	TE ENGINEER USE ONI	z4/zco7 id/year)	ove described
Pelief, the foregoing is a tropole. Driller FOR STA	TE ENGINEER USE ONI	z4/zco7 id/year)	ove described
FOR STATE Quad; FWL; FSL; Us	TE ENGINEER USE ONI	z4/zco7 id/year)	ove described
FOR STATE Do Not	TE ENGINEER USE ONI e; Location Note that the Below This	z4/zco7 id/year) Line	ove described 101 Ma 27 5 2: 0ti
Policy the foregoing is a tropole. Driller FOR STATE Quad; FWL; FSL; Uscape Do Note Number: CP 954	TE ENGINEER USE ONI e; Location Note that the Below This	z4/zco7 id/year) Line	ove described
FOR STATE Do Not	TE ENGINEER USE ONI t Write Below This page 4 of 4	z4/zco7 id/year) Line Trn Number:	376954
FOR STATE Quad; FWL; FSL; Us Do Not Number: CP 954	TE ENGINEER USE ONI e; Location Note that the Below This	z4/zco7 id/year) Line Trn Number:	ove described 101 Ma 27 5 2: 0ti

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File	Number	:			
		(For	OSE	Use	Only

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

1. OWNER OF WELL	505 204 5004
Name: Louisiana Energy Services	Work Phone: 505-394-5204
Contact: Laurie Wetherell	Home Phone:
Address: P.O. Box 1789	-
City: Eunice	State: NM Zip: 88231
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. $\frac{SW}{in} = \frac{1/4}{\sqrt{8}} \frac{SW}{ea} = \frac{1/4}{\sqrt{14}} \frac{NE}{\sqrt{14}} = \frac{1/4}{\sqrt{14}} \frac{SW}{ea} =$	0:215 Range: 386 N.M.P.M. County.
B. X = feet, Y =	eet, N.M. Coordinate System Grant.
U.S.G.S. Quad Map	
C. Latitude: 32 d 26 m 14.8482 s Longitude	: <u>103</u> d <u>04</u> m <u>40.2564</u> s
D. East (m), North (m), UTM	Zone 13, NAD (27 or 83)
E. Tract No, Map No of the	Hydrographic Survey
F. Lot No, Block Noof Unit/Tract Subdivision recorded in	- of the
	1 1,55
G. Other:	<u> </u>
'H. Give State Engineer File Number if existing we	11: <u>CP-995</u>
I. On land owned by (required): Louisiana Ener	gy Services 3
H. Give State Engineer File Number if existing we I. On land owned by (required): Louisiana Ener 3. DRILLING CONTRACTOR	
License Number: 1575	
Name: Talon Drilling	Work Phone: 906 467 0607
Agent: Shane Currie	Home Phone: 806.467.0622
Mailing Address: 921 N. Bivins	
City: Amarillo	State: <u>TX</u> Zip: <u>79107</u>
4. DRILLING RECORD	
Drilling began: 12/5/08; Completed: 12/5/08 Size of hole: 7-7/8 in.; Total depth of well: 38 Completed well is: Monitor (shallow, art Depth to water upon completion of well: Dry	ft.; esian);
Do Not Write Below This L	
File Number: $CP-995$	rn Number: 418652
Form: wr-20 page 1 of 4	11 28 27 237

Monitor

File	Number	:			
		(For	OSE	Use	Only)

	Thickness in feet					ted Yie GPM)	ld
Dry_			. •		-	- •	
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ECORD OF CASIN							
Diameter Poun		Depth in Fo	er Length	Type of	Shoe	Perfor	101
(inches) per	ft. per in.	Top Bot					
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ECORD OF MUDD	ING AND CEM						
Depth in Feet			ubic Feet	Method	of Pla	cement	
From To	Diameter	of mud… o	f Cement				
_05	7-7/8		0 Sacks I	<u>rimie (</u>	Bento	nite/	Ceme
	7-7/8						cnip
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Plugging Contr	actor:						
Plugging Contr Ad Plugging M	actor:						3
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Plugging Contr Ad Plugging M Date Well Pl	No. Depth Top 1 2 3 4	St n in Feet	ate Enginee	Represe		re r	3
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File Number: CP-995
Form: wr-20

Trn Number: 710652

page 2 of 4

File	Number:				
	(For	OSE	Use	Only)

9. LOG OF HOLE

Depth	in Feet	Thickness	Color and Type of Material Encountered	
From	To	in feet		
0	9 .	9	Sand, lightly cemented, tan to lt orange	ge
0 9 4	9 24	13	Sand, lightly cemented, tan to lt orange Caliche, relative soft, lt gray Gravelly sand, chert, tan to lt red ma	
4	36	12	Gravelly sand, chert, tan to lt red ma	trix
36	38		Claystone, purple	
				
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File Number:	CP-995	_				Trn Number:	418652
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File	Number:				
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		FOR STATE E	 NGINEER U	JSE ONLY	********	
O	; FWL ; I	FSL; Use	; Lo	cation No	-	
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NLB

File	Number	: .			
		(For	OSE	Ųse	Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

1. OWNER OF WELL	
Name: Louisiana Energy Services	Work Phone: <u>505-394-52</u> 04
Contact: Laurie Wetherell	Home Phone:
Address: P.O. Box 1789	
City: Eunice	State: <u>NM</u> Zip: <u>88231</u>
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	_
A. $\frac{5W}{14}\frac{5W}{6}\frac{1}{4}$ $\frac{8W}{1}$ $\frac{1}{4}$ Section: $\frac{32}{32}$ Township	: <u>2/S</u> Range: <u>38</u> EN.M.P.M.
B. X = feet, Y = fee	et, N.M. Coordinate System Grant.
U.S.G.S. Quad Map	
C. Latitude: 32 d 26 m 13.383 s Longitude:	<u>103</u> d <u>04</u> m <u>52.212</u> s
D. East (m), North (m), UTM	Zone 13, NAD (27 or 83)
E. Tract No, Map No of the	Hydrographic Survey
F. Lot No, Block No of Unit/Tract	of the
Subdivision recorded in	Souncy
G. Other:	
H. Give State Engineer File Number if existing wel	1; <u>CP-996</u>
I. On land owned by (required): Louisiana Energ	y Services
3. DRILLING CONTRACTOR	
License Number: 1575	·
Name: Talon Drilling	Work Phone: 806.467.0607
Agent: Shane Currie	Home Phone: 806.467.0622
Mailing Address: 921 N. Bivins	
City: Amarillo	State: TX Zip: _79107
4. DRILLING RECORD	
4. Dalibano resono	
Drilling began: 12/5/08; Completed: 12/5/08; Size of hole: 7-7/8in.; Total depth of well: 39 Completed well is: Monitor (shallow, arte	_ ft.;
Depth to water upon completion of well: Dry	
mo stor moder mater mater to	
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File Number: <u>CP-996</u> Tr	n Number: 418653 21.38.32.233
Form: wr=20 page 1 of 4	21,38,32,233

Monitor

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File	Number	: _				
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Depth in Feet From To	in feet	water-b	earing	formati		-	GPM)	
Dry								
								
ECORD OF CASING								
Diameter Pound		Depth in	Feet	Length	Type of	f Shoe	Perfo	ratior
(inches) per i	t. per in. 10 2	Top E	ottom 39	(feet) 42	end	сар	From 21	To 36
	<u> </u>							
ECORD OF MUDD	ING AND CEM	ENTING						
Depth in Feet		Sacks			Method	of Pla	cement	
From To					'rimie	(Rento	nite/	Cemer
520	7-7/B	5		P	oured	Bento	nite o	chips
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LUGGING RECOR								
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Date Well Plu	ıgged:	· ·					<u> </u>	(1)
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	No. Depth	in Feet	Cubi	c Feeto:	f Cement		Ü,	
	Top	Bottom						, ; S
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File	Number	:				
		(For	OSE	Use	Only)	,

9. LOG OF HOLE

	in Feet	Thickness	Color and Type of Material Encountered
From	То	in feet	
0	10	10	Sandstone, lightly cemented, burnt orange
10	21	11	Caliche, soft, lt orange to tan Gravelly sand, abundant chert, lt orange-tan
21	37	<u> 16</u>	Gravelly sand, abundant chert, it orange-tan
37	39	2	Claystone, purple
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Driller (mm/dd/year)	owledge and
The undersigned hereby certifies that, to the best of his knobelief, the foregoing is a true and correct record of the about the body of the body of the about the body of the body of the about the body of the b	owledge and
Driller (mm/dd/year)	owledge and
pelief, the foregoing is a true and correct record of the above. 12/29/08	owledge and
FOR STATE ENGINEER USE ONLY	owledge and
Driller (mm/dd/year)	owledge and
pelief, the foregoing is a true and correct record of the above. 12/29/08	owledge and
FOR STATE ENGINEER USE ONLY Quad; FWL; FSL; Use; Location No	owledge and
FOR STATE ENGINEER USE ONLY	owledge and cove described

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File	Number	:			
		(For	OSE	Use	Only)

1. OWNER OF WELL	•
Name: Louisiana Energy Services	Work Phone: 505.394.6204
Contact: <u>Laurie Wetherell</u>	Home Phone:
Address: P. C. Box 1789	
City: Eunice	State: VM Zip: \$8231
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. $\frac{5W}{\text{in}} \frac{1/4}{\text{Lea}} \frac{NW}{1/4} \frac{1/4}{\text{Section}} \frac{32}{32}$ Townshi	p:315 Range:386 N.M.P.M. County.
B. X = feet, Y =	eet, N.M. Coordinate System Grant.
C. Latitude: 32 d 25 m 56.857 s Longitude	e: 103 d 05 m 23.671 s
D. East (m), North (m), UTM	7 Zone 13, NAD (27 or 83)
E. Tract No, Map No of the	Hydrographic Survey
F. Lot No, Block No of Unit/Tract Subdivision recorded in	of the County.
G. Other:	
H. Give State Engineer File Number if existing we	11: <u>CP-955</u>
I. On land owned by (required): Lea County	AIM
3. DRILLING CONTRACTOR	
License Number: 1575 Name: Tolon/LPK Agent: Shake Currie Mailing Address: 921 A), Blvins	Work Phone: <u>806.467.06</u> 07 Home Phone: <u>806.616.87</u> 20
city: Amarillo	State: T <u>X</u>
4. DRILLING RECORD	
Drilling began: 3/23/07; Completed: 3/29/07 Size of hole: 7-7% in.; Total depth of well: 23 Completed well is: Monitor (shallow, art Depth to water upon completion of well: DRY	6 ft.; ≠S1
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File Number: CP-955 Form: wr-20 page 1 of 4	Ern Number: 376 955
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File	Number	:			
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Depth in Feet From To	Thickness in feet		iption o			Estima	ted Yie GPM)	eld
DRY			_					<u>. </u>
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RECORD OF CASIN								
Diameter Pound (inches) per	ds Threads ft. per in.	Depth Top	in Feet Bottom	Length (feet)	Type of	Shoe	Perfor From	
<u> </u>	PVC Z		21.6	216	ALIA		NIA.	
- H - KH 40	PVC 2_	216	236	_0.5	PUL Enci	<u> </u>		
RECORD OF MUDD	ING AND CEM	ENTING	-					
Depth in Feet	Hole	Sacks		Feet	Method	of Pla	cement	
From To	Diameter	of mud		ment C	tremie	~ CPM	ent / L	2122010
75 710	7-7/8	42			2604 -			Chips
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(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

9. LOG OF HOLE

Depth in Feet	Thickness	Color and Type of Material Encountered
From To	in feet	•
0 10	10	SAND, loose damp tan
10 30	20	CALICHE, soft chert gravel with crange pink
20 <u>35</u>	3	SANDY GRAVELICHEST dry light red sond
35 55	20	Clay, highly plastic firm
55 JO	5	Claystone wi siltstone have very marcon & gray
60 220	160	Claystone dry marcon wil gray mottling
220 225	5	Silfstone w/ clarstone involvery good & Marcon
225 240	15	Slity claystone, dry light red to dark red/marcon
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page 3 of 4

21.38.32 313

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he undersigned helief, the foregoine.	nereby certi	fies that, rue and cor	rect record	4/2007	knowledge above des	e and scribed
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elief, the foregoie.	Driller FOR ST	THE AND COT	O4/2 (mm/dd)	d of the 4/2007 /year)	above des	scribed
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elief, the foregoie.	Driller FOR ST	THE AND COT	O4/2 (mm/dd)	d of the 4/2007 /year)	above des	scribed
elief, the foregoie.	Driller FOR STA	ATE ENGINE	O4/2 (mm/dd) ER USE ONLY ; Location No.	d of the 4/2007/year}	above des	scribed Service 27 0 2
elief, the foregoile.	Driller FOR ST; FSL; U	THE AND COT	O4/2 (mm/dd) ER USE ONLY ; Location No.	d of the 4/2007/year}	above des	scribed 27 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2
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elief, the fore	Driller FOR ST; FSL; U	ATE ENGINE	O4/2 (mm/dd,	d of the 4/2007/year}	above des	scribed 27 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2

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File	Number	:			
		(For	OSE	Use	Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

1. OWNER OF WELL		
Name: Louisiana Energy Services	<u> </u>	
Contact: Laurie Wetherell	Home Phone:	
Address: P.O. Box 1789	•	
City: Eunice	State: <u>NM</u> Zip: <u>8</u>	8231
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)		
A. $\frac{NW}{\ln 2ea}$ 1/4 $\frac{SW}{2}$ 1/4 Section: $\frac{32}{32}$ Township	o: <u>21</u> 5 _{Range} : <u>386</u>	N.M.P.M. County.
B. X = feet, Y = fe	eet, N.M. Coordina	te System Grant.
U.S.G.S. Quad Map		
C. Latitude: 32 d 26 m 1.1718 s Longitude:		.5062 s
D. East (m), North (m), UTM	Zone 13, NAD (27 or 83)
E. Tract No, Map No of the		
F. Lot No, Block No of Unit/Tract Subdivision recorded in	F-1	of the County.
G. Other:	·	- 71
H. Give State Engineer File Number if existing well	11: <u>CP-999</u>	
I. On land owned by (required): Louisiana Energ	gy Services	77 2
3. DRILLING CONTRACTOR		FFIRE
License Number: 1575	_	
Name: Talon Drilling	Work Phone: <u>806</u>	<u>.467.06</u> 07
Agent: Shane Currie Mailing Address: 921 N. Bivins	Home Phone: 806	.467.0622
<u> </u>	-	
City: Amarillo	State: <u>TX</u> Zip: _	79107
4. DRILLING RECORD		
Drilling began: $12/4/08$; Completed: $12/4/08$; Size of hole: $7-7/8$ in.; Total depth of well: 43 Completed well is: Monitor (shallow, arte	ft.;	-Rotary;
Depth to water upon completion of well: Dry	ft.	
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Form: wr-20 page 1 of 4		

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File	Number	:			
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From To Dry	in feet	water-k	pearing	formati	on	•	GPM)	
								
ECORD OF CASIN								
Diameter Pour (inches) per 4 PVC Sch			3ottom	(feet)		-	From	To
	<u>. </u>							
ECORD OF MUDI	OING AND CEM							
Depth in Feet From To	Hole Diameter	Sacks of mud	of Cen					
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Plugging Contr Ac Plugging M Date Well Pl	RD cactor: ddress: dethod: Lugged: oved by: No. Depth Top	in Feet Bottom	State f	Engineer C Feetof	Repres	entativ	e .	
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Plugging Contr Ac Plugging M Date Well Pl	No. Depth Top Tactor: Method: No. Depth Top 1 2 3	in Feet Bottom	State F	Engineer C Feetof	Repres	entativ	e	

page 2 of 4

Form: wr-20

File	Number:				
	1 E	or	OSE	Use	Only

9. LOG OF HOLE

Depth	in Feet	Thickness	Color and Type of Material Encountered
From	To	in feet	
0	. 11	11	Sand, lightly cemented, burnt orange
11	29	18	Caliche, relatively soft, gray to lt orange
11 23	34	11	Gravelly sand, chert gravel, red sand matrix
34	36	2	Caliche, relatively soft, gray to lt orange Gravelly sand, chert gravel, red sand matrix Claystone, dark purple
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rne undersianed			noutledge and t
rne undersigned belief, the fore	going is a true an	nd correct record of the a	nowledge and -
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pelief, the fore	going is a true an	ad correct record of the all $ Z/24/0X $	howledge and bove described
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pelief, the fore	going is a true an	ad correct record of the all $\frac{ Z/Z }{(mm/dd/year)}$	bove described
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Quad; FWL	priller FOR STATE EN _; FSL; Use	id correct record of the all ideas i	bove described

page 4 of 4

Form: wr-20



File	Number	:			
		(For	OSE	Use	Only

1. OWNER OF WELL		
Name: Louisiana Energy Services	Work Phone:	<u>505-394-52</u> 0
Contact: Laurie Wetherell	Home Phone:	
Address: P.O. Box 1789	•	
City: Eunice	State: NM Zi	p: <u>88231</u>
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)		
A. $\frac{NE}{in}$ 1/4, $\frac{NE}{Lea}$ 1/4 $\frac{SW}{SW}$ 1/4 Section: $\frac{32}{32}$ Township	: <u>2/</u> 5 Range:	386 N.M.P.M. County.
B. X = feet, Y = fe	et, N.M. Coor	dinate System Grant.
U.S.G.S. Quad Map		
C. Latitude: 32 d 26 m 1.071 s Longitude:	<u>103</u> d <u>05</u>	_m <u>3.048</u> _s
D. East (m), North (m), UTM	Zone 13, NAD	(27 or 83)
E. Tract No, Map No of the	Hydrog	raphic Survey
F. Lot No, Block No of Unit/Tract Subdivision recorded in	·	of The
G. Other:		15 - 2
h. Give State Engineer File Number if existing wel		- : ::: :::::::::::::::::::::::::::::::
I. On land owned by (required): Louisiana Energ	gy Services	-8 P
3. DRILLING CONTRACTOR		PERSE
License Number: 1575		
Name: Talon Drilling	Work Phone:	806 467 060
Agent: Shane Currie	Home Phone:	806.467.062
Agent: Shane Currie Mailing Address: 921 N. Bivins	•	
City: Amarillo	State: <u>TX</u> Zi	p: <u>79107</u>
4. DRILLING RECORD		
Drilling began: 12/4/08; Completed: 12/4/08; Size of hole: 7-7/8 in.; Total depth of well: 250 Completed well is: Monitor (shallow, arte Depth to water upon completion of well: Dry	ft.; esian);	<u>Air-Rotary</u> ;
Do Not Write Below This Li	.ne	
File Number: <u>CP-998</u> Tr Form: wr-20 page 1 of 4	rn Number:	118655

Monitor 21,38,32,322

File	Number	:				
		(For	OSE	Use	Only	ı

From To Dry	in feet	water-be		on	imated Yie (GPM)	
	<u> </u>	·			····	
RECORD OF CASIN						_
Diameter Poun (inches) per 4 PVC Sch	ft. per in. 40 2	Top Bo	ttom (feet) 250 253	end ca	From 230	To 250
RECORD OF MUDI					- 17 F	 -
	Diameter 	of mud	Cubic Feet of Cement 20 Sacks T	rimie (Be oured (Be	ntonite/C ntonite o	hips
LUGGING RECOR						
Prugging M	aress: lethod:			 -	, inc.	
Plugging M Date Well Pl	dress: lethod: ugged:			 -	, inc.	3 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
Ad Plugging M	dress: lethod: ugged:				ative	
Plugging M Date Well Pl	dress: lethod: ugged: wed by:	S	tate Engineer	Representa	ative	-
Plugging M Date Well Pl	ved by:	S	tate Engineer	Representa	ative	:2 U :-
Plugging M Date Well Pl	ved by:	S in Feet	tate Engineer	Representa	ative)
Plugging M Date Well Pl	ved by:	S in Feet	tate Engineer	Representa	ative	ວ ປັ -
Plugging M Date Well Pl	No. Depth Top 1 2 3	S in Feet	tate Engineer	Representa	ative	ວ ປັ -
Plugging M Date Well Pl	No. Depth Top 1 2 3 4	S in Feet	tate Engineer	Representa	ative	:2 U :-

page 2 of 4

Form: wr-20

File	Number	:			
		(For	OSE	lise	Only

9. LOG OF HOLE

218 230	To 12 25 36 70 72 153 215 218 230 235	Thickness in feet 12 13 11 34 2 81 62 3 12 5	Sand, lightly cemented, burnt orange Caliche, relatively soft, gray to it orange Sandstone, lightly cemented, burnt orange Claystone, maroon Siltstone, hard gray Claystone, light red with maroon to purple Claystone, maroon to it red Siltstone, interbeded w/claystone, gray Claystone, interbeded siltstone, maroon-gray Siltstone, interbeded w/claystone, gray
<u>235</u>	250	15	Claystone, lt red to maroon
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a undersigned hereby sortif	ica that	to the best	of his know	بامطحه ممط
lief, the foregoing is a tr	ies that, we and co	to the best rrect record \frac{12/29}{(mm/dd/y)}	of the abou	wledge and ve described
=======================================	ue and co	12/29	of the abou	wledge and ve described
lief, the foregoing is a trile. Driller	TE ENGINE	rrect record 12/29 (mm/dd/y	of the above	wledge and we described

page 4 of 4

Form: wr-20

WLB

File	Number	:			
		(For	OSE	Use	Only)

1. OWNER OF WELL		
Name: Louisiana Energy Services	Work Phone:	
Contact: Laurie Wetherell Address: P.O. Box 1789	Home Phone:	
Addless: F.O. DOX 1703		
City: Eunice	State: NM Zip	: <u>88231</u>
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)		
A. \underbrace{SE}_{in} 1/4 $\underbrace{NE}_{1/4}$ $\underbrace{SW}_{1/4}$ Section: $\underbrace{32}$ Township	:2/S Range:3	BEN.M.P.M.
B. X - feet, Y =	et, N.M. Coord	inate System Grant.
U.S.G.S. Quad Map		
C. Latitude: <u>32</u> d <u>26</u> m <u>1.0998</u> s Longitude:	103 d 05 l	m <u>1.086</u> s
D. East (m), North (m), UTM	Zone 13, NAD _	_ (27 or 83)
F. Tract No, Map No of the	Hydrogr	aphic Survey
F. Lot No, Block No of Unit/Tract		of the
Subdivision recorded in		County
G Orber		- 4 湯
G. Other:		
H. Give State Engineer File Number if existing wel	1: <u>CP-997</u>	
I. On land owned by (required): Louisiana Energ	v Services	ာ
17 on tone of (required). Bourstand biles	, octvices	<u> </u>
3. DRILLING CONTRACTOR		- -
License Number: 1575		~ 등
Name: Talon Drilling	Work Phone: 8	806.467.0607
Agent: Shane Currie	Home Phone:	806.467.0622
Mailing Address: 921 N. Bivins		
City: Amarillo	State: <u>TX</u> Zip	: <u>79107</u>
4. DRILLING RECORD		
Orilling began: 12/4/08; Completed: 12/4/08; Size of hole: 7-7/8in.; Total depth of well: 40 Completed well is: Monitor (shallow, arted Depth to water upon completion of well: Dry	ft.; sian);	ir-Rotary:
Do Not Write Below This Lift File Number: $(P-997)$ Triple Form: $wr-20$ page 1 of 4		18654
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File	Number	:		
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(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

From To	in feet	Description o	formation		ed Yield PM)	i
						
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	ft. per in. 40 2	· · · · · · · · · · · · · · · · · · ·	(feet) 43 en	d cap	From To	40
	· ———					
RECORD OF MUDI						
Depth in Feet From To 0 5 20	Hole Diameter 7-7/8 7-7/8	Sacks Cubic of mud of Ce		od of Plac (Benton (Benton	ite/Ce	ment ips)
			· · · · · · · · · · · · · · · · · · ·			
PLUGGING RECO	₹D					
Plugging Cont Ac Plugging M Date Well Pl	idress:					
Plugging appro						
ringging appre	,ved by	State	Engineer Repre	sentative		
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ile Number: C	P-997		Trn Nuπ	her: 4	186	54

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9. LOG OF HOLE

From To in feet 0 11 11 Sandstone, slight cemented, burnt oran 11 29 18 Caliche, soft, gray to lt orange 29 37 8 Gravelly sand, abundant chert, orange 37 40 3 Claystone, maroon	
29 37 8 Gravelly sand, abundant chert, orange 37 40 3 Claystone, maroon	
29 37 8 Gravelly sand, abundant chert, orange 37 40 3 Claystone, maroon	
29 37 8 Gravelly sand, abundant chert, orange 37 40 3 Claystone, maroon	sand
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Form: wr-20 page 3 of 4

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the undersigned hereboelief, the foregoing tole.	is a true ar	that, to	the best of the record of $\frac{12}{24}$	f his known $\log \sqrt{OX}$	ve desc e rbed
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Quad; FWL; FS	FOR STATE EN		SE ONLY		-
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File	Number	:		_		_
		(For	OSE	Use	Only	i)

1. OWNER OF WELL	and the second control of the second
Name: Louisiana Energy Services Contact: Laurie Wetherell	work Phone: 50s. 344, 5204
Address: P.O. Box 1789	
City: Evalue	State: NM Zip: 8823
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. NW1/4 SE 1/4 SW 1/4 Section: 32 Townshi	p:215 Range: 38 EM.P.M. County.
B. X =feet, Y =f Zone in the	Grant.
C. Latitude: 37 d 25m 52.499s Longitude	e: <u>103 d 05 m 7.607</u> s
D. East (m), North (m), UTN	
E. Tract No, Map No of the	Hydrographic Survey
F. Lot No, Block No of Unit/Tract Subdivision recorded in	of the County.
G. Other:	<u></u>
H. Give State Engineer File Number if existing we	ell: CP-956
I. On land owned by (required): Lez County,	
3. DRILLING CONTRACTOR	
· · · · · · · · · · · · · · · · · · ·	
Name: 1575 Name: Talon / LPG Agent: Shake Curvic Mailing Address: 921 N. Biv: 15	Work Phone: 306.467.0607 Home Phone: 806.676.8720
City: Amavillo	State: <u>7X</u> Zip: <u>79107</u>
4. DRILLING RECORD	
Drilling began: 3/28/01; Completed: 4/3/07 Size of hole: 7-7y in.; Total depth of well: 23 Completed well is: 1000 (shallow, art Depth to water upon completion of well: 0/29	ft.;
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File Number: <u>CP-956</u> Form: wr-20 page 1 of 4	Irn Number: 37695655
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File	Number:			
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. PRINCIPAL WATER	R-BEARING ST	RATA						
Depth in Feet From To D2V	Thickness in feet	water-	bearing	format	ion	(ted Yi GPM)	eld
DECORD OF GLOW					<u>-</u>			
RECORD OF CASIN	iG							
Diameter Poun (inches) per	ft. per in.	Top	Bottom	(feet)	Type of √/A	Shoe	From	Ťo
4 sch 40	PVC Z	Z.17.L	217.1		PVC enc			237.1
DECORD OF MIDD	UNIC AND CEN	ENTERNO	· · ·			-		
RECORD OF MUDD		ENTING						
Depth in Feet From To	Diameter	Sacks of mud	of Ce		,		. /	,
0 15	7-7/4	<u> </u>			tremie-	cem	ey!	benton
		<u> </u>		/-	pour - E	CUTEN	11 FC	Calbz
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PLUGGING RECOR	D							
Plugging Contr	actor:							
	dress:							
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Plugging appro	vea by:		State	Enginee	r Represe	ntativ	e	
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	No. Depth Top	in Feet Bottom		c Feeto	f Cement			
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le Number: <u>(/</u> Form: wr-	0.956		page 2	of 4	Trn Numbe			
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File	Number	:			
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9. LOG OF HOLE

Depth in Feet Thickness From To in feet C S S	SAND, fine, damp, bunt orange Caliche, Soft, dry, gray to tan
75 40 15 40 60 20 60 85 25 85 165 80	SAUDY Gravel, chert, dry, burnt orange Clay firm, dry, marron wl grav mottling Claystone wil siltstone, band, dry marrone grav Claystone, dry marron wl grav mottling
165 190 25 190 270 30 270 235 15 235 240 15	Claystone wil siltstone, hard, dry maroon Claystone, hard, dry marcon wil gray mottling Claystone, wil siltstone hard, dry light red Claystone, have, dry, marcon wil gray mottling
	STATE ROSS
	PO PIES
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le Number: <u>CP-956</u> Form: wr-20	Do Not Write Below This Line Trn Number: 376956 page 3 of 4

21.38.32.341

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elief,	ersigned her the foregoi	eby certifing is a tru Oriller	ies that, le and cox	to the becreet rec	est of his ord of the /24/07 dd/year)	s knowledg e above de	e and scribed
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elief, ole.	the foregoi	Oriller	TE ENGINE	O4 (mm/	ord of the delay o	e above de	scribed
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File	Number	:			
		(For	OSE	Use	Only)

I. OWNER OF WELL	
Name: Louisiana Energy Services	Work Phone: <u>505.394.5204</u>
Contact: <u>Laurie Wetherell</u>	Home Phone:
Address: P.O. Box 1789	_
City: Eunice	State: NM Zip: <u>\$8231</u>
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. $NE_{1/4}$ $NE_{1/4}$ $NE_{1/4}$ $NE_{1/4}$ Section: 32 Townshi	p: <u>2/</u> 5 Range: <u>35</u> EN.M.P.M. County.
B. X = feet, Y = f Zone in the U.S.G.S. Quad Map	eet, N.M. Coordinate System Grant.
C. Latitude: 32 d Z6 m 5.327 s Longitude	:: 103 d 04 m 26.985 s
D. East (m), North (m), UTM	Zone 13, NAD (27 or 83)
E. Tract No, Map No of the	Hydrographic Survey
F. Lot No, Block Noof Unit/Tract Subdivision recorded in	of the County.
G. Other:	
H. Give State Engineer File Number if existing we	11: CP. 946
I. On land owned by (required): Lea County	NM
3. DRILLING CONTRACTOR	
License Number: 1575	
Name: Taicn/LPE Agent: Shawe Corre Mailing Address: 92(A) Bivins	Work Phone: <u>४८६.461.06</u> 21 Home Phone: <u>४८६.616 ४</u> ८८०
city: <u>Amarillo</u>	State: 7K Zip: 79107
4. DRILLING RECORD	
Drilling began: 3/16/01; Completed: 4/03/07 Size of hole: 7-7/2 in.; Total depth of well: 22 Completed well is: Monitor (shallow, art Depth to water upon completion of well: 220.0	gy ft.;
Do Not Write Below This I	ine J 52
File Number: CP-946 Form: wr-20 page 1 of 4	21.38.32.422
Moniton	21.38, 32, 422

File	Number	:			
		(For	OSE	Use	Only)

Depth in	Feet	Thickness	Description of				Estimated Yield			
τίομι Τα		in feet	water-bearing formation		.on	(GPM)				
<u> </u>	25.8	<u>5.31</u>	ciaystone			0-1			_	
										-
										_
ECORD OF	CASING									
Diameter						Type of	Shoe			กร
(inches)		t. per in.	_	Bottom 205,8		N/A		From	-	
 _	<u> </u>					PVC end		105 V		-
	3CH 40 L				·		•		<u> </u>	
CORD OF	MUDDI	NG AND CEM	ENTING	,					-	_
Depth in		Hole Diameter	Sacks of mud		Foet	Method	of Pla	cement		
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	200	7-7/8	- นห		[h	Buse	- 60	ataute	pell	<u>۔</u> دم
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lugging	Contra	ctor:								_
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Plugging Plugg Date We	Contra Add: ging Me ell Plud	ctor: ress: chod: gged: ed by:		State	Engineer	Represe	· · · · · · · · · · · · · · · · · · ·			
Plugging Plugg Date We	Contra Add ging Me ell Plud approve	ctor: cess: chod: gged: dby: No. Depth		State t Cubi	Engineer		· · · · · · · · · · · · · · · · · · ·		7,00	2057
Plugging Plugg Date We	Contra Add ging Me ell Plud approv	ness: chod: gged: dby: No. Depth	in Fee	State t Cubi	Engineer	Represe	· · · · · · · · · · · · · · · · · · ·		7,00	20800
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9. LOG OF HOLE

From	To	in feet	CAN is in A. Brail
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	_ 2င္		CHLICHE, Mcderately have dry gray
<u>2o</u> .	<u> 35</u> .		Carruely SAND, fine grained light gray
<u>35</u>	<u>70</u> 80	35	CLAY, highly plastic, firm, ory, Marcon
	<u>95</u>		CLAY Stone, any light ved cuttings and green mot
95	100		Claystone, interbeded silfstone, dry marcont gr
	115		Clay Charles Lines 100 march and and
	125		Claystone, firm dry marcont any
125	125	50	claystone, dry maronn
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WEB

File	Number	:			
		For	OSE	Use	Only)

1. OWNER OF WELL	
Name: Louisiana Energy Services Work Phone: 505.314.520	7
Contact: Laurie Wethereil Home Phone: Address: 2.0. Box 1789	
City: Eunice State: NM Zip: 88231	
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. <u>SE 1/4 SE 1/4 SE 1/4</u> Section: <u>32</u> Township: <u>2/5</u> Range: <u>38</u> EN.M.P.M.	
in / ect County.	
B. X = feet, Y = feet, N.M. Coordinate System Zone in the Grant.	
U.S.G.S. Quad Map	
C. Latitude: 32 d 25 m 46.795 s Longitude: 103 d 4 m 31,815 s	
D. East (m), North (m), UTM Zone 13, NAD (27 or 83)	
E. Tract No, Map No of the Hydrographic Survey	
F. Lot No, Block No of Unit/Tract of the Subdivision recorded in County.	
G. Other:	
H. Give State Engineer File Number if existing well: <u>CP-945</u>	
I. On land owned by (required): LCO County, AIM	
3. DRILLING CONTRACTOR	
License Number: 1575	
Name: Taken/LPE Work Phone: 806,467.060	7
Mailing Address: (21 N. Bivins) Home Phone: 806.676.872	0
City: Amerillo State: TX Zip: 79107	
4 DDIT I INC DECORD	
Drilling began: 3/14/01; Completed: 4/3/07; Type tools: Air Resarver Size of hole: 7/8 in.; Total depth of well: 24/12 ft.;	
Completed well is: Monitor (shallow, artesian); Depth to water upon completion of well: D2Y ft.	
- XFR	
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File Number: <u>CP-945</u> Form: wr-20 Trn Number: <u>376887</u> page 1 of 4	
Monitor 21,38,32,44	4
1 (1000 LOA)	

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(For OSE Use Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

9. LOG OF HOLE

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Who

File	Number	:			
		(For	OSE	Use	Only)

1. OWNER OF WELL	Mark Phana. EAC 294 6204
Name: Louisiana Energy Services contact: Laurie Wetheroll	Home Phone:
Address: P.O. Box 1789	
City: Eunice	
City: EUNICE	_ State:NM 21p: <u>88231</u>
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)	
A. $\frac{NW}{\ln Lea}$ 1/4 $\frac{SW}{Lea}$ 1/4 Section: $\frac{32}{Lea}$ Townshi	ip: <u>2/5</u> Range: <u>38E</u> N.M.P.M. County.
B. X =feet, Y =f Zone in the U.S.G.S. Quad Map	feet, N.M. Coordinate System Grant.
C. Latitude: 32 d 25 m 50.439 s Longitude	e: 103_d 04 m 52.54(s
D. East (m), North (m), UTN	•
E. Tract No, Map No of the	Hydrographic Survey
F. Lot No, Block No of Unit/Tract Subdivision recorded in	of the County.
G. Other:	
H. Give State Engineer File Number if existing we	ell: CP-957
I. On land owned by (required): Lea County	
3. DRILLING CONTRACTOR	
License Number: (575	
Name: Taion /LPE	Work Phone: 806.467.0607
Agent: Shave Corre	Home Phone: \(\frac{16.8220}{}
Mailing Address: 921 N. Bivins	
City: Amarillo	State: TX Zip: 79107
A. DRILLING RECORD	
Drilling began: 3/20/07; Completed: 4/3/07 Size of hole: 7-7/8 in.; Total depth of well: 23 Completed well is: Mon(Hor (shallow, art Depth to water upon completion of well: DRY	1.4 ft.;
Die Man Mussen Daller mitten	
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9. LOG OF HOLE

LOG OF HOLL		
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NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

Name: Waste Control Specialists, LLC Work Phone: 888-789-2183 Contact: Mike Burney Home Phone: 505-394-4300 Address: 9998 W. Highway 176
City: Andrews State: TX Zip: 79714
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)
A. NE 1/4 NE 1/4 NW 1/4 Section: 33 Township: 215 Range: 38 E N.M.P.M. in County.
B. X = feet, Y = feet, N.M. Coordinate System
C. Latitude: 37 d 26 m 29 s Longitude: 103 d 03 m 58 s
D. East (m), North (m), UTM Zone 13, NAD (27 or 83)
E. Tract No, Map No of the Hydrographic Survey
F. Lot No, Block No of Unit/Tract Subdivision recorded in Sounty in
G. Other:
H. Give State Engineer File Number if existing well: $\frac{CP-979}{CP-979}$
I. On land owned by (required): Waste Control Specialists, LE 09
3. DRILLING CONTRACTOR
License Number: 1675 Name: Talon Drilling, L.P. Work Phone: 806-467-0607 Agent: Shane Currie Home Phone: 806-676-8220
City: Amarillo State: TX 2ip: 79107
4. DRILLING RECORD
Drilling began: \(\frac{2/20/08}{20/08}\); Completed: \(\frac{2/20/08}{2/20/08}\); Type tools: \(\frac{Air Rotary Rig}{Air Rotary Rig}\) Size of hole: \(\frac{5}{5/8}\) in.; Total depth of well: \(\frac{28}{28}\) ft.; Completed well is: \(\frac{Monifor}{Monifor}\) (shallow, artesian); Depth to water upon completion of well: \(\frac{Dry}{Dry}\) ft.
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File Number: <u>CP- 979</u> Form: wr-20 page 1 of 4 Trn Number: <u>399475</u>

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9. LOG OF HOLE

Depth in Feet From To	Thickness in feet 0.5 /4.5	Color and Type of Material Encountered Surface Soil Caliche Gravelly Sand Clavey Silfy Sand 9524 sandstone
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OSE FILE NUMBER	
For OSE Use Use	

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD and DRILLING LOG

1. PERMIT HOLDER(S)	
Name: WASTE CONTROL SPECIALISTS Address: P.O. BOX 1129	Name:
City: ANDREWS	Address:
State: TX Zip: 79714	State: Zip:
Phone: (505) 394-4300	Phone:
Contact: MICHAEL BURNEY	
Contact Phone: (505) 394-4300	
2. STATE ENGINEER REFERENCE NUMBE File # CP 975 EXPLORE Well	
3. LOCATION OF WELL (The Datum Is Assur	ned To Be WGS 84 Unless Otherwise Specified)
Latitude: 32 Deg 25	5 Min 45.8 Sec
Longitude: 103Deg04	4 Min 20.4 Sec
Datum If Not WGS 84:	Least 1/10 th Of A Second)
4. DRILLING CONTRACTOR	
License Number: WD1184	
Name: WEST TEXAS WATER WELL SER	VICE Work Phone: (432) 53U-2696
Drill Rig Serial Number:	261602
	t Managed On-Site Operations During The Drilling
Process:	NY KEITH
NO.	
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5. DRILLING RECORD	0.0FJ 2:
Drilling Began: 1-21-08; Completed:	4-29-08 ; Drilling Method MUD ROTARY
Diameter Of Bore Hole: 7-7/8 (in),	
Total Depth Of Well: 2,020	(fi);
Completed Well Is (Circle One): Shallow Artesia	an;
Depth To Water First Encountered: 1,092	<u>2</u> (ft);
Depth To Water Upon Completion Of Well:	<u>N/A</u> (ft).
_Do Not Write Below This	s Line
TRN Number: 396028 Form: wr-20 May 07	File Number: CP-975
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pa	age 1 of 4
-	<i>21.38.33.333</i>
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NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD and DRILLING LOG

6. RECORD OF CASING

Diameter (inches)	Pounds (per ft.)	Threads (per inch)	Depth (feet)	Length Top to Bottom (feet)	Type of Shoe	Perforations (from to)
13-3/8	48	8	2' AGL	401		
8-5/8	24	8	3' AGL	1,440'	FLOAT GUIDE	
	· · · · · · · · · · · · · · · · · · ·		<u> </u>			
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7.	RECORD	OF	MUDDING	AND	CEMENTING
----	--------	----	---------	-----	-----------

Depth (feet)	Hole (diameter)	Mud Used (# of sacks)	Cement (cubic feet)	Method of Placement	
0 - 40	17-1/2		35	TRIMMIE	
0 - 1,440	12-1/4		574	POSITIVE	
1,380-2,020	7-7/8		275	TRIMMIE	
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page 2 of 4

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8. LOG OF HOLE. For Each Water Bearing Strata, Estimate The Yield Of The Formation In Gallons Per

Dept	h		T. W.A. 5		
(feet From	To	Thickness (Feet)	For Water Bearing Strata Enter The Estimated Yield in GPM	Color and Type of Material Encountered	ed
			SEE ATTACHED	GEOLOGIC LOG	
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				0,7	7
nter M	ethod (Jsed To Estin	nate Yield: <u>~//A</u>	<u> </u>	 -
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CP-975 Geole	ogic log
0-6 ft 👍	pad fill and fine brown sand
6-10 ft 4	white sandy limestone (Mescalero caliche)
	sand, light brown, and brown calcareous sandstone (Gatuña Formation)
	interbedded sandstone, siltstone, and claystone; reddish-brown to gray; bioturbated (Cooper Canyon Formation)
انگا 576-708 ft	sandstone and siltstone, gray to reddish brown (Trujillo Formation)
	interbedded very fine sandstone and siltstone, gray to dark reddish brown (Tecovas Formation)
1092-1384 ft	202 gray, fine sandstone with interbedded reddish brown and weak red siltstone and claystone (Santa Rosa Formation)
1384-1566 ft	reddish brown, very fine sandstone and siltstone, with some fibrous gypsum in lower part (Dewey Lake Formation)
	gray anhydrite beds, with intermediate reddish-brown and gray siltstone (Forty-niner Member of the Rustler Formation)
	gray anhydrite and wavy thin laminae of dolomite (Magenta Dolomite Member of the Rustler Formation)
	gray anhydrite beds, with intermediate halite including anhydrite and polyhalite (Tamarisk Member of the Rustler Formation)
1736-1807 ft	halite with thin two thin anhydrite beds and basal reddish-brown, very fine sandstone (Los Medaños Member of the Rustler Formation)
1807-2020 ft	halite with anhydrite/polyhalitic marker beds (MB103 and uppermost MB109) (Salado Formation)
	MD103) (Salado Folliadoli)
:	
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9. ADDITIONAL STATEME	ENTS OR EXPLANATIONS:	
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and correct record of the above	es that, to the best of his or her knowledge and be described bore hole. The undersigned further ce ffice Of The State Engineer and permit holder wit	rtifies that he or she will
Sonny level	05-12-08	
Driller /	(mm/dd/year)	
<u> </u>	Do Not Write Below This Line	
Trn Number:	Rila N	Number:
Form wr-20 May 07	page 4 of 4	

File Mumber:

Fr OS Culy

NEW MEXICO OFFICE OF THE STATE ENGINEER APPLICATION FOR PERMIT TO DRILL AN EXPLORATORY WELL

2-24474

1. APPLICANT:		800 700 2762
Name : Waste Control Specialists LLC	Work Phone: Ecme Phone:	505-304-4300
Contact: Mike Burney Address: 9998 W. Highway 176	. sche rome.	303-334-4000
	•	
City: Andrews	State: TX Zi	p: 79714
2. LOCATION OF WELL (A, B, C, or D required, E or F if known):		
A. NE 1/4 NW 1/4 NW 1/4 Section: 33 Township in Lea	o: <u>2/5</u> Range:	38E N.M.P.M. County.
B. X = feet, Y = fe Zone in the	et, N.M. Coor	dinate System Grant.
C. Latitude: 32 _d 26 _m 30.145 _s Longitude:	103 - 04	m 10.962 s
D. East (m), North (m), UTM		
E. Tract No, Map No of the	Hydrog	raphic Survey
F. Lot No, Block No of Unit/Tract Subdivision recorded in		of the County.
G. Other:		
H. Give State Engineer File Number of existing wel	11:	
I. On land owned by (required): Waste Control Specialists	LLC	050 555 555
3. WELL INFORMATION:		
Approximate depth $\frac{75}{1}$ [eet; Outside diameter of Name of well driller and driller license number \underline{J}	casing <u>2</u> incose Salas#1575	hes.
4. ADDITIONAL STATEMENT OR EXPLANATIONS:		53
This piezometer (TP- 63) is being installed to determine the presence or abs Ogallala/Antlers/Gatuna formations on top of the Triassic Dockum group "reactivities by Waste Control Specialists LLC. No pumping or use of groundwinstalled solely to monitor groundwater levels if any.	d bed clays" in suppo	ort of licensing
RENAMED "PZ-41"		
ne - · · · · · · · · · · · · ·		23 25 E
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[P.972	- North	1950×11
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Page 1 21 2		O KE

NEW MEXICO OFFICE OF THE STATE ENGINEER APPLICATION FOR PERMIT TO DRILL AN EXPLORATORY WELL

ACKNOWLEDGEMENT

ir, Wey Mike Burney		affirm that the
foregoing statements as	(Please Frint) re true to the best of my knowled	ge and belief.
Applicant Signatu	Applicant Si	gneture
	ACTION OF STATE ENGINEER	
exercised to the detrin	provedXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	g rights, and is not on detrimental to the original detrimental detrimenta
see at	tached conditions of approval	→ 33 → 33 - 34
Witness my hand and sea	al this 2nl_day of Janua	ary , 20 08
John R. D'Artonio, Jr., By: Wash W. Kenneth M. Fresquez, Ac	. Fresquez	2001 DEC 31 - A 9: 58
ile Number: <u>CP-97</u> Form: wr-07	Do Not Write Below This Line Trn Num page 2 of 2	ber: <u>395941</u>

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File	Number	:			
		(For	OSE	Use	Only)

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

Name: Waste Control Specialists Contact: Mike Burney Address: 4998 W. Highway 176	Work Phone: Home Phone:	888 - 189 - 2783 505 - 394 - 4300
City: Andrews		o: <u>797(4</u>
2. LOCATION OF WELL (A, B, C, or D required, E or F if known)		
A. NE 1/4 NW 1/4 NW 1/4 Section: 33 Township	: <u>215</u> Range:	38 £ N.M.P.M. County.
B. X = feet, Y =	et, N.M. Coore	dinate System Grant.
C. Latitude: 32 d 26 m 29 s Longitude:	103 d 04	m <u>13</u> s
D. East (m), North (m), UTM	Zone 13, NAD	(27 or 83)
E. Tract No, Map No of the	Hydrog	raphic Sur ve y
F. Lot No, Block No of Unit/Tract Subdivision recorded in		of thes Egunty X
G. Other:		
H. Give State Engineer File Number if existing wel	1: <u>CP-9</u>	7Z 😋 🚆
I. On land owned by (required):	Specialis	الله ج ريا الله ج ريا
3. DRILLING CONTRACTOR		
3. DRILLING CONTRACTOR License Number: 1575 Name: Talon Drilling, L.P. Agent: Shane Currie Mailing Address: 921 Al. Bivins	Work Phone: Home Phone:	= 55 - 57 - 50 - 60 - 60
License Number: 1575 Name: Talan Drilling, L.P. Agent: Share Currie	Home Phone:	806-467-8607 806-676-8220
License Number: 1575 Name: Talan Drilling, L.P. Agent: Shave Currie Mailing Address: 921 A, Bivins	Home Phone:	806-467-8607 806-676-8220
License Number: 1575 Name: Talon Drilling, L.P. Agent: Shane Currie Mailing Address: 921 Al. Bivins City: Amavilla	State: TX 2i Type tools: ft.; sian);	806-467-8607 806-676-8220
License Number: 1575 Name: Talan Drilling, L.P. Agent: Shawe Curric Mailing Address: 921 At. Bivins City: Amavilla 4. DRILLING RECORD Drilling began: 1/21/08; Completed: 2/9/08; Size of hole: 5-5/6 in.; Total depth of well: 49 Completed well is: Manitor (shallow, arte	Home Phone: State: TX 2i Type tools: ft.; sian); ft.	806-467-8607 806-676-8220
License Number: 1575 Name: Talan Drilling, L.P. Agent: Shave Currie 921 Al. Bivins City: Amavilla 4. DRILLING RECORD Drilling began: 1/21/08; Completed: 2/9/08; Size of hole: 5-96 in.; Total depth of well: 49 Completed well is: Manitar (shallow, arte Depth to water upon completion of well: Dry Do Not Write Below This Li	Type tools: ft.; sian): ft. ne Number:	806-467-8607 806-676-8220 D: 79107 Air Rolary Rig

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	Depth in From To	o ————————————————————————————————————	hickness in feet	water	iption o -bearing	format:	ion 				
		-		<u>:.</u>							
											
6. I	RECORD OF	CASING									
	(inches)	per ft. <u>Xn 4</u> 0 7V(Threads per in.	Top 0 37	Bottom 37	(feet) 37 12	PVC e	A ND Cap	From N/A	То	
											_
7. J	RECORD OF	MUDDING	S AND CEM	ENTING							
	Depth in	Feet	Hole		Cubic		Method	d of Pla	cement		
	From To		ameter ラ・カ/セ		of Ce		trem	nie b	instre	te/co	evucu
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8. I	PLUGGING	RECORD									
	Plugging	Contract	or:	_	·						
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9. LOG OF HOLE

Depth i From 0 2 30 45	7 To Z To 30 To 45 To 44	Thickness in feet 2 5 5 15 5	Color and Type of Material Encountered Silly Sand, tan Caliche Hard, tan Caliche, Moderate hard, tan Silly Sand, tan Clay, cradish		
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ne undersigned hereby certifies that, telief, the foregoing is a true and corr	o the best of hect record of t	is knowledge ar he above descri	nd i bed
ne undersigned hereby certifies that, to elief, the foregoing is a true and corrole. Driller	o the best of hect record of to a condition of the condit	he above descri	ibed
elief, the foregoing is a true and corrole. Driller	OZZZLZC (mm/dd/year)	he above descri	ibed
FOR STATE ENGINEE	OZZZLZS (mm/dd/year)	he above descri	ibed
elief, the foregoing is a true and corrole. Driller	OZZZLZS (mm/dd/year)	he above descri	ibed
FOR STATE ENGINEE.	azzzzzz (mm/dd/year) R USE ONLY Location No.	he above descri	ibed
FOR STATE ENGINEE. Do Not Write Bell Number: (19-972)	azzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzz	he above descri	ibed



STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER ROSWELL

John R. D'Antonio, Jr., P.E. State Engineer

1900 WEST SECOND STREET ROSWELL, NM 88201

Phone: (575) 622-6521 Fax: (575) 623-8559

January 3, 2008

Waste Control Specialists LLC % Mike Burney 9998 W. Hwy 176 Andrews, TX 79714

RE: CP-971; CP-972; CP-973: CP-974

Greetings:

Enclosed is your copy of the Exploratory / Monitoring Permits, which have been approved subject to the conditions set forth on the approval page thereof.

In accordance with Condition C, a well record shall be filed in this office twenty days after completion of drilling. The well record is proof of completion of well. IT IS YOUR RESPONSIBILITY TO ASSURE THAT THE WELL LOGS BE FILED WITHIN 20 DAYS OF DRILLING OF THE WELLS.

These permits will expire on or before 01/31/09 unless the wells have been drilled and the well logs filed in this office.

Sincerely,

Andy Morley

(575) 622-6521, ext 113

Enclosure

cc: Santa Fe Office

Zee FFR 29 A H 31

NEW MEXICO STATE ENGINEER PERMIT TO EXPLORE / MONITOR

SPECIFIC CONDITIONS OF APPROVAL

- 4 No water shall be appropriated and beneficially used under this permit.
- B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 New Mexico Statutes Annotated.
- C Driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon request.
- C2 No water shall be diverted from this well except for testing purposes which shall not exceed ten (10) cumulative days, and well shall be plugged or capped on or before 01/31/09, unless a permit to use water from this well is acquired from the Office of the State Engineer.

The well shall be constructed, maintained and operated that each water shall be confined to the aquifer in which it is encountered.

12/31/07

LOG The Point of Diversion CP-972 Monitor Well must be completed and the Well Log filed on or before 01/31/09.

ACTION OF STATE ENGINEER

Notice of Intention Rcvd:

Date Royd. Corrected:

Formal Application Rcvd:

Pub. Of Notice Ordered:

Date Returned - Correction:

Affidavit of Pub. Filed:

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

Witness my hand and seal this Inday of January, 2008.

John R. D'Antopia, Jr., P.E., State Engineer

Kenneth M. Fresquez, Acting District II Supervisor

File Nbr: CP-972 Monitor Well

	W	 `	WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUB, CHICAGO IL, 60604		LO	G OF S	OIL BO	RING N	O. <u>B-10</u>	1
Į		\mathbf{C}	(312) 922-1030 * * INDIANA (219) 923-9609		FILE	# 9504	2,10		SHEET 1	OF 1
			ER LEVEL DATA Not Encountered Started 11/22/97 Completed 11/22/97	_ "	LOCA:	TION Prope	sed Lea Co	<u>ınty Landfil</u>	1	
	NB NE	-	W.D. Driller Allan Eades	_		Funic	e. New Mex			
Ī	NE	_ FT. _ FT.	Helper	- (CLIEN		no Real Lan			
1		_ FT.	Diffing Mettion	_			nd Park, No			
Ì	<u>ত</u>	GR		ompleti epth: 5			SAM	PLB DATA		آي آ
ĺ	Depth (FT.,bgs)			f	- í					Depth (FT.,bgs)
١	E	Lithology Type	STRATA DEPTH SOIL DESCRIPTION].	Sure Depth (FT.,bgs)	Catcareous	Moisture	Munseli	Noies	Ē
١	Cept	3	GRAPHIC LOG		3E					
١			Dark reddish-brown, fine SAND, some roots, no organics	}						Į <u> </u>
			Reddish-brown, sandy LOAM to poorly cemented loamy SAND,		2.0	No	Dry	7.5YR 5/6		F -
	- 5.0 -		blocky, friable		6.0	No	Dry	7.5YR 6/6		5.0
		臺	Pinkish-white, sandy CALICHE, moderately weak structure, friab nodules of caliche	ole						E . 3
	- 10.0 -	宣	 		12.0	Moderate	D=:	2.5YR 8/2		10.0
	- 15.0 -		Reddish-brown, loamy fine SAND with moist friable sandy nodule very few calcareous nodules	es,		Middel are	Dry	A.JIK OL		15.0
			set) ten enertena mantes	- (E 3
Ì	- 20.0 -	:::			21.0	ı.		l 1		20.0
1			Light red to pink, calcareous pebbly SAND, pebbles are dominant	uly						E =
	- 25.0 -		Light red to pink, calcareous pebbly SAND, pebbles are dominant quartzite, some rose color banded gniess, little chert, angular. Pebbles increase with depth			Moderate	Dry	2.5YR 7/6		25.0
	- 30,0 -									30.0
	- 0.02			1		Moderate	Dry	5YR 7/4		F 30.0
. - .	- 35.0 -	75	Pink, sandy, pebbly fine GRAVEL, dominantly quartite, well gri	aded,	34.0 36.0	110001014				35.0
	•), angular	{	30.0	Slight	Dry	2.5YR 7/3		F =
	- 40.0		Reddish-brown MUDSTONE/CLAYSTONE, sandy, dry, blocky cuttings, some chert pebbles and calcareous clasts, poorly indu	urated		ı				40.0
				(Stight	Barely Damp	2.5YR 4/6		Ē=
	- 45.0 -			1	ļ			1		45.0
	- 50.0 -		·		50.0					50.0
			BORING TERMINATED AT 50.0'				}	ļ	1	
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	NOTE	S:_	. Dry monitoring well installed in borchole.	LEGEN	<u> 10</u>					. 1
				7 W.D	WHI	LE DRILLING	🛂 A.D AFTE	R DRILLING	♥ hour(s) after dr	ILLING

	W	3	WEAVER BOO 200 S. MICHIGAN AV	ENUE, CHICAGO II	L, 60604	C.				RING NO		
ł	: <u>:</u> :.y	VAT)	(312) 922-1030 • • IND ER LEVEL DATA = Not Biscountered	Started Started	11/20/97		FILE			unty Landfill	, SHEET	1011
			W.D.	Completed	11/20/97		DOOR		7500 200 00			
_	NE	_ FT.	AT COMPLETION	Driller . Helper .	Allan Eade: Freddy			Eunic	e, New Mex	deo		
1		-	AT HR. A.D.	Drilling Method	Air Rotary		CLIEN		no Real Lar			{
	_		AT HR. A.D.	Sampling Method	Drill Cutting	Compl	otlora	Sunta	nd Park, No		: :=	 -
1	(58)	GRO	OUND ELEVATION: 3,392	2.63 (Ft., MSL) Eas	ting: 7193.22	Depth:			SAM	PLE DATA		_ 📆
	Depth (FT.,bgs)	Lithology Type	SOIL	RATA DEPTH DESCRIPTION APHIC LOG			Strata Depth (FTbgs)	Calcarcous	Moisture	Munsell	Notes	Depth (FT., bgs)
			Brown, fine to medium S		grains, granular sti	nichire,		No	Dry	7.5YR 4/6		F
ļ	- 5.0 -		some roots, no organi	ics			}	Minor	Dry	7.5YR 5/6		5.0
ł							7.0					<u> </u>
	- 10.0		Brownish-white calcarcor nodules, not as floury and thert when wetter	us fine SAND, some as other caliche, gr d	e calcareous come ritty, abundant coa	nt sand Irse sand		Yes	Dry	7.5YR 7/3		10.0
1	- 15.0 -				<u> </u>		16.0					15.0
1	20.0		Pinkish-white sandy CAI	LICHE, many pebbl lable)	les of hard angular	cherty		Yes	Dry	7.5YR 7/3		20.0
-			Pink, fine to medium SA and comented sandsto	ND, calcareous ver	y snuall nodules of	caliche	21.0	Yes	Dry	2.5YR 7/3		
	- 25.0 ₋ -						26.0		[[25.0
	- 30.0		White sandy CALICHE chert clasts. Clasts an and black, some quar	e angular, coarse gr	d matrix and abund avel size, brown,	dant white		Yes	Dry	2.5YR 8/2		30.0
	35.0		Rose and white PEBBLE augular quartzite. W	S, with very little si hite pebbles are hard	and, dominantly had limestone with q	nrd, ver uartzite	33.0	Yes	Barely Danip	2.5YR 6/4		35.0
	- 40.0 -		Reddish-brown MUDST sandy, micaceous cla	ONE/CLAYSTONE sts infrequently, poo	3, sticky, occasion orly indurated	ally						40.0
	,		-		:			Yes	Barely Damp	2.5YR 4/4		
	- 45.0 -							ļ I	Samp			- 45.0
	50.0 -		BORING TERMINATE	D AT 50.0'			50.0	Yes	Barely Damp	2.5YR 4/6		50.0
				. ,								
į]				
		-					}	<u> </u>	}	[
		ł					1		}			
	-											
	NOTE	L <u>S:</u> _	l. Dry monitoring well inst	alled in borehole.		LEG	<u>i</u> End	<u></u>	<u>.</u>	<u> </u>	<u></u>	
			2. Drilling Company: Eader		Service.	₽w	.D WID	LE DRILLING	¥ A.D AFTE	R DRILLING Y	' itour(s) after i	RILLING
						1						
)					1			-		•	
	7											

	W	3	WEAVER BOO	ENUE, CHICAGO IL,	60604	;,				RING NO		
	NE		(312) 922-1030 * * INE ER LEVEL DATA = Not Encountered W.D.	Started Completed	11/21/97 11/21/97		FILE LOCA			unty Landfill	SHEET	1 OF 1
	NE NE		AT COMPLETION	Driller	Allan Eades Freddy			Eunic	e, New Mex	deo		
١		_ FT.	AT HR. A.D.	Drilling Method	Air Rotary		CLIEN		no Real Lar	· · · · · · · · · · · · · · · · · · ·	·	
- (_ FT.	AT HR. A.D.	Sampling Method	Drill Cuttings	Complet	lion	<u>Sunta</u>	nd Park, N	ew Mexico		
l	(\$8)	GR	DUND ELEVATION: 3,402	.54 (Ft., MSL) Rost		Depth: 5			SAM	IPLB DATA		_ 8
	Depth (FT.,bgs)	Lithalogy Type	STI SOIL I GR	RATA DEPTH DESCRIPTION APHIC LOG		ţ	Strate Depth (FT.,bgs)	Calcareous	Moisture	Munsell	Nates	Depth (FT.,bgs)
	- 5.0 -		Reddish-brown, sandy L blocky, friable		<u>.</u>		6.0	No No	Dry Barely Damp	7.5YR 4/6 7.5YR 5/6		5.0
	- 10.0 -		Pinkish-white, sandy CA nodules of caliche	LICHE, moderately	weak structure, fri	izble	14.0	Yes	Dry	7.5YR 8/4		10.0
	- 15.0 - - - 20.0 -		Reddish-brown, loamy fi very few calcareous n	ne SAND with moist odules	friable sandy nod	lules,		Yes	Dry	7.5YR 7/3		- 15.0 - - - 20.0
	- 25.0 - - 30.0 -		Light red to pink, calcare quantzite, some rose of Pebbles increase with	cous pebbly SAND,	pebbles are domina little chem, angular	antly r.	26.0	Yes	Dry	7.5YR 8/2		25.0 - - 30.0
	` : : : : : : : : : : : : : : : : : : :	- ****		· · · · · · · · · · · · · · · · · · ·	d dominantly has		33.0	Yes		2 570 77		=
	35.0 - - 40.0 -		Rose and white PEBBLE angular quartzite. Wingrains Reddish-brown MUDST sandy, micaceous class		-	- 1	36.0	Yes	Dry Barely Damp	2.5YR 7/3 2.5YR 4/4		- 35.0 - - 40.0
	- 45.0							Slight	Barely Damp	2.5YR 4/4		- 45.0
	- 50.0 - - 55.0						55.0	No	Barcly	2.5YR 4/6		50.0 - 55.0
	33.0		BORING TERMINATE	D AT 55.0'			55,0		Да тр			33.0
	-											
ļ		٠.	l		ī	<u>-</u>	l	<u> </u>	<u> </u>	<u> </u>		<u></u>
	NOTE		Boring grouted after com- and 5% bentonite. Drilling Company: Eader			본 W.I		LE DRILLING	: ¥ A.D APTE	R DRILLING V	HOUR(S) AFTER E	RILLING

											<u>U</u>
W		WEAVER BOO			Ē. │	LO	G OF S	OIL BO	RING N	NO. B-10	04
Į	³ Ć	200 S. MICHIGAN AV (312) 922-1030 * * INE				FILE				SHEET 1	
	WĂŢſ	ER LEVEL DATA = Not Encountered	Started	11/21/97	-		TION Prope		unty Landfi		
_		. W.D.	Completed	11/21/97	\						
NE NE	_ _ FT.	AT COMPLETION	Driller .	Allan Bades Freddy	§		Eunic	e, New Mex	ico		
]	_ FT	AT HR. A.D.	Helper Drilling Method	Air Rotary		CLIEN	T <u>Cami</u>	no Real Lan	dfill	·	
l	_ FT	AT HR. A.D.	Sampling Method	Drill Cutting	عــــع	· 	Sunla	nd Pork, N	ew Mexico		
ত্ত	GR	DUND ELEVATION: 3,404		rthing: 8518.93 sting: 9678.16	Comple Depth:			SAM	PLE DATA		ઉ
Depth (FT.,bgs)	<u> </u>			starg. 7010-10	- Берии		·				Depth (FT.,bgs)
E	Lithology	STI	RATA DEPTH			Strata Depth (FT.,bgs)]			E
선	ithologia Sector	SOIL	DESCRIPTION APHIC LOG			15 F	Calcareous	Moisture	Munsell	Notes	Į,
ļĂ		GR	AFRIC LOG			18 C					Ã
		Dark reddish-brown, fine	SAND, some root	s, no organics			-				-
[Reddish-brown, sandy Lo			D.	3.0	Silght	Barely Damp	7.5YR 5/4		
F 5.0	⊨	blocky, friable		<u></u>		6.0	Slight	Dry	7.5YR 6/4		5.0
[晝	Pinkish-white, sandy CA nodules of caliche	LICHE, moderately	weak structure, fi	riable]	N4-4	.	2 6 70 0 44		Ę :
10.0	擡	····					Moderate	Dry	2.5YR 8/4		- 10.0
	厚					\				1	
15.0	揰										15.0
[膏								ŀ		E :
20.0	E					21.0	,				20.0
	뫁	Light red to pink, calcan quarizite, some rose o	cous pebbly SAND,	pebble are domin	andy			_		ŀ	F :
25.0		Pebbles increase with	depth	, little chem, angul	ar.		Moderate	Dry	2.5YR 8/2]	25.0
Ę		-									E :
30.0	a	<u>.</u>			-	1				ł .	30.0
– Ľ	匡			•							E :
. 35.0 (ب	士	· .						,			35.0
· [·	<u> </u>						•		Ĭ		E :
40.0	40	Very light brown medium	n GRAVEL with ca	leareous sand mati	rix.	40.0					40.0
	Ē	gravel is brown when the chert, some quartzite	wei, very cherty, a	ingular, white and	prown	44.0	Moderate	Dry	2.5YR 8/2		Ε
F 45.0		White to light brown peb	bly coarse GRAVE	L with some fine		46.0					45.0
·		calcareous sand matri also gniess and quart	zile				Moderate	Des	2.5YR 7/4		F
50.0		Reddish-brown MUDST indurated, cuttings are	ONE/CLAYSTONI c blocky, some che	E, sandy, dry, poor rt peobles and whit	rly 10		Moderate	Dry			E 50.0
.[calcareous clasts					Moderate	Dry	2.5YR 4/6		Ę
55.0			·	-			į			Pitcher Bell Sample	55.0
							Slight	Barely Damp	2.5YR 5/6 2.5YR 4/4	Pitcher Bell Sample obtained at 60.0'	F
60,0		BORING TERMINATE	D AT 60.0'			60.0	Slight	Barely Damp	2.31K 4/4	,	- 60.0
1							<u> </u>]			
							}				
1							1				
						İ					
		1							1 .	1.	
NOTE	S	1. Boring grouted after com	miletion with 95% no	rtland cement	LEG	END				· 	
"""		and 5% bentonite. 2. Drilling Company: Bades	•				LE DRILLING	Z A.D APTE	R DRILLING	▼ HOUR(S) AFTER DE	RILLING
			with and faith	ww.74 0 01	"			, 11			
									•		
					1						

W	\mathbb{C}	WEAVER BOO 200 S. MICHIGAN AV (312) 922-1030 * * IND	ENUE, CHICAGO IL	, 60604	2.	LO			RING NO). <u>B-1</u> sheet	
NE		ER LEVEL DATA Not Encountered W.D. AT COMPLETION	Started	11/19/97 11/19/97 Allan Eades Freddy		LOCA		e. New Mex	unty Landfill		
_ 	_ Fr	AT HR. A.D.	Drilling Method	Air Rotary		CLIEN		no Real Lar		<u> </u>	
	FT.	AT HR. A,D.	Sampling Method	Drill Cuttings thing: 6609.23	Comple		Sunla	nd Park, N	ew Mexico		
83	GR	OUND ELEVATION: 3,388	.07 (Ft., MSL) Basi	ling: 7335.60	Depth:			SAN	IPLE DATA		(\$8)
Depth (FT.,bgs)	Linology	STI SOIL I GR	RATA DEPTH DESCRIPTION APHIC LOG			Strata Depth (FT.,bgs)	Calcarcous	Moisture	Munsell	Notes	Depth (FT.,bgs)
5.0		Grayish-brown loamy fin calcareous nodules in staining, friable cemen	creasing with denth	small mots, no iro	on ands)		Yes	Dry	7.5YR 8/2		5.0
10.0		Pink fine to medium cate that are friable, no oil	areous SAND, with	few calcareous no	dules	14.0					10.0
- 20.0 - 25.0							Yes	Dry	7.5YR 7/4		20.0
30.0		Pink calcareous fine SAI no chert or other class (CAPROCK?)	ID to very fractured is. Caliche is very b	sandy CALICHE nard, not friable	, few to	28.0					30.0
40.0		White sandy CALICHE chert clasts. Clasts an and black, some quar Rose and white PEBBLE angular quartzite. We grains.	e angular, coarse gra tzite S, with very little sa	avel size, brown, s	white ard very	38.0	Yes	Dry	7.5YR 7/2		40.0
45.0	3333	Reddish-brown sandy LO)AM with pebbles o	f calcareous cemer	nted	44.0		,			45,0
50.0		sandstone (friable). Reddish-brown MUDST cuttings, some calcare	ONE/CLAYSTONE tous stains, poor ind	, saudy, dry, bloc lurated/friable.	ky :	47.0	Yes Yes	Dry Dry	2.5YR 6/4 2.5YR 6/4		50.0
		·	٠.								
			<u> </u>							·	
NOTE		Boring grouted after com and 5% bentonite. Drilling Company: Bades	•		용 w reg		ile drilling	₹ a.d afte	er drilling .V	HOUR(S) AFTER D	RILLING
		,									

	NE NB	PT.		FILE LOCA CLIEN	TION Property Europe Transfer Caming	2.10 osed Lea Conce, New Mexino Real Lan and Park, No	dfill). <u>B-1</u> SHEET	1 OF 1
	Depth (FT.,bgs)	Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Strate Depth (FT.,bgs)	Celcareous	Moisture	Munsell	Notes	Depth (FT.,bgs)
	- 5.0		Grayish-brown loamy fine SAND, granular, no organics, few calcareous nodules increasing with depth, small roots, no iron staining, friable cemented sandstone nodules (Windblown Sands)		No	Dry	7.5YR 5/6		5.0
	- 15.0 -		Pink fine to medium calcareous SAND, with few calcareous nodules that are friable, no other large clasts	11.0	Moderate	Dry	2.5YR 8/3		15.0
	- 20.0 - 25.0 -		Pink calcareous fine SAND to very fractured sandy CALICHE, few no chert or other clasts. Caliche is very hard, not friable (CAPROCK?)	to	Moderate	Dry	2.5YR 7/6		25.0
C	- 30.0 -) 35.0 - - 40.0 -		White sandy CALICHE with calcareous sand matrix and abundant chert clasts. Clasts are angular, coarse gravel size, brown, white and black, some quartizte	33.0	Moderate	Dry	2.5YR 8/3		30.0
	- 45.0 - - 50.0 -					:			45.0
	- 55,0 ~ - 60.0 -		· .		Moderate	Dry	2.5YR 7/3	·	55.0
	- 65.0		Rose and white PEBBLES, with very little sand, dominantly hard very little sand, dominantly li	63.0 66.0 66.3	Slight	Dry	2.5YR 5/6		65.0
	NOTES	<u> </u> <u>s:</u>	and 5% bentonite.	GEND W.D WH	ile drilling	¥ a.d afte	R DRILLING .	HOUR(S) AFTER D	RILLING

	W		WEAVER BOO 200 S. MICHIGAN AV (312) 922-1030 • • IND	TINUE, CHICAGO IL	, 60604	C.	LO			RING N	O. B-1	
			ER LEVEL DATA Not Encountered W.D.	Started	11 <i>1</i> 22/97 11 <i>1</i> 22/97					unty Landfill		
ب		_ FT.		Driller Helper	Allan Eadc Freddy	<u> </u>		Runie	ce, New Me	cico		
-		_ FT.	AT HR. A.D.		Air Rolary		CLIE	₹T <u>Cam</u> i	ino Real Lar	ıdfill	· ··	
_		_ PT.	AT HR. A.D.	, ,	Drill Cutting			Sunt	nd Park, N	ew Mexico		
	(58	GRO	OUND ELEVATION: 3,405		hing: 4016.88 ing: 9228.40		eletion 1: 92.0		SAN	APLE DATA		(88)
	Ę.		crot	DATE DEPTH		_	9	1			: •	
- [F.	Lithology Type	SOIL	RATA DEPTH DESCRIPTION			D Q	Calcareous	Moisture	Munsell	Notes	F
	Depth (FT.,bgs)		GR	APHIC LOG			Sazu Depth (FT.,bgs)					Depth (FTbgs)
ŀ			Reddish-brown, loamy fi	ine SAND to sandy L ading to light brown	OAM, blocky, f loamy SAND	riable,		No	Dry	7.5YR 6/6		
ŀ	5.0 -		Reddish-brown, sandy L	OAM to poorly ceme	nted Inamy SAN	D.	6.0	1	l.			5.0
Ę.			blocky, friable		-		8.0	No Moderate	Dry Dry	7.5YR 5/6 2.5YR 8/3		= = =
Ę	10.0 -		Pink, sandy CALICHE, caliche and poorly co	mented sand, fewer	nodules with dept	th.		tuonet are	1 213	2.116.61		- 10.0
Ė	15.0 -		·				13.0	Moderate	Dry	2.5YR 5/6	-	15.0
-	13.0		Pink, fine to medium SA	ND calcarrous vers	emall nadules a	f calich						E 13.0
Ę	20.0		and cemented sandsto	one	Single Hoddies o	i cultifi						20.0
Ė	25.0 -									1		25.0
Ė												E
-	30.0 -							!				30.0
_[31.0				•	F :
	35.0 -		Light red to pink, calcare	eous pebbly SAND,	pebbles are domi	inantly		Moderate	Dry	2.5YR 6/4		35.0
	• .	Ш	Light red to pink, calcare quartzile, some roase Pebbles increase with	color banded gniess. depth	, little chert, angi	ular.		<u>'</u>				Ę.
ŀ	40.0 .											E 40.0
Ė]		E :
F	45.0 -][[i				45.0
												E
ŀ	- 50.0 -									1		⊢ 50.0
F		蒀										E
F	• 55.0 -	Ë		• • •								55.0
f												E
Ī	60.0 -		,				1					- 60.0
Ė	65.0 -	国										- - 65.0
F	0.0									1		F 03.0
Ē	70.0 -	壹								1		70.0
ŀ		丰										F
F	75.0 -		Piels and CALIOVE	idali anno de all'in	_		75.0				•	F 75.0
ŀ			Pink, sandy CALICHE (Continued)	with captock chips				Moderate	Dry	2.5YR 8/3		E
ŀ				<u> </u>		γ		<u>.</u>				
	NOTE	_ ,	 Boring grouted after com- and 5% bentonite. 	-		1	GEND		.		173	
		1	2. Drilling Company: Bades	s Dritting and Pump S	ervice.	\$ 4	₩.D ₩II	LE DRILLING	≛ A.D AF∏	er drilling	V HOUR(S) AFTER I	MILLING
					•							
رب	1											

							<u>J</u>	<u> </u>
W	3	WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUE, CHICAGO IL, 60604				RING NO		
	C	(312) 922-1030 * * INDIANA (219) 923-9609	FILE	# <u>9504</u>		IPLE DATA	SHEET 2	
Depth (FT., bgs)	Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Stratz Depth (FT., bgs)	Calcareous	Moisture	Munseil	Notes	Depth (FT., bgs)
	=	(Continued from page 1) Pink, sandy CALICHE with caprock chips						<u> </u>
- 85.0 - - 90.0 -		Reddish-brown, sandy MUDSTONE/CLAYSTONE, dry, poorly indurated, some small enleareous cemented sandstone nodules, little to no mica	83.0	Moderate Slight Slight	Dry Barely Damp Barely	2.5YR 5/6 2.5YR 7/3 2.5YR 5/3		- 85.0 - 90.0
		BORING TERMINATED AT 92.0'	92.0	No	Damp Barely Damp	2.5YR 5/2		F
]					
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:								
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-		i Si			:			
				<u>.</u>	 			
		··						
			,					

NOTES: 1. Boring grouted after completion with 95% portland cement and 5% bentonite.
2. Drilling Company: Eades Drilling and Pump Service.

 $[\]ensuremath{\Psi}$ w.d. - withe drilling $\ensuremath{\Psi}$ a.d. - after drilling $\ensuremath{\nabla}$ hour(s) after drilling

	W)	WEAVER BOOS CONSULTANTS, INC.	LO	G OF S	OIL BO	RING I	NO. B-10	08
		C	200 S, MICHIGAN AVENUB, CHICAGO IL, 60604 (312) 922-1030 * * INDIANA (219) 923-9609	FILE		2.10		SHEET 1	
İ		VĂT. NE	ER LEYEL DATA = Not Encountered Started 11/20/97		ATION Prop	osed Lea Co	unty Landli	il	
_			W.D. Completed 11/20/97						
	NE	_ FT.	AT COMPLETION Driller Alian Hades Helper Freddy		-	ce, New Mex			
		_	AT HR. A.D. Drilling Method Air Rolary	CLIE		ino Real Lan]
			AT HR. A.D. Sampling Method Drill Cuttings VIND PLEVATION 1 2015 (Fr. ASEX) Northing: 9696.33 Comp.	lation	<u>Sunla</u>	and Park, No	w Mexico		,
ľ	(s2)	GRO		: 215.0		SAM	IPLE DATA	,	୍ଥି ଅଧି
	Depth (FT.,bgs)	22	STRATA DEPTH	ą "					Depth (FT.,bgs)
	ਦ ਦ	Lithology Type	SOIL DESCRIPTION	Qq	Calcaregus	Moisture	Munseli	Notes	F
	Deg.	ji.	GRAPHIC LOG	Strate Depth (FT.,bgs)			ļ		E
ŀ			Brown, fine to medium SAND with caliche grains, granular structure,		 	-			
	•		some roots, no organics		Yes	Dry	7.5YR 6/3		F =
	- 5.0 -		Brownlsh-white calcareous fine SAND, some calcareous cement sand nodules, not as floury as other caliche, gritty, abundant coarse san	4.0					5.0
			and chert when wetted	٩			1		
	- 10,0 -			ľ	Strong	Dry	7.5YR 8/2		[0.0]
- {								ŀ	<u> </u>
	- 15.0 -			17.0	l l				15.0
			Pinkish-white sandy CALICHE, many pebbles of hard angular cherty fine sandstone (not friable)	****					Ē
	- 20.0 -	킅	,		Strong	Dry	2.5YR 8/2		20.0
	- 25.0 -			24.0					1
ı	23.0	111	Pink, very fine SAND, calcareous with occasional pebbles of granite, chert		Mild] _D	2.5YR 7/4		25.0
	- 30.0 -				MING	Dry	2,51K //4		30.0
ı				33.0			ļ		F 30.0
	- 35.0 -	1. L	Dark brown sandy CLAYSTONE, weathered, blocky, very few calic clasts, dry, friable/poorly indurated		-				35.0
~			clasis, dry, irrable/poorty indufated	-	Mild	Dry	2.5YR 6/2		
	- 40.0 -								40.0
1		4 .			Mild	Dry	2.5YR 5/3		F 3
	- 45.0 -			46.0					45.0
			Reddish-brown MUDSTONE/CLAYSTONE, slicky, occasionally sandy, micaceous clasts infrequently, poorly indurated		3 411 4				E =
l	- 50.0 -		, , , , , , , , , , , , , , , , ,		Mild	Dry	2.5YR 5/2	ļ	50.0
ŀ			_						ļ
ŀ	- 55.0 -		·		Mena		2 570 572		55.0
	- 60,0 -				Mild Mild	Dry Dry	2.5YR 5/3 2.5YR 7/3		60.0~
								Pitcher Bell Sample obtained at 60.0	E
ŀ	- 65.0 -				Mild	Dry	2.5YR 4/3		65.0
ļ									
ŀ	- 70.0 -					1.			70.0
•									F =
j	75.0								75.0
ı			(Cantinued)						ļ <u>-</u>
ſ	NOTE		Rackfilled with cuttings to 120' accorded to surf on with 05	END		.l	i	<u> </u>	<u> </u>
		<u></u> .	with 95% portland cement and 5% bentonite.		ile drilling	XAD - Almer	מאו וזומו ב	♥ HOUR(S) AFTER DR	11 1 DJA
		•			- JULIULIŲ	W trees - Mr IE	· valleyid	MOUNTAL OF LEAR DE	IDDUNG
_							4		
	,								
- 1									

	W	3 _C	WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUE, CHICAGO IL, 60604 (312) 922-1030 * * INDIANA (219) 923-9609		G OF S		RING I		
	<u> </u>		(312) 922-1030 - INDIANA (219) 923-9809	FILE	S.# <u>9504</u>	12.10SAN	ATAC SIGN	SHEET?	
	Depth (FT., bgs)	Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Strata Depth (FT., bgs)	Calcaregus	Moisture	Munsell	Nates	Depth (FT., bgs)
:	- 85.0 -		(Continued from page 1) Reddish-brown MUDSTONE/CLAYSTONE, sticky, occasionally sandy, micaccous clasts infrequently, poorly indurated		Mild	Barely Damp	2.5YR 5/3		85.0
	90.0 - 95.0 - -100.0-				Mild	Barely Damp	2.5YR 5/3	Pitcher Bell Sample obtained at 100.0	90.0
	-115.0- -120.0-)125.0-				Mild	Bárely Damp	2.5YR 4/4		115.0-
	-135.0-				No	Barely Damp	2.5YR 5/6		135.0
	-145.0-		٠.		No	Barely Damp	2.5YR		145.0
	-150.0- -155.0-						`	Pitcher Bell Sample obtained at 150.0	150.0
	- 160.0- - 165.0-								-160.0 -163.0
	-170.0-	Ħ	(Continued)		No	Barely Damp	2.5YR 4/3	<u> </u>	170.0
	NOTE	<u>s.</u> 1	with 95% portland cement and 5% begronite	<u>egend</u> W.D Whi	ile drilling	🕏 a.d aptu	R DRILLING	♥ HOUR(S) AFTER DR	ILLING

STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG (Continued from page 2) Reddish-brown MUDSTONE/CLAYSTONE, slicky, occasionally sandy, micaccous clasts infrequently, poorly indurated 183.0 Light reddish-gray SILTSTONE, with green laminae, slick, less sandy, poorly indurated, dry Reddish-brown CLAYSTONE, dry, poorly indurated, no bedding or	WBC	WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUE, CHICAGO IL, 60604 (312) 922-1030 • • INDIANA (219) 923-9609	LO		OIL BO	RING I	NO. B-1	
STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG (Continued from page 2) Reddish-brown MUDSTONE/CLAYSTONE, slicky, occasionally sandy, micaccous clasts infrequently, poorly indurated 190.0 Light reddish-gray SILTSTONE, with green laminae, slick, less randy, poorly indurated, dry 191.0 Reddish-brown CLAYSTONE, with green laminae, slick, less randy, poorly indurated, dry 2.5YR 7 201.0 Reddish-brown CLAYSTONE, with green laminae, slick, less randy, poorly indurated, no bedding or laminae 25.5YR 7 BORING TERMINATED AT 215.0	ন্ত্ৰ	(312) 322-1030 - 1000 1010 1010 1010 1010 1010 10	T	, w		IPLE DATA	JILE	Pes)
Reddish-brown MUDSTONE/CLAYSTONB, slicky, occasionally sandy, micaeous clasts infrequently, poorly indurated 190.0 Light reddish-gray SILTSTONB, with green laminae, slick, less sandy, poorly indurated, dry 191.0 Reddish-brown CLAYSTONB, with green laminae, slick, less sandy, poorly indurated, dry 2.5YR 7 201.0 Reddish-brown CLAYSTONE, dry, poorly indurated, no bedding or laminae 201.0 Reddish-brown CLAYSTONE, dry, poorly indurated, no bedding or laminae 215.0 BORING TERMINATED AT 215.0' 215.0 Reddish-brown CLAYSTONE, dry, poorly indurated, no bedding or laminae 2.5YR 7 201.0 No Barely Damp 2.5YR 4	Depth (FT., bg	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Strata Depth (FT., bgs)	Calcarcous		Munsell	Notes	Devth (FT., bg
Light reddish-gray SILTSTONE, with green laminae, slick, less sandy, poorly indurated, dry -195.0 Reddish-brown CLAYSTONE, dry, poorly indurated, no bedding or laminae -205.0 BORING TERMINATED AT 215.0' Light reddish-gray SILTSTONE, with green laminae, slick, less sandy, Mild Barely Damp 2.5YR 7 201.0 Mild Barely Damp 2.5YR 5	180.0			Mild	Barely	2.5YR 7/2		-175 -180 -185
215.0 BORING TERMINATED AT 215.0 No Barely Damp 2.5YR 4	195.0	Light reddish-gray SILTSTONE, with green laminae, slick, less rand, poorly indurated, dry	,. 	Mild	Damp Barcly	2.5YR 7/I		-190 -195 -200
BORING TERMINATED AT 215.0' Damp		Reddish-brown CLAYSTONE, dry, poorly indurated, no bedding or laminae	ļ	Mild	Barely Danip	2.5YR 5/2	Pitcher Bell Sample obtained at 215.0'	205
		BURING TERMINATED AT 215.0'			Damp			-215
					7h			
						1		
NOTES: 1. Backfilled with cuttings to 120', grouted to surfee with 95 with 95% portland cement and 5% bentonite. 2. Drilling Company: Eades Drilling and Pump Service,	NULES:	1 Backfilled with cuttings to 120° excuted to surface with 05	RND	1	,	1		

N	B _C	WEAVER BOO 200 S. MICHIGAN AV (312) 922-1030 * * INI	VENUE, CHICAGO IL.	., 60604	īC.		G OF S	•	RING N	VO. <u>B-10</u> SHEET 1	
NE		PER LEVEL DATA So Not Encountered T, W.D.	Started Completed	11/21/97 11/21/97	7	LOCA	TION Prope		unty Landfil		
NE		r. AT COMPLETION	Driller	Allan Eade Freddy			Eunic	ce, New Mex	ico		
	rı	HR. A.D.	Helper — Dritting Method	Air Rotary		CLIEN	łT <u>Cami</u>	ino Real Lan	dfill		
<u> </u>	FI	HR. A.D.	. Sampling Method	Drill Cuttin		 1	Sunla	nd Park, Ne	w Mexico	·	
୍ଥି କ୍ଲ	GF	ROUND ELEVATION: 3,404		thing: 7717.16 (ing: 9920.71	Comple Depth:			SAM	PLE DATA		_ ଛୁ
Depth (FT.,bgs)	Lithology	STI SOIL GR	RATA DEPTH DESCRIPTION RAPHIC LOG	-		Strata Depth (FT.,bgs)	Calcareous	Moisture	Munsell	Notes	Depth (FT.,bgs)
- 5.0		staining, friable ceme	ncreasing with depth, ented sandstone nodul	small roots, no i les (windblown s	iron sands)	8.0					5.0
- 10,0 - 15.0		Plukish-white, sandy CA nodules of caliche	LICHE, moderately	weak structure,	friable						10.0
20.0	喜	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				21.0		-			20.0
25.0		Light red to pink, calcare quartate, some rose of Pebbles increase with	color banded gniess, l	pebbles are dom little chert, angu	rinantly ular.						25.0
30.0											30.0
- 35.0 - 40.0		White, sandy CALICHE chen clasts. Clasts ar and black, some quot	re angular, coarse gra	d matrix and abu	undant , white	36.0					40.0
- 45.0	, <u>1</u>	다. 지 지 자 한									45.0
- 50.0		Rose and white PEBBLE angular quartzite. W	ES, with very little sar Vhite pebbles are hard	nd, dominandy I	hard, very quartzite	51.0					50.0
- 55.0 - 60.0		Reddish-brown MUDST cuttings, some chert	TONE/CLAYSTONE, pebbles and calcareou	, sandy, dry, blo us clasts, poorly	ocky indurated	56.0					60.0
65.0								,			65.0
70.0		THE STATE OF THE S									70.0
75.0		Reddish-brown, sandy C green siltstone beds			sional	76.0				Pitcher Bell Sample	- 75.0 -
NOI	rcs.	Boring grouted after com- and 5% bentonite. Drilling Company: Eade:			¥ W.		ILE DRILĻING	🖁 a.d. • afte	R DRILLING	♥ HOUR(S) AFTER DR	ulling
7					ì						

	\overline{W}_{I}	 3 _C	WEAVER BOOS CONSULTANTS, INC 200 S. MICHIGAN AVENUE, CHICAGO IL, 60604 (312) 922-1030 * * INDIANA (219) 923-9609	-	LO		OIL BO	RING I	NO. <u>B-1(</u>	
Ç	Depth (FT., bgs)	Lithology	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	ł	Strate Depth (FT., bgs)	Calcareous		PLE DATA	Notes	Depth (FT., bgs)
	- 95.0 - 95.0 - 105.0 - 115.0 - 120.0		(Continued) (Continued from page 1) Reddish-brown, sandy CLAYSTONB, micaceous with occasion green sittstone beds	al					Pitcher Bell Sample	90.0
			BORING TERMINATED AT 120'		120.0				obtained at 120'	-120.0
C	NOTE	<u>S:</u> 1	Boring grouted after completion with 95% portland cement and 5% bentonite. 2. Drilling Company: Eades Drilling and Pump Service.	<u>Legei</u> V w.c		LE DRILLING	¥ a.d. • after	R DRILLING	V HOUR(S) AFTER DRI	LLING

	W	3 _	WEAVER BO	BNUB, CHICAGO II	., 60604	VC.				RING NO		
ŀ	٠. (إن د د	C WA'I'I	(312) 922-1030 * * INI ER LEVEL DATA		11/17/9	,	FILE			unty Landfill	SHEET	1 OF 7
	NB		W.D.	Started	11/19/9	7	LUCA	TION <u>From</u>	PSEG TYCH CO	unity Dandini		
Y	NB	_ _ ft.	AT COMPLETION	Driller Helper	Allan Ead Freddy			Eunic	e, New Mex	ico		
			AT HR. A.D.	Dritting Method	Air Rolar	_	CLIEN		no Real Lan			
ŀ			AT HR. A.D.	No.	Drill Cuttle thing: 7924.34	ngs Compl	lction	<u>Sunio</u>	nd Park, Ne		===:	 -
-	bgs)	GR	OUND ELEVATION: 3,397		ting: 8019.53	Depth	600.0		SAIK	IPLE DATA		- (saq
	Depth (FT.,bgs)	Libology Type		RATA DEPTH DESCRIPTION			Strate Depth (FT.,bgs)	Calcareous	Moisture	Munsell	Notes	Depth (FT.,bgs)
	ტ ტ	3	GR	APHIC LOG		<u> </u>	Stra					Deb Deb
ŀ		\square	Yellowish-red to reddish structure,	-brown, loamy fine	SAND, weak gr	anular	2.0	No	Dry	5YR 5/8	<i>,</i> -	
	- 5.0		Reddish-brown, loamy for very few organics, gr	ine SAND to sandy lading to light brown	LOAM, blocky, loamy SAND	friable,		No	Dry	5YR 6/8		5.0
	- 10.0]						No	Dry	5YR 6/8		10.0
Ì			Pink, sandy CALICHE, caliche and poorly ce	moderately weak wi	th friable nodule	es of	11.0	Strong	Dry	5YR 8/4		F 3
	- 15.0		cancia and poorly ce	ijicincu saru, icwei	nouves with the	hai						15.0
	- 20.0 ·							Mild	Dry	5YR 8/3		20.0
ł							24.0					= =
	- 25.0	-	Pink, fine to medium SA and cemented sandsto		y small nodules	of caliche						25.0
ļ	- - 30.0	<u> </u>	!									30.0
							ļ]			<u> </u>
	35.0											35.0
	- 40.0		· · · · · · · · · · · · · · · · · · ·	-			39.0	Mild	Dry	5YR 8/2		
ĺ	- 40.0	6 De	Reddish-brown, pebbly, Pebbles are predomir Leguarizite, all angular	coarse GRAVEL witantly chert, white, i	th loamy sand need, black and re	natrix. Osc	43.0	Mild	Dry	2.5YR 6/4		40.0
	- 45.0		Light reddish-brown, CI	AYSTONE with tra	ce sand and cale	cateons	,					45.0
							49.0	Mild	Dry	2.5YR 6/3		E
	- 50.0		Reddish-brown, sandy Mindurated, some small	(UDSTONE/CLAY:	STONE, dry, po	oorly dules, littl	c	Mild	Dry	2.5YR 4/6		- 50.0-
.	- 55.0		to no mica	-,		·						55.0
								Mild	Dry	2.5YR 6/3		ŧ:
	- 60.0							Mild	Dry	2.5YR 4/6		60.0
	65.0							I IVAIII U	Diy	2.518.4/0		65.0-
	- 70.0		! -									70.0
	- 75.0		,						1			75.0
١	,5.0							Mild	Dry	2,5YR 6/4		- 75.0
	· · · · · · · · · · · · · · · · · · ·		(Continued)			<u> </u>				1		<u></u>
	NOTI	: :	l: Boring grouted after com and 5% bentonite. 2. Drilling Company: Bade:	<u>-</u>			.D. • WIL	LE DRILLING	¥ a.d arte	R DRILLING V	HOUR(S) AFTER D	RILLING
		•			11701	• "						
<i>-</i> 1)											

	W	 } C	WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUE, CHICAGO IL, 60604 (312) 922-1030 * * INDIANA (219) 923-9609	LO		OIL BO	RING	NO. B-1	
	ନ୍ତ		(312) 322 3000 11/02/11/1 (813) 320 3003	1101	, r		PLE DATA	BIRALI	
C	Depth (FT., bgs)	Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Strate Depth (FI., bgs)	Calcareous	Moisture	Munsell	Notes	Depth (FT., bgs)
	- 85.0 - - 90.0 - - 95.0 - - 100.0 -		(Continued from page 1) Reddish-brown, sandy MUDSTONE/CLAYSTONE, dry, poorly indurated, some small calcareous cemented sandstone nodules, little to no mica Reddish-brown, sandy CLAYSTONE, micaceous with occasional green siltstone beds	84.0	Minor	Barely Damp	2.5YR 4/4	Pitcher Bell Sample obtained at 90°	90.0- 95.0- 100.0
	-110.0- -115.0- -120.0-		Reddish-brown, sandy MUDSTONE/CLAYSTONE, dry, poorly indurated, some small calcareous comented sandstone nodules, little to no mica	110.0	Slight	Barely Damp	2.5YR 4/4		115.0
	-130.0- -135.0-				Yes	Barely Damp	2.5YR 3/4		130.0
	-140.0- -145.0- -150.0-		·,		Yes	Barely Damp	2.5YR 4/4	Pitcher Bell Sample obtained at 140*	-140.0 -145.0 -150.0
	-155.0- -160.0-				No	Barely Damp	2.5YR 4/6		E E E E 160.0
	-165.0 -170.0 -NOTES		(Continued) Boring grouted after completion with 95% portland cement 1EGI	ND		\			165.0 - - - 170.0
)		and 5% bentoute.		le drilling	¥ A.D AFTE	R DRILLING	♥ HOUR(S) AFTER DI	RILLING

Γ	WB	,	WEAVER BOOS CONSULTANTS, INC.	L	G OF S	OIL BO	RING N	NO. <u>B-11</u>	0
1	D	C_{\perp}	200 S. MICHIGAN AVENUE, CHICAGO IL, 60604 (312) 922-1030 * * INDIANA (219) 923-9609	FIL	E#950	42.10		SHEET 3	
	Depth (FT., bgs)					SAN	PLE DATA		Depth (FT. bgs)
	H.,	B.	STRATA DEPTH	Surata Depth (FT., bgs)	1				E
1) the	Lithology Type	SOIL DESCRIPTION	Zian I	Calcareous	Moisture	Munsell	Notes	년 년
	ក្ខ	1	GRAPHIC LOG	136		1			👸
ŀ	:		(0)		1				E 3
ŀ	-175.0- -		(Continued from page 2)		İ				175.0
ŀ	-180.0		Reddish-brown, sandy MUDSTONE/CLAYSTONE, dry, poorly indurated, some small calcareous cemented sandstone nodules, li	ittle				}	F180.0
ŀ	:		to no mica		1				F = 1
Ė	-185.0-								185.0
ŀ				-			-		E 3
İ	-190.0-			190.0	<u>'</u>				190.0
į	: -195.0-		Light reddish-brown MUDSTONE, slick, siltier, no bedding		No .	Barely	2.5YR 6/3	}	195.0
ŀ	1,5,0		•			Damp		•	F 3
ŀ	200.0								200.0
Ė									
ŀ	-205.0-				Ì				205.0
ŧ	-210.0-				}				210.0
ł	210.0			211.9	P				<u> </u>
	-215.0-		Reddish-brown MUDSTONE/CLAYSTONE, micaceous, no beddis or laminne	ng	•		Ì		215.0
					No	Barely Damp	2.5YR 5/4		Ē 3
1	-220.0-			i		Damp			220.0
ł	-225.0-				No	Dry	2.5YR 4/6		225.0
	-223.U-				-				
	-230.0-							Pitcher Bell Sample obtained at 230'	230.0
				-		Ì		obtained at 230'	E :
	-235.0-								235.0
	-240.0								240.0
	-10.0				No	Dry	2.5YR 5/4		<u> </u>
	-245.0-		•		1				245.0
			•			_			
	-250.0-				No	Dry	2.5YR 4/6		250.0
	-255.0-					ŀ			-255.0
			 -						£ 3
	-260.0-				No	Dry	2.5YR 6/3		260.0
			(Continued)			1	<u> </u>		<u> </u>
	NOTE		and 5% bentonite.	LEGRND				-	
			2. Drilling Company: Endes Drilling and Pump Service.	W.D W	HILE DRILLING	A.D AFTE	IR DRILLING	♥ HOUR(S) AFTER DR	ILLING
)		·						
	7								
			ı						

	W	C	WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUE, CHICAGO IL, 60604 (312) 922-1030 * * INDIANA (219) 923-9609	LC	G OF S	2.10	<u></u>	O. <u>B-11</u> Sheet 4	OF 7
	Depth (FT., bgs)	Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Strate Depth (FT., bgs)	Calcareous	Molsiure	Munsell	Notes	Depth (FT., bgs)
E	265.0- 270.0-		(Continued from page 3)		No	Dry	2.5YR 5/6		-265.0- -270.0-
[275.0- 280.0-		Reddish-brown, MUDSTONE/CLAYSTONE, micaceous, no bedding or laminae						275.0
ŧ	285.0-				Yes	Deu	2.5YR 5/4		285.0
ŀ	290.0- 295.0-				l es	Dry	2.5 TR 3/4		-290.0- - - - - - - - - - - - -
	300.0-			i :					300.0 -305.0
6	·310.0-								310.0
,	-320.0		•			·			-320.0
į	-325.0 -330.0				No	Dry	2.5YR 4/4		325.0
Ē	-335.0 -340.0								335.0
Ī	-345.0		.÷		Yes	Dry	2.5YR 5/4		345.0
į	-350.0 -355.0		(Continued)					Pitcher Bell Sample obtained at 350*	-350.0- -355.0-
	NOTE	<u>s.</u>	and 5% heatonice	<u>(D W</u> I	ole drilling	¥ a.d aft	ER DRILLING	V HOUR(S) AFTER DR	ILLING
	I	-							

B	Ċ	200 S. MICHIGAN AVENUE, CHICAGO IL, 60604 (312) 922-1030 * * INDIANA (219) 923-9609	FILE	G OF S			SHEET	r s of
	$\overline{}$					IPLE DATA		
Depth (FT., bgs)	Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Surata Depth (FT., bgs)	: Calcareous	Moisture	Munsell	Notes	
60.0		(Continued from page 4)						-36
65.0		Reddish-brown, MUDSTONE/CLAYSTONE, micaceous, no bedding or laminae		Minor	Dry	2.5YR 4/4		-36
170.0								E ₃₇
375.0			 	Minor	Dry	2.5YR 4/6		E37
0.088					-			E38
385.0-			<u>}</u>					-38 - -
390.0 395.0		•						-39 -39
100.0					i			-40
105.0								- - -40
10.0								-41
415.0								-41 -41
420.0		٠.	:					-42 -42
425.0-								E42
\$30.0 -								Ē4: Ē
35.0				Minor	Dry	2.5YR 4/8		143 1 1
140.0								- [4
445.0 NOTES		(Continued) Boring grouted after completion with 95% portland cement LEGI		<u> </u>	<u> </u>	<u> </u>		
7.7 EZ	2	and 5% hentonic		LE DRILLING	▼ A.D AFTE	R DRILLING 5	7 Hour(s) after	DRILLIAN
							4	

	W _B	WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUB, CHICAGO IL, 60604		G OF S		RING N	•	10
C	Depth (FT., bgs)	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Scrate Depth (FT., bgs)	Calcareous		Munsell	SHEET	Depth (FT., bgs)
	450.0 -455.0 -460.0	(Continued from page 5) Reddish-brown, MUDSTONE/CLAYSTONE, micaceous, no bedding or laminae						450.0 455.0 460.0
	-465.0 -470.0							-465.0- -470.0- -475.0-
	485.0							480.0
	-490.0 -495.0 -500.0							-490.0 -495.0 -500.0
	-505.0 -510.0 -515.0							515.0 515.0
	-520.0 -525.0			Minor	Dry	2.5YR 5/4		520.0
	-530.0 -535.0	(Continued)						-530.0 -535.0
<u> </u>	NOTES;	and 5% hentonile	END V.D WH	ILE DRILLING	¥ a.d afte	TR DRILLING	♥ nour(s) after i	ORILUNG

w B	3~	WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUE, CHICAGO EL. 60604				RING NO		
	C,	(312) 922-1030 * * INDYANA (219) 923-9609	FILE	9504		APLE DATA	SHEET	
Depth (FT., bgs)	Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Strats Depth (FT., bgs)	Calcareous	Moisture	Munsell	Notes	Death (FT., bes)
				Міпог	Dry	7.5YR 5/4		
7		(Continued from page 6)		,				Ē
15.0		(Continued from page 0)					: :	-545
-		ReddIsh-brown, MUDSTONE/CLAYSTONE, micaceous, no bedding or laminae				}		E
0.0-								-550
1					_			E
5.0-				Minor	Dıy	2.5YR 4/4	•	-555
-			1					E
0.0			}				-	-5 6 1
-			ł	 				E
5.0-]		Ì			-56
:			1	Yes	Dry	2.5YR 6/3		E
0.0-]	Yes	Dry	2.5YR 6/2	•	-57
-				Yes	Dry	2.5YR 4/4		E
5.0-			576.0		İ			57
-		Light reddish-gray, clayey SILTSTONE, gritty, sandy, no bedding	·		_			E
0.0-				Yes	Dry	2.5YR 6/1		-58
,				ļ		·		E
35.0-				}	<u> </u>			~58 .
			588.0	Yes	Dry	2.5YR 6/1		Ē
0.0-		Reddish-gray, silty SANDSTONE						-59 ¹
-		্ ক		Ycs	Dry	2.5YR 6/1	-	Ē
05.0-		Light reddish-gray, silty SANDSTONE	595.0					-59
			}	Yes	Dry	2.5YR 7/1		Ē
0.0	45: 323	BORING TERMINATED AT 600 FEET	600.0	İ				-60
					;			Į.
		·.		1				1
			Į.			1		
	1		[
	.				}			
				1				
					}			
							-	- }
		<u> </u>			1			
OTES	S:1	Boring grouted after completion with 95% portland cement and 5% bentonite.	מאַ			1		
		and 5% bentonite. Drilling Company: Eades Drilling and Pump Service. 및 W.		LE DRILLING	T.	·	: HOUR(S) AFTER I	

	598.0	NE	(312) 922-1030 * * INDIANA (219) 923-9609 ER LEVEL DATA = Not Encountered Started 11/13/97 Completed 11/13/97	FILE		12.10		SHEET 1	OF 7
		_ FT.			TION TOD	osed Lea Cor	unty Landii	N	
-			Driller Allan Eages)		Euni	ce, New Mex	ico		
	=	_ FT.	AT IIR. A.D. Drilling Method Air Rolary	CLIEN		ino Real Lan			
F		_ PT. T	Northlyn 0140 06 Comple	ction	Sunit	and Park, No			==
	(\$80	GR	OUND ELEVATION: 3,404.35 (Ft., MSL) Portung: 9,40.50 Compared to the compa			SAM	PLB DATA	,	(\$3
	Depth (FT.,bgs)	Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Strata Depth (FT.,bgs)	Calcareous	Moisture	Munsell	Notes	Depth (FT.,bgs)
	5.0		Yellowish-red to reddish-brown loamy fine SAND, weak granular structure, friable, very few organics, some roots, increasing caliche nodules with depth and slightly loaniier with depth	8.0	No	Dry	5YR 5/6		5.0
F	10.0		Pale red to pinkish-white fine sandy CALICHE, moderately weak, friable nodules of caliche		Strong	Dry	2.5YR 7/2		[0.0]
	15.0		Reddish-brown fearny fine SAND with moist sandy learn nodules, nodules are friable and slightly sticky, very little calcareous concretions	12.0	Mild	Diy	2.5YR 6/6		15.0
Ì	20.0 – 25.0 –		Light brown loamy fine SAND, pisolitic, slightly indurated with calcareous concretions and sandy loam nodules, coated with carbonates, some organic matter, one chert pebble	25.0	Mild	Dry	2.5YR 6/6		20.0
	30.0		Pink to white CALICHE, probably massive, cuttings are very fine, flour-like, few sandy nodules, friable when wet		Strong	Dry	2.5YR 8/1		30.0
	- 35.0			35.0	Mild	Dry	2.5YR 8/1		35.0
			Very light brown medium GRAVEL with calcareous sand matrix, gravel is brown when wet, very cherty, angular, white and brown	37.0	Mila	Dry	2.5YR 8/3		E
+'	40.0	+	Chert, some quartzite White to light brown pebbly coarse GRAVEL with some fine calcarcous sand matrix. Pebbles are less angular, mosdy chert but also gniess and quartzite	40.0	Mild	Dry	2.5YR 5/3		40.0
	45.0 -		Reddish-brown MUDSTONE/CLAYSTONE, sandy, dry, poorly indurated, cuttings are blocky, some chert pebbles and white calcareous clasts	44.0	Mild	Dry	2.5YR 4/4		45.0
	50.0 - 55.0 -		Reddish-brown sandy MUDSTONE/CLAYSTONE, micaceous, especially biotile, occasional chert pieces, occasional green siltstone beds, otherwise massive, very few laminae or bedding, moderately indurated		Мо	Barely Damp	10R 4/6		50.0
- (60.0		·		Mild	Barely Damp	2.5YR 5/3		60.0
	65.0 - 70.0 -					Swith			70.0
1	75.0		(Continued)		Mild	Barely Damp	2.5YR 6/4	Pitcher Bell Sample obtained at 80°	75.0
	NOTES	S: \1	Boring grouted after completion with 95% portland cement and 5% bentonite. Drilling Company: Eades Drilling and Pump Service.		LE DRILLING	¥ a.d aptri	R DRILLING	V Hour(s) after dr	LLING

WBC	WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUE, CHICAGO IL, 60604 (312) 922-1030 * * INDIANA (219) 923-9609	LO	G OF S	OIL BO	RING I	NO. B-1	
<u> </u>	(312) 922-1030 * * MADIMIAN (219) 923-9009	FILE	5 #		IPLE DATA	SHEET	
Depth (FT., bgs) Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Strate Depth (FT., bgs)	Calcareous	Molsture	Munsell	Notes	Depth (FT., bgs)
90.0	(Continued from page 1) Reddish-brown sandy, MUDSTONE/CLAYSTONE, micaceous, especially blotile, occasional chert pieces; occasional green siltst beds, otherwise massive, very few laminae or bedding, moderate indurated	one	Minor Slight	Barely Damp Barely Damp	2.5YR 5/4 2.5YR 6/3		85.0 - 90.0
-100.0 -105.0 -110.0			Yes	Barely Damp	2.5YR 4/4		100.0 105.0 110.0
-115.0 -120.0 -125.0			Yes	Barely Damp	2.5YR 5/3		-115. -120. -125.
-130.0 -135.0 -140.0		:	No	Barely Damp	2.5YR 5/3	Pitcher Bell Sample obtained at 140'	-130. -135. -140. -145.
-150.0 -155.0 -160.0							-150. -155. -160. -165
-170.0 NOTES:	and 1% hantonite	ECEND W.D WHI	LE DRILLING	¥ a.d afte	RORILLING	V HOUR(S) AFTER DE	-170
						.,	

B	200 S. MICHIGAN AVENUE, CHICAGO IL, 60604 (312) 922-1030 * • INDIANA (219) 923-9609	FILE		12.10	RING I	NO. <u>B-1</u> SHEET	3 OF
(550				<u>\$A</u> }	<u>(PLE DATA</u>	1	┩ ゙
Depth (FT., bgs) Lithology	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Strata Depth (FT., bgs)	Culcareous	Moisture	Munsell	Notes	
75.0	(Continued from page 2)		-				-17
80.0	Reddish-brown sandy MUDSTONE/CLAYSTONE, micaceous, especially biotile, occasional chert pieces, occasional green siltstone buds, otherwise massive, very few laminae or bedding, moderately		No	Baroly	2.5YR 5/6		E 18
	indurated	185.0	No	Barely	2.5YR 4/4		- - 18
85.0-	Light reddish-brown, clayey SILTSONE Red, clayey SILTSTONE	187.0	No	Dry	2.5YR 6/4		- F
90.0 -	Red, Chayey SIL13 TONE						-19
95.0		195.0	No	Barely Damp	2.5YR 5/6		= -19
00.0	Pink, clayey SILTSTONE		No	Barely Damp	7.5YR 7/3	Pitcher Bell Sample	-20
05.0				 			-20
10,0-		211.0					-2
15.0	Reddish-brown, sandy MUDSTONE/CLAYSTONE, micaceous, especially biotile, occasional chert pieces, occasional green siltstone beds, otherwise massive, very few laminae or bedding, moderately indurated		No	Dry	2.5YR 6/2		2
20.0				 			E 22
25.0							- 2º
30.0							-2: -
35.0							2:
40.0			•				
45.0							- - -2
	,						
50.0-			No	Dry	2.5YR 4/6		-2 -
55.0							-2
so.0			Yes	Dry	2.5YR 4/4		-2
OTES	(Continued) 1. Boring grouted after completion with 95% portland cement LEGI	 D	<u></u>	<u> </u>	<u></u>		<u>.</u>
<u>V 1 150.</u>	Janua S. S. Sentagite		LE DRILLING	₹ A.D AFTE	K DRILLING	V HOUR(S) AFTER D	R11.1.1a

i	$^{\mathrm{W}}_{\mathrm{B}}_{\mathrm{C}}$	WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUE, CHICAGO IL, 60604 (312) 922-1030 * * INDIANA (219) 923-9609	LO		OIL BO		NO. <u>B-1</u> sheet	4 OF 7
	Depuh (FT., bgs) Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Sirata Depth (FT., bgs)	Calcareous	SAN Muisture	Munseli	Notes	Depth (FT., bgs)
1	-270.0	(Continued from page 3) Reddish-brown, sandy MUDSTONE/CLAYSTONE, micaceous, especially biotile, occasional chern pieces, occasional green siltston beds, otherwise massive, very few laminae or bedding, moderately indurated		No	Dry	IOR 4/6		-265.0 -270.0 -275.0 -280.0 -285.0 -295.0 -305.0 -310.0 -315.0
	NOTES: 1.	(Continued) Boring grouted after completion with 95% portland concut and 5% bentonite. Drilling Company: Endes Drilling and Pump Service.		Yes	D _T y	10R 4/4	V hour(s) apter di	-335.0 -340.0 -345.0 -355.0

W	B _C	WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUE, CHICAGO IL, 60604 (312) 922-1030 * * INDIANA (219) 923-9609	LO	G OF S	OIL BO	RING N	VO. <u>В-11</u> sheet 5	
3	T					IPLE DATA		
Depth (FT., bgs)	Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Strata Depth (FT., bgs)	Calcareous	Moisturc	Monsell	Notes	Depth (FT., bgs)
-360.0 -365.0 -370.0		(Continued from page 4) Reddish-brown, sandy MUDSTONE/CLAYSTONE, micaceous, especially biotile, occasional chert pieces, occasional green siltstone beds, otherwise massive, very few laminae or bedding, moderately indurated		Minor	Dry	2.5YR 4/6		365.0 370.0
-385.0 -390.0 -395.0				Minor	Dry	2.5YR 5/6		385.0 390.0 395.0
-405.0 -410.0 -415.0					·			410.0 415.0 420.0
-425.0 -430.0 -435.0 -440.0		(Continued)		Minor	Dry	2.5YR 4/6		425.0
NOT	-	and 5% bentonite. 2. Drilling Company: Eades Drilling and Pump Service.		LE DRILLING	₹ A.D AFTER	R DRILLING	▼ HOUR(S) AFTER DRII	LING

W	3 _C	WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUE, CHICAGO IL. 60604 (312) 922-1030 * * INDIANA (219) 923-9609	LO		OIL BO 12.10	RING	NO. <u>B-1</u> sheet	
<u>র</u>		And and the state of the state	T			IPLE DATA		
Depth (FT., bgs)	Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Strata Depth (FT., bgs)	Calcarcous	Moisture	Munsell	Notes	
50.0		(Continued from page 5)						E45
55.0-		Paddish have early MIDSTONE/OLAYSTONE misseens			ļ			Ē45
60.0		Reddish-brown, sandy MUDSTONE/CLAYSTONE, micaceous, especially biotile, occasional chert pieces, occasional green siliston beds, otherwise massive, very few laminae or bedding, moderately indurated	е					-46
65.0-								
70.0-		•						1247 1247
75.0-								- - -
80.0-				 				[41
85.0-							Pitcher Bell Sample obtained at 485'	-41
90.0								14
95.0-								<u> </u>
00.0								E 50
05.0-								Es(
10.0								- E 51
15.0-								- E51
20.0-		,						[s:
25.0-				Minor	Dry	2.5YR 6/4		F-5: E C
30.0								- 5:
15.0-		(Continued)						-5
OTE	<u>S:</u> 1	and 67 hantanita	ено .D. • Whi	LE DRILLING	¥ A.D AFTE	k drilling	V HOUR(S) AFTER D	RILĻIN

	$\mathbb{B}_{\mathbb{C}}$		WEAVER BOOS CONSULTANTS, INC. 200 S. MICHIGAN AVENUE, CHICAGO IL, 60604	LOG OF SOIL BORING NO. B-111					
L			(312) 922-1030 * TINDIANA (219) 923-9609		FILE # 95042.10			SHEET 7	SHEET 7 OF 7
	gs)					SAN	PLE DATA		(\$8)
	Depth (FT., bgs)	Lithology Type	STRATA DEPTH SOIL DESCRIPTION GRAPHIC LOG	Strata Depth (FT., bgs)	Calcarcous	Moisture	Munsell	Notes	Depth (FT., bgs)
F			(Continued from page 6)						-
ŀ	545.0- 550.0-		Reddish-brown, sandy MUDSTONE/CLAYSTONE, mlcaceous, especially biotile, occasional chern pieces, occasional green siltsmue bods, otherwise massive, very few laminae or bedding, moderately indurated) 					-545.0 -550.0
ŧ	555.0-		HIGHTAGG						555.0
ŀ.	560.0-				,				560.0
ŀ	565.0~				Minor	Dry	2.5YR 6/4		-565.0
			Pink CLAYSTONE Light reddish-gray, clayey SILTSTONE	566.0 568.0	Minor	Dry	2.5YR 8/3		Ē
-	570.0-		Eight leading thy, Chycy SIL (STONE		Yes	Dry	2.5YR 7/1		-570.0 -
f	575.0-		Reddish-gray, sandy SILTSTONE	576.0	Yes	Dry	IOR 6/1		-575.0 -
	580.0-			581.0					580.0
	585.0-		Reddish-gray, silty SANDSTONE	<u> </u> 	Yes	Diry	10R 6/1		- 585.0
<u></u>	590.0-								590.0
+	595,0-			598.0					-595.0 -
	=		BORING TERMINATED AT 398 FEET	336.0					
			·.						
					ĺ				
		}			1				
- -	NOTES	<u> </u>	Boring grouted after completion with 95% portland coment	<u>end</u>			<u></u>		
		2	and 5% bentonite. Drilling Company: Eades Drilling and Pump Service.	D WIII	LE DRILLING	🟅 A.D APTE	R DRILLING	7 HOUR(S) AFTER DR	ILLING

APPENDIX H.C SITE BORING LOGS

LOG OF BORING NO. BH-01 Project Description: CK Disposal Location: Eunice, NM Northing: 521233.96 Top of PVC El.: feet MSL Easting: 924924.72 Symbol/USCS Monitor Well Construction Details Depth, faet Surface El.: 3382 feet MSL Samples Completion Depth: 175 feet Monitor Well Description Date Boring Started: 5/26/2015 Date Boring Completed: 5/26/2015 MATERIAL DESCRIPTION 5 CLAYEY SAND, brown to reddish brown, moderately well sorted, subrounded, fine to medium grained, slightly moist, none HCL reaction 10 . 15∃ SILTY SAND, with caliche, light brown to white, well 20Ξ sorted, well rounded, very fine to fine grained, dry. 25 strong HCL reaction 30Ξ 35 40= CLAYSTONE, reddish brown some gray, slightly 45 moist to dry, weak HCL reaction 50∃ 55 60≡ **=**65≡ **=70**= 75 80 **≣85**≡ 90= ≣95≣ E100 E105 =135= **≘140**≣ 150 155 160 160 **=**165**=** 170 F175 **Groundwater Observations** Drilling Contractor: HCI Drilling Remarks: 5 1/8" diameter boring; TH60 Atlas Copco Drill Rig Depth to Water (ft) **Drilling Method: Air Rotary** Date Sampling Method: Cuttings 5/26/15 Dry Geologist: Steven J. Wimmer Project No.: 15-04-22

LOG OF BORING NO. BH-01 PAGE 1 of 1 The stratification lines represent approximate strata boundaries in situ, the transition may be gradual.

¥Water level at time of drilling. ¥Water level at end of drilling.

Water level after drilling.

LOG OF BORING NO. BH-02 Project Description: CK Disposal Location: Eunice, NM Northing: 521273.70 Top of PVC El.: feet MSL Easting: 928310.35 Monitor Well Construction Details Symbol/USCS Depth, feet Samples Surface El.: 3391.8 feet MSL Completion Depth: 175 feet Monitor Well Description Date Boring Started: 5/26/2015 Date Boring Completed: 5/26/2015 MATERIAL DESCRIPTION CLAYEY SAND, brown to reddish brown, moderately well sorted, subrounded, fine to medium grained, slightly moist, none HCL reaction 5 10 SILTY SAND, with caliche, light brown to white, well sorted, well rounded, very fine to fine grained, dry, 15 20 strong HCL reaction 25 30Ξ 35 CLAYSTONE, reddish brown with gray, dry, weak 40= HCL reaction, some purple 45= 50= 55 60 65 70 less gray and purple; slightly moist to dry 75 80= 85 90 95 <u>-</u>100⊟ 105 **=110= =**115<u>=</u> 120E -125--130 ල් 135 140 3 145 ਫ਼ੂ≣150ੁ 155 160 **=165 =17Œ** ₽F175 ப் Drilling Contractor: HCI Drilling **Groundwater Observations** Remarks: 5 1/8" diameter boring; TH60 Atlas Copco Drill Rig Drilling Method: Air Rotary Date Depth to Water (ft) Sampling Method: Cuttings Dry 5/26/15 Geologist: Steven J. Wimmer Project No.: 15-04-22

LOG OF BORING NO. BH-02 PAGE 1 of 1 The stratification lines represent approximate strata boundaries in situ, the transition may be gradual.

¥Water level at time of drilling. ▼Water level at end of drilling.

Water level after drilling.

LOG OF BORING NO. BH-03 Project Description: CK Disposal Location: Eurice, NM Northing: 520437.21 Top of PVC El.: feet MSL Easting: 926605.28 Monitor Well Construction Details Symbol/USCS Depth, faet Surface El.: 3386.3 feet MSL Samples Completion Depth: 175 feet Monitor Well Description Date Boring Started: 5/26/2015 Date Boring Completed: 5/26/2015 MATERIAL DESCRIPTION CLAYEY SAND, reddish brown, moderately well sorted, subrounded, fine to medium grained, slightly 5 = moist, none HCL reaction 10= **≣15**≣ SILTY SAND, with caliche, light brown to white, well 20= sorted, well rounded, very fine to fine grained, dry, strong HCL reaction 25 30Ξ 35 Quartz and Caliche gravel up to 1" in diameter 40E CLAYSTONE, reddish brown some gray, slightly 45= moist to dry, weak HCL reaction 50 - 55Ξ 60= 65 70 75 80 85= 90= =95≡ 100 105 **E**110≣ 115 **=120** 125 medium brown from 130' to 135' g[135] reddish brown to brown 140 E150E 155 160 165 <u>=</u>170Ξ **Groundwater Observations Drilling Contractor: HCI Drilling** Remarks: 5 1/8" diameter boring; TH60 Atlas Copco Drill Rig Drilling Method: Air Rotary Date Depth to Water (ft) Sampling Method: Cuttings Dry 5/26/15 Geologist: Steven J. Wimmer Project No.: 15-04-22

LOG OF BORING NO. BH-03 PAGE 1 of 1

Water level after drilling.

LOC	3 (OF B	ORING NO. BH-04				
Proje	ect	Descr	iption: CK Disposal				CAREL
Depth, faet	Samples	Symbol/USCS	Location: Eurice, NM Top of PVC El.: feet MSL Surface El.: 3374.1 feet MS Completion Depth: 175 fee Date Boring Started: 5/26// Date Boring Completed: 5/	SL t 2015	Northing: 519600.94 Easting: 924941.30	Monitor Well Construction Details	Monitor Well Description
			MATERIA	L DESCRI	PTION		
5 10 15			CLAYEY SAND, reddis sorted, subrounded, fin moist, none HCL reacti	sh brown, m e to mediui ion	oderately well m grained, slightly		
15 20 25 30		· ·	SILTY SAND, with cali- sorted, well rounded, v strong HCL reaction	che, light br ery fine to fi	rown to white, well ine grained, dry,	,	
35 40	ľ	 	intermixed reddish brow	wn clayston	e to 50'		
45							
50	•		CLAYSTONE, reddish	brown to pu	ırple, dry, weak		
55 60			HCL reaction				
65	1						
70	b						
75	l						
80 85	8						
90	I		dark brown to reddish t	orown			
95	ŀ						
100	I						
105	l						
15	1						
120	1						
125	ľ		•				
130	1						
135 140 145 150			•				
145	1		•				
150							
160							
165	ľ						
125 130 135 140 145 155 160 170 175 Drilling Samplir Geologi	ŀ						
175 Drilling	Соп	tractor	: HCI Drilling	Grounde	vater Observations	Remarks	5 1/8" diameter boring; TH60 Atlas Copco Drlll Rig
Drilling	orilling Method: Air Rotary Date				Depth to Water (ft)	. w. i igu Ag	
Samplir Geologi			Cuttings J. Wimmer	·			
Project						-	

LOG OF BORING NO. BH-04 PAGE 1 of 1

The stratification lines represent approximate strata boundaries. In situ, the transition may be gradual.

Water level at time of drilling.
 Water level at end of drilling.
 Water level after drilling.

LOG OF BORING NO. BH-05 Project Description: CK Disposal Location: Eunice, NM Northing: 519636.20 Top of PVC El.: feet MSL Easting: 928326.86 Monitor Well Construction Details Symbol/USCS Surface El.: 3386.1 feet MSL Depth, faet Samples Completion Depth: 175 feet Monitor Well Description Date Boring Started: 5/27/2015 Date Boring Completed: 5/27/2015 MATERIAL DESCRIPTION 5 CLAYEY SAND, reddish brown, moderately well sorted, subrounded, fine to medium grained, slightly moist, none HCL reaction 10= SILTY SAND, with caliche, light brown to white, well **=**15∃ sorted, weil rounded, very fine to fine grained, dry, 20∃ strong HCL reaction 25= 30≡ intermixed gravel to 45' 35 40= 45= CLAYSTONE, reddish brown, slightly moist to dry, 50∃ weak HCL reaction 55 60Ξ 65∃ 70⊒ 75 80= 85 90= medium brown, some sand 95= dark brown to reddish brown 100 105 dark brown and purple 11**0**E 115 120 CARELZEDT 9/18/15 reddish brown to dark brown **=150** 155 160 dark brown and purple 165 **=170**Ē reddish brown 175 **Groundwater Observations** Drilling Contractor: HCI Drilling Remarks: 5 1/8" diameter boring; TH60 Atlas Copco Drill Rig Depth to Water (ft) **Drilling Method: Air Rotary** Date Sampling Method: Cuttings Geologist: Steven J. Wimmer Project No.: 15-04-22

LOG OF BORING NO. BH-05 PAGE 1 of 1 The stratification lines represent approximate strata boundaries in situ, the transition may be gradual.

¥Water level at time of drilling. ▼Water level at end of drilling. ¥Water level after drilling.

ATTACHMENT I SAMPLING AND ANALYSIS PLAN (SAP)

PROPOSED C.K. DISPOSAL E&P LANDFILL AND PROCESSING FACILITY

Eunice, New Mexico

Project No: 15-04-22

Prepared for:

C.K. Disposal LLC

October 2015

Prepared by:





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Tables

Vadose Zone Monitoring Constituents and the Recommended Sampling, Preparation, and Storage Procedures

1.0 SAMPLING PROCEDURES

This Sampling and Analysis Plan (SAP) has been prepared for the C.K. Disposal E&P Landfill and Processing Facility.

The following sampling procedures are designed to aid in obtaining the earliest possible detection of a potential fluid release from the Landfill. Chemical analysis of water samples, if present, and comparison to leachate samples and/or samples from a leak detection system will be used to determine whether the water is a result of a release from the facility. The presence of water in the vadose zone monitoring wells may be the result of infiltration from other sources such as surface water during excavation, construction of the landfill cells, or from proximal stormwater detention ponds.

These or equivalent procedures are to be followed by all personnel conducting vadose zone monitoring.

1.1 MONITORING SCHEDULE

After construction begins, the monitoring wells will be monitored on a monthly basis for a period of 12 months. After 12 months, the monitoring frequency will reduce to semi-annual.

1.2 FIELD SETUP

The well-head area should be examined for anything unusual such as damage to the well head, spilled materials, etc., and all observations recorded on the field data sheet. Insect repellent or other topical skin applications that contain organic compounds should not be used by sampling personnel. Plastic sheeting should be placed around the well riser and sample handling area to prevent contact with the surrounding ground.

Sampling equipment should include a calibrated 5-gallon bucket for measuring bailed or purged well fluids and a small glass container for measuring temperature, specific conductance, and pH. A decontamination area should be set up and should include a water bucket, rinsing bucket, phosphate-free detergent, and additional rinsing bottles.

1.3 FIELD MEASUREMENTS

The monitoring wells will be sounded for the presence of water. All measurements should be taken from the top of the well casing and the measurement recorded on field data sheets. If the well is dry the well depth measurement should be recorded with the same electronic device and recorded on the field data sheet. The water-level measuring device should be decontaminated between wells. Water levels or well depths are to be measured and reported to the nearest hundredth of a foot.

1.4 WELL PURGING

Three well volumes of water should be removed from each well in order to obtain a representative sample and not "stagnant" water from the borehole or filter pack. If all water is removed from the well before three well volumes are obtained, purging will be deemed to be complete. Well volumes can be measured with use of a calibrated 5-gallon bucket.

Non-dedicated, reusable purging and sampling equipment is to be decontaminated in accordance with Section 1.10. Appropriate disposable gloves are to be worn during purging and sampling to reduce the possibility of cross-contamination between wells.

1.5 SAMPLE COLLECTION

If the water-level measuring device indicates the presence of water within the well, samples will be collected using a dedicated or disposable sampling bailer. If there is a sufficient quantity of water to allow sample collection, the water will be tested for the field parameters (temperature, specific conductance, and pH) prior to sampling.

The following sampling procedures should be performed:

- The temperature, specific conductance, and pH of a sample collected in a container not used for laboratory analysis should be measured in that order and recorded on the field data sheet.
- The samples should be collected by pouring the water from the bailer directly into each of the required containers.
- Under normal conditions, the sample bottles must be filled in the order of decreasing volatilization sensitivity. Generally, that will be in the following order, as applicable:

Volatile organic compounds (VOC) RCRA Metals Other inorganic parameters

Filling VOC sample containers involves extra care. The water should be gently discharged into each vial, until a positive meniscus is formed over the top of the container. After the cap has been placed on the vial and tightened, the vial should be checked for air bubbles by turning it upside down and tapping with your finger. If an air bubble is seen rising to the bottom of the vial, the process outlined above should be repeated. Air bubbles can be eliminated by removing the cap, topping off the vial with water to a positive meniscus, and resealing. If no air bubbles are seen in each vial, the process is complete.

1.6 SAMPLE CONTAINERS AND LABELING

Water samples collected in the field are to be placed into laboratory-cleaned bottles of the appropriate size and construction for the chemical parameters to be analyzed. A list of chemical parameters and corresponding recommended types and sizes of sample containers are shown in Table I.1. Sample containers must be marked as described below.

Sample labels are to be affixed to each sample container and must contain the following information in waterproof ink:

- Project name and number (includes site name)
- Sample and well number
- Date and time of sample collection
- Type of preservatives added
- Special handling instructions

QA/QC samples, such as trip, field, and equipment blanks, will be labeled accordingly.

1.7 SAMPLE PRESERVATION AND SHIPMENT

Groundwater samples should be chilled to about 4°C upon containment in the field and during transport to the testing laboratory. Many constituents to be analyzed require a chemical additive for preservation. Table 1.1 shows preservation requirements for organic and inorganic chemical parameters. Groundwater samples collected for organic analysis should be placed in glass bottles that have been specially prepared with the appropriate type and quantity of chemical additive. Samples that are to be analyzed are not to be filtered.

Samples to be shipped are to be packed in a hard-sided insulated shipping container precooled with water ice. The sample containers must be packed to prevent breakage. The water/ice used to pre-cool the shipping container should be discarded and adequate chemical icepacks added to maintain the temperature at about 4°C during the shipment. Dry ice must not be used.

1.8 QUALITY ASSURANCE AND QUALITY CONTROL

To document that sample collection and handling procedures utilized in the field have not affected the quality of the water samples, blanks are to be prepared and analyzed. These blanks consist of one trip blank and one field blank per sampling event.

A trip blank is prepared by filling a water sample container with Type II reagent-grade water, transporting to the site, handling as a sample, and transporting to the laboratory for

analysis. A field blank is prepared by filling a sample container with Type II reagentgrade water in the field adjacent to one of the wells being sampled and transporting to the laboratory for analysis. The field blank should be prepared at a downwind well. Field blanks and trip blanks are to be analyzed for VOCs only.

An equipment blank is required if dedicated pumps or disposable bailers are not used. Equipment blanks are used to confirm proper field decontamination procedures on non-dedicated equipment utilized in the field. An equipment blank is prepared in the field immediately following decontamination cleaning procedures on non-dedicated equipment used for purging, sampling, or sample filtration. Field supply deionized water will be passed through the non-dedicated equipment in the same procedure as a water sample. Equipment blanks will be analyzed for VOCs. Equipment blanks shall be collected at a minimum frequency of one blank (1) per ten (10) wells at which non-dedicated purge or sampling equipment are utilized per monitoring event.

1.9 CHAIN-OF-CUSTODY DOCUMENTATION

A chain-of-custody (COC) form must be maintained in order to track possession and handling of samples from field collection through laboratory testing. COC records show the custody of samples at all times. Samples are in custody of an individual when they are either in the individual's sight or locked securely under the individual's control.

COC documentation is maintained on a chain-of-custody record form. Each sample must be logged onto the COC record form as it is collected. Information on the COC record form includes the following.

- Project name and number (includes site name)
- Site location
- Sample number
- Sample date and time
- Sample type
- Number and type of sample containers
- Analyses required
- Sample preservative
- Lab destination
- Carrier/shipping number
- Special instructions
- Spaces for signatures of sampler(s) and everyone assuming sample custody

The COC record must contain the signatures of anyone assuming custody of the samples. Each time custody changes hands, the party releasing the samples should sign under "Relinquished By" and record the date and time. The party receiving the samples should sign under the heading "Received By" and record the date and time. The COC form is typically provided by the analytical laboratory.

If available or required, COC seals can be placed over the shipping container lid or sample container lids to deter sample tampering by unauthorized parties.

1.10 EQUIPMENT DECONTAMINATION

Reusable purging and sampling equipment and measurement instruments coming in contact with the groundwater in wells or in samples are to be decontaminated before use at each well location.

The following decontamination standards or equivalent procedures are to be followed for non-dedicated well purging and sampling equipment. The equipment should be washed with a nonphosphate detergent and rinsed with tap water and Type II reagent-grade water. The sampling equipment should be thoroughly dried before use to ensure that residual cleaning agents are not carried over to the sample.

Disposable bailers and non-dedicated bailer line must be discarded along with disposable health and safety garments. Water and cleaning agents are to be disposed of in accordance with applicable regulations.

1.11 FIELD DOCUMENTATION

Field activities must be thoroughly documented on field data sheets. Below is an outline of the information that should be documented during field activities.

- Project name and number
- Date and time of all activities
- Weather conditions
- Sampling personnel
- Field instrument calibration remarks
- Well identification number
- Description of well condition
- Depth to the well bottom with point of reference (from well records)
- Physical description of groundwater (color, odor, turbidity)
- Sampling equipment and remarks
- Initial temperature, conductivity, and pH measurements
- Sample time and date
- Description of sample
- Quality control remarks

2.0 VADOSE ZONE MONITORING REQUIREMENTS

2.1 ANALYZED CONSTITUENTS

The vadose zone monitoring constituents at the facility will be as specified in Table I.1 of this SAP.

2.2 VERIFICATION RESAMPLING

No later than 30 days after each sampling event, the owner or operator shall determine whether the initial field and laboratory data show evidence that the water encountered is the result of surface water infiltration; or potential impacts from the Landfill. If there is evidence of a potential release (i.e., BTEX or TPH detection), the owner or operator shall notify the Oil Conservation Division (OCD) and conduct a verification resampling event as soon as practical. During the initial monthly sampling, the verification resampling event can coincide with the subsequent monthly sampling event. At the time of verification sampling, fluid samples from the proximal upslope Landfill sump and leak detection system also will be collected and analyzed for the parameters in Table I.1.

In the event that one or more constituents are confirmed through verification resampling in any downgradient well, the Facility will submit an Action Plan to the OCD within approximately 90 days of the confirmation sampling date. The Action Plan will implement the course of action to further investigate the source of a potential release and/or complete any mitigation measures. The resampling and leachate analytical comparison results will also be included within the Action Plan.

2.3 VADOSE ZONE MONITORING RESULT SUBMITTALS

Two (2) copies of an annual vadose zone monitoring report describing sampling and analysis results will be completed and submitted to the OCD no later than ninety (90) days after the facility's last sampling event in a calendar year. The annual report will include information determined since the previously submitted annual report.

Table I.1 C.K. Disposal E&P Landfill and Processing Facility Vadose Zone Monitoring Constituents and the Recommended Sampling, Preparation, and Storage Procedures

Constituent	Sampling Container(1)	Preservation ⁽¹⁾				
	Field Parameters					
Temperature						
Specific Conductance	Measured in the Field					
pН						
· V	olatile Organic Compounds (VOC)				
BTEX	3x40 mL VOA Vials	HCL ⁽²⁾				
ТРН						
	Inorganic Compounds	:				
TDS	250 mL Clear Plastic	None ⁽²⁾				
	Major Cations					
Calcium						
Magnesium	250 mL Clear Plastic	Nitric Acid ⁽²⁾				
Sodium		(HNO_3)				
Potassium	1					
1.7 11.4	Major Anions					
Bicarbonate						
Chloride	4 oz. Glass Jar	None ⁽²⁾				
Sulfate	7					
11 1 1 1 1 1 1 1 1	RCRA Metals					
Arsenic	<u> </u>	<u> </u>				
Barium	1					
Cadmium	1					
Chromium	250 mL Clear Plastic	Nitric Acid ⁽²⁾				
Lead		(HNO ₃)				
Mercury	1					
Selenium	j					
Silver	1					

Notes:

^{(1) –} EPA Sample Container and Preservation List (http://www.epa.gov/region9/lab/container.html) (2) – Samples should be chilled to ~ 4°C